APDA*log*

The Information Catalog for Apple Programmers and Developers

Developer Resource Kit

- **AppleLink 6.0**
- ***develop* subscription**
- **Developer University course catalog**
- **and more… see page 12**

April 1991
$5

APDA*log*

The Information Catalog for Apple Programmers & Developers

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• Consumer note: The pricing found within this issue of the APDA*log* supersedes all previous price lists. Product prices are subject to change without notice.

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APDA*log*

The Information Catalog for Apple Programmers & Developers

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Get Started.

Now, for a limited time only, we've combined the best products and value to offer you two new product bundles for programmers who are getting started in Macintosh programming and who want to develop using C or Pascal. If you've been thinking about starting your venture in Macintosh programming by investing in THINK C or THINK Pascal, consider these specially priced bundles.

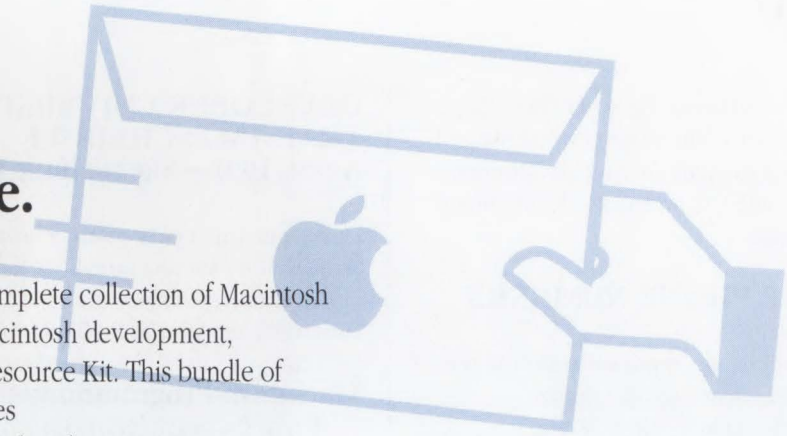
Getting Started in Macintosh C Programming
Included in the Getting Started in Macintosh C Programming product bundle are THINK C v. 4.0, the *Macintosh C Programming Primer*, Volumes 1-2, *Human Interface Guidelines*, and *Macintosh Programming Secrets*. For more details, see page 13.
B0473LL/A $250.00 Offer expires August 1, 1991.

Getting Started in Macintosh Pascal Programming
Included in this product bundle are THINK Pascal v. 3.0, Just Enough Pascal, *Macintosh Pascal Programming Primer*, Volume 1, *Human Interface Guidelines*, and *Macintosh Programming Secrets*. For more details, see page 13.
B0472LL/A $275.00 Offer expires August 1, 1991.

Get Connected.

AppleLink
Now you can subscribe to AppleLink, Apple's official online information and communication network, giving you a direct line to the Apple community and allowing you to connect with other developers who share your programming and development interests. AppleLink gives you the ability to read the latest product and program information, look up specifications for Apple and third-party products, send and receive fully formatted disk files, find information about hardware and software solutions, join in informative discussions on development tools, exchange ideas and information with other developers, and much more. For more details, see page 14.
R0049LL/A $70.00 (Available to U.S. customers only)

Get Going.



Get a Bundle.

Developer Resource Kit

If you are looking for a complete collection of Macintosh technical resources for Macintosh development, consider the Developer Resource Kit. This bundle of self-help resources includes

- a subscription to AppleLink online service
- a subscription to *develop,* Apple's quarterly technical journal and CD
- a subscription to the APDA*log*
- a Developer University course catalog
- the Macintosh Directory of Development Services
- the Developer Resource Guide to help you get started in Apple programming

In addition, you'll receive valuable coupons for various development products, books, and services. For more details, see page 12

Developer Resource Kit with AppleLink		
R0014LL/A	(U.S.)	$125.00
Developer Resource Kit without AppleLink		
R0015LL/A	(U.S.)	$90.00
Developer Resource Kit without AppleLink		
R0015ZP/A	(Outside of U.S.)	$110.00

If you're new to Macintosh programming or simply want to keep up with the latest, we've got new resources for you that get you going and keep you going throughout your Macintosh application development process.

Keep Going.

Get Info

GET INFO

Welcome to the "Get Info" section of the APDA*log*. This section features a wealth of self-help resources that make it easier for you to get answers to many of your development questions, expand your knowledge, and share development information and technical tips .

IMPORTANT APPLE PHONE NUMBERS

- Apple Software Licensing
  For information on licensing Apple software for site, internal, or commercial distribution, contact Apple Software Licensing at 1-408-974-4667.

- Developer support
  If you are a provider of commercial products and services and would like information on the developer support programs available from Apple, please call 1-408-974-4897.

- Developer training information
  Apple Developer University offers courses and self-paced training products that keep you up-to-date on key aspects of Macintosh development. For training information, please call 1-408-974-6215.

- Apple User Group referral
  There are more than 1,200 Apple User Groups across the United States. To locate an Apple User group near you, call 1-800-538-9696, ext. 500.

- Apple Value Added Reseller and Dealer Supported VAR Programs
  For information about being considered for Apple's VAR/DSVAR programs, contact
  Apple Computer, Inc.
  VAR/DSVAR Program
  20525 Mariani Ave., M/S 36U
  Cupertino CA 95014-9968

- Apple Consultant Relations Program
  Apple Consultant Relations is designed to foster business-building relationships with the professional computer systems consulting community through the exchange of information, programs, and support services. For additional information about the program or if you would like an application contact:
  Apple Computer, Inc.
  Apple Consultant Relations
  20525 Mariani Ave, M/S 36AJ
  Cupertino, CA 95014
  1-408-996-1010

- To locate an Apple Authorized Dealer in your area, call 1-800-538-9696.

DEVELOPER UNIVERSITY TRAINING SCHEDULE
APRIL 1991—SEPTEMBER 1991

Developer University offers a broad range of programming courses at locations throughout the U.S. For more information, or to reserve a space, contact the Developer University registrar at 1-408-974-6215.

Macintosh Programming Fundamentals (MPF)

A track=must have 6 months of programming experience in C or Pascal
B track=must have 1 year of programming experience in C or Pascal

April 22–26 (A)	Denver, CO
April 29–May 3 (A)	Cupertino
May 20–24 (A)	Chicago, IL
May 20–24 (B)	Cupertino
June 3–7 (A)	Cupertino
June 24–28 (B)	Cupertino
July 8–12 (A)	Cupertino
July 29–Aug 2 (B)	Cupertino
August 12–16 (A)	Columbia, MD
August 26–30 (A)	Cupertino
September 23–27 (B)	Cupertino

MacApp & Object Oriented Programming (Pascal)

April 29–May 3	Cupertino
July 15–19	Cupertino

MacApp & Object Oriented Programming (C++)

May 6–10	Cupertino
June 10–14	Cupertino
July 29–Aug 2	Cupertino
September 9–13	Chicago, IL

Intermediate Macintosh Programming (IMP)

May 8–10	Cupertino
Jun 24–26	Cupertino
Aug 14–16	Cupertino

MPW (Macintosh Programmer's Workshop)

May 6–7	Cupertino
Aug 12–13	Cupertino

C++ for the Macintosh

May 20–22	Cupertino
July 10–12	Cupertino

Object-Oriented Design

May 23–24	Cupertino
July 8–9	Cupertino

Programming Under System 7.0

Apr 24–26	Boston, MA
May 8–10	Cupertino
Jun 12–14	Detroit, MI
July 10–12	Cupertino
July 31–Aug 2	Boston, MA
Aug 21–23	Cupertino
Sept 18–20	Cupertino

Data Access Language (formerly CL/1 Fundamentals)

May 20–24	Cupertino
July 10–12	Charlotte, NC
Sept 11–13	Cupertino

Technical Introduction to AppleTalk

Apr 25–26	Cupertino
Jun 6–7	Cupertino
July 25–26	Cupertino
Sept 12–13	Cupertino

MacWorkStation

Apr 30–May 3	Tampa, FL
July 8–9	Cupertino

Advanced HyperCard

July 16–19	Cupertino
Aug 13–16	Cupertino
Sept 24–27	Chicago

Developer Associations

MACINTOSH

MADA

The MacApp Developers Association (MADA) is an independent, nonprofit organization dedicated to promoting the use of object-oriented programming on the Macintosh, and is of special interest to customers developing with MacApp. Membership is open to all development customers and includes the bimonthly MacApp technical journal, *FrameWorks*.

For member information, contact:

MacApp Developer's Association
P.O. Box 23
Everett, WA 98206
1-206-252-6946
AppleLink: MADA

SPLAsh

The Symantec Programming Languages Association (SPLAsh) is an independent user group dedicated to supporting users of Symantec's THINK language products, THINK C, and THINK Pascal. Membership is open to any development customer and includes a subscription to THINKin' CaP, a quarterly newsletter containing source code, tips and techniques, new classes and insights on the THINK Class library, commentary and human interface dialogue, and disks containing source code, utility programs, and patches. SPLAsh members will also be notified about special events and mini-conferences and will receive electronic support on America Online.

For membership information, please contact:

SPLAsh Resources
1678 Shattuck Ave., #302
Berkeley, CA 94709
1-415-527-0122
AppleLink: URSA.MAJOR

Software Entrepreneurs' Forum Macintosh Special Interest Group

SEF is a professional association for those who conceive, write, finance, and market computer software. Membership is open to all individuals and companies interested in these areas. Annual dues entitle members to participate in the Forum's Special Interest Groups, to receive the SEF newsletter and other notices, to receive membership rates at meetings, to receive a listing and copy of the SEF Directory of Members, and to become active in governing the Forum. The Macintosh SIG meets regularly to discuss Macintosh development issues, problems, and opportunities and features a variety of interesting speakers including many from Apple Computer, Inc.

For information on this SIG and membership in the Software Entrepreneurs' Forum, contact:

Software Entrepreneurs' Forum
P.O. Box 61031
Palo Alto, CA 94306
1-415-854-7219

MacIS

MacIS is a non-profit organization of information system professionals with a commitment to Macintosh. The purpose of MacIS is to provide a forum for member communication through semi-annual conferences, a newsletter, and an AppleLink bulletin board. It also provides Apple with feedback on products, marketing, service, and support. Membership is limited to IS executives in organizations that have at least 100 installed Macintosh computers.

For additional information, contact:

MacIS
111 E. Wacker Drive, Suite 600
Chicago, IL 60601
1-312-644-6610

Apple II

A-2 Central

For customers involved in Apple II development, A-2 Central offers several services: sales and support of Apple II development products, moderators of an Apple II Programmers and Developers RoundTable on GEnie online information service, and sponsorship of a special Apple II developer summer conference.

For additional information, contact:

A2-Central
P.O. Box 11250
Overland Park, KS 66207
1-913-469-6502

Developer User Groups

MacShare

MacShare is an Apple-sponsored user group for MacWorkStation programmers and developers. It provides a forum for sharing information, expertise, and tools within the large systems-based programming community. There is no membership fee.

To receive the quarterly MacShare Newsletter and add your name to the MacShare mailing list, contact:

MacShare
Apple Computer, Inc.
20450 Stevens Creek Blvd.
M/S 76-4A
Cupertino, CA 95014
AppleLink: MACSHARE

Programming Special Interest Groups (SIGs)

A number of Apple user groups offer Programming SIGs where you can obtain additional programming information, technical tips, and network with other developers. This list names some of the major user groups that offer programming SIGs.

To identify other user groups with programming SIGs that may be located in your area, call 1-800-538-9696, ext. 500.

Apple Corps of Dallas
10919 Cromwell Drive
Dallas, TX 75229
1-214-357-9185
AppleLink: UG0040

Berkeley Mac User Group
1442 A Walnut Street #62
Berkeley, CA 94709
1-415-849-9114
ALink: UG0001

Boston Computer Society Mac User Group
48 Grove Street
Somerville, MA 02144
1-617-625-7080
UG0037

Los Angeles Macintosh Group
12021 Wilshire Blvd, Suite 349
Los Angeles, CA 90025
1-213-278-5264
AppleLink: UG0007

MacTechnics - Ann Arbor Computer User Group
Box 4069
Ann Arbor, MI 48106-4069
1-313-482-0501
AppleLink: UG0025

Seattle Macintosh Downtown Business Users Group (dbug)
P.O. Box 3463
Seattle, WA 98114-3436
1-206-624-9329
AppleLink: UG0048

Washington Apple, Pi, Ltd.
7910 Woodmont Ave., Suite 910
Bethesda, MD 20814
1-301-654-8060
AppleLink: UG0026

International APDA programs

APDA products can be purchased through several international programs. Contact the international APDA programs listed below if you are interested in purchasing tools and documentation locally.

Australia
Peter Lynden
Apple Computer Pty. Ltd.
16 Rodborough Road
Frenchs Forest NWS 2086
AppleLink: AUST.DEV
Telephone: 61-2-452-8213

Austria
Rainer Bernert
Apple Computer Ges.m.b.H
Ungargasse 59
A-1030 Vienna
AppleLink: BERNERT.R
Telephone: 43-222-72.21.75-0

Denmark
Ole Stakemann
APDA Danmark
Fortunvej 55
DK-2920 Charlottenlund
AppleLink: DK0016

Egypt
Tarek Thabet
PACC
70, Gameat El Dowal
El Arabia Mohandessin
Cairo
AppleLink: AMME.COMM
Telephone: 202-3-481.381

Finland
Jyrki Usva
OY Mercantine Computers AB
Vitikka 4
SF-02630 Espoo
AppleLink: USVA2
Telephone: 358-0-5021411

France
Marcel Averbuch
Prim'Vert
36 Rue des Etats-Generaux
Versailles 78000
AppleLink: PRIMVERT
Telephone: 33-1-39-02-33-44

Germany
Rupert Holzbauer
Apple Computer G.m.b.H
Ingolstädterstrasse 20
D-8000 Munich 45
AppleLink: GER.DEV
Telephone: 49-89-35-0340

Greece
George Georgaras
Rainbow Computer Applications S.A.
El. Venizelou 184
Kallithea, Athens
AppleLink: IT0026
Telephone: 30-1-959.40.82

Iceland
Jonsson, Arni G.
Radiobudin hf, Skiphotli 19
IS-105 Reykjavik
AppleLink: IT0030
Telephone: 354-1-29.800

Ireland
Brenda Kirwan
Apple Computer Ltd.
Warrington House
Mount Street Crescent
Dublin 2
AppleLink: DUBLIN
Telephone: 353-1-604233

Israel
Igal Dekel
Yeda Computers Ltd.
110 Igal Alon St.
Tel Aviv 67891
AppleLink: IT0029
Telephone: 972-3-330-743

Italy
Paola Reitano
Apple Computer SpA
Via Rivoltana, 8
20090 Segrate, Milan
AppleLink: ITA.APDA
Telephone: 39-2-7574334

Norway
Staale Olesen
Apple Computer AS
Sandvinksveien 26, N-1322 Høvik
AppleLink: STAALE
Telephone: 47-2-591.800

Portugal
Paula Gentil-Homem
Interlog, Informatica, SARL
R. Prof. Mira Fernandes, Lote 20/21 r/c
P1900 Lisboa
AppleLink: IT0040
Telephone: 351-1-8470513/.../20

Saudi Arabia
Dr. Abdullah Al-Hamdan
Jeraisy Computer Services
Makkah Road (Islam Road)
P.O. Box 317, Riyadh 11411
AppleLink: JERAISY.TECH
Telephone: 01 4624597

Spain
Juan Carlos Rubio
APDA Spain, SYMSA
C/ Doctor Fleming 54
1 Dcha., 28046 Madrid
AppleLink: SPA0036
Telephone: 34.1.2506618

Sweden
Karin Landersten
Apple Computer AB
P.O. Box 31
Borgarfjordsg 7
S-16493 Kista-Stockholm
AppleLink: LANDERSTEN1
Telephone: 46-8-793.09.18

Switzerland
Daniel Spadin
Industrade AG, APDA
Apple Computer Division
Hertistrasse 31
CH-8304 Wallisellen, Zürich
AppleLink: CH.DEVSERV
Telephone: 41-1-832-8111

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Alev Uydan
Bilkom AS
Abdi Ipecki Cad 16/3
80200 Nisantasi
Istanbul UB11 1BB
AppleLink: IT0112
Telephone: 90-11-46.20.70

International Developer Contacts

INTERNATIONAL CONTACTS

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Phone: 43-222-711 820; FAX 43-222-711 82 55;
AppleLink: BERNERT.R
Apple Computer Bes.m.b.H; Ungargasse 59; A-1030 Vienna, AUSTRIA

BELGIUM (and LUXEMBURG)
Chris van Roey
Phone 32-2-741 22 11; FAX: 32-2-735 76 19 ;
AppleLink: VANROEY1
S.A. Apple Computer N.V; Rue Colonel Bourgstraat 103; 1040 Brussels, BELGIUM

DENMARK (and ICELAND)
Søren Rabbe
Phone: 45-48-14 02 02; FAX 45-48-14 02 22;
AppleLink: RABBE1
Apple Computer A/S; Sortemosevej 2; 3450 Allerød, DENMARK

FRANCE (and NORTH AFRICA)
Bertrand Eichinger
Phone: 33-1-69 34 00; FAX: 33-1-69 28 74 32;
AppleLink: EICHINGER1
Apple Computer France; 12, Avenue de l'Océanie; ZA Courtaboeuf, 91956 Les Ulis Cedex, FRANCE

GERMANY
Michael Rathmann
Phone: 49-89-35 03 40; FAX: 49-89-35 03 41 80;
AppleLink: RATHMANN1
Apple Computer GmbH; Ingolstädter Str. 20; 8000 München 45, WEST GERMANY

IRELAND
Mick O'Toole
Phone: 353-1-60 42 33; FAX: 353-1-60 42 84;
AppleLink: OTOOLE.M
Apple Computer Ltd.; Mount Street Crescent; Dublin 2, IRELAND

ITALY
Roger Stewart
Phone: 39-2-273 26 1; FAX: 39-2-273 26 555;
AppleLink: Stewart7
Apple Computer S.p.A; Via Milano 150; 20093 Cologno Monzese; Milano, ITALY

NETHERLANDS
Meindert Zuur
Phone: 31-3404-86 911/2; FAX: 31-3404-17 727;
AppleLink: HOL.DEV
Apple Computer B.V.; Handelsweg 2; 3707 NH Zeist, THE NETHERLANDS

NORWAY
Phone: 47-2-59 18 00; FAX: 47-2-12 30 84;
AppleLink: NOR.MKTG
Apple Computer AS; Sandviksveien, 26; 1322 Hovik, NORWAY

SPAIN
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Phone: 34-1-597 47 50; FAX: 34-1-556 95 54;
AppleLink: SPA.TPS
Apple Computer España S.A.; Paseo de la Castellana 95; Piso 26; 28046 Madrid, SPAIN

SWEDEN
Bjørn Gustavsson
Phone: 46-8-793 09 00; FAX: 46-8-751 07 61;
AppleLink: GUSTAVSSON1
Apple Computer AB; Box 31; S-164 93 Kista, Stockholm, SWEDEN

SWITZERLAND
Urs Binder
Phone: 41-1-832-8111; FAX: 41-1-830-6306
AppleLink: CH.DEVSERV
Industrade AG—Apple Computer Division; Hertistrasse 31; CH-8304 Wallisellen, SWITZERLAND

UNITED KINGDOM
Jennie Rose
Phone: 44-81-569 11 99; FAX: 44-81-569 29 57
AppleLink: UK.DEVSERV
Apple Computer U.K. Limited; 6, Roundwood Avenue; Stockley Park; Uxbridge; Middlesex UB11 1BB; ENGLAND

AMME (AFRICA, MEDITERRANEAN, MID-EAST)
Howard Sloane
Phone: 33-1-49 01 49 01; FAX: 33-1-47 78 09 60;
AppleLink: SLOAN.HOWARD
Apple Computer Europe, Inc.; Le Wilson 2, Cedex 60; 92058 Paris-La Défense, FRANCE

Technical Resources contents

Technical Resources

Resource kit

Developer Resource Kit

NEW!

Apple Computer, Inc. Class 1

The Developer Resource Kit is a bundle of self-help resources required for Macintosh development. It is intended for those who are new to Macintosh programming and for any developer who wants to keep up-to-date with the latest in Apple technology.

If you are looking for a starter collection of Macintosh technical resources, consider the Developer Resource Kit. Included in Developer Resource Kit are: an AppleLink software kit, Apple's primary electronic information system to connect you with the Apple development community; a subscription to *develop,* Apple's quarterly technical journal filled with development articles and a CD-ROM with essential tools for developers; a subscription to the APDA product catalog; a Developer University course catalog; a Macintosh Directory of Development Services, and a Developer Resource Guide to help you get started in Apple programming.

And as a special feature of the Developer Resource Kit, you will also receive coupons for various development products, books, and services. The coupons include free offers with purchase as well as significant discounts off Developer University self-paced training courses. The Developer Resource Kit is an exceptional value — the contents of this product add up to more than $300. The main components are:

- **Developer Resource Guide**–Information on development resources available to all levels of Macintosh programmers, from the novice to the experienced.
- **AppleLink Kit**–Apple's primary electronic information and communication service gives you a direct line to the Apple development community. With AppleLink, you'll have immediate access to information about Apple and third-party products and programs. AppleLink lets you download important disk files such as DTS Technical Notes and Sample Code, and to receive the newest versions of system software and key development tools like ResEdit and MacsBug. You'll also get valuable technical information from the Developer Technical Library and network on discussion boards intended for developers through the Developer Services Bulletin Board.
- ***develop* Subscription**–Apple's quarterly technical journal contains articles and sample code for those creating hardware and software for Apple computers. Each issue contains a CD-ROM that includes essential tools for developers such as: all languages and versions of system software, DTS Technical Notes and Sample Code, Macintosh Technical Notes stacks including Q & A's, and electronic versions of selected Apple developer documentation such as SpInside Macintosh.
- **APDA*log* Subscription**–Apple's quarterly development product catalog.
- **Developer University Catalog**–Course catalog for development training offered by Apple Developer University.
- **Macintosh Directory of Development Services**–Listing of Apple development-related support providers, such as technical trainers, contract programmers and product testers. (Available in May. If you order the Developer Resource Kit before May, you will be mailed a copy of this directory when it becomes available.)
- **Coupons**–Coupons available for free offers or discounts off future development product purchases from the APDAlog. Total redeemable value of coupons adds up to $149.00.

System requirements

(See AppleLink description for system requirements for using AppleLink.) To use the *develop* CD, you'll need an Apple-compatible CD-ROM drive.

Product contents

AppleLink Starter Kit
Getting Started Developer Resource Guide
Annual subscription to *develop* (4 issues)
Annual product catalog subscription (4 issues)
Developer University course catalog
Coupon Book

Special user note

If you reside outside of the U.S., please contact your local developer services office if you are interested in purchasing Developer Resource Kit locally. Most products in this catalog are available for purchase through a number of international programs. Please refer to page 9 in this catalog for a list of international developer programs or call 1-408-562-3910 for more information.

R0014LL/A
Developer Resource Kit with AppleLink
(U.S.) $125.00

R0015LL/A
Developer Resource Kit without AppleLink
(U.S.) $90.00

R0015ZP/A
Developer Resource Kit without AppleLink
(Outside of U.S.) $110.00

Getting started

Getting Started In Macintosh C Programming NEW!

Apple Computer, Inc. Class 1

Getting Started in Macintosh C Programming is intended for anyone interested in C programming on the Macintosh or anyone new to programming on the Macintosh platform.

This product bundle offers programmers who are getting started in Macintosh C programming exceptional value. For $250.00, you'll receive THINK C v. 4.0, one of the fastest and most easy-to-use development environments available for the Macintosh, and four of the most popular books written for Macintosh programmers. The four books include the two volumes of Dave Mark's *Macintosh C Programmer Primers*; Scott Knaster's *Macintosh Programming Secrets*, and *Human Interface Guidelines*, Apple's essential resource for all developers.

All the products in the Getting Started in Macintosh C Programming bundle are selected to help you quickly learn how to create software programs on the Macintosh. THINK C v. 4.0 takes you from idea to finished product quickly by featuring an extremely speedy compiler, a nearly instantaneous linker, a multiwindow test editor, and a powerful source-level debugger that all work together to help you work faster. The *Macintosh C Programming Primer*, Volume I is a tutorial that introduces you to fundamental Macintosh programming concepts such as event-driven programming and window manipulation, menus, dialog boxes, and file management. Volume II covers additional, more advanced topics using the most recent object-oriented version of THINK C v. 4.0. Scott Knaster's *Macintosh Programming Secrets* offers dozens of hints, tips and insights on how to take full advantage of the rich and complex programming tools available in the Macintosh system software. Finally, *Human Interface Guidelines* is a classic for all Apple programmers and developers. This richly illustrated volume discusses user-interface principles and provides information on how to use windows, menus, dialog boxes, and controls that make up the Apple Desktop Interface.

No matter if you're an experienced programmer new to the Macintosh, or an Apple enthusiast who wants to learn more about how to program on the Macintosh, you'll find that this product bundle is easy to start with... and also has the power to help you create great software programs. Best of all, with the special pricing, the Getting Started in Macintosh Programming bundles should fit any budget.

For additional information and special details of each product component, please refer to the complete description of each product in this catalog.

System requirements

See THINK C v. 4.0 description for system requirements for using THINK C.

Product contents

THINK C v. 4.0
Macintosh C Programmer Primer, v. 1
Macintosh C Programmer Primer, v. 2
Macintosh Programming Secrets
Human Interface Guidelines

Special user note

This promotional product bundle will only be available until August 1, 1991.

B0473LL/A **$250.00**

Getting Started In Macintosh Pascal Programming NEW!

Apple Computer, Inc. Class 1

This product is intended for anyone interested in Pascal programming on the Macintosh or anyone new to programming on the Macintosh platform.

This product bundle offers programmers who are getting started in Macintosh Pascal programming exceptional value. For $275.00, you'll receive THINK Pascal v. 3.0 and Just Enough Pascal, one of the fastest and most easy-to-use Pascal development environments available for the Macintosh, as well as three of the most popular books written for Macintosh programmers. The books include Dave Mark's new *Macintosh Pascal Programmer Primer*; Scott Knaster's *Macintosh Programming Secrets*, and *Human Interface Guidelines*, Apple's essential resource for all developers.

All the products in the Getting Started in Macintosh Pascal Programming bundle are selected to help you quickly learn how to create software programs on the Macintosh. THINK Pascal v. 3.0 is easy to use and learn, with its extremely fast compiler and ultra-fast smart linker. Version 3.0 provides the most extensive support for object-oriented programming available on the Macintosh. Just Enough Pascal teaches you Pascal fundamentals and the THINK Pascal environment while having fun with on-line, interactive instructions and explanations. The *Macintosh Pascal Programming Primer*, Volume I, is a tutorial that helps you learn how to use the powerful Toolbox, resources, and the Macintosh interface to create stand-alone applications with the distinctive Macintosh look and feel. Scott Knaster's *Macintosh Programming Secrets* offers dozens of hints, tips and insights on how to take full advantage of the rich and complex programming tools available in the Macintosh system software. Finally, *Human Interface Guidelines* is a classic for all Apple programmers and developers. This richly illustrated volume discusses user-interface principles and provides information on how to use windows, menus, dialog boxes, and controls that make up the Apple Desktop Interface.

Products

No matter if you're an experienced programmer new to the Macintosh, or an Apple enthusiast who wants to learn more about how to program on the Macintosh, you'll find that this product bundle is easy to start with... and also has the power to help you create great software programs. Best of all, with the special pricing, the Getting Started in Macintosh Programming bundles should fit any budget.

For additional information and special details of each product component, please refer to the complete description of each product in this catalog.

System requirements

See THINK Pascal v. 3.0 description for system requirements for using THINK Pascal.

Product contents

THINK Pascal v. 3.0
Just Enough Pascal
Macintosh Pascal Programmer Primer, v. 1
Macintosh Programming Secrets
Human Interface Guidelines

Special user note

This promotional product bundle will only be available until August 1, 1991.

B0472LL/A **$275.00**

On-line services

AppleLink 6.0

NEW!

Apple Computer, Inc. Class 1

For the first time, you can now subscribe to AppleLink through APDA. AppleLink is the official Apple online information and communication network that gives you a direct line to the Apple community. Using your Macintosh computer and a modem, AppleLink makes it easier than ever to connect with other individuals who share your computing interests. It gives you the ability to read the latest Apple press releases, look up specifications for Apple and third party products, send and receive fully formatted disk files, find information about hardware and software solutions, and much more.

It's intended for any developer who wants to keep up-to-date with the latest in Apple news, products and technology. AppleLink is currently used by Apple employees, business partners, commercial developers, VARs, consultants, support providers and other key Apple customers.

AppleLink is specifically designed to provide Apple developers with general product information, program information, technical information and market research. The Developer Services Bulletin Board (DSBB) houses the majority of developer-related information such as technical resources, system software, selected programming tools including latest versions of ResEdit and MacsBug, technical publications such as DTS Technical Notes and Sample Code, APDA product and price lists, and developer program information. Search the Developer Technical Answers (DTA) library to locate technical notes, answers to most commonly asked technical questions, and product compatibility questions. Finally, the Developer Talk Bulletin Board (DTBB) allows AppleLink subscribers worldwide to exchange ideas and information. Join informative discussions on development tools such as MPW and MacApp, human interface issues, networking and connectivity, media integration, and many others. This is the place to ask those "Does anyone out there know ...?" questions and check back for replies. If you want to stay in touch with the Apple developer community, visit Developer Talk on a regular basis.

Upon receipt of the AppleLink software, you will need to complete an APDA-AppleLink Account Request Form listing your name, address, requested account name and billing information. This Account Request Form must be returned by mail or fax to AppleLink Administration who will process your Request Form, assign an AppleLink account and password and return this information to you via mail. Turn-around time for APDA-AppleLink account processing is about 2-3 weeks from the time the Account Request Form is received by AppleLink Administration.

In addition to the APDA-AppleLink software fees, you will be charged monthly for the amount of time spent on the network and the amount of kilocharacters (KCs) sent or received online. One KC is equivalent to approximately a half page of information or 1K.

AppleLink charges are $12.00 per hour for connect time, $ .055 per kilocharacter (KC) sent or received during prime time (6am-6pm Mon-Fri Pacific Standard Time), and $ .045 per kilocharacter (KC) sent or received during non-prime time (6pm-6am Mon-Fri Pacific Standard Time, all day Sat and Sun). There is a $12.00 minimum monthly charge.

Monthly invoices will be mailed by the AppleLink Billing Department and you have the option of choosing monthly invoicing (net 30 days), payment by VISA or MasterCard (American Express and Apple Charge Cards are not accepted) or direct bank payment. Customers requiring billing against a purchase order should send their purchase order to AppleLink Administration when they return their AppleLink Account Request Form.

System requirements

A Macintosh Plus computer (or later model) with an external floppy disk drive or hard disk (hard disk recommended).

- An Apple modem* or other Hayes compatible modem, or a telephone system that includes data communication capabilities. (AppleLink communication scripts may need to be modified to be used with some telephone systems.)
- AppleLink software and an AppleLink account and password.

• System Software Version 4.1 (or later) and Finder Version 5.5 (or later).

Product contents

AppleLink Program Disks (2), User's Guide, Getting Started Booklet, Info Guide, License Agreement, APDA-AppleLink Account Request Form, Pricing and Billing Information

Special user note

At this time, AppleLink is only available through APDA to customers residing in the United States. **Apple Partners, Associates, and other Apple key customers who currently subscribe to AppleLink should continue to purchase AppleLink through the Apple Developer Group or other appropriate Apple channel.** The $70.00 price includes only the AppleLink software kit. Monthly usage and KC charges will be billed separately.

R0049LL/A **$70.00**

Related products

Developer Resource Kit–Please refer to the Developer Resource Kit description earlier in this section for an exceptional product value that includes AppleLink.

Subscription products

APDA Technical Information Mailing

Apple Computer, Inc. Class 1B

If you desire a comprehensive and convenient source of in-depth technical information from Apple, you should consider subscribing to APDA's new monthly mailing. This monthly subscription program will keep you up-to-date with the latest news on Apple programming and development. Included in this service are Macintosh system software updates, printed Macintosh Technical Notes, Macintosh DTS Sample Code Disks, and the quarterly *develop* Technical Journal with a CD containing Developer Essentials.

You'll also receive a variety of other technical resources such as Apple new product announcements, Human Interface Notes, HyperCard stack technical notes (including Apple DTS Q&A's), Developer University schedules and other preliminary technical notes that are not otherwise available through APDA.

With this new subscription service, you don't need to call to find out whether you have the latest copy of Technical Notes or if you have the newest version of System Software. The APDA monthly mailing guarantees that you'll be reserved a copy and you'll automatically receive one without having to place an order. The APDA Monthly Mailing is mailed during the 12 months following the purchase of this subscription.

Note: This subscription product requires additional handling and shipping charges.

• U.S. customers, please add $30 in addition to shipping table charges.
• Canadian customers, please add an additional $80.
• Other countries please add an additional $200.

C0197LL/A **$250.00**

develop

Apple Computer, Inc. Class 1

The articles and code in *develop*, the Apple Technical Journal, are intended to lead you into *Inside Macintosh*. Each issue contains sample code (provided on a CD-ROM disc) that you can use in your application. Each journal also includes questions and answers from the Macintosh and Apple II Developer Technical Support groups.

All of the journal articles and source code are included on the compact disc that comes with *develop*. The disc also includes essential tools for developers: international versions of system software, international HyperCard, Developer Technical Support Technical Notes and Sample Code, the Macintosh Technical Notes stacks, and electronic versions of selected Apple developer documentation, such as SpInside Macintosh.

If you don't have a CD-ROM drive, you will be able to find the contents of the disc on AppleLink, the Apple FTP site on the internet, and other on-line services in the near future.

If you're a certified developer, Partner, or Associate, you'll receive one copy of *develop* every quarter as part of your developer package.

M0929LL/A ***develop* subscription**
$27.00 (U.S.)
$47.00 (International)

The following back issues of d e v e l o p are available at a price of $10.00 per issue:

M0901LL/A	***develop* issue 1**	January 1990
M0902LL/A	***develop* issue 2**	April 1990
M0903LL/A	***develop* issue 3**	July 1990
M0904LL/A	***develop* issue 4**	October 1990
R0050LL/A	***develop* issue 5**	February 1991

DTS Macintosh Technical Notes Complete Set & Update Subscription

Apple Computer, Inc. Class 1

This is a complete collection of all Macintosh Developer Technical Notes that have been published by Macintosh Developer Technical Support since 1985. The set is complete from 1985 up to the time you purchase the collection. It also includes a subscription to the next six bi-monthly updates to the complete set of Technical Notes.

This product is for developers who are creating hardware and/or software for any Macintosh computer. The Macintosh Technical Notes expand on and clarify Apple developer documentation and correct errors found in Apple software, hardware, and documentation. It contains all Technical

Products

Notes ever published, with obsolete notes removed and replaced with the latest versions.

The current collection has the same notes as were in the earlier 1990, 1989, 1988, etc. sets. Owners of up-to-date versions of those sets need not purchase this product. They can just purchase a subscription to the bi-monthly updates to keep their notes up to date. The printed version comes with a DTS Tech Notes binder.

Special user note

A complete set of Macintosh Technical Notes on CD-ROM is included as part of the *develop* Technical Journal subscription described above. This CD-ROM is updated quarterly.

Because this subscription product requires multiple shipments, shipping and handling costs for international customers will be higher than for other products. Please call APDA for specific shipping costs before placing an order for this product.

M0962LL/A	**printed version**	**$100.00**
M0963LL/A	**disk version**	**$65.00**

DTS Macintosh Technical Notes Bi-Monthly Updates

Apple Computer, Inc. Class 1

This product consists of six bi-monthly mailings of the updates to the DTS Macintosh Technical Notes Complete Set product. It contains all the Technical Notes that have been changed or added since the previous update mailing.

You should purchase a new subscription if you already have all the existing Technical Notes to date and would like to start receiving bi-monthly updates. You should purchase a renewal subscription if you would like to add six additional Technical Notes updates to an existing subscription. If you don't have all the existing Technical Notes to date, you should purchase the Complete Set listed above. If you are missing Technical Notes from earlier in 1991, they are available separately. Please call for more information.

For the printed version the customer will need to manually replace some existing notes with new ones and add new notes to the end of their current complete set. The disk version the product contains disk files of all new and changed notes.

Note: Unlike earlier update subscriptions this is not a calendar year subscription. It lasts for six mailings from the time it is ordered (or adds six additional mailings to an existing subscription).

Special user note

A complete set of Macintosh Technical Notes on CD-ROM is included as part of the *develop* Technical Journal subscription described above. This CD-ROM is updated quarterly.

Because this subscription product requires multiple shipments, shipping and handling costs for international customers will be higher than for other products. Please call APDA for specific shipping costs before placing an order for this product.

M0964LL/A	**printed version (new subscription)**	**$35.00**
M0965LL/A	**disk version (new subscription)**	**$25.00**
M1529LL/A	**printed version (renewal subscription)**	**$35.00**
M1530LL/A	**disk version (renewal subscription)**	**$35.00**

DTS Apple II Technical Notes Complete Set & Update Subscription

Apple Computer, Inc. Class 1

This is a complete collection of all Apple II Developer Technical Notes that have been published by Apple II Developer Technical Support since 1985. The set is complete from 1985 up to the time you purchase the collection. It also includes a subscription to the next six bimonthly updates to the complete set of Tech Notes.

This product is for developers who are creating hardware and/or software for any Apple II computer. The Apple II Technical Notes expand on and clarify Apple developer documentation and correct errors found in Apple software, hardware, and documentation.

This product contains all technical notes ever published, with obsolete notes removed and replaced with the latest versions.

The current collection has the same notes as were in the earlier 1990, 1989, 1988, etc. sets. Owners of up-to-date versions of those sets need not purchase this product. They can just purchase a subscription to the bi-monthly updates to keep their notes up to date.

The printed version comes with a DTS Tech Notes binder.

Special user note

A complete set of Apple II Technical Notes on CD-ROM is included as part of the *develop* Technical Journal subscription described above. This CD-ROM is updated quarterly.

Because this subscription product requires multiple shipments, shipping and handling costs for international customers will be higher than for other products. Please call APDA for specific shipping costs before placing an order for this product.

A0246LL/A	**printed version**	**$100.00**
A0247LL/A	**disk version**	**$65.00**

DTS Apple II Technical Notes Bi-Monthly Updates

Apple Computer, Inc. Class 1

This product consists of six bi-monthly mailings of the updates to the DTS Apple II Technical Notes Complete Set product. It contains all the technical notes that have been

changed or added since the previous update mailing.

You should purchase a new subscription if you already have all the existing Technical Notes to date and would like to start receiving bi-monthly updates. You should purchase a renewal subscription if you would like to add six additional Technical Notes updates to an existing subscription. If you don't have all the existing Technical Notes to date, you should purchase the Complete Set listed above. If you are missing Technical Notes from earlier in 1991, they are available separately. Please call for details.

For the printed version the customer will need to manually replace some existing notes with new ones and add new notes to the end of their current complete set. The disk version the product contains disk files of all new and changed notes.

Note: Unlike earlier update subscriptions this is not a calendar year subscription. It lasts for six mailings from the time it is ordered (or adds six additional mailings to an existing subscription).

Special user note

A complete set of Macintosh Technical Notes on CD-ROM is included as part of the *develop* Technical Journal subscription described above. This CD-ROM is updated quarterly.

Because this subscription product requires multiple shipments, shipping and handling costs for international customers will be higher than for other products. Please call APDA for specific shipping costs before placing an order for this product.

A0248LL/A printed version (new subscription) $35.00
A0249LL/A disk version (new subscription) $25.00
A0073LL/A printed version (renewal subscription) $35.00
A0074LL/A disk version (renewal subscription) $25.00

1985–1989 Macintosh Technical Notes, HyperCard Stack

Apple Computer, Inc. Class 1

The Macintosh Technical Notes HyperCard Stack includes all the Technical Notes from Macintosh Developer Technical Support that were released through December 1989.

System requirements

Any Macintosh computer running HyperCard software.

Product contents

Two Macintosh disks and 25 pages of notes.

M0215LL/B $30.00

Developer training

Macintosh Programming Fundamentals: Self-Paced Training Course

Apple Computer, Inc. Class 1

With Developer University's Self-Paced Training Course, the student is in command of the learning experience at his or her own desktop, performing the class at home or office, and completing it at an individual pace. Everything required to understand Macintosh programming essentials is contained in this package—there are no travel expenses or extended hours away from the job. Whether a novice C programmer, or a seasoned professional on another platform, Macintosh Programming Fundamentals will enable the student to create dynamic Macintosh applications software. The course's multilevel instructions match students' varying levels of programming ability, from basic to advanced.

A self-paced training class developed by Apple's Developer University, Macintosh Programming Fundamentals is designed to teach programmers how to build highly functional Macintosh applications. Learning is a sensory adventure with Macintosh Programming Fundamentals' multimedia instructional technology, which features totally animated, voice-narrated, interactive lessons.

Students will acquire a working knowledge of the Macintosh ROM routines and application programming interface as they develop a sample graphics editor application using the following Toolbox Managers:

- Memory Manager
- Resource Manager
- QuickDraw
- Menu Manager
- Window Manager
- Control Manager
- Toolbox Events Manager
- Print Manager
- File Manager
- Standard File Package

Step-by-step, efficiently and painlessly, students will build an application that will help them create multiple windows, each containing a multiple-tool palette; use the mouse to draw into and edit objects in a document; resize and scroll windows; read and write files, and print.

System requirements

A Macintosh computer with 2 MB of RAM (4 MB recommended), a CD-ROM drive such as the AppleCD SC CD-ROM drive, and a hard disk with at least 10 MB of free space. THINK C is required for completing lab assignments, but is not required for viewing lessons and demo system applications. Volume I of *Inside Macintosh* is needed to do the labs in this course.

Products

Product contents

The package contains a CD-ROM with HyperCard [Note: HyperCard 2.0 is included in this CD], a navigation stack, 36 animated lessons, 31 lab exercises and solutions, and various other aids to Macintosh programming. Additionally, a workbook (approximately 550 pages), designed to work interactively with the CD, and a bookmark momento with programmers' template are also included.

M0997LL/A **$595.00**

Related products

The Apple Developer University group offers a wide range of Macintosh programming instruction through Self-Paced Training, such as Macintosh Programming Fundamentals, as well as through classroom courses on-site or at more than a dozen Apple Computer training centers worldwide. Numerous classes for various skill levels are available in three categories: Macintosh Programming, Object-Oriented Programming, and Networking and Communications. See the Get Info section in this APDA*log* or call (408) 974-6215 for more information.

Macintosh User-Centered Design: Self-Paced Training Course

Apple Computer, Inc. Class 1

Discover the key elements that make successful Macintosh applications stand out. Macintosh User-Centered Design will illustrate the superior user interface techniques and principles central to Macintosh software development. Then, to take you one step further, there is a special focus on the issues involved in international design. This self-paced course provides you with a lively and entertaining videotape, sample applications, HyperCard stacks, and a detailed workbook—all prepared by Apple's user interface team. Working at your own site, you can use the video, sample application, stack, and workbook to guide you through lab sessions that demonstrate real-world examples.

Course benefits include an introduction via videotape to the concept of "world building" on the Macintosh; the effective use of design metaphors; structured checklists to evaluate how a Macintosh application adheres to the Apple Human Interface Guidelines and International Design Principles; comparison of your evaluations with those of a panel of experts; and explanation of how the Macintosh user interface allows a dynamic application to have features added and enhanced seamlessly and unobtrusively.

This course is recommended for students interested in beginning Macintosh software development, developers entering the Macintosh Programming Fundamentals course offered by Apple Developer University, and managers of in-house development projects.

For those in marketing and others who need to understand the Macintosh user interface, the video portion of this product is available for purchase as a stand-alone product (see below).

System requirements

A Macintosh Plus or later, HyperCard, and a VHS video player.

Product contents

One Macintosh disk, two manuals totaling 55 pages, and a 28-minute VHS videotape.

M0271LL/A	**NTSC version**	**$195.00**
M0271ZP/A	**PAL version**	**$195.00**

Macintosh User-Centered Design: Video

Apple Computer, Inc. Class 1

This is an introduction via videotape to the concept of "world building" on the Macintosh, emphasizing each of the 10 Apple Human Interface Guidelines. This tape provides an entertaining introduction to human interface design by Bruce Tognazzini, Apple's human-interface expert.

This video is useful for marketing professionals and others who need to understand the Macintosh user interface. Developers looking for technical information on implementation should purchase the Macintosh User-Centered Design: Self-Paced Training Course (which also includes this tape.)

Video standards vary from country to country (NTSC and PAL are two of the most common). The U.S., Canada, and Japan use NTSC, while Australia, most of Europe, and Asia conform to the PAL standard. France uses the SECAM video standard, which is not available through APDA.

System requirements

A VHS video player.

Product contents

A 28-minute VHS videotape.

M0271LL/B	**NTSC version**	**$75.00**
M0271ZP/B	**PAL Version**	**$75.00**

Source Code Tutorial

Bear River Institute, Inc.

The Source Code Tutorial is a realistic, professionally written Macintosh sample application with exercises and solutions designed to assist programmers in learning Macintosh application programming on their own. Over 160 pages of source code extensively cover the basics of Macintosh programming, demonstrating theory and practice of typical Macintosh application design. By following the exercises in sequence, beginning Macintosh programmers attack problems of increasing difficulty as they add additional features to the sample application.

The Source Code Tutorial is ideal for beginning or intermediate Macintosh application programmers working on their own, or in their spare time. Each exercise focuses on a specific area of the Macintosh Toolbox. Solution strategies are provided for each exercise, many illustrated with additional source code. A bibliography lists recommended books and software for beginning Macintosh programmers.

The Source Code Tutorial is available in either C or Pascal, and works with either MPW or the THINK environments (THINK C or THINK Pascal).

System requirements

A Macintosh Plus or later, 2 MB of RAM, and a hard disk is recommended. Requires MPW v. 2.0.2, v. 3.0, or v. 3.1, or THINK C v. 3.02 or v. 4.0, or THINK Pascal 3.0 or 3.1. Source Code Tutorial requires Macintosh System Software v. 4.2 or later; development environments may require more recent system software.

T0409LL/A	**C version**	**$69.95**
T0411LL/A	**Pascal version**	**$69.95**

Sample source code

Macintosh Developer Technical Support Sample Code—February 1990

Apple Computer, Inc. Class 1

This product contains a set of source code examples written by Apple's Macintosh Developer Technical Support group. The samples show how to perform standard Macintosh programming tasks.

The following seven samples are included:

- GetZoneList (C, Pascal, asm) uses AppleTalk's AppleTalk Transaction Protocol (ATP) and Zone Information Protocol (ZIP) to obtain a list of zones on an AppleTalk internet.
- OOPTESample (Object Pascal, asm) demonstrates fundamental TextEdit toolbox calls and TextEdit automatic scrolling, and shows how to create and maintain scroll bar controls.CPlusTESample (C++, asm) demonstrates fundamental TextEdit toolbox calls and TextEdit automatic scrolling, and shows how to create and maintain scroll bar controls.
- TEStyleSample (Pascal)is an example application that demonstrates styled and fundamental TextEdit toolbox calls and TextEdit auto-scroll.
- Transformer (Object Pascal) demonstrates: bitmap transformations, mixing MacApp with C subroutines, mixing 68881 and non-68881 code together, calling of MacApp routines from C, using CursorCtl routines, and turning on and off the MacApp BusyCursor mechanism.
- ModalList (C) is an example using a list in a dialog window. You can scroll the list, search for and change cell contents, and change the list's selection flags.
- ScreenFKey (Pascal, asm) is a basic example on how to spool a PICT file to disk by replacing the bottleneck PutPICProc, it saves the contents of the screen to a file.

System requirements

A Macintosh Plus computer or later model. MPW is recommended but not required. MacApp is required for OOPTESample and CPlusTESample. C++ is required for CPlusTESample.

Product contents

One Macintosh disk.

M0357LL/B **$20.00**

Related products

Macintosh Developer Technical Support Sample Code Disks, April 1989 and June 1989 (M0357LL/A)

Macintosh Developer Technical Support Sample Code Disks, August 1988 and November 1988 (M0121LL/A)

Macintosh Developer Technical Support Sample Code Disks—April 1989 and June 1989

Apple Computer, Inc. Class 1

This product contains Macintosh DTS Sample Code, which is a set of source code examples written by Apple's Macintosh Developer Technical Support group. These examples show how to perform standard application tasks.

The following nine samples are included:

- A revision to Sample, included in the August and November 1988 Sample Code package,
- A revision to TESample, included in the August and November 1988 Sample Code package,
- OOPTESample, a version of TESample that has been substantially reworked in Object Pascal.
- CPlusTESample, a version of TESample, reworked in C++,
- Offscreen, a unit that provides a high-level interface to the QuickDraw and Color Manager routines that allow the creation and manipulation of off-screen bitmaps and pixel maps,
- OffSample, an application that demonstrates the use of the Offscreen unit, showing how to use off-screen bitmaps and pixel maps to produce flicker-free updating with a minimum of code restructuring,
- TbltDrvr, an "ADBS" resource that demonstrates how to write a simple ADB driver,
- StdFile, an application that demonstrates many uses of SFGetFile, SFPutFile, SFPGetFile, and SFPPutFile, with hooks, filters, and other programmed additions.

System requirements

A Macintosh Plus computer or later model. MPW is recommended but not necessary.

Product contents

One Macintosh disk and a 20-page manual.

M0357LL/A **$20.00**

Products

Macintosh Developer Technical Support Sample Code Disks—August 1988 and November 1988

Apple Computer, Inc. Class 1

The Macintosh DTS Sample Code product is a set of source code examples written by Apple's Macintosh Developer Technical Support group. These examples show how to perform standard application tasks.

The following 11samples are included:

- Sample, a generic application that demonstrates how to initialize the commonly used Toolbox managers, as well as operate successfully under MultiFinder, handle desk accessories, and create, grow, and zoom windows
- TESample, like Sample, a generic application, but with TextEdit
- SillyBalls, which demonstrates how to use Color QuickDraw
- TubeTest, which shows how to use the Palette Manager in a color program
- HierMenus, to add hierarchical menus
- PopMenus, which implements a pop-up menu in a modal dialog box
- FracApp and FracAppPalette, color Mandelbrot graphics programs written in MacApp
- FracApp300, to create and use a 300-dpi bitmap with port
- EditCdev, a sample Control Panel device (cdev) that demonstrates the use of the edit-related messages in cdevs
- GetZoneList, using AppleTalk ATP and ZIP to obtain a list of zones on an AppleTalk internet, and
- Signals/UFailure, a set of exception routines based on MacApp's UFailure unit.

Each sample is supplied in Pascal source code. In addition, Sample, TESample, SillyBalls, TubeTest, Edit cdev, and Signals/UFailure are supplied in C. Sample, TESample, and Signals/UFailure are also supplied in assembly language.

System requirements

A Macintosh computer. MPW is recommended. MacApp is required for compiling the FracApp and Signals/UFailure samples.

Product contents

Two Macintosh disks and a one-page release note.

M0121LL/A **$20.00**

Apple IIGS Source-Code Sampler,Volume 1

Apple Computer, Inc.—September 1988 Class 1

This sampler volume contains source code for Apple IIGS applications that use the desktop interface. It also includes an empty shell application, an animation demonstration, a custom control, custom windows, and dialogs.

Additional samples offer window caching, list handling, and a sampled sound player. Also included is a Print Manager record spy, custom menus, and a math function grapher that uses SANE. C source code samples include an empty shell application and a program lister that can print to the Apple ImageWriter and Apple LaserWriter printers.

Source code is included for both the APW native development system and the MPW IIGS Cross-Development System, in both Assembly and C.

System requirements

An Apple IIGS computer for execution, plus APW native or MPW IIGS Cross-Development System.

Product contents

Two 3.5-inch Apple II disks and one Macintosh disk.

A2Z1003 **$30.00**

Books and references

Macintosh Development Tools & Languages Guidebook—1991 Edition

Apple Computer, Inc. Class 1

This guidebook contains detailed product listings for the development environments, languages, and tools available to Macintosh developers from Apple and independent publishers. It also contains introductory information on what it's like to program the Macintosh, the services Apple provides to programmers, and the development organizations that exist to support Macintosh development. You will be most interested in this Guidebook if you're new to Macintosh programming or if you're interested in learning about the range of tools available to you. (136 pages)

A7Z2000/B **$6.95***

* or free with any purchase

Human Interface Guidelines

Addison-Wesley Publishing Company—1987

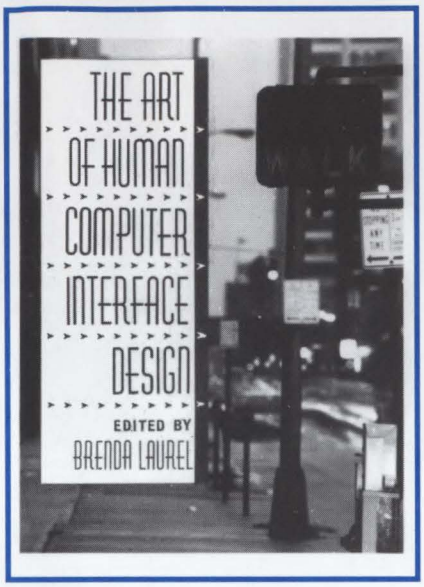
by Apple Computer, Inc.

This richly illustrated volume is an essential resource for any Apple II or Macintosh computer programmer. The book discusses user-interface principles and provides information on how to use windows, menus, dialog boxes, and controls that make up the Apple Desktop Interface. It includes advice for color and sound integration and guidelines on designing for international markets and for users with physical disabilities. (160 pages)

A7G0025 **$14.95**

The Art of Human-Computer Interface Design

Addison-Wesley Publishing Company—1990
Edited by Brenda Laurel



The Art of Human-Computer Interface Design contains a collection of original and never-before-published articles that survey the breadth and depth of disciplines that contribute to interface design. Topics range from discussions on how to create an effective interface, to the philosophical issues behind human-computer interaction, to the effects of such new technologies as multimedia and sound recognition on future interface designs.

A section entitled "Sermons" provides a showcase for some of the most renowned interface thinkers to speak their minds. Alan Kay, Don Norman, Jean-Louis Gassée, Ted Nelson, Nicholas Negroponte, and Ben Shneiderman have contributed original pieces expressing their ideas, philosophies, and experiences on this fascinating and vital topic. (500 pages)

T0400LL/A **$26.95**

Apple Numerics Manual, Second Edition

Addison-Wesley Publishing Company—1988
by Apple Computer, Inc.

The second edition of the official reference to Apple Computer's Standard Apple Numeric Environment (SANE) includes new information on IEEE-standard arithmetic and the implementation of SANE on the 65C816 and 6502 processors used in the Apple II family of computers; the 68000 family of processors used in the Macintosh; and the 68881 math coprocessors built into the Macintosh II computer. (320 pages)

A2G0059 **$29.95**

Guide to Software Localization, Beta Draft

NEW!

Apple Computer, Inc. Class 1B

This book contains practical information for writing software that will adapt well to international markets. It contains information on cultural traditions, scripting systems and localization techniques. Useful tables show Macintosh character sets, sorting orders, and Apple development organizations throughout the world.

This book provides an overview of the issues involved in modifying software so it will sell successfully in other parts of the world, including changes to language, graphics, and documentation. It explains how to localize Apple software, with emphasis on localization by editing Macintosh resources. It tells you what tools are available and how resources must be changed. It does not tell you how to make changes by reprogramming—this is covered in *Inside Macintosh*. Specific subjects include:

- How to make software changes by editing resources
- Macintosh script systems and how to interact with them
- Cultural factors that make user interfaces different in various parts of the world, including traditional symbols, taboos, and ways of using language
- A regional survey of the world's major languages and scripts
- Drawings of the Apple keyboard forms.
- Tables of the Macintosh character sets and sorting orders
- Useful addresses of Apple sales offices and partner
- A bibliography of Apple and third-party publications that contain valuable localization and marketing information

This book appeals to programmers and software designers alike. (238 pages)

M1528LL/A **$30.00**

Apple Publications Style Guide, Fall 1990 Edition

Apple Computer, Inc. Class 1

This guide is for writers, editors, and others who document Apple products or Apple-related products. It includes an extensive alphabetical listing of style and usage for terms likely to occur in Apple manuals and product-training disks. It also offers guidelines for using format elements (such as bulleted lists), rules for terminology in technical manuals, and a list of commonly-used units of measurement and their abbreviations. This edition of the *Style Guide* supersedes the Fall 1989 version and includes new terms and usage conventions. (120 pages)

A7G0030/C **$30.00**

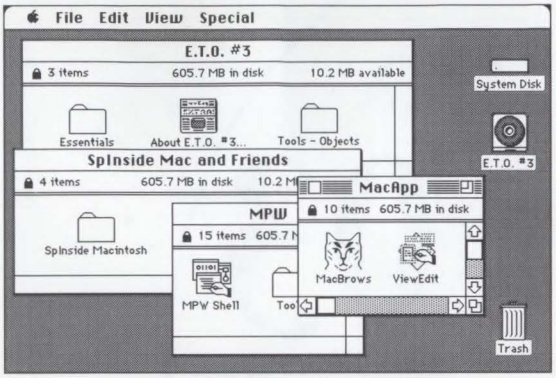
For additional related products, see Books and References in the More Macintosh and Apple II Family catalog sections.

E.T.O. : Essentials • Tools • Objects

E.T.O.

E.T.O.: Essentials • Tools • Objects

Apple Computer, Inc. Class 1, 1B, and 2



E.T.O. Finder Screen

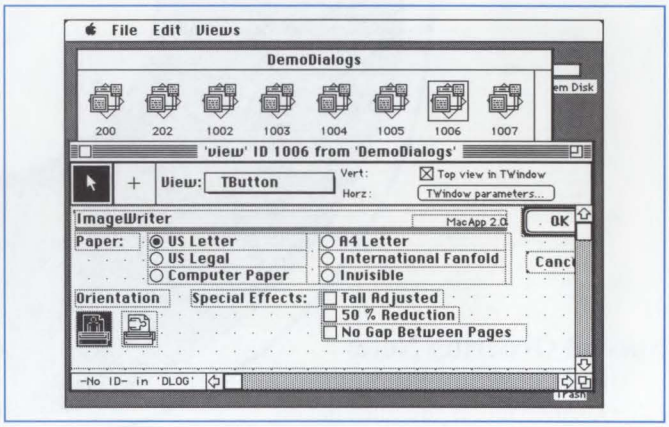
The E.T.O.: Essentials • Tools • Objects product is intended for serious developers of Macintosh applications for commercial, in-house, or educational use.

E.T.O. is the most complete collection of Macintosh software development tools ever combined in one package. It contains all the tools you need for every phase of developing software for the Macintosh; from editors and compilers to debuggers and testing tools. It's distributed on CD-ROM, with printed finished documentation, and is updated every three months through the E.T.O. subscription program. It is a complete Macintosh development system, which includes:

- MacApp object-oriented application framework
- Macintosh Programmer's Workshop (MPW) development environment
- MPW Object Pascal
- MPW C
- MPW C++
- MPW Assembler
- Virtual User testing tools
- SADE debugger
- ResEdit resource editor
- MacsBug debugger and other utilities
- "Developer Essentials" collection of online developer information
- Selected previews of future tools
- Quarterly updates

E.T.O. is a subscription to four-quarterly CD-ROMs that contains the latest "final" versions of the items listed above. It also includes release notes and, when available, revised printed manuals for its component products. Additionally E.T.O. comes with special "preview" versions of the latest pre-release versions of its parts.

E.T.O. is the ultimate development system for serious Macintosh programmers. You can use the MacApp object-oriented application framework (a standard part of E.T.O.), which handles standard Macintosh user interface features and provides a foundation for your applications. And the Macintosh Programmer's Workshop is a powerful, multi-language development environment that's ideal if you want power, flexibility and reliability.



E.T.O. ViewEdit Screen

E.T.O. also provides tools for a wide range of programming needs: Resource editing tools like Viewedit and the classic ResEdit; debuggers like MacsBug and SADE; a variety of languages like 68K assembly language, C and sophisticated object-oriented programming with C++ and Object Pascal.

All of E.T.O.'s tools are conveniently arranged on the CD-ROM, which also includes a wealth of electronic versions of developer documentation such as SpInside Macintosh (*Inside Macintosh*, Volumes 1 - 5). And since

Products

Apple is constantly improving and enhancing its development tools, the heart of E.T.O. is its update program. With E.T.O. you will always have the newest tools. Updates are sent to E.T.O. subscribers every three months.

System requirements

E.T.O. is a SINGLE USER product. The E.T.O. CD-ROM can be opened with any Macintosh that has an Apple compatible CD-ROM drive attached. See individual product listings for additional system requirements.

Note: This subscription requires additional shipping and handling charges.

- U.S. customers please add $15 in addition to shipping table charges
- Canadian customers please add an additional $40
- Other countries please add an additional $100

See the special order form in the back of this catalog to purchase E.T.O. tools, the one year subscription, or the starter package.

Special Ordering Note:

To be eligible to purchase the E.T.O. subscription you must have already purchased copies of each of its component products. You can do this by showing proof of purchase of these parts, or by buying the parts through the special E.T.O. Starter Package.

Special user note:

E.T.O. contains selected, pre-final versions that are included only for your early examination and experimentation. They are *not supported by Apple Computer, Inc.* Apple recommends that you *do not use them* for creating finished builds of your software. Apple makes no promises that all features found in the pre-final versions will remain in the final versions. You should *use all precautions* when working with these pre-final versions.

M0895LL/A **$995.00**

Macintosh Programmer's Workshop contents

MPW

Macintosh Programmer's Workshop

Macintosh Programmer's Workshop (MPW) is Apple's suite of development products for the Macintosh computer. In addition to the basic MPW Development Environment, Apple offers MPW-compatible implementations of C, C++, Object Pascal, and 68000-family Assembler programming languages. Other MPW languages and utilities are available from third parties.

This MPW section includes all the products that run within the MPW environment, in the following order:

- MPW v. 3.1 units and bundles
- MPW IIGs Cross-Development Suite components and bundles
- MPW third-party languages and tools

MPW is designed to meet the needs of professional software developers who are developing for the Macintosh or are using the MPW IIGS Cross-Development Suite to develop applications for the Apple IIGS computer. MPW products can be purchased individually or in specially priced bundles that include all MPW tools and the Assembler with your choice of compilers. Referred to as the Macintosh Programmer's Workshop v. 3.1 Suite, the products include:

Title	APDA part number
MPW Development Environment v. 3.1	M0019LL/C
MPW Assembler v. 3.1	B0236LL/C
MPW C v. 3.1	B0237LL/C
MPW C++ v. 3.1	M0346LL/D
MPW Object Pascal v. 3.1	B0235LL/C
MPW Toolbox Interfaces and Libraries v. 3.1	M0615LL/A
MPW C and Object Pascal Bundle v. 3.1	B0032LL/E
MPW C Bundle v. 3.1	B0031LL/E
MPW Object Pascal Bundle	B0030LL/E
SADE v. 1.1	M0026LL/C

In addition to the standard update offerings, we offer a CD-ROM based version of our popular MPW C and Object Pascal bundle. This special CD-ROM update is offered at a 50 percent discount from the regular pricing of the standard MPW C and Object Pascal bundle update. The CD-ROM version is a superior method through which to receive updates. It is also the media with which we will be adding value to MPW in future releases.

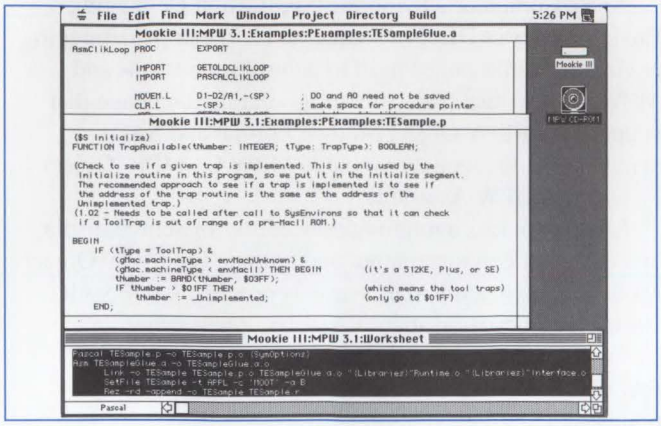
Since the MPW CD-ROM update is available only to owners of the MPW C and Object Pascal bundle, we are also offering two special update products: MPW C and Object Pascal Bundle CD-ROM Update v. 3.1 with MPW Object Pascal v. 3.1, and MPW C and Object Pascal Bundle CD-ROM Update v. 3.1 with MPW C v. 3.1. These special updates allow customers who already own the MPW C Bundle or the MPW Object Pascal Bundle to updatewith a CD-ROM while also purchasing the appropriate language.

Title	APDA part number
MPW Development Environment Update v. 3.1	M0027LL/C
MPW Assembler Update v. 3.1	B0234LL/C
MPW C Update v. 3.1	B0233LL/C
MPW C++ Update v. 3.1	M0852LL/A
MPW C Bundle Update v. 3.1	B0034LL/E
MPW Object Pascal Bundle Update v. 3.1	B0033LL/E
MPW Object Pascal Update v. 3.1	B0232LL/C
MPW C and Object Pascal Bundle Update v. 3.1	B0035LL/E
MPW C and Object Pascal CD-ROM Bundle Update v. 3.1	B0231LL/E
MPW C and Object Pascal CD-ROM Bundle Update with MPW C v. 3.1	B0245LL/E
MPW C and Object Pascal CD-ROM Bundle Update v. 3.1 with MPW Object Pascal v. 3.1	B0244LL/E
SADE Update v. 1.1	M0614LL/A

For complete information on these development environments, please read the Macintosh Programmer's Workshop catalog listings on the following pages.

MPW: Macintosh Programmer's Workshop Development Environment v. 3.1

Apple Computer, Inc. Class 1



MPW v. 3.1

MPW provides:

- Powerful, integrated development environment
- Platform for a wide variety of programming languages
- Support for multilanguage applications
- User-defined menus and user-created tools

The Macintosh Programmer's Workshop (MPW) Development Environment is Apple Computer's software development environment for the Macintosh. It provides the foundation for the use of MPW programming languages and tools.

The MPW suite is intended for serious developers of Macintosh applications for commercial, in-house, or educational use.

At the heart of the MPW Development Environment is the Shell, a customizable and extensible multiwindow text editor and command interpreter. The MPW Shell has many UNIX-like features, including input and output redirection, the ability to "pipe" the output of one command to the input of another command, and a UNIX-like scripting language that supports shell variables, control constructs, and text editing commands.

The MPW Shell provides the ability to run MPW scripts and tools, which are compiled programs written in any MPW language. MPW scripts and tools support both a graphical interface, called Commando, and a command-line interface.

MPW provides more than 120 tools and scripts that help in the application creation process, and that are supported by on-line help (including hints and shortcuts) and the Commando graphical tool interface.

One of the greatest strengths of MPW is the ability to develop multilingual programs. The MPW Linker allows you to write programs using any combination of languages that support the MPW Object Module Format.

Many such languages that run under MPW are available from Apple and third parties, including Assembler, C, Pascal, C++, FORTRAN, Modula-2, and Ada. These are described later in this section.

Projector, an easy-to-use source code control system, is built right into the MPW Shell. Projector can be customized to address the project management needs of the single programmer or of the large, networked engineering team. It saves the most recent version of a file and the modifications necessary to recreate earlier versions, maintaining the revision history of a project's files in a tree format. This allows you to experiment on a file—by making a branch—without affecting your primary development work. The MPW Development Environment provides tools to aid you in merging branches back into your primary development work. Projector also allows you to refer to and retrieve versions of files by symbolic name, date, or work group.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh computer with at least 2 MB of RAM (preferably 4 MB), and 128K or later ROM. A Macintosh SE/30 or a member of the Macintosh II family is strongly recommended. The system must also include a hard-disk drive and Macintosh System Software v. 6.0.2 or later. *Inside Macintosh* and the *Apple Numerics Manual* are recommended.

Product contents

Five Macintosh disks, one 990-page manual, and two binders.

Related products

- MPW Development Environment v. 3.1 Update for current users of MPW
- MPW Assembler v. 3.1 and MPW Assembler v. 3.1 Update
- MPW C v. 3.1 and MPW C v. 3.1 Update
- MPW Object Pascal v. 3.1 and MPW Object Pascal v. 3.1 Update
- SADE (Symbolic Application Development Environment) v. 1.1 and SADE v. 1.1 Update
- MPW C++, a powerful addition to the MPW family, brings OOP to developers who use C.
- The aforementioned products are described later in this MPW section.
- MacsBug (a Motorola 68000-family assembly-language debugger customized for Macintosh computers)
- ResEdit (Apple's graphical editor for creating elements of the Macintosh interface)

M0019LL/C **$150.00**

Products

Macintosh Programmer's Workshop Development Environment v. 3.1 Update

Apple Computer, Inc. Class 1

This product contains software and release notes to update users of MPW Development Environment from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with the MPW Assembler version 3.1 release. This update is available only to APDA customers who purchased the MPW Development Environment version 3.0 or the MPW Development Environment Update version 3.0. To order this update you must send your MPW Development Environment v. 3.0 manual cover along with your order to APDA.

Licensing note

See Software Licensing page for licensing details.

M0027LL/C **$35.00**

MPW Toolbox Interfaces and Libraries: Macintosh Programmer's Workshop Toolbox Interfaces and Libraries v. 3.1

Apple Computer, Inc. Class 1

This product contains the Macintosh Toolbox interfaces and libraries for Macintosh System Software v. 6.0.4. This includes resource definitions, ROM Maps, Assembler interfaces and libraries, C interfaces and libraries, and Object Pascal interface and libraries.

If you have purchased a language product or update, you do not need this release. It is offered to customers who wish to use the latest interfaces under another development environment, or who want the latest interfaces without updating their version of MPW.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh computer with at least 2 MB of RAM (preferably 4 MB), and 128K or later ROM. A Macintosh SE/30 or a member of the Macintosh II family is strongly recommended. The system must also include a hard disk, Macintosh System Software v. 6.0.2 or later, and the MPW Development Environment v. 3.1. It also contains the interfaces, libraries, and Resource (Rez) definitions needed to access the Toolbox for the MPW Assembler, C, and Object Pascal languages.

Product contents

Three disks, a manual, and release notes.

M0615LL/A **$25.00**

SADE: Symbolic Application Debugging Environment v. 1.1

Apple Computer, Inc. Class 1

Apple Computer's Symbolic Application Debugging Environment (SADE) is a source-level, symbolic debugging environment that can be used to debug applications and MPW tools written using any programming language that supports the MPW Object Module Format and SADE symbols. Those languages include MPW C , MPW Object Pascal, and MPW Assembler.

SADE provides a multiwindow editor for source display and debugger command input and output. The MPW Object Module Format and SADE symbols provide SADE with complete information about variables, types, procedures, functions, and source statements in your program. Also, SADE knows Macintosh system symbols, ROM entry points, and low-memory globals.

One of the major strengths of SADE is that it can be easily extended and customized using the SADE scripting language. This feature allows you to automate repetitive or complex debugging tasks and to customize SADE to meet your needs. SADE comes with a set of pre-defined menus that provide all the basic debugging features such as setting breakpoints, viewing variables and structures at the source level, and stepping through code. Not only does SADE v. 1.1 handle object-oriented programs, it is also 10 times faster than the previous version.

SADE currently requires a special version of MultiFinder to work. That version of MultiFinder, v. 6.1B9, is included in this package.

System requirements

A Macintosh computer with at least 2 MB of RAM (preferably 4 MB), and 128K or later ROM. A Macintosh SE/30 or a member of the Macintosh II family is strongly recommended. The system must also include a hard-disk drive and Macintosh System Software v. 6.0.2 or later.

Product contents

Two disks and four pages of notes.

M0026LL/C **$75.00**

SADE: Symbolic Application Debugging Environment Update v. 1.1

Apple Computer, Inc. Class 1

This product contains software and release notes to update users of SADE from version 1.0 to version 1.1. It does not include the manuals or the binders that shipped with the SADE 1.1 release. This update is available only to APDA customers who purchased the SADE v. 1.0 release.

System requirements

A Macintosh computer with at least 2 MB of RAM (preferably 4 MB), 128K ROM or later, a hard disk, and Macintosh System Software v. 6.0.2 or later. A Macintosh SE/30 or a member of the Macintosh II family is highly recommended.

Product contents

Two disks and four pages of notes.

M0614LL/A **$25.00**

MPW Assembler: Macintosh Programmer's Workshop Assembler v. 3.1

Apple Computer, Inc. Class 1

MPW Assembler v. 3.1 is a full-featured assembler for the Motorola 68000 family of microprocessors (68000/020/030/881/882/851). It provides all the software necessary for assembly-language development of Macintosh applications, desk accessories, drivers, and MPW tools. MPW Assembler is used with the MPW Development Environment.

Assembler interface libraries are included to provide complete access to the latest Macintosh hardware and system software, including interfaces for writing MultiFinder-compatible applications.

The libraries also support SANE (Standard Apple Numerics Environment), the Motorola 68881 and 68882 coprocessors, and Graph3D, a three-dimensional graphics environment.

MPW Assembler v. 3.1 supports the MPW Object Module Format and SADE symbols. This allows you to link object modules produced by the Assembler with objects from any language that supports that format, and to use SADE to debug your Assembler programs.

Sample programs show the types of programs that can be created using MPW Assembler v. 3.1. Resource descriptions, source code, and "Make" instructions are included.

System requirements

A Macintosh computer with at least 2 MB of RAM (preferably 4 MB), and 128K or later ROM. A Macintosh SE/30 or a member of the Macintosh II family is strongly recommended. The system must also include a hard disk, Macintosh System Software v. 6.0.2 or later, and the MPW Development Environment v. 3.1.

The MPW Assembler manual is a reference for the assembler only; we recommend a separate manual on the Motorola 68000 processor as well.

B0236LL/C **$100.00**

MPW Assembler: Macintosh Programmer's Workshop Assembler v. 3.1 Update

Apple Computer, Inc. Class 1

This product contains software and release notes to update users of MPW Assembler from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with MPW Assembler version 3.1.

B0234LL/C **$30.00**

MPW C: Macintosh Programmer's Workshop C v. 3.1

Apple Computer, Inc. Class 1

MPW C v. 3.1 provides the software necessary for developing Macintosh applications, desk accessories, drivers, and MPW tools in the C language. MPW C is used with the MPW Development Environment. It contains ANSI C enhancements, such as function prototypes and strong type checking, including ANSI C additions to the Standard Library. This version also supports global data spaces larger than 32K. MPW C supports optional code generation for the Motorola 68020/030 processors and 68881/882 floating-point units.

C interface libraries are included to provide complete access to the latest Macintosh hardware and system software, including interfaces for writing MultiFinder-compatible applications. The libraries also support SANE (Standard Apple Numerics Environment), the Motorola 68881/882 coprocessors, and Graph3D, a three-dimensional graphics environment.

MPW C v. 3.1 supports the MPW Object Module Format and SADE symbols. This allows you to link object modules produced by MPW C with objects from any language supporting that format, and to use SADE to debug your MPW C programs.

Sample programs are supplied to show the types of programs that can be created using MPW C v. 3.1. Resource descriptions, source code, and "Make" instructions are included that show how to build several stand-alone Macintosh applications. The MPW C manual is a reference for the C compiler only; we also recommend a C programming tutorial such as *The C Programming Language* by Brian Kernighan and Dennis Ritchie.

System requirements

A Macintosh computer with at least 2 MB of RAM (preferably 4 MB), 128K or later ROM, and a hard disk. A Macintosh SE/30 or a member of the Macintosh II family is strongly recommended. The system must include Macintosh System Software v. 6.0.2 or later, and MPW Development Environment v. 3.1.

B0237LL/C **$150.00**

MPW C: Macintosh Programmer's Workshop C v. 3.1 Update

Apple Computer, Inc. Class 1

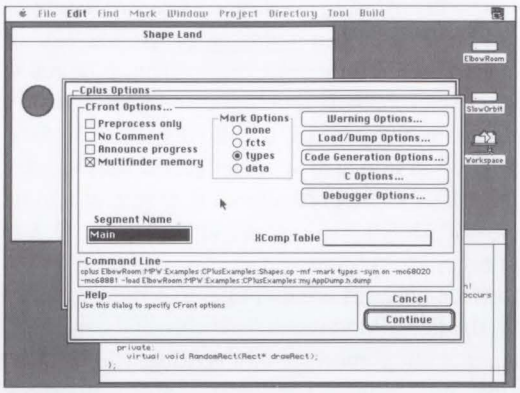
This product contains software and release notes to update users of MPW C from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with MPW C version 3.1.

B0233LL/C **$30.00**

Products

MPW C++: Macintosh Programmer's Workshop C++ v. 3.1

Apple Computer, Inc. Class 1



MPW C++ screen

MPW C++ v. 3.1 brings the power of object programming to developers and programmers using C.

C++ is an object-based programming language available for use with Macintosh Programmer's Workshop development environment. It fully supports the industry standard for object-oriented C as defined by AT&T's C++ Release 2.0. Apple has enhanced the language to support the Macintosh Toolbox and operating system, Object Pascal-based functions and procedures, and the Standard Apple Numerics Environment (SANE). MPW C++ can be used to write Macintosh applications, MPW tools, and mix Object Pascal with C++. MPW C++ v. 3.1 is used with the MPW Development Environment (v. 3.1 or later) and MPW C (v. 3.1 or later).

MPW C++ v. 3.1 is a translator that converts C++ source code into C code which is then compiled by the MPW C compiler. MPW C++ uses the same preprocessor and scanner as MPW C which allows MPW C++ to output tokenized C source code (as well as "standard" C source code). This reduces the build times typically associated with C++. Further, more significant reductions in build times are achieved through the use of precompiled headers.

C++ is a superset of the C programming language. Improvements include support for data abstraction, object-oriented programming, multiple inheritance, operator overloading, and type-safe linking. Three sample programs (two applications and an MPW tool) are included with this product.

Applications built using MPW C++ can be compiled to run on the complete line of Macintosh platforms, or to take advantage of the powerful hardware found in the high-end models. Creation of SADE symbols is also provided so that programs can be debugged at the C++ source level using SADE v. 1.1.

MacApp 2.0 can be used from MPW C++, providing a mature, third-generation class library to MPW C++ users harnessing the power of object-oriented programming to reduce their development times and increase their application's maintainability. Further details on MacApp 2.0 can be found in the MacApp section of this APDA*log*.

Included with MPW C++ are libraries for complex math and I/O stream processing. Apple has also completely rewritten the Complex library. It retains the functionality of AT&T's Complex library and expands upon it, using SANE as the basis for superior numerical accuracy.

MPW C++ comes with a tool for converting C++ "mangled" error messages into messages that are much easier to read. Also included is a resource for use with MacsBug that allows the debugger to unmangle C++ function names.

This release introduces precompiled headers (sometimes referred to as "load/dump") to MPW C++. This provides roughly a 2x speed improvement in compile times. Also new in this release is support for MultiFinder memory and automatic marking of C++ source files. By providing a command line switch (-mf) to allow CFront to use MultiFinder memory when shell memory is low, the partition given to the MPW shell can be reduced significantly. This reduction in shell memory allocation provides more free memory for use by other applications. Automatic marking provides an easy way for functions, data, and classes in C++ source files to be marked during compilation. These marks show up in MPW's "Mark" menu providing easier navigation of source files.

The documentation for this product is comprised of Apple's release notes, one Apple manual, and three AT&T manuals (the Product Reference Manual, the Library Manual, and the Selected Readings manual). A C++ tutorial such as the *Elements of C++ Macintosh Programming* by Dan Weston or *C++ for C Programmers* by Ira Pohl is recommended.

System requirements

A Macintosh Plus or later model with at least 2 MB RAM. Also required are a hard disk, Macintosh System Software v. 6.0.2 or later, Macintosh Programmer's Workshop Development Environment v. 3.1 or later, and MPW C v. 3.1 or later. Highly recommended are at least 4 MB of RAM and a 68020- or 68030-based Macintosh.

Product contents

Two Macintosh disks, four manuals totalling 680 pages, and 20 pages of release notes. Binder included.

M0346LL/D **$175.00**

Related products

- MPW Development Environment v.3.1 or later.
- MPW C v.3.1 or later.
- SADE (Symbolic Application Debugging Environment) v.1.1 or later.
- MacApp v.2.0 or later.
- MacsBug v.6.1 or later.
- MacNosy and "The Debugger" Universal Version.

MPW

- *Elements of C++ Macintosh Programming* by Dan Weston
- *C++ Programming with MacApp* by Wilson, Rosenstein, and Shafer
- *C++ for C Programmers* by Ira Pohl

MPW C++: Macintosh Programmer's Workshop C++ v. 3.1 Update

Apple Computer, Inc. Class 1

This product contains software, a new version of the MPW C++ manual, and release notes to update users of MPW C++ version 3.1B1 to version 3.1. The manual replaces the current Apple manual and includes sections describing the features that were added since version 3.1B1.

This update is only available to APDA customers who purchased MPW C++ version 3.1B1.

Product contents

Two Macintosh disks, one manual totalling 70 pages, and 20 pages of release notes.

M0852LL/A **$40.00**

Macintosh Programmer's Workshop Object Pascal v. 3.1

Apple Computer, Inc. Class 1

MPW Object Pascal v. 3.1 provides all the software necessary for developing Macintosh applications, desk accessories, drivers, and MPW tools using Pascal. It is used with the MPW Development Environment v. 3.1. MPW Object Pascal v. 3.1 also includes Pascal text formatting and source code cross-reference tools.

This version expands on ANSI Pascal to support object-oriented programming using Object Pascal. MPW Object Pascal v. 3.1 now supports forward references made outside the current module using a symbol table of a unit's interface stored in the resource fork of the unit. MPW Object Pascal v. 3.1 also now supports the allocation of more than 32K of globals as well as optional code generation for the 68020/030 processors and for the 68881/882 floating point units.

Pascal interface libraries are included to provide complete access to the latest Macintosh hardware and system software, including interfaces for writing MultiFinder compatible applications. The libraries also support SANE (Standard Apple Numerics Environment), the 68881/882 coprocessors, and Graph3D, a three-dimensional graphics environment.

MPW Object Pascal v. 3.1 supports the MPW Object Module Format and SADE symbols. This allows you to link object modules produced by MPW Object Pascal v. 3.1 with objects from any language that supports the MPW Object Module Format and to use SADE to debug programs written with MPW Object Pascal v. 3.1. A set of example programs is supplied to show the types of programs that can be created using MPW Object Pascal. Resource descriptions, source code, and "Make" instructions are included which show how to build several example stand-alone Macintosh applications.

System requirements

A Macintosh computer with at least 2 MB of RAM, (preferably 4 MB), 128K ROM or later, a hard disk, and Macintosh System Software v. 6.0.2 or later, and the MPW Development v. 3.1. A Macintosh SE/30 or member of the Macintosh II computer family is highly recommended. The MPW Object Pascal Manual is a reference for the Pascal compiler only. A Pascal programming tutorial, such as *Pascal User Manual and Report* by Kathleen Jensen and Niklaus Wirth, is recommended.

Product contents

Four disks, a manual, and release notes.

B0235LL/C **$150.00**

MPW Object Pascal: Macintosh Programmer's Workshop Object Pascal v. 3.1 Update

Apple Computer, Inc. Class 1

This product contains software and release notes to update users of MPW Object Pascal from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with MPW Object Pascal version 3.1.

This update is available only to APDA customers who purchased MPW Object Pascal version 3.0 or the MPW Object Pascal Update version 3.0.

B0232LL/C **$30.00**

MPW v. 3.1 bundles

MPW C Bundle v. 3.1

Apple Computer, Inc. Class 1

This bundle allows you to purchase an entire MPW v. 3.1 development package—including the MPW C language—at a reduced price. It includes:

- MPW Development Environment v. 3.1
- MPW C v. 3.1
- MPW Assembler v. 3.1
- SADE v. 1.1
- MacsBug v. 6.2 and ResEdit v. 2.1

B0031LL/E **$400.00**

MPW C Bundle Update v. 3.1

Apple Computer, Inc. Class 1

This product contains software and release notes to update users of the MPW C Bundle from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with MPW C Bundle version 3.1.

This bundle does not include MacsBug or ResEdit. If you do not have the current versions of these products, we strongly recommend that you purchase them.

B0034LL/E **$90.00**

Products

MPW Object Pascal Bundle v. 3.1

Apple Computer, Inc. Class 1

This bundle allows you to purchase an entire MPW v. 3.1 development package—including the MPW Pascal language—at a reduced price. It includes:

- MPW Development Environment v. 3.1
- MPW Object Pascal v. 3.1
- MPW Assembler v. 3.1
- SADE v. 1.1
- MacsBug v. 6.2 and ResEdit v. 2.1

B0030LL/E **$400.00**

MPW Object Pascal Bundle Update v. 3.1

Apple Computer, Inc. Class 1

This product contains software and release notes to update users of the MPW Object Pascal Bundle from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with MPW Object Pascal Bundle version 3.1.

This bundle does not include MacsBug or ResEdit. If you do not have the current versions of these tools, we strongly recommend that you purchase them.

B0033LL/E **$90.00**

MPW C and Object Pascal Bundle v. 3.1

Apple Computer, Inc. Class 1

This bundle allows you to purchase an entire MPW v. 3.1 development package—including the MPW Object Pascal and C languages at a reduced price. It includes:

- MPW Development Environment v. 3.1
- MPW Object Pascal v. 3.1
- MPW C v. 3.1
- MPW Assembler v. 3.1
- SADE v. 1.1
- MacsBug v. 6.2 and ResEdit v. 2.1
- MPW C and Object Pascal CD-ROM upon request.

Licensing note

See Software Licensing page for licensing details. Site licensing and VAR licensing are available for this bundle

B0032LL/E **$525.00**

MPW C and Object Pascal Bundle Update v. 3.1

Apple Computer, Inc. Class 1

This product contains software and release notes to update users of the MPW C and Pascal Bundle from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with MPW C and Pascal Bundle version 3.1. This bundle does not include MacsBug or ResEdit because many programmers already have the current versions. If you do not have the current versions of these programs, we strongly recommend that you purchase them. This bundle does not include the CD-ROM version.

B0035LL/E **$100.00**

MPW C and Object Pascal Bundle CD-ROM Update v. 3.1

Apple Computer, Inc. Class 1

This bundle allows you to purchase the MPW C and Object Pascal bundle on a CD-ROM instead of floppy disks. The CD-ROM contains the software included in the MPW C and Object Pascal Bundle version 3.1, and printed release notes to update current users of the bundle from version 3.0 to version 3.1. It does not include the manuals or the binders that ship with the MPW C and Object Pascal Bundle version 3.1 release.

MacsBug v. 6.1 and ResEdit v. 1.2 are included on the CD-ROM, but not their documentation. If you do not have the current documentation for these programs, we strongly recommend that you purchase them. This bundle does not include floppy disks. Therefore, if you do not have a CD-ROM drive, you should purchase the MPW C and Object Pascal Bundle Update v. 3.1 instead of this product.

System requirements

A Macintosh computer with at least 2 MB of RAM (preferably 4 MB), and 128K or later ROM. A Macintosh SE/30 or a member of the Macintosh II family is strongly recommended. The system must also include a hard disk, a CD-ROM drive, and Macintosh System Software v. 6.0.2 or later.

Product contents

A CD-ROM containing MPW C v. 3.0 and MPW Pascal v. 3.0, MPW C v. 3.1, Object Pascal Bundle v. 3.1, SADE v. 1.0, SADE v. 1.1, ResEdit v.1.2, and MacsBug v. 6.1. Also included are release notes for MPW C v. 3.1 and Object Pascal Bundle v. 3.1.

Special user note

This bundle is available only to APDA customers who have purchased the MPW C and Pascal Bundle version 3.0. The software in this bundle is stored on a CD-ROM, not floppy disks.

B0231LL/E **$50.00**

MPW C and Object Pascal Bundle CD-ROM Update v. 3.1 with MPW C v. 3.1

Apple Computer, Inc. Class 1

This CD-ROM Bundle Update includes the following tools:

- MPW Development Environment v. 3.1
- MPW C and Object Pascal CD-ROM v. 3.1
- MPW C and Object Pascal Bundle CD-ROM Release Notes v. 3.1
- MPW C v. 3.1 with full documentation.

Special user note:

This bundle is available only to MPW Pascal Bundle version 3.0 purchasers who wish to upgrade to version 3.1 and also acquire MPW C. The software in this bundle is stored on a CD-ROM, not floppy disks.

B0245LL/E **$175.00**

MPW C and Object Pascal Bundle CD-ROM Update v. 3.1 with MPW Object Pascal v. 3.1

Apple Computer, Inc. Class 1

This CD-ROM Bundle Update includes the following tools:

- MPW C and Object Pascal CD-ROM v. 3.1
- MPW C and Object Pascal CD-ROM Release Notes v. 3.1
- MPW Object Pascal v. 3.1

Special user note:

This bundle is available only to MPW Pascal Bundle version 3.0 purchasers who wish to upgrade to version 3.1 and also acquire MPW Object Pascal. The software in this bundle is stored on a CD-ROM, not floppy disks.

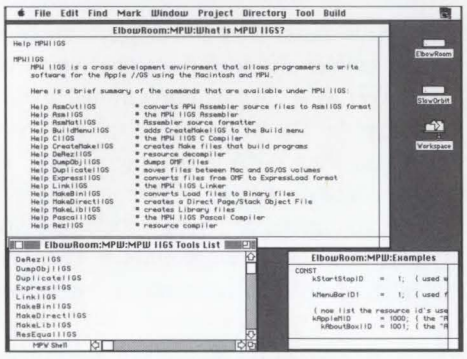
B0244LL/E **$175.00**

Macintosh Programmer's Workshop MPW IIGS Cross-Development Suite

MPW IIGS Tools v.1.1

Apple Computer, Inc. Class 1

MPW IIGS Tools is the cornerstone of the MPW IIGS Cross-Development Suite. These tools are modeled after their MPW counterparts so that programmers familiar with MPW will feel right at home with MPW IIGS.



MPW IIGS Tools screen

MPW IIGS Tools is designed for anyone writing Apple IIGS software. Developers creating Apple IIgs versions of their Macintosh products can use MPW IIGS. This allows one environment (MPW) to be used for writing both a Macintosh and an Apple IIGS version of applications. MPW IIGS Tools, in conjunction with the MPW IIGS Assembler, can be used to create software for the entire Apple II family.

This product contains the MPW IIGS Tools that are essential to accessing the new features of Apple IIGS System Disk v. 5.0.4 and revisions to several existing MPW IIGS tools. All known bugs have been fixed, new tools have been added, and several of the older tools have new features since the version 1.0 release.

The new tools in this package are a resource compiler (RezIIGS), a resource decompiler (DeRezIIGS), a stack segment creation utility (MakeDirectIIgs), a resource compare utility (ResEqualIIGS), and a utility to convert existing applications into ExpressLoad compatible applications (ExpressIIGS). Revised tools included with this product are the ProDOS disk read/write utility (DuplicateIIGS), the OMF display utility (DumpObjIIGS), the linker (LinkIIGS), the binary file converter (MakeBinIIGS), and the library creation utility (MakeLibIIGS).

RezIIGS compiles text resources' descriptions into Apple IIGS resources. DeRezIIIGS is a resource decompiler that converts Apple IIGS resources into a textual representation (which can be recompiled by RezIIGS). This combination of a resource compiler and a resource decompiler provides an easy way to convert resources created with other tools into a textual representation which can be studied, changed, corrected, added to, etc. and then recompiled for inclusion in Apple IIGS applications.

LinkIIGS is significantly faster than its version 1.0. LinkIIGS supports MultiFinder memory during links. This allows the MPW shell partition to be kept small without impacting the size of the applications that can be linked. LinkIIGS is a fully scriptable linker, allowing programmers to control the segmentation of their applications at link time. Applications created using LinkIIGS are automatically compatible with Apple IIGS System Disk v. 5.0.4's ExpressLoad.

DuplicateIIGS is roughly three times faster than it was at version 1.0. Both the data fork and the resource fork of Apple IIGS files can be read and written by DuplicateIIGS.

DumpObjIIGS, MakeLibIIGS, and LinkIIGS fully support OMF 1.0, 2.0, and 2.1. MakeLibIIGS includes an option now to convert existing OMF 1.0 libraries to OMF 2.1. LinkIIGS automatically converts OMF 1.0 object modules to OMF 2.1 at link time.

Interfaces for MPW IIGS Assembler and MPW IIGS C are included as well. These interfaces have been updated to be current with Apple IIGS System Disk v. 5.0.4.

System requirements

An Apple IIGS with enough memory to run the developed application, Apple IIGS System Disk v. 5.0.2 or later, MPW Development Environment v. 3.0 or later, and one of the following languages: MPW IIGS Assembler, MPW IIGS C, or MPW IIGS Pascal.

Product contents

MPW IIGS Tools Manual, two 3.5" disks, and 11 pages of release notes.

A7Z0012/D **$50.00**

Related products

MPW v. 3.1 Development Environment
MPW IIGS Assembler v. 1.0

Products

MPW IIGS C v. 1.0.1
MPW IIGS Pascal v. 1.0B1
GSBug and Debugging Tools v. 4.0B1
Apple IIGS Toolbox Reference Volume 3
Apple IIGS Toolbox Reference Volume 2
Apple IIGS Toolbox Reference Volume 1
GS/OS Reference Manuals (Volumes 1 & 2)
AppMaker/GS (Bowers Development Corp.)

MPW IIGS Tools Update v.1.1

Apple Computer, Inc. Class 1

This product contains the fully tested version of MPW IIGS Tools. These tools are essential for accessing the new features of Apple IIGS System Disk v. 5.0.4. This package includes revised versions of the following tools:

DeRezIIGS
DumpObjIIGS
DuplicateIIGS
ExpressIIGS
LinkIIGS
MakeBinIIGS
MakeDirectIIGS
MakeLibIIGS
ResEqualsIIGS
RezIIGS

With the exception of LinkIIGS, there are no new features (when compared to v. 1.1B1) in these tools. This release is primarily a bug fix release.

LinkIIGS has one new feature—it can now use MultiFinder memory for large links. This allows developers to keep the MPW Shell's memory partition smaller. This makes it much easier to perform large links and still have some memory available for other applications.

Interfaces for MPW IIGS Assembler and MPW IIGS C are also included. These updated interfaces make them current with Apple IIGS System Disk v. 5.0.4. All known bugs in these tools and interfaces have been corrected.

System requirements

An Apple IIGS computer with enough memory to run the developed application, Apple IIGS System Disk v. 5.0.2 or later, MPW Development Environment v. 3.0 or later, and one of the following languages: MPW IIGS Assembler, MPW IIGS C, or MPW IIGS Pascal.

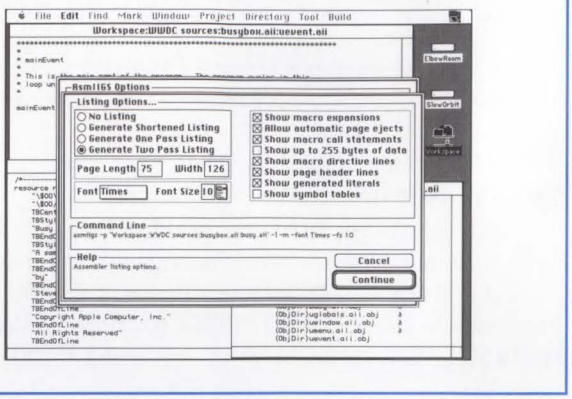
Product contents

Two 3.5-inch disks and 11 pages of release notes.

A0012LL/B **$25.00**

MPW IIGS Assembler v.1.0

Apple Computer, Inc. Class 1



MPW IIGS Assembler screen

This is the current release of the Macintosh-to-Apple IIGS Cross-Development Suite Assembler. It is a full-featured macro assembler that runs in the MPW environment. It generates code for five processors; 65816, 6502, 65C02, NCRCX02, and Mitsubishi 740 microcontroller.

Object modules created with the MPW IIGS Assembler can be linked with MPW IIGS C or MPW IIGS Pascal object modules.

Based on the MPW Assembler and using a similar syntax, the MPW IIGS Assembler also includes a one-way translation utility to help convert APW (Apple Programmer's Workshop) source code. The MPW IIGS Assembler syntax is significantly different from APW Assembler syntax. This conversion process does require some manual editing.

The MPW IIGS Assembler provides a wide range of helpful utility macros to aid in programming. There is also a full set of tool interface macros and equates for the Apple IIGS Toolbox.

The interfaces are current for all tools on the Apple IIGS System Disk v. 4.0. Interfaces for use with Apple IIGS System Disk v. 5.0.4 are included in the MPW IIGS Tools v. 1.1 package.

System requirements

An Apple IIGS with enough memory to run the developed application, Apple IIGS System Disk v. 5.0.2 or later, MPW Development Environment v. 3.0 or later, and MPW IIGS Tools v. 1.1.

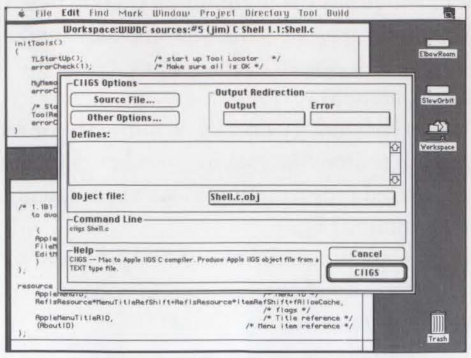
Product contents

Two Macintosh disks and one 280-page manual. A binder is included. Volume discounts are available.

A0005LL/D **$100.00**

MPW

MPW IIGS C v.1.0.1
Apple Computer, Inc. Class 1



MPW IIGS C screen

Containing the Cross-Development Suite C compiler for the Apple IIGS , MPW IIGS C v. 1.0.1 runs in the MPW environment on the Macintosh computer and offers full Kernighan and Ritchie implementation of the C language.

Extensions include void and enumerated types and structure-passing. The compiler supports source-level segmentation of load files. The package includes standard C I/O library and Apple IIGS tool interfaces. The code is source compatible with APW C, with only minor exceptions. Version 1.0.1 interfaces are current for all tools on the Apple IIGS System Disk v. 4.0. Interface macros and equates for Apple IIGS System Disk 5.0.4 are included in the MPW IIGS Tools v. 1.1B1 package.

System requirements

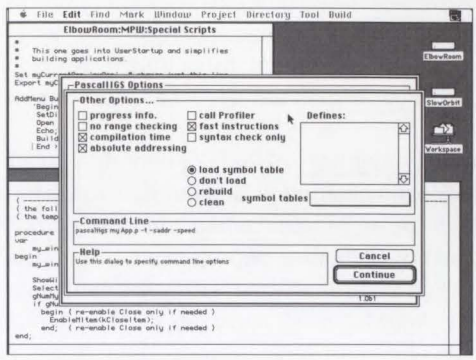
An Apple IIGS computer with enough memory to run the developed application, Apple IIGS System Disk v. 5.0.2 or later, MPW Development Environment v. 3.0 or later, and MPW IIGS Tools v. 1.1.

Product contents

One Macintosh disk and 200 pages of documentation. A binder is included.

A7Z2001/B **$150.00**

MPW IIGS Pascal v. 1.0B1
Apple Computer, Inc. Class 1B



MPW IIGS Pascal screen

This product is the beta version of the Pascal compiler for the MPW-to-Apple IIGS Cross-Development Suite. It runs under MPW on a Macintosh computer.

The compiler produces code that executes directly on an Apple IIGS computer. It is based on and uses syntax almost identical to that of MPW Pascal v. 3.0. Unlike MPW Pascal, however, MPW IIGS Pascal v. 1.0 does not support object-oriented programming. It provides nearly all of the Pascal capabilities described in the ANSI Pascal Standard.

In addition, this product supports Apple's Standard Apple Numerics Environment (SANE). Also supported are type-coercion techniques, bit-manipulation routines, and other extensions. An INLINE extension allows programmers to specify machine instructions and access global data and functions.

MPW IIGS Pascal includes a library of standard Pascal I/O routines. Also included are interfaces for the GS/OS operating system and Apple IIGS Toolbox, current with Apple IIGS System Disk v. 4.0. When the MPW IIGS Pascal v. 1.0 final software and manuals are complete, APDA will provide them to purchasers of the beta version at no additional cost.

System requirements

An Apple IIGS computer with enough memory to run the developed application, Apple IIGS System Disk v. 5.0.2 or later, MPW Development Environment v. 3.0 or later, and MPW IIGS Tools v. 1.1.

Product contents

Two 3.5-inch Macintosh disks and one 344-page manual. A binder is included. Volume discounts are available.

A7G0032 **$175.00**

AppMaker/GS — The Application Generator v. 1.0

Bowers Development

Using the Macintosh as a development platform, AppMaker/GS lets you create and change the user interface for an Apple IIGS application by pulling down menus, pointing, and clicking to arrange what you want on the screen.

No more typing lines of code or hunting through developer documentation to find out how to create standard elements of the user interface like windows, scroll bars, buttons, menus (including pop-up menus), and palettes. Instead, when you're satisfied with what you've arranged on the screen, AppMaker/GS generates the source code for you.

You can choose to generate code for all or any part of the user interface, in Pascal, C, or Assembly language for Apple's MPW IIGS Cross-Development Suite. Because AppMaker makes it so much faster and easier to create and edit the user interface for your new or existing application, you'll be free to try out more ideas, and to concentrate on the features and functions that make your application unique.

AppMaker/GS can import and convert resources from Macintosh applications, making it easy to port a Macintosh application to run on the Apple IIGS computer.

System requirements

A Macintosh Plus or later and the MPW IIGS Cross-Development System.

T0394LL/A **$295.00**

MPW-based third-party products

C

C Programmer's Toolbox/MPW

MMC AD Systems

The Toolbox contains 20 programming tools for the serious C programmer who is either developing new code, porting old code into and/or out of the Macintosh environment or simply wants to improve some existing code. Some of the major tools are:

- CDecl (translates C declaration statements to/from English, which can help you decipher some of those complicated C variable declarations or assist you in constructing new ones)
- CFlow (determines how a program is organized and identifies function interdependencies and run-time library contents)
- CHilite (highlights function calls, and Toolbox calls)
- C keywords (macros, user defined symbols and more and prints the highlighted C code to a selected device, assisting you in understanding how the code works or in creating final documentation)
- CLint (syntactically checks or lint's one or more program source files, saving you hours locating hard to find programming mistakes or latent programming bugs)
- Cpp (a C preprocessor with full ANSI support which can also show you your C code in a number of intermediate forms)
- CPrint (simply the best C source code beautifier/reformatter available that is capable of putting any code into your programming style)
- CXref (the only C cross-reference utility available that also finds and identifies conflicting symbol usages and wasted program memory space)

The other tools fall into two different classes: file/data verification (e.g., compare, difference and dump files) and file/data filters (e.g., manipulate and extract text). Most of the tools include a virtual memory system that enables you to process any size program.

All the tools include a common, powerful command line interface which includes wildcard and indirect file processing. All tools also have simple, easy-to-use, interactive Commando interfaces. The Toolbox includes support for many C dialects including: MPW C 2.x and 3.x, THINK C, Aztec C, ANSI C, UNIX, MPW v. 3.x shell and C compiler.

System requirements

MPW 3.0 or later

T0376LL/A **$295.00**

FORTRAN

Language Systems FORTRAN v. 2.1

Language Systems Corporation

Language Systems FORTRAN v.2.1 is a full-featured optimizing FORTRAN compiler that operates in the MPW environment. The compiler accepts full ANSI-standard FORTRAN 77 plus VAX and other extensions such as DO WHILE, SELECT CASE, NAMELIST, IMPLICIT NONE, DUMP, and TRACE. Complete documentation is included to allow easy and efficient porting of large programs from the VAX and other systems.

Compiler switches specify optimization level and code generation for all Macintosh processors. It supports arrays and subroutines larger than 32K, cross-linking with MacApp, Pascal, C, and Assembler. Direct calls to ROM

routines are possible with the optional PEXTERNAL declaration.

FORTRAN v. 2.1's runtime user interface includes a scrollable output window with Font, Edit, Print, and Save options. The programmer can customize this interface with additional menus and use it as an event-driven "shell". All menu actions are scriptable and the new FILE=* option allows easy use of standard file dialogs.

The compiler allows nested include files and long variable names, and accepts traditional 72 columns or free-form tabbing of source code. It also supports a full set of compiler options including SADE Debugger Support, Execution Tracing, Conditional Compilation, Range, Checking, Symbol Table Cross-Reference, and Assembler Source Listing.

System requirements

A Macintosh computer with either1 MB of RAM and MPW 2.0.2, or 2MB of RAM and MPW 3.0 or greater.

Special user note

In Australia, please contact Firmware Design at (047) 39 4267 for information regarding the purchase of this product.

T0064LL/B with MPW $495.00
T0065LL/B without MPW $400.00

MacFortran II

Absoft Corporation

MacFortran II is a completely new optimizing mainframe caliber FORTRAN 77 compiler for the Macintosh II series and SE/30 platforms. A full ANSI X3.9-1978 implementation, MacFortran II meets all DoD MIL-STD 1753, NIST, and POSIX standards and requirements. VAX/VMS, IBM/VS, and Fortran 90 extensions are supported allowing code to be easily ported to/from mainframe/workstation environments. Mainframe caliber optimizations include strength reduction, loop unrolling, common subexpression elimination, subprogram folding, and pipeline and coprocessor scheduling.

MacFortran II also includes MRWE (MacFortran Runtime Window Environment), an Absoft developed library that adds a Macintosh interface to each compiled FORTRAN program. Written in FORTRAN (source code is included), MRWE is easily modifiable/extendable and gives each program the Macintosh "look and feel" automatically. Cut, copy, and paste commands may be used to transfer data or program results into or from other applications. Programs may be manually interrupted at any time and can run in the background while printing or using other applications under MultiFinder or System 7.0.

MacFortran II is supplied with MPW 3.1 and 220 pages of documentation containing step by step instructions, with examples, showing how to compile and execute FORTRAN programs under MPW. What you see in the manual is what appears on the screen. The complete MPW documentation set is available as an option for those who wish to explore the potential of MPW in greater depth.

System requirements

Any Macintosh II or SE/30 with a math coprocessor, hard disk, and 2MB or more of RAM.

T0254LL/B $595.00

Modula-2

Metrowerks Modula-2 MPW Edition

Metrowerks, Inc.

Metrowerks Modula-2 compilers are handcrafted one-pass optimizing compilers generating native-code for the Motorola MC68000, MC68020, and MC68030 microprocessors. The bootstrapping compilers, written in the Modula-2 programming language, generate fast, robust code. Both the PSE and the MPW compilers generate 32-bit clean code and are source code compatible in their support of the Macintosh toolbox and operating systems calls.

Metrowerks Modula-2 MPW Edition is a one-pass MPW-based Modula-2 optimizing compiler generating MPW Linker format code for MC680x0 processors and offering full support of the Macintosh toolbox and operating systems calls under MPW. The compiler generates applications, MPW tools and drivers and offers support for XCMD programming. Metrowerks Modula-2 MPW Edition supports both MacsBug and SADE symbol generation and is source code compatible with the SP and PSE stand-alone programming environments.

The compiler conforms to Programming in Modula-2, 4th Edition, and supports target-machine compilation for the Motorola MC68000/020/030 processors and not only offers full support of the Macintosh OS and toolbox but also supports sophisticated high-level Modula-2 libraries for terminal emulation, enhanced UNIX-modeled file input/output and concurrent processing.

Compile speeds range from 15,000 to 35,000 lines per minute. Metrowerks Modula-2 MPW Edition and PSE compilers can be delivering final multi-language code within the MPW environment.

System requirements

A Macintosh Plus or later. A hard disk, 2.5 MB of RAM are required. Macintosh System Software v. 5.0 or greater, MPW v. 2.0.2 or later, SADE v. 1.0 or later are needed. Macintosh System Software v. 6.0 or later is required for operation on a Macintosh II or SE/30 computer.

T0384LL/A $150.00

p1 Modula-2 v.4.1

MacApp Developer's Association

p1 Modula-2 implements the complete language as defined in Niklaus Wirth's Programming in Modula-2. In addition, it contains many extensions following the direction

of the Modula-2 ISO standardization process (structured constants, multidimensional open arrays, general VAL and CAST for type conversions, and more).

The most important nonstandard extension is OBJECT ORIENTATION. This is implemented similarly to Object Pascal. The main difference is that, in addition to procedures, methods also can be used as procedure parameters. p1 Modula-2 objects are compatible with Object Pascal at object-code level. Complete MacApp v. 2.0B9 support is provided.

p1 Modula-2 is fully integrated into MPW and is compatible with all MPW languages. It is well adapted for writing desk accessories, init resources, or external routines for HyperCard, 4th Dimension, and so on. All MPW Object Pascal and MacApp include files are available as Modula-2 definition files. p1 Modula-2 is designed for the professional user and contains all the necessary features for such an environment: conditional compilation, data types greater than 32K in size, optional output of assembler source, cross-reference listing, support of 68020 and 68881, three options of floating-point code generation, automatic makefile generation, and extensive documentation of implementation issues.

p1 Modula-2 was developed and is supported by p1 Gesellschaft für Informatik mbH, West Germany.

System requirements

A Macintosh computer configuration that supports MPW and MPW v. 3.0 or later.

T0377LL/A **$345.00**

MPW supplemental tools

MPW Enhancer I

Sand Hill Engineering, Inc.

This product consists of numerous useful examples of menus, scripts, and tools for MPW. The tools include: append; convert (ASCII, hex, octal, binary, signed, decimal); file encryption; file join; sort file display; write file or argument to the modem port; pause; and count number of words, lines, or characters in a file stream.

There are more than 100 useful macros and editor enhancements such as copy/move/trash file groups, automated global file substitution, comment/decomment block, operate on selection, set file attributes, pop-up menu example, mark C and Asm source files, expanded help file, "power user" key combinations, cursor controls [up/down], delete copy lines, jump, end-of-line, etc., alarm clock, phone list manager and dialer, and many UNIX-like aliases. It includes complete source code for the more than 20 tools in the MPW Enhancer Library.

System requirements

A Macintosh computer running Macintosh Programmer's Workshop v. 2.0 or later.

T0093LL/A **$60.00**

MPW Enhancer II

Sand Hill Engineering, Inc.

This product includes a set of development tools and libraries for the Macintosh Programmer's Workshop. Each tool is supported by examples and makefiles as well as by its own graphical (Commando) interface. The development tools are integrated into a menu-driven facility with examples and a help file included to assist in their use. This product includes the complete source code for all tools. The original MPW Enhancer I is suggested but not required.

System requirements

A Macintosh computer running Macintosh Programmer's Workshop v. 2.0 or later.

T0239LL/A **$60.00**

Books and references

Programmer's Guide to MPW, Volume I

NEW!

Addison-Wesley Publishing Company—1991
by Mark Andrews

Created and supported by Apple Computer, Inc., Macintosh Programmer's Workshop (MPW) is the standard software development system for Macintosh programmers. This tutorial and reference demystifies the voluminous MPW documentation by distilling exactly what programmers need to know. In a clear and easily understandable style, the book presents fundamental principles and then progresses to more advanced examples with plenty of sample code and hands-on practice.

Macintosh Programmer's Workshop, Volume 1, is completely up-to-date and covers the forthcoming MPW Version 3.2, as well as the soon to be released System 7 software from Apple. This essential volume in the Macintosh Inside Out series will serve as an important guidebook for every Macintosh programmer who wants to use MPW effectively. (608 pages)

T0421LL/A **$26.95**

MacApp contents

MacApp

MacApp 2.0

Apple Computer, Inc. Class 1

MacApp helps you work more productively by providing the foundation for building Macintosh applications. Your applications can "inherit" the behavior of a standard Macintosh application directly from MacApp code; you simply override the parts you wish to customize.

With MacApp and less than a page of your own code, you can have a complete Macintosh application that supports windows and menus, interprets mouse clicks, handles desk accessories, prints files, and supports every other standard feature a Macintosh application is likely to have.

MacApp is an object-oriented application framework, a class library that implements the standard features of most Macintosh application programs. MacApp adheres to Apple's Human Interface Guidelines and Macintosh compatibility guidelines, so applications can be written with MacApp to inherit the standard Macintosh User Interface and run unchanged on all present and future versions of Macintosh hardware and system software .

MacApp applications can be written using MPW Object Pascal, MPW C++, and/or p1 Modula-2, with extensions written in any MPW compatible language. MacApp applications can also be written using THINK Pascal.

The MacApp software includes complete Object Pascal source code for the MacApp class library; interfaces and sample applications in both Object Pascal and C++; a powerful, high-level debugger and object inspector, and MacApp tools such as Mouser (a source code browser and editor) and ViewEdit (a tool for building windows and dialogs graphically). The disks also contain the MacApp Class and Method Reference, a set of HyperCard stacks which provide online documentation for the MacApp class library.

MacApp is ideal for programmers who wish to develop robust, user-friendly, professional Macintosh applications for commercial, in-house, or educational use. MacApp has been used for such applications as networking and communications, accounting, report generation, graphical data display, CAD, optical character recognition, and knowledge engineering.

MacApp provides a general structure that implements the standard Macintosh user interface, including menus, scrollable and resizable windows, and multipage printing. MacApp fosters development of robust, professional-quality applications by providing extensive memory management support, exception-handling mechanisms, support for "undo" commands, and a large body of ready-to-use, high-quality code that can be inherited by your application. The applications you create with MacApp can run on any Macintosh Plus or later computer.

The MacApp code adheres strictly to Apple's compatibility guidelines, so it greatly simplifies the task of ensuring that an application will be compatible with future hardware and system software products from Apple. If the code you add also follows these guidelines, your applications will run under both the Macintosh and A/UX operating systems, with MultiFinder compatibility.

MacApp is multilingual. Applications using MacApp can be written in MPW Object Pascal, MPW C++, p1 Modula-2, or THINK Pascal. From any of the three MPW object languages, your application can call functions and procedures written in any other MPW language, including C, assembly, FORTRAN, and Ada. Note that MacApp is a framework for applications only. MacApp is not the appropriate tool for building other sorts of programs (e.g. device drivers, desk accessories, or HyperCard XCMDs). MacApp 2.0 customers will automatically receive an upgrade to the next maintenance release of MacApp.

License note

To ship applications built using MacApp, you must obtain a license from Apple. An application form is included with the product. After paying a $100 annual fee (or $10 for non-commercial use), you may ship any quantity of MacApp applications for use on the Macintosh.

Documentation for site licensees is also available separately. Please call APDA for more information including educational discounts. See Software Licensing page for additional licensing details.

System requirements

A Macintosh computer with at least 2 MB of RAM and a hard disk drive. To program using Object Pascal, MPW Development Environment v. 3.1 and MPW Object Pascal v. 3.1 are required, MPW Assembler v. 3.1 and SADE 1.1 are strongly recommended; THINK Pascal 3.0 can be used in place of MPW and SADE. To program using C++, MPW Development Environment v. 3.1, MPW C v. 3.1, and MPW C++ v. 3.1 are required, MPW Pascal v. 3.1, MPW Assembler v. 3.1, and SADE 1.1 are strongly recommended.

Product contents

The MacApp 2.0 product includes the MacApp class library, interfaces, support tools, sample programs, and the on-line MacApp Class and Method Reference on 10 diskettes and also on a single CD-ROM disk (which also contains some extra MacApp "goodies"). The product also contains extensive printed documentation including the

MacApp 2.0 General Reference, *Introduction to MacApp 2.0 and Object-Oriented Programming*, MacApp 2.0 Tutorial, and *MacApp 2.0 Cookbook*, Beta Draft and release notes.
M7022/D **$275.00**

Related products

Programming with MacApp or *C++ Programming with MacApp*, by David Wilson, Larry Rosenstein, and Dan Shafer. Both books teach you how to write applications using MacApp 2.0.

The books describe how to write seven different MacApp programs using Object Pascal (in the former) and C++ (in the latter), with the source code to these available on a disk with the books.

MacApp 2.0 Bundle (without Introduction)

Apple Computer, Inc. Class 1

This product is for customers who have already purchased the *Introduction to MacApp 2.0 and Object Oriented Programming*, and have decided to purchase MacApp.

This bundle includes everything in the MacApp 2.0 product except for the *Introduction to MacApp 2.0 and Object-Oriented Programming*.

Licensing note

See Software Licensing page for additional licensing details.
M0805LL/A **$250.00**

MacApp 2.0 Update CD Version

Apple Computer, Inc. Class 1

This update is for customers who have already purchased MacApp, including MacApp 1.1.1, MacApp 2.0B5, or MacApp 2.0B9. This update product includes the MacApp 2.0 software and the MacApp Class and Method Reference on a single CD-ROM disk, and a copy of the MacApp 2.0 General Reference and release notes.

Since many customers have already purchased versions of the other three MacApp 2.0 manuals (*Introduction to MacApp 2.0 and Object-Oriented Programming*, *MacApp 2.0 Tutorial*, and *MacApp 2.0 Cookbook*, Beta Draft), those books are not included in the update products but are available separately.

Licensing note

See Software Licensing page for additional licensing details.

System requirements

A Macintosh computer with at least 2 MB of RAM, a hard disk, and a CD drive. To program using Object Pascal, MPW Development Environment v. 3.1 and MPW Object Pascal v. 3.1 are required, MPW Assembler v. 3.1 and SADE 1.1 are strongly recommended; THINK Pascal 3.0 can be used in place of MPW and SADE.

To program using C++, MPW Development Environment v. 3.1, MPW C v. 3.1, and MPW C++ v. 3.1 are required, MPW Pascal v. 3.1, MPW Assembler v. 3.1, and SADE 1.1 are recommended.
M0742LL/A **$80.00**

MacApp 2.0 Update, Disk Version

Apple Computer, Inc. Class 1

This update is for customers who have already purchased MacApp, including MacApp 1.1.1, MacApp 2.0B5, or MacApp 2.0B9.

This update product includes the MacApp 2.0 software and the MacApp Class and Method Reference on a set of floppy disks, and a copy of the MacApp 2.0 General Reference and release notes.

Since many customers have already purchased versions of the other three MacApp 2.0 manuals (*Introduction to MacApp 2.0 and Object-Oriented Programming*, *MacApp 2.0 Tutorial*, and *MacApp 2.0 Cookbook*, Beta Draft), those books are not included in the Update products but are available separately.

Licensing note

See Software Licensing page for additional licensing details.

System requirements

A Macintosh computer with at least 2 MB of RAM and a hard disk drive. To program using Object Pascal, MPW Development Environment v. 3.1 and MPW Object Pascal v. 3.1 are required, MPW Assembler v. 3.1 and SADE 1.1 are strongly recommended; THINK Pascal 3.0 can be used in place of MPW and SADE. To program using C++, MPW Development Environment v. 3.1, MPW C v. 3.1, and MPW C++ v. 3.1B1 or later are required, MPW Pascal v. 3.1, MPW Assembler v. 3.1, and SADE 1.1 are strongly recommended.
M0025LL/D **$120.00**

MacApp-based third-party products

MacApp Conference Proceedings, Winter '90

MacApp Developer's Association

The Proceedings of this five-day conference include the handout materials used in the workshops, tutorials and general sessions, as well as notes taken during most sessions.

The handouts and notes for Roger Dunn's (KPMG Peat Marwick) presentation on "Development Methodologies in Large OOP Projects" and Kurt Schmucker's (Apple's Advanced Technology Group) tutorial "Introduction to MacApp 2.0" alone are worth the price of this product. There are tutorial and instructional materials for the beginner, intermediate and advanced programmer, as well as useful information on future extensions of MacApp, programming and design methodologies, and case histories.

The material covered in the proceedings includes:

Products

Extending MacApp (Steve Frederich, Apple Computer, Inc.); *InsideOut and MacApp* (Curtis Faith, Sierra Software Innovations); *Introduction to C++ for MacApp Programmers* (Dave Wilson, Personal Concepts); *Inside Mouser* (Mary Boetcher, Apple Computer, Inc.); *Data Management in MacApp Applications* (Jeff Alger, KPMG Peat Marwick); *Introduction to MacApp 2.0* (Kurt Schmucker, Apple Computer, Inc.); *Future of Pascal* (Derek White, Apple Computer, Inc.); *MacApp and C++: Tricks of the Trade* (John Palevich, Apple Computer, Inc.); *Development Methodologies in Large OOP Projects* (Roger Dunn, KPMG Peat Marwick); *Inside ViewEdit* (Lonnie Millet, Apple Computer, Inc.); *Inside AppleScript* (Mike Farr, Apple Computer, Inc.); *Tools for MacApp Programmers* (Dave Wilson, Personal Concepts); *Evaluating Object-Oriented Design* (Neal Goldstein, Neal Goldstein Design); plus notes from the general sessions tools, MacDSS, MicroTV, Xenon, real-time stock quotations, data visualization, and much more

T0412LL/A **$90.00**

MacApp 2.0 Goodies, Volume 1

MacApp Developer's Association

New MacApp 2.0 goodies, tools, and building blocks include

- CRCCards, a true object oriented design tool that allows the definition of classes, their responsibilities and their collaborators, using the Macintosh interface. It generates the appropriate Pascal or C++ code. Includes source code.
- DisplayViews, a ViewEdit "Test Drive" utility that allows you to quickly see your view resources working in real life.
- TDynaPopup extends the definition of MacApp 2.0's static pop-up menus, allowing changes "on the fly."
- UDates, a unit incorporating many of the Date Entry, Validation and Manipulation functions required in an application.

Upgraded units and tools from previous Goodies disks include:

- AutoMark and Fielder, two handy utilities that intelligently add functions and procedures to the MPW 'Markers' window, and maintain a unit's ".Fields" method in the "Implementation" section based upon information found in the unit's "Interface" definition. Upgraded to 2.0 and MPW 3.1.
- Animated Busy Cursor includes the code and implementation details to add animation to the 'Busy Cursor' routines in MacApp.
- UExtendedText is a resource-controlled subclass of TEditText allowing easy Entry and Validation of Extended Numbers.
- UWindowApp is a complete unit for a Dynamic Windows Menu for your application.

System requirements

A Macintosh Plus or later computer with at least 2 MB of RAM, a hard drive, Macintosh System Software v. 6.0.4 or later, MPW v. 3.0 or later, and MacApp 2.0.

T0397LL/A **$65.00**

OSImage v. 1.1

MacApp Developer's Association

OSImage version 1.1 is an upgrade for MacApp 2.0. Version 1.1 also introduces the capability to create customized offscreen images, by allowing the programmer to choose a specific depth and color table for the new offscreen image. It includes minor bug fixes to the previous release.

OSImage is an off-screen image allocation package written to allow you to easily use off-screen bitmaps in your programs as easily as you use windows and grafports. OSImage is usable from MPW C or Pascal, MacApp 2.0, THINK C and Pascal. You will obtain several benefits from using this off-screen technology. First, doing graphics off-screen generally results in a program that users think is snappier than one that utilizes direct screen drawing. Second, you can generally write faster graphics routines with this approach than with the direct screen drawing approach.

With OSImage, you can temporarily allocate a bitmap for a subrectangle of the grafport and draw into it rather than to the screen. When you finally copy the bits into the screen, the user sees them appear simultaneously. This display capability is used to its best effect when the user is watching a number change while he or she adjusts a control. OSImage is the perfect solution when you want to display rapidly changing real-time graphics in your application.

System requirements

A Macintosh Plus or later, with at least 1 MB of RAM and a hard disk. Macintosh System Software v. 6.0.3 or later. Requires MacApp 2.0 or later or MPW C or Pascal, THINK C or Pascal, or Macintosh Allegro Common Lisp.

T0364LL/B **$250.00**

Books and references

Introduction to MacApp 2.0 and Object-Oriented Programming

Apple Computer, Inc. Class 1

This book is ideal for those who are interested in learning more about MacApp before purchasing the MacApp 2.0 product. Customers who then decide to purchase MacApp can purchase a special MacApp 2.0 package that includes everything except for this book.

Although this book has not changed significantly from

the *Introduction to MacApp 2.0 and Object-Oriented Programming*, Beta Draft, available previously, it may also be of interest to update customers who didn't purchase the beta draft or who want the final version of that book.

This manual is essential for MacApp programmers and those exploring MacApp's capabilities. In addition to a detailed discussion of MacApp 2.0, this manual introduces object-oriented programming and MacApp. It also contains an overview of the structure of MacApp and instructions for using the MacApp tools.

This is not a complete reference manual for MacApp. It is supplemented by the *MacApp 2.0 Tutorial*; the *MacApp 2.0 Cookbook*, Beta Draft; and the *MacApp 2.0 General Reference*, included with the MacApp 2.0 package.

This manual is also included in the MacApp 2.0 package, but is also available stand-alone for those who wish to learn about MacApp and 0bject-oriented programming without purchasing the MacApp 2.0 package. (150 pages)

M0300LL/B **$35.00**

MacApp 2.0 Tutorial

Apple Computer, Inc. **Class 1**

This book teaches you about MacApp through exercises that develop a MacApp-based icon editor.

Although this book has not changed significantly from the *MacApp 2.0 Tutorial*, Beta Draft available previously, it may be of interest to update customers who didn't purchase the beta draft or who want the final version of that book. This tutorial takes you through the steps of developing a MacApp-based icon editor, from start to finish.

Product contents

One Macintosh disk, one 230 page manual.

Special user note

This book is included in the MacApp 2.0 product, so purchasers of that product do not need to buy this book separately.

M0303LL/B **$40.00**

MacApp 2.0 Cookbook, Beta Draft

Apple Computer, Inc. Class 1B

This is a collection of source code "recipes" for performing typical functions such as opening windows and creating documents. (250 pages)

System requirements

A Macintosh with MacApp 2.0.

Special user note

This book is included in the MacApp 2.0 product, so purchasers of that product do not need to buy this book separately.

M0299LL/C **$35.00**

Programming with MacApp

Addison-Wesley Publishing Company—1990

by David A. Wilson, Larry S. Rosenstein, and Dan Shafer

In this hands-on tutorial, you will find everything you need to know about MacApp, up to and including the newest version 2, to create powerful and effective applications—efficiently and easily.

Programming with MacApp, based on David Wilson's acclaimed national MacApp seminars, starts with a basic framework of the MacApp library, then moves to covering tools for program design, code management, and debugging; using MacApp classes and methods; and supporting user input of data and commands in applications.

Numerous short example programs throughout the book illustrate essential concepts, and the last section of the book goes far beyond simple programs to show how to build libraries of reusable code.

Programming with MacApp comes with a Macintosh disk containing more than 13,900 lines of usable original source code. Some compiled examples are also included. (550 pages)

System requirements

Macintosh Plus or later and MacApp 2.0 or later. It also requires MPW v. 3.0 or later, or THINK Pascal v. 3.0.

T0383LL/A **$34.95**

C++ Programming with MacApp

Addison-Wesley Publishing Company—1990

by David A. Wilson, Larry S. Rosenstein, and Dan Shafer

C++ Programming with MacApp is the first guide available to using C++ with MacApp. It shows programmers how to develop Macintosh applications with MacApp 2.0, using object-oriented programming techniques, the Macintosh Programmer's Workshop (MPW), and the MacApp class libraries. A special chapter is devoted entirely to C++, paying particular attention to those features that are most useful to MacApp programmers, and all program examples throughout the book are in C++, Version 2. *C++ Programming with MacApp* also comes with a Macintosh disk containing the source code from all of the examples within the book as well as additional programs. (600 pages)

System requirements

A Macintosh Plus or later, and MacApp 2.0 or later. Also requires MPW v. 3.0 or later, with MPW C++ v. 3.1B1 or later.

T0405LL/A **$34.95**

More Macintosh contents

More Macintosh

Macintosh Common Lisp

Macintosh Common Lisp v. 2.0B1 NEW!
Apple Computer, Inc. Class 1B

Macintosh Common Lisp includes:

- Implementation of the Common Lisp standard
- Implementation of the CLOS (Common Lisp Object System) standard
- Interactive interface designer with source code
- Foreign Function Support for MPW v. 3.2 Object Module Format
- Introductory manual to assist new users
- Automatic upgrade from beta product to final v. 2.0 product

Macintosh Common Lisp 2.0B1 is a dynamic, interactive environment for object-oriented programming which is fully integrated with the Macintosh. This new version offers additional tools and increased performance to further aid programmers in their application development.

Macintosh Common Lisp implements the current industry standard Common Lisp programming language, as defined in *Common Lisp: The Language, Second Edition*, by Guy Steele Jr. Common Lisp is used on a variety of computer platforms for a broad range of applications. Because it is a dynamic language and provides automatic memory management, Common Lisp simplifies the creation of complex interactive applications. This makes it especially well-suited for rapid prototyping, custom development for business and education, scientific and engineering applications, and artificial intelligence research.

Macintosh Common Lisp 2.0B1 now offers support for the Common Lisp Object System (CLOS), the industry standard object-oriented extension to Common Lisp. Users will be able to take advantage of CLOS by writing portable object-oriented code that can easily be moved between the Macintosh platform and other computer platforms.

Macintosh Common Lisp does not assume Macintosh programming experience. Programmers who are new to the Macintosh will find Lisp's interactive environment perfect for exploring and learning how to control the Macintosh. Macintosh Common Lisp's high-level error handling keeps you from facing machine-code.

Macintosh Common Lisp is great for rapid prototyping. The interactive nature of Macintosh Common Lisp allows you to try out different ways of doing things, with immediate results offering you critical feedback. There is no need to switch from a development-mode to run-mode. With Macintosh Common Lisp you can test your code incrementally and redefine one function at a time, all without recompiling the remainder of your application.

Many of the prototyping, programming, and debugging tools in Macintosh Common Lisp have been enhanced with version 2.0B1. These include an incremental compiler, a window-based debugger, a source code stepper, a dynamic object inspector, a stack backtrace, a programmable Macintosh-style Lisp program editor, an on-line help facility, and the Interface Toolkit. These tools work together to present all programming activities in a high-level, object-oriented fashion.

The Interface Toolkit is a programming tool that allows developers to graphically author interfaces for their applications. Users with little or no Lisp experience can interactively design fully-functional Macintosh dialog boxes and menus within a short time. The Interface Toolkit allows users to produce applications with the Macintosh look-and-feel, without having to generate source code. Unlike many other interface construction kits, the Macintosh Common Lisp Interface Toolkit does not require a separate compile and link stage—the user can manipulate the interface while it is installed and running on the computer.

Macintosh Common Lisp 2.0 includes full Lisp source code for many examples and utilities. Source code for the Interface Toolkit and the Inspector is provided, so users can customize and extend these tools for their own purposes. For example, new classes of user-interface objects can easily be added to the Interface Toolkit.

Macintosh Common Lisp 2.0B1 also provides improved handling of records and traps. Interface files allow users to access Macintosh Toolbox routines, including routines that will take advantage of powerful new features in the forthcoming Macintosh System 7.0 system software release. When using System 7, users writing extremely large programs with Macintosh Common Lisp 2.0 will be able to access more than 8MB of memory.

The Macintosh Common Lisp compiler produces efficient native 680x0 code. File compilation and incremental compilation are both supported. An evaluator is provided to support expression-by-expression execution of programs. A snapshot facility allows saving complete Lisp environments for quick restarts. A foreign function interface provides Lisp programs with the capability to call external procedures such

as those written in Pascal, C, or Assembler using MPW 3.2 or earlier.

You can compile, test, and debug functions individually. You do not need to completely recompile and relink an entire program. Macintosh Common Lisp automatically handles many details, such as memory management.

Macintosh Common Lisp can be used to create double-clickable Macintosh applications that do not require the presence of the Lisp environment. Users will require at least 2 MB of memory to use stand-alone applications created with Macintosh Common Lisp 2.0B1.

Licensing note

Site licensing and VAR licensing is available for this product. See the Software Licensing page for licensing details.

To ship applications built using Macintosh Common Lisp you must submit the object code distribution license included in the package to Apple. After paying a $100 annual fee (or $10 for non-commerical use), you may ship any quantity of applications created with Macintosh Common Lisp.

System requirements

A Macintosh Plus or later with at least 2.5 MB of RAM and 5 MB of disk storage (at least 4 MB of RAM recommended); Macintosh System Software v. 6.0.4 or later, or A/UX v. 2.0 or later.

Product contents

Six Macintosh disks, *Getting Started with Macintosh Common Lisp* (a 96 page manual), *Macintosh Common Lisp 2.0 Reference* (a 536 page manual), and *Common Lisp: The Language*, Second Edition by Guy Steele Jr. Purchasers of this product will be sent final Macintosh Common Lisp 2.0 software and documentation at no additional charge.

R0006LL/A **$495.00**

Related products

You may be interested in one of the many books addressing Common Lisp (which may be obtained by contacting the publisher directly):

- *A Programmer's Guide to Common Lisp*, Digital Press, by Deborah Tatar (1987)
- *Common LispCraft*, Norton & Co., by Robert Wilensky (1986)
- *The Little Lisper*, trade edition, MIT Press, by Daniel Friedman and Matthias Fellestien (1987)
- *Lisp* [3rd edition], Addison-Wesley, by Patrick Winston and Bertold Horn (1984)
- *Lisp: A Gentle Introduction to Symbolic Computing*, Harper & Row, by David Touretzky (1984)
- *Object-Oriented Programming in Common Lisp: A Programmers Guide to CLOS*, Addison-Wesley, by Sonya E. Keene (1989)
- *Programming in Common Lisp*, John Wiley & Sons, by Rodney Brooks (1985)
- *Structure and Interpretation of Computer Programs*, MIT Press, by Harold Abelson and Gerald Sussman (1985)

Macintosh Common Lisp v. 2.0B1 Update

NEW!

Apple Computer, Inc. Class 1B

This product updates purchasers of previous versions of Macintosh Allegro Common Lisp to Macintosh Common Lisp v. 2.0B1 software and documentation at a reduced price.

Licensing note

See licensing note for Macintosh Common Lisp v. 2.0B1.

Product contents

Six Macintosh disks, *Getting Started with Macintosh Common Lisp* (a 96 page manual), *Macintosh Common Lisp 2.0 Reference* (a 536 page manual). Purchasers of this product will be sent final Macintosh Common Lisp 2.0 software and documentation at no additional charge.

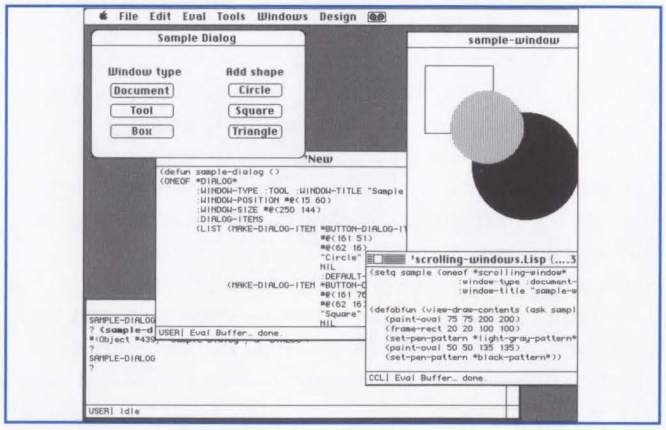
R0007LL/A **$250.00**

Related products

- *Common Lisp: The Language*, Second Edition, by Guy Steele Jr. is strongly recommended for update customers who don't already have a copy; see the "More Macintosh: Books and references" section of this APDA*log*.

Macintosh Common Lisp v. 1.3.2

Apple Computer, Inc. Class 1



Macintosh Common Lisp screen

Macintosh Common Lisp v. 1.3.2, formerly known as Macintosh Allegro Common Lisp v. 1.3.2, was based on the specification described in the first edition of *Common Lisp: The Language*, by Guy Steele Jr. (with some later clarifications). It supports the Object Lisp object system rather than CLOS.

Licensing note
See licensing note for Macintosh Common Lisp v. 2.0B1.

Product contents
A Macintosh Plus or later with at least 1 MB of RAM and 1.6 MB of disk storage (a hard disk and at least 2 MB of RAM strongly recommended); Macintosh System Software v. 6.0 or later.

Product contents
Two Macintosh disks, a 414-page manual, and *Common Lisp: The Language, Second Edition* by Guy Steele Jr.

M0067LL/D **$495.00**

Related products
- *Common Lisp: The Reference*, by Franz, Inc., which corresponds to the first edition of Common Lisp: The Language, by Guy Steele Jr. (the first edition is no longer available); see the "More Macintosh: Books and references" section of this APDA*log*.

Macintosh Common Lisp Update v. 1.3.2
Apple Computer, Inc. Class 1

This product updates purchasers of previous versions of Macintosh Allegro Common Lisp to Macintosh Common Lisp v. 1.3.2 software and documentation at a reduced price.

Licensing note
See Licensing notes for Macintosh Common Lisp v. 2.0B1.

M0229LL/E **$100.00**

Allegro Flavors
Franz Inc.

Allegro Flavors is a powerful, object-oriented programming tool for defining and manipulating abstract objects. Object-oriented programming lets programmers implement a useful facility that presents the caller with a set of external interfaces, without requiring the caller to understand how the internal details of the implementation work. Using proprietary code, Allegro Flavors employs special interpreter and compiler hooks that enable interactive and efficient object-oriented programming execution. It brings the Smalltalk and Actor programming style to the Macintosh Common Lisp 1.3.2 environment. Except for a few details and extensions, Allegro Flavors is quite similar to Release 6 of Flavors for Symbolics Lisp.

System requirements
A Macintosh Plus or later with at least 1 MB of RAM and 1.6 MB of disk storage (a hard disk and at least 2 MB of RAM strongly recommended); Macintosh System Software v. 6.0 or later and Macintosh Common Lisp v. 1.2 or 1.3.2.

Special user note
This product is available to U.S. purchasers only. For information on international availability, contact Franz, Inc., at 1-415-548-3600 and ask for the sales department.

T0329LL/A **$350.00**

Other Lisp Environments

MacScheme+Toolsmith
Lightship Software

MacScheme was the first microcomputer implementation of any modern Lisp standard. Since 1985, it has been taught in more than 20 universities and at the United States Coast Guard Academy. It includes the Byte code compiler and interpreter; more than 200 standard Lisp procedures and special forms; and a debugger and tracer, as well as an editor with automatic indentation and parenthesis matching.

Toolsmith is a complete software development system that features the Scheme programming language, a modern dialect of Lisp. The program provides the facilities needed to write stand-alone applications entirely in Scheme, including a selective linker, high-level objects for interactive windows and menus, and a comprehensive library of Toolbox data. It also includes a native-code compiler for greater speed and a unique interrupt-driven event system and multitasking, which make it possible for programmers to design applications in the manner most appropriate to the problems they are trying to solve.

T0089LL/A **$395.00**

Assembly

Consulair 68000 Development System
Consulair Corporation

Formerly Apple Computer's Macintosh 68000 Development System v. 2.0, this powerful collection of software tools for developing assembly-language programs on the Macintosh includes a multiple-window editor with undo, which allows you to edit several files simultaneously with standard Macintosh text-editing features. The 68000 assembler has a macro facility, which reduces coding time significantly. The flexible linker/librarian supports libraries and modular programming. A Motorola 68000 manual is included with the package. This system runs on all Macintosh machines with a minimum of 512K of memory.

System requirements
A Macintosh 512K or later model running Macintosh System Software v. 3.2 or later, with an 800K drive.

T0045LL/A **$79.95**

BASIC

Microsoft QuickBASIC
Microsoft

Microsoft QuickBASIC is a complete, integrated development system that allows beginning programmers to write BASIC programs on the Macintosh quickly and easily. Everything needed for fast development, testing, and execution is included in one integrated package. Programmers can develop programs using simple statements and convenient editing functions (cut and paste and search and replace). They can use the interactive debugging tools to isolate and correct errors quickly.

Finished programs will be powerful and easy to use, because Microsoft QuickBASIC lets programmers build in standard Macintosh features such as pull-down menus, windows, dialog boxes, and selection buttons.

Programs can be compiled from source code into an executable program with a simple click on a menu option. Programs will run up to 10 times faster after they're compiled. The Microsoft QuickBASIC Toolbox Library gives programs access to all the ready-made ROM routines in the Macintosh Toolbox Library, so graphics, music, sound effects, and many other special features can be added to programs. Source code for the MacBanker personal finance program and several other sample programs is included.

System requirements

A Macintosh Plus or later with one double-sided disk drive. A hard disk or two double-sided disk drives are recommended.

T0276LL/A **$89.00**

C

THINK C Version 4.0
Symantec Corporation

THINK C version 4.0 is the latest iteration of Symantec's C environment. It takes programmers from idea to finished product faster than any other development environment on the Macintosh. THINK C features an extremely fast compiler, a nearly instantaneous linker, a multiwindow test editor, and a powerful source-level debugger that all work together to help you work faster. THINK C offers object-oriented extensions that let you write flexible, extensible, and reusable code. The THINK class Library gives you the code to implement a standard Macintosh application. The language's unique project manager, with built-in auto-make, keeps track of all related files.

System requirements

A Macintosh Plus or later with 1 MB of RAM. The Debugger requires MultiFinder and 2 MB of RAM. Macintosh System Software v. 5.0 or later is required; Macintosh System Software v. 6.0 and a hard disk are strongly recommended. The minimum configuration is two 800K drives.

T0067LL/B **$175.00**

Modula-2

Metrowerks Modula-2 PSE — The Professional Standalone Edition
Metrowerks, Inc.

The Metrowerks Modula-2 compiler is a handcrafted, one-pass optimizing compiler that generates native code for the Motorola MC68000, MC68020, and MC68030 micro processors. The bootstrapping compiler, generates fast, robust code. The compiler generates 32-bit clean code.

Metrowerks Modula-2 PSE is a completely integrated programming environment composed of a specialized multi window text editor, a one-pass native-code Modula–2 optimizing compiler that conforms to *Programming in Modula-2*, 4th Edition, and a source-level debugger. The multiwindow text editor supports multiple fonts, find and change, tabs, auto-indent, and offers automatic Modula-2 keyword capitalization. The editor displays compiler-detected errors and highlights the erroneous statements directly in the Modula-2 source code text window. The Source-Level Debugger traps errors and the state of the machine at run time and links up to the source code instruction that froze the machine.

The compiler supports target-machine compilation for the Motorola MC68000/020/030 processors and offers full support of the Macintosh OS and Toolbox as well as sophisticated high-level Modula-2 libraries for terminal emulation, enhanced UNIX-modeled file input/output, and concurrent processing. Compile speeds range from 15,000 to 35,000 lines per minute.

System requirements

A Macintosh Plus or later model (including the Macintosh Portable computer), with 1 MB of RAM, running Macintosh System Software v. 5.0 or later. A hard disk is recommended. When used with the Macintosh II computer family or the Macintosh SE/30 computer, Macintosh System Software v. 6.0 or later is recommended.

T0207LL/B **$179.00**

Pascal

Just Enough Pascal
Symantec Corporation

Learn Pascal fundamentals and the THINK Pascal environment while having fun. With Just Enough Pascal, users create their own animated graphics application using

QuickDraw. The online, interactive instructions and explanations make learning easy. This program gets programmers started writing their own Macintosh applications, desk accessories, or HyperCard extensions. It requires THINK Pascal v. 2.0 or later.

T0249LL/A **$50.00**

Related products

- THINK Pascal

THINK Pascal Version 3.0

Symantec Corporation

THINK Pascal is the ideal development environment for you, whether you're a professional developer or a novice learning to program. Completely integrated for speed and simplicity, THINK Pascal is easy to use and learn. And with its extremely fast compiler and ultra-fast smart linker, THINK Pascal generates tight, efficient, high-quality code.

Version 3.0 provides the most extensive support for object-oriented programming available on the Macintosh. THINK Pascal includes the THINK class Library, which provides the building blocks you need to implement a standard Macintosh user interface. It also supports MacApp, Apple's class library of user interface building blocks. And the new class Browser lets you view all your program's classes to see how they're related. There's no faster way to finished software than with THINK Pascal.

System requirements

A Macintosh Plus or later model, 1 MB of RAM, Macintosh System Software v. 5.0 or later, and at least two 800K drives. 2 MB of RAM is recommended for the THINK class Library, and 4 MB of RAM for MacApp. A hard disk is required for the THINK class Library and MacApp.

T0068LL/C **$175.00**

Prolog

Advanced A.I. Systems Prolog M-2.0

Advanced A.I. Systems, Inc.

This product includes:

- Ability to save and restore compiled databases
- QuickDraw graphics
- Access to ROM traps and foreign code resources
- Extensive debugging facilities
- Interactive editing environment
- Unlimited parity and variables in asserted clauses
- Indexing and a compiled internal format, for quick retrieval and execution of Prolog programs
- Dynamic assertions and retractions
- Real database reference pointers
- Style checking

AAIS Prolog is for conducting research in Prolog on a Macintosh. It allows you to create, edit, evaluate, compile, and run Prolog programs all within the same interactive environment. Prolog databases can be quickly saved and restored in compiled form. AAIS Prolog includes an interactive editor/compiler and uses an extended Edinburgh syntax, including functor, arg, univ(=..), setof, bagof, and sort. AAIS Prolog allows dynamic assertions and retractions; includes real database reference pointers, real string manipulation functions, and access to all ROM traps, including dialog boxes, windows, and graphics; and is able to call code resources written in other languages (such as C or Pascal). AAIS Prolog provides extensive debugging facilities including step, skip, leap, redo, fail, undefined goal checking, and illegal argument checking.

A run-time package is available as a separate product directly from Advanced A.I. Systems.

System requirements

A Macintosh Plus or later with at least two drives or a hard disk plus a minimum of 1 MB of RAM. For programming with ROM traps directly, 2 MB of RAM is recommended.

T0330LL/A **$298.00**

Smalltalk

Objectworks for Smalltalk-80

ParcPlace Systems

Objectworks for Smalltalk-80 is an interactive development and delivery system for the creation and management of software programs and projects. Integrated with the Smalltalk-80 language and incremental native-code compiler, Objectworks provides access to the full capabilities of object-oriented programming, along with true application portability.

The integrated development system supplies browsers for modifying class libraries, inspectors for modifying the state of objects, symbolic source-level debugging for easy modification of code and data, dynamic cross-referencing for finding all references to code and objects, automatic formatting and spelling checking of code, and binary object storage. More than 300 class libraries are included, providing pretested code modules for immediate use as beginnings of new libraries and programs. Together, these class libraries, development tools, and incremental native-code compilers greatly simplify the creation and delivery of commercial applications.

Objectworks for Smalltalk-80 supports integration with the Macintosh environment, including screen sharing and cut/paste, desk accessories, full MultiFinder compatibility, MPW link format, and access to the Toolbox through user primitives. The 68020/881 instruction sets are also supported. An extensive on-line tutorial and comprehensive training and support services ensure developer success.

Special user note

This product is available to U.S. purchasers only. For information on international availability, contact Franz, Inc., at 1-415-548-3600 and ask for the sales department.

System requirements

A Macintosh Plus or later with at least 4 MB of RAM and 10MB of free disk space.

T0335LL/A **$595.00**

Smalltalk/V Mac

Digitalk, Inc.

Smalltalk/V Mac is an interactive development environment for the Macintosh. It is designed to allow programmers to develop applications quickly and efficiently, making maximum use of the Macintosh user interface. The system consists of a dynamic development language and an interactive environment. Code can be developed and tested in small pieces, eliminating the usual compile-link steps. The language itself can be modified and expanded based on the user's needs. Smalltalk/V Mac provides complete access to the Toolbox, full MultiFinder compatibility, and multiprocessing within Smalltalk/V Mac applications. The environment includes a push-button debugger, making application development and testing easier.

System requirements

A Macintosh Plus or later with at least 1.5 MB of RAM. The package includes a tutorial/user guide and sample files. Support is available at no charge from Digitalk.

T0197LL/A **$199.95**

Visual Programming Environments

Prograph 2.0 Compiler Version

TGS Systems

Prograph is an object-oriented, graphic programming language and development environment that supports the entire software development process—from design to generating stand-alone applications. The Prograph language is completely graphic, object-oriented and dataflow: the diagrams created to define the behaviors of objects ARE the code. It is a powerful, full-fledged programming language that supports the development of complete applications.

The Prograph environment includes an object-oriented application builder for quick, WYSIWYG construction of user interfaces which become part of the structure of the program. Once created, interfaces and other code can be run immediately. Applications can be designed, programmed, tested and debugged in the interpreter while they are running.

Direct access to toolbox calls and support for XCMDs and XFCNs is also provided in Prograph.

The compiler generates 680x0 code and links Prograph files, libraries, resources, and (optionally) THINK C/MPW C object files into stand-alone, double-clickable applications. An intelligent project manager keeps track of files and uses only those portions of code necessary to operate a particular program.

Prograph's pictorial implementation makes OOP and programming the Mac easy to learn. Moreover, the system's unique combination of graphic programming, object-orientation and dataflow can significantly increase productivity.

System requirements

A Macintosh Plus computer (minimum 128K ROM) or later model with at least 2 MB of RAM and a hard disk running Macintosh System Software v. 6.0 or later. The program is MultiFinder compatible.

T0358LL/B **$395.00**

Serius Programmer and Developer

Serius Corporation

Serius Corporation has introduced a new method for programming Macintosh computers. From a palette of predefined components, the user drags icons representing objects into logical groups, creating and defining not only the graphic interface but also the data management of the new application. When the objects are assembled, the user then designates program flow and parameter passage by graphically organizing chains of functions that are executed in response to run-time event occurrences called signals. The applications that are developed run on compiled code; thus speed and efficiency are not problematic. The finished applications are only 35K larger than they would be if developed using conventional systems.

Serius Developer is a superset of the Programmer release. The developer package includes documentation needed to author completely new objects and functions and an enhanced version of the environment. If familiar with C, Pascal, or assembly, the developer can build new objects and functions and integrate them into the environment, where they will be represented by icons. The components can be distributed to other end users of Serius, who don't need to understand the code that was used to develop the new components. To author new objects or functions, the developer must be familiar with a conventional development system such as MPW or THINK. The system must be able to accept MPW files and must be able to create code resources.

System requirements

All Macintosh computers with 2MB of RAM running Macintosh System Software v. 6.0.2 or later, and a hard disk drive.

T0367LL/A Serius Programmer $295.00
T0368LL/A Serius Developer $495.00

V.I.P. (Visual Interactive Programming)
Mainstay

V.I.P. is a visual programming language in which a graphic interface replaces a text editor. The program is composed of graphic elements that can be cut, copied, and pasted. A program is developed by clicking on logic form icons and procedure class icons to choose desired procedures. The program provides more than 225 precompiled Toolbox procedures and functions to greatly simplify programming.

System requirements

A Macintosh Plus, Macintosh SE, or Macintosh II computer.

T0357LL/A **$149.95**

Databases

4th DIMENSION version 2
Acius, Inc.

4th DIMENSION is the best selling relational database for Apple's family of Macintosh computers. Its straightforward approach to database design makes it ideal for the database novice, while the flexible capabilities and sophisticated editors make it the database of choice for intermediate and advanced users. Database professionals will appreciate the extensive configurability and programming language that enables you to write custom applications that are indistinguishable from stand-alone applications.

While creating an application with 4th DIMENSION, the developer is able to take advantage of all of the built-in editors of 4th DIMENSION for searching, sorting, displaying, updating, reporting, and graphing. The object-oriented layout editor allows a fast and complete mastership of the Macintosh interface: Buttons, Radio Buttons, Invisible Buttons, Highlight Buttons, Radio Picture Buttons, Pop-up menus, Check Boxes, Scrollable Areas, Thermometers, Rulers, Dials, etc.

The language of 4th DIMENSION is logically structured and exceptionally concise, allowing almost any kind of sophisticated programming and complete control over the functioning of the application. Some of the features of 4th DIMENSION's language include: over 280 built-in commands; up to 32,767 local and global variables; true one and two-dimensional arrays; up to 32,767 arrays; seven data types; 40 operators; If and Case tests; three loop structures: For, While, Repeat; unlimited routines; parameter passing; pointers to data objects; scripts for fields and objects; scripts copy and paste with objects; global, file, and layout procedures; extendability with external procedures and external areas; interactive symbolic debugger; and access to the data structure.

4th DIMENSION allows four types of procedures: Scripts (assigned at the object level), Layout procedures (assigned to a layout), File procedures (assigned to a file), Global procedures (which can be used anywhere in the database). Global procedures allow a modular approach to programming. When a global procedure is created, it becomes part of the language. For example, you may write a global procedure which, when called by several scripts, performs exactly the same function. This has two obvious advantages:

The global procedure is written only once and does not need to be generated for each script.

By modifying the global procedure, the modification becomes automatically applicable for all scripts calling that procedure.

System requirements

A Macintosh computer with at least 1 MB of RAM and a hard disk. Multifinder compatible.

Special user note

This product is only available to purchasers at U.S. addresses.

T0388LL/A **$795.00**

4D COMPILER
Acius, Inc.

4D COMPILER can assist you in writing efficient code. Even though your code may compile perfectly in that it generates no errors, there may be design ambiguities that the compiler detects. In this case you can utilize the Advanced Warning option during compilation and the Range Checking option during execution to permit the compiler to inform you of possible critical situations.

The nature of a compiler requires that variable types remain consistent. However, unlike other compilers that require that all variables be predeclared, 4D COMPILER automatically identifies the type of variables based on the context in which they are used.

System requirements

A Macintosh computer with at least 1 MB of RAM and a hard disk.

Special user note

This product is only available to purchasers at U.S. addresses.

T0416LL/A **$1,000.00**

4D MOVER
Acius, Inc.

The combination of 4th DIMENSION and 4D Mover creates a complete software development workshop. The purpose of 4D MOVER is to minimize development time for complex applications. 4D MOVER is the ideal tool to quickly and easily copy files and fields, layouts and associated objects, global procedures, external packages and external routines, menu bars, choice lists, and styles from

one 4th DIMENSION database to another.

4D MOVER enables the user to rapidly create applications by combining different parts of existing databases.

It allows the selective cloning of databases. For instance, you can use part of an accounts receivable database to create a customer database. It also allows more than one programmer to work on the development of the same database. Each programmer can develop a part of the database. The parts can then be integrated incrementally using 4D MOVER.

System requirements

A Macintosh computer with at least 1MB of RAM and a hard disk. 4th DIMENSION version 2.

Special user note

This product is only available to purchasers at U.S. addresses.

T0389LL/A **$200.00**

4D EXTERNAL KIT

Acius, Inc.

4D EXTERNAL KIT describes and exemplifies the ways to write extensions efficiently. 4th DIMENSION's unique open architecture allows the user to add new capabilities to 4th DIMENSION. These capabilities, called extensions, can be tailored to fit very specific needs across a wide variety of situations. These extensions are written outside 4th DIMENSION in a programming language such as Pascal, C, Fortran, or assembly. They are then installed into a 4th DIMENSION database. Extensions are inherent to the internal engine of 4th DIMENSION and therefore can be seamlessly and easily integrated into an application.

This product includes:

- Over 30 entry points (call backs) that allow the user to directly access the 4th DIMENSION engine.
- Over 20 data types from text and pictures to one and two-dimensional arrays.
- Over 300 pages of documentation.
- Dozens of examples along with source code
- Templates for each of the different extension categories.

System requirements

A Macintosh computer with at least 1MB of RAM and a hard disk. 4th DIMENSION version 2.

Special user note

This product is only available to purchasers at U.S. addresses.

T0390LL/A **$250.00**

Debuggers and supplemental tools

Audio Interchange File Format v. 1.2

Apple Computer, Inc. Class 2

The Audio Interchange File Format is Apple's standard file format for storing sample sounds. It is described in a MacWrite file on disk.

System requirements

A Macintosh computer with at least 512K of RAM.

A7G0014 **$20.00**

Macintosh Audio Compression and Expansion Toolkit v. 1.0

Apple Computer, Inc. Class 1

The Macintosh Audio Compression and Expansion Toolkit is a set of tools that enables the Macintosh developer to provide audio compression and expansion capabilities in application software.

It requires no specialized hardware and provides compression and expansion capabilities for Macintosh Plus and later models.

The Macintosh Audio Compression Toolkit supports compression in ratios of either 3:1 or 6:1 on all Macintosh CPUs. The toolkit describes how to use compression, expansion, playback, and buffered expansion.

This toolkit is aimed at developers who want to compress audio data to save disk space for their products. Depending upon the amount of audio data included with the application, the playback routines will most likely pay for themselves by taking up less overall space (with the compressed sounds) on disk than would be used for the sounds themselves without compression.

Licensing note

See Software Licensing pagefor licensing details.

System requirements

A Macintosh Plus or later.

M0241LL/A **$30.00**

MacsBug 6.2

NEW!

Apple Computer, Inc. Class 1

- MacBug 6.2 includes:
- Full Motorola 680x0 and FPU processor family support
- Step and trace through RAM and ROM
- Easy to set breakpoints
- Small memory requirement
- Expandibility through custom debugger commands

MacsBug is an assembly-level debugger that can be used with all Macintosh applications and development systems.

MacsBug is intended for Macintosh programmers interested in assembly-level application debugging. If you're writing programs in a high-level language such as C or Pascal, you'll more often want to use a symbolic debugger such as the Symbolic Application Debugging Environment (SADE) that is available for the Macintosh Programmer's Workshop. See the MPW section of this catalog for more information about SADE.

This product contains MacsBug 6.2, the assembly-level debugger for the Macintosh line of computers. MacsBug is ideal for programmers who want power, expandability, and reliability when developing professional applications for the Apple Macintosh computer.

Because MacsBug is compact, it is useful in tight memory situations, regardless of the language(s) used for the source code. With MacsBug, you can display and set memory registers, disassemble memory, set execution breakpoints, step and trace through both RAM and ROM, monitor system traps, and display and check memory heaps.

The utility uses as little of the Macintosh system software as possible. This lets system programmers debug software without having to worry about the debugger using the code they're debugging. Because of the high degree of interaction between Macintosh applications and system software, MacsBug is also a powerful tool for debugging applications.

MacsBug provides full Motorola 680x0-family support. It supports external displays on compact Macintosh computers, as well as various screen sizes and bit depths on modular Macintosh displays. There's no need to customize MacsBug for particular configurations as it determines the attributes of the machine at system start-up.

You can extend the features of MacsBug through the use of external debugger commands, called dcmd's. Commands added in this way behave just like built-in commands.

MacsBug is included with all MPW bundles and E.T.O., so if you are purchasing one of those products, you won't need to order it separately.

Licensing note

See Software Licensing page for licensing details.

System requirements

Any Macintosh computer with 1 MB RAM and 128K ROM or larger.

Product contents

One Macintosh disk and a 126-page reference manual and release notes.

M7034/B **$35.00**

MacinTalk Development Package v. 1.3

Apple Computer, Inc. Class 3

These are the prototype tools and documentation needed to develop applications that access the Macintosh speech synthesizer, MacinTalk. Interface files are provided for Lisa Workshop, MDS, and MPW. The product also contains source code for MacinTalk interface files, which were not included in the Macintosh Software Supplement. Apple does not guarantee that MacinTalk will work on any future Macintosh hardware or software configurations.

The MacinTalk Development Package v. 1.3 is intended for personal enjoyment only and should not be used to develop commercial software. It has not been upgraded or revised and does not take advantage of new features in system software releases, ROM revisions, or computer model changes.

Licensing note

See Software Licensing page for licensing details.

System requirements

Any Macintosh computer.

Special user note

The macinTalk Development Package v. 1.3 is intended for personal enjoyment only and should *not* be used to develop commercial software. It has not been upgraded or revised and does not take advantage of new features in system software releases, ROM revisions, or computer model changes.

M7023 **$20.00**

MIDI Management Tools Set Version 2.0

Apple Computer, Inc. Class 1

The MIDI Management Tools Set Verson 2.0:

- is faster
- contains easier to write MIDI drivers
- has new utility routines
- is upwardly compatible

This toolkit enables developers to transfer data to and from MIDI devices connected to the Macintosh via a MIDI hardware interface. The data can also be passed using virtual ports among several applications running under MultiFinder, or between logical ports within a single application.

The MIDI Management Tools package contains the MIDI Manager, MIDI drivers, PatchBay (a graphical interface for connecting ports), and source code examples for several simple applications.

MIDI Management Tools, Version 2.0, provides new calls that support advanced MIDI Manager applications as well as the creation of MIDI device drivers. It includes bug fixes to version 1.2 and runs on all Macintosh computers.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh Plus or later.

Note: To use MIDI Management Tools 2.0 on the Macintosh IIfx you must use the IIfx serial switch cdev (included with v. 2.0) to allow MIDI to bypass the IOP circuitry.

Our plan is for a future version to eliminate this partial incompatibility with the Macintosh IIfx.

Product contents
One Macintosh 800K disk and one 60 page manual.
M0240LL/D **$35.00**

PICT File Format Notes and Disk Set
Apple Computer, Inc. Class 2

This offering describes eight sample PICT files using various graphics. Included is an application called PICTView for viewing PICT files. These files aid developers in testing applications that parse version 2 pictures. Resolving problems that your application encounters when parsing version 2 pictures may also help solve difficulties with other pictures.

System requirements
A Macintosh computer with at least 512K of RAM. A hard disk is also recommended.

Product contents
Two Macintosh disks and one 56-page manual.
M0054LL/A **$20.00**

RAMDump & ReAnimator v. 1.0
Apple Computer, Inc. Class 1

RAMDump and ReAnimator are the latest versions of cooperative debugging tools that allow developers to dump the RAM of a Macintosh to a floppy disk and then analyze it. This is useful when tracking bugs that are difficult to reproduce and when working on bugs reported by beta sites.

ReAnimator can also be used as a two-machine debugger, which allows developers to debug a target Macintosh over a serial line from a host Macintosh. This arrangement provides a dynamic, multiwindow machine debugger that only minimally disturbs the environment of the target Macintosh.

System requirements
A Macintosh 512K Enhanced or later. Also required is MacsBug v. 6.1 (M7034/A).

Product contents
One Macintosh disk and one 40-page manual.
M7045 **$20.00**

ResEdit v. 2.1
NEW!
Apple Computer, Inc. Class 1

ResEdit is Apple's graphical resource editor for creating and editing elements of the Macintosh user interface, such as menus, windows, icons, and dialog boxes, and other standard data structures. With it, you can quickly create portions of your application's user interface, as well as modify an existing interface. Additional tools let you edit resources for bundle and file references, keyboard maps, international symbols, deadkeys, fonts, and more.

ResEdit is intended for Macintosh programmers and advanced Macintosh users who desire to customize their systems.

ResEdit is ideal for programmers creating and editing various resources while developing professional applications for the Apple Macintosh family of computers. Editing is done with graphical and field manipulation tools.

ResEdit is especially useful for creating and changing graphic resources such as dialog boxes and icons. For example, you can use ResEdit to quickly change a user interface element, making it easy to try out different presentations.

A key feature of ResEdit is its extensibility. Because it can't anticipate the formats of all the different types of resources you may use in your applications, ResEdit is designed so that you can teach it to recognize and parse new resource types. You can also write custom editors for your own resource types.

ResEdit is often used with Macintosh Programmer's Workshop (MPW) and other development systems. It is included with all the MPW bundles and is a component of the E.T.O. : Essentials•Tools•Objects CD subscription.

This product includes the ResEdit v. 2.1 software and the ResEdit Reference. ResEdit 2.1 contains editors for the following resource types: ALRT, BNDL, cicn, crsr, CURS, DITL, DLOG, Finder icons (icl8, icl4, ics8, ics4), FONT, ICN#, ICON, INTL, itl0, itl1, KCHR, MENU, SICN, PAT , PAT#, pltt, ppt#, ppat, styl, TEXT, vers, and WIND. Templates for several additional templates resource types are also included. New in this version are the editors for clut, crsr, pltt, ppat, ppt#, styl, TEXT, and vers resources. In addition, the editors for ALRT, DLOG, DITL, WIND, ICON, ICN#, PAT, CURS, PAT, PAT#, SICN, and cicn have been substantially improved.

Licensing note
See the Software Licensing page for full licensing details.

System requirements
A Macintosh Plus or later.

Product contents
One 250-page reference manual and one Macintosh disk.
M0910LL/B **$29.95**

ResEdit v. 2.1 (manual only)
NEW!
Apple Computer, Inc. Class 1

This product includes only the ResEdit Reference for ResEdit version 2.1. It does not include the ResEdit v. 2.1 software.

Product contents
One 250-page manual.
M0015LL/D **$14.95**

ResEdit v. 2.1 (disk only)
NEW!
Apple Computer, Inc. Class 1

This product includes only the ResEdit v. 2.1 software. It does not include the ResEdit Reference for ResEdit version 2.1.

Product contents
One Macintosh disk.
M0899LL/B **$15.00**

SCSI Development Package v. 1.0

Apple Computer, Inc. Class 2

The SCSI Development Package v. 1.0; it is not fully tested. It takes a how-to approach for developers of add-on SCSI (Small Computer System Interface) products for the Macintosh computer family.

System requirements

A Macintosh 512K Enhanced or later.

Product contents

One single-sided Macintosh disk and 10 pages of documentation.

Special user note

This offering contains a heavily commented, but non-functional, SCSI driver written in assembly language.

A7G0024 **$20.00**

Virtual User 1.0B5

Apple Computer, Inc. Class 2

Virtual User includes:

- VU (Tool) - an MPW tool for executing VU scripts;
- VU Scripting Language - a complete language for describing your automated tests;
- Agent VU - a non-intrusive startup document that allows VU to control target machines

Use Virtual User to automate your application testing on the complete Macintosh computer family. It's intended for Developers and testers of Macintosh software who wish to automate their software testing against multiple target Macintosh computers over an AppleTalk network.

Virtual User (VU) is an automated testing system you execute from the MPW Shell (sold separately; see the MPW section). With VU, you describe tests in a high-level scripting language that are executed against target Macintosh systems remotely over the AppleTalk network.

VU overcomes many of the limitations of early automation schemes (macros, recorders) through the use of the VU Scripting Language. VU scripts are editable with any text editor, unlike keyboard macros or literal recording mechanisms. The VU Scripting Language is abstract, not tied to specific screen or mouse positions in order to control the user interface of the application being tested.

System requirements

Host: A Macintosh with at least 2 MB RAM, with MPW v. 2.0.2 or later. Targets: A Macintosh Plus or later.

Product contents

The package contains three manuals, two 800K floppies, and release notes.

M0987LL/A **$50.00**

AppMaker v.1.1

Bowers Development

AppMaker speeds Macintosh software development by letting you create and change the user interface for an application the same way as you use the Macintosh: by pulling down menus, pointing, and clicking to arrange what you want on the screen.

No more typing lines of code or hunting through documentation of Macintosh toolbox routines to create standard elements of the user interface like windows, scroll bars, buttons, and menus (including hierarchical and pop-up menus).

With AppMaker you can also easily create more specialized elements such as palettes, picture menus, and custom controls like picture buttons and sliders. When you're satisfied with what you've arranged on the screen, AppMaker generates the source code for you. You can choose to generate code for all or any part of the user interface, in Pascal or C, in MPW or THINK programming environments.

AppMaker supports the THINK Class Library, so you have your choice of procedural or object-oriented code. Because AppMaker makes it so much faster and easier to create and edit the user interface for your new or existing application, you'll be free to try out more ideas, and to concentrate on the features and functions that make your application unique.

System requirements

A Macintosh Plus or later with at least 1MB of RAM.

T0322LL/B **$295.00**

FormsProgrammer

Ωhm Software

An intelligent "printer layout chart" for the Macintosh, FormsProgrammer is a utility that allows programmers to produce custom-designed screens or printer output quickly. It has two modes: a graphics design interface and a source code generator. Using the graphic interface, programmers can draw desired output onto the screen using the familiar Macintosh drawing tools; both the form elements and variable names (from the application) can be specified.

Continuous-form programmers can use FormsProgrammer to specify the location of their output variables. FormsProgrammer also has uses for HyperCard XCMD writers: FormsProgrammer output procedures may be called from an XCMD to produce custom output from HyperCard. Source code may be output in MPW or THINK Pascal, or in THINK, MPW, or Aztec C.

System requirements

A Macintosh Plus or later with 1MB of RAM. A hard disk is recommended.

T0281LL/A **$99.00**

HeapShow

B/T Computing Corp.

HeapShow is a powerful developer tool in the form of a desk accessory that provides a real-time graphics

representation of the contents of the application and/or system heaps while programs of interest are actually running on the Macintosh.

The graphics representation of each of the types of memory blocks used by Macintosh applications can save the user hours of frustration by eliminating the tedium associated with other types of debugger lists of memory contents. Often a single glance will disclose what would otherwise take hours to decipher.

HeapShow works with any program that allows the use of desk accessories, and automatically calculates the sizes and address of the heaps, stack, blocks, free memory, and more. The viewing scale can be increased to display an entire 4 MB on one screen or decreased until every bit in memory is represented.

HeapShow also contains automatic video screen burn-in protection, as well as sophisticated memory compaction and purging routines that can drastically improve the performance of many commercial packages.

System requirements

Any Macintosh computer.

T0351LL/A **$79.00**

INIThound v. 1.1

Cambridge Information Ware

INIThound is a temporary INIT that monitors the INIT 31 start-up process and detects all traps patched, VBL/Time Manager/Shutdown tasks installed, modifications to low-memory globals, driver/drive/volume/file activity, and memory allocation. A detailed record is generated for each INIT file. These records include the INIT file name and version information, the Macintosh environment information, and all addresses (handles, pointers, queues, executables, VCBs, FCBs, and more). INIThound removes itself and releases all its storage when the INIT 31 process terminates.

Every aspect of INIThound's start-up behavior is configurable from the Control Panel. The Control Panel interface is also used to generate reports on INIT activity, to disable groups of INITs from executing, and to examine the details of memory allocation. Reports can be viewed in a text window or sent to a file. On-line help is available.

System requirements

A Macintosh 512K computer or later model running Macintosh System Software v. 3.2 or later.

T0353LL/B **$129.00**

MacNosy v. 2 and "The Debugger" Universal Version

Jasik Designs

MacNosy is a global, interactive decompiler that lets users recover the source code of any Macintosh application. Its features include the global subdivision of the program into a set of procedures and data blocks, disassembly of all 68020/881/851 instructions, and hypertext-like reference information for the procedures, variables, and system symbols.

Macintosh trap names lets users move easily between references and definitions. "The Debugger" is a high-level symbolic debugger for the Macintosh that runs in a full multiwindow Macintosh environment. Features include high-level symbolic debugging of arbitrary programs, resources, and the ROM source-level debugging for MPW v. 3.0 compiled programs; disassembly; editing of text fields; viewing of registers, memory, the heap, the stack, global variables, and trap and user call parameters; and more.

Programmer-defined and system structures can be displayed in their natural formats along with the values of programmer defined names. Execution trace facilities include breakpoint, trap intercept, procedure entry/exit trace and a fast memory watch. Programmers may attach action clauses to the breakpoints so as to filter out redundant information and display only information of interest. They may select from a variety of advanced error-checking algorithms, such as Advanced Trap Discipline and Handle Zapping, to ensure the correctness of this program.

In continuous Step mode, "The Debugger" provides an animated execution trace of the program at the source or instruction level. It also supports the direct debugging of THINK C v. 3.0 project files. "The Debugger" will work with multiple monitors on the Macintosh II and supports the use of two screens on the Macintosh Plus or Macintosh SE when used with the E-Machines Big Picture monitor.

System requirements

A Macintosh Plus or later, 2 MB of RAM, and Macintosh System Software v. 5.0 or later. A hard disk is recommended.

T0123LL/A **$350.00**

McCLint C Code Syntax Checker v.2.10

MMC AD Systems

McCLint locates questionable C programming constructs, saving you hours identifying/fixing programming mistakes and latent programming bugs. Some of the McCLint's checks include: variable type usage including enum value usage (have you ever received the wrong value because you mixed different types of variables within a statement or expression?); conditional and assignment statement usage (have you ever written a==b; when you meant a=b;?); arithmetic operations in conditional expressions (have you ever written if (a=b)—when you meant if (a==b) ...?); misplaced semicolons (is there an undesired semicolon in while (a>0); funcA();?); function argument passing including type and number (are you sure that all your function prototypes are accurate, or maybe you don't have any—with McCLint you don't need them. However, if you want them, McCLint can even create them for you); variable initialization and unused variables (are you sure that you

initialized all your variables before you used them?); and more.

McCLint works with both single and multiple file programs. You can interactively analyze and fix bugs or you can capture all the warning/error messages in a file and selectively address the reported problems. You can even selectively deactivate any warning/error message. McCLint even includes function prototypes for the Toolbox calls from *Inside Macintosh*, Volumes I-V. It also comes with a powerful editing and C source code highlighting system and works as a stand-alone application.

It is compatible with most C compilers including: MPW C, THINK C, Aztec C, ANSI C, UNIX. The new release includes many new features: THINK C OOPs support, automatic ANSI function prototype generation; composite include file construction; a new click and fix facility; and more.

System requirements

A Macintosh Plus or later, Macintosh System Software 5.2 or later and a C development environment.

T0210LL/D **$149.95**

McCPrint C Code Beautifier v. 2.10

MMC AD Systems

McCPrint is a C source code beautifier/reformatter/pretty printer which will take any C source code and put it into your programming style. It will save you hours making unreadable code readable. It will also allow you to program in your programming style even though you are supposed to work in another. McCPrint can even construct your final, nice looking comments, even though you made only a minimal entry. After identifying your brace and indentation style (K&R, UNIX, Pascal/Algol, ...) to McPrint, you can specify: comment formats (left/right justification, preprocessor statement comment justification, truncation of long comments, ...); white space usage (space around operators, space after commas, space around statement expressions, variable name alignments, ...); input AND output tab sizes; line size; and more. It cleans up indentation and space/tab usage and easily handles imbedded comments. You only need to specify your style once. McCPrint will then apply your style to any/all of the code that you identify.

McCPrint incorporates a powerful, THINK C-like editing system and a C source code highlighting system. McCPrint works with all C compilers as a stand-alone application. This latest release offers more options including THINK C OOPs s and C++ support; variable name alignments; and a number of new white space usage options.

System requirements

A Macintosh computer with at least 2MB of RAM running Macintosh System Software v. 5.2 or later and a C development environment.

T0092LL/D **$99.95**

PICT Detective v. 2.0

Palomar Software, Inc.

This program produces symbolic descriptions for any valid PICT or PICT2 document. These descriptions are shown in C, Pascal, or MPW Rez source codes. This code can also be saved in a file for later analysis, modification, and recompilation. PICT Detective v. 2.0 includes an application and four MPW tools to analyze and validate pictures.

System requirements

A Macintosh computer with at least 512K of RAM and a disk drive.

T0125LL/A **$125.00**

The Programmer's Online Companion, v.2.1

Addison-Wesley Publishing Company

The Programmer's Online Companion is a "crib sheet" for Macintosh developers. It functions not as a teaching tool but as a quick reference to system calls, system globals, and assembly equates from *Inside Macintosh,* Volumes I-V and the *Apple Numerics Manual*. Once the program is installed, the calls can be accessed with a single keystroke and pasted directly into the editor screen. This revised version 2.1 gives a choice of interface styles. Programmers will no longer have to search through files or books to check spelling, a parameter sequence, or an address. Instead, they will have fast, convenient, and error-free access to database information while editing a source code file in any of the Macintosh development systems. The program can be modified, added to, and reconfigured as it is used so that it becomes a natural extension of an individual's programming style.

System requirements

A Macintosh computer with at least 512K of RAM and a disk drive.

T0127LL/B **$49.95**

Prototyper v. 3.0

Now Software, Inc.

Prototyper v. 3.0 includes:

- Alignment tools, grids, and coordinate window for pixel size and location
- Variety of custom editors; palette, list, pop-up menu, large and small icons
- User interface extensions through linkable custom controls, windows, and sounds
- Watch cursor delays, toggling of menu items, and many other new linking features

Using Prototyper, developers can create a Macintosh program in C or Pascal with menus, windows, and all standard Macintosh controls, even pop-up and hierarchical menus, in as little as ten minutes without taking their hands from the mouse or opening a single volume of *Inside Macintosh.*

Design an interface in an easy-to-use MacDraw style environment and Prototyper will generate source code and resources for a stand-alone application shell. Even a nonprogrammer can design a program with a complex Macintosh interface and put it through its paces with Prototyper's built-in simulator. There are no proprietary libraries to learn. Prototyper generates clean, well-commented standard Macintosh source code in THINK, MPW, TML, and Turbo Pascal as well as THINK C and MPW C.

Prototyper is the only completely integrated user interface builder, simulator, and code generator for the Macintosh. Whether you are working on user interface prototypes or generating code for double-clickable applications, Prototyper streamlines the entire software development process.

Prototyper provides a WYSIWYG design environment that allows you to "draw" the interface you want your application to have, and simulate running it as if it were a real application.

System requirements

A Macintosh computer with at least two 800K drives and Macintosh System Software v. 6.0.2 or later. It is compatible with MultiFinder and supports large color monitors.

T0106LL/C **$299.00**

QuickerPrint

BJJ Kingston Software Corp

QuickerPrint provides greatly increased speed and clarity in source code printout plus background capabilities. It incorporates the following features: background printing under MultiFinder without degradation of system response; multithreaded interface; queued file printing; full support for Finder interface (queues can be opened or printed from Finder); generation of line numbers and printout of identification headers; and, when used in conjunction with MPW, generation of routine and function line indexes.

System requirements

A Macintosh 512Ke or newer running Macintosh System Software v. 4.1 or later. Macintosh System Software v. 6.0.2 is recommended.

T0352LL/A **$89.95**

SCSI Tool

Arborworks, Inc.

SCSI Tool is a program to assist in the development of SCSI (Small Computer System Interface) hardware and software for the Macintosh computer. Running on any Macintosh with a SCSI port, it allows the creation, editing, and execution of SCSI commands.

A SCSI command is specified using a Command Window. Commands may be entered and edited using hex or binary, or by using many special tools. For example, the number of bytes to be transferred may be entered in a field and SCSI Tool will automatically insert this value into the command at the appropriate location.

SCSI Tool assists you in working with the SCSI interface by giving you the information you need quickly and easily. If you want to set the opcode for a command, you don't need to pull out your ANSI spec and look it up. Instead, just click on the description that is shown in the Command Window and a pop-up menu appears with all the legal opcodes. Select the one you want, and it is inserted into the command.

In addition, all result codes, status bytes, message bytes, and sense keys are displayed with text descriptions. You can create many commands and save them into files. You may have several files open at a time, executing commands from each and sharing data among commands.

SCSI Tool also provides a simple but powerful programming language that lets you create, edit, and execute SCSI Tool "procedures." Procedures are block structured, may call other procedures, and may even be used recursively. Procedures may access and modify commands and data.

System requirements

Any Macintosh computer with a SCSI port and a minimum of 512K of RAM, running Macintosh System Software v. 6.0 or later.

T0263LL/A **$175.00**

TMON

ICOM Simulations

This is a multiwindow monitor/debugger for all Macintosh computers that examines details of the Macintosh system's inner workings. After double-click installation, the utility is invoked by any system error or TMON breakpoint, or via the programmer's switch interrupt. TMON can execute in single steps, display labels, handle memory operations, scramble or purge the heap, work with registers, unfreeze the mouse, discipline programs, and much more. Custom features can also be added. The utility works with most third-party large screens and 68020 microprocessor upgrades. The program is not copy protected and includes a new 110-page user guide and technical reference.

System requirements

A Macintosh 512K computer or later running Macintosh System Software v. 5.0 or later.

T0133LL/A **$149.95**

TopDown v.2.0

Kaetron Software Corporation

TopDown is a powerful yet easy-to-use flowcharting and design tool that helps you see the big picture as well as the details. Use this tool to graphically break complex problems into manageable tasks. Each symbol in the design can be exploded into a multipage drawing showing the details. Users can design and document in one step.

The program has unique navigational capabilities. You can anchor the location where you are working, move to

another area of the drawing, and instantly return to the anchor location. It lets you split the screen into two or four areas to view multiple sections simultaneously.

TopDown provides offpage connectors that allow you to instantly jump from a location on one drawing to a location on a different drawing. And it provides a reduced view that allows you to see an entire drawing at one time and quickly move to a particular area.

System requirements

A Macintosh Plus or later running Macintosh System Software v. 5.0 or later. A hard disk drive is recommended. TopDown is MultiFinder compatible.

T0321LL/B **$345.00**

Hardware

A/ROSE Software Kit, Version 1.1.2

Apple Computer, Inc. Class 1

A/ROSE software is a real-time multitasking operating system for NuBus smart cards. It consists of a kernel and allied software. Key features include task scheduling, memory management, interprocess communications and naming services. A/ROSE gives the developer flexibility and a reduced time to market. Apple's commitment includes future enhancements, Macintosh System Software, and CPU compatibility.

This kit is intended for all developers who wish to design commercial or custom software to run on NuBus cards.

This product is intended for those who may wish to use the A/ROSE software without purchasing the Macintosh Coprocessor Platform card. If the developer plans to redistribute the software, either internally or commercially, a software license agreement must be signed. There is a licensing fee of $500.

Licensing note

See Software Licensing page for licensing details.

System requirements

For development with the Macintosh Coprocessor Platform, you need any Macintosh II family computer (with NuBus) running Macintosh System Software v.6.0.2 or later, A/ROSE software and the Macintosh Coprocessor Platform, MPW v. 2.0 or later, MPW C and/or MPW Assembler.

Product contents

Two Macintosh disks and a developer's guide.

M0794LL/B **$150.00**

Macintosh Coprocessor Platform Developer's Kit v. 1.1.2

Apple Computer, Inc. Class 1

The Macintosh Coprocessor Platform together with A/ROSE is a generic hardware and software foundation to help developers create add-on cards and software applications for NuBus-compatible Macintosh computers.

This product contains the Macintosh Coprocessor Platform, A/ROSE(Apple Real-Time Operating System Environment) software, and the Macintosh Coprocessor Platform Developer's Guide. Its intent is to inform and assist the developer in creating an interface to the Macintosh II product family bus (NuBus).

The Macintosh Coprocessor Platform card is a prototyping card with over 26 square inches of space available for the developer to use. It has no input/output interface, but is a generic master/slave I/O processor. Affiliated I/O devices that the developer adds, such as RS232 ports or Token-Ring connectors, give the card access to the outside world. The Macintosh Coprocessor Platform includes a Motorola 68000 processor operating at 10 megahertz and has 512K of RAM. The NuBus interface provides a bus master interface to NuBus on the Macintosh II main logic board. The Macintosh Coprocessor Platform card acts as a slot device to the Macintosh II operating system, freeing the processor on the Macintosh II to perform other functions.

A/ROSE is a real-time multitasking operating system for smart cards and provides an intelligent peripheral-controller interface to NuBus on Macintosh IIcomputers. It provides the operating system and core software services required by Macintosh Coprocessor Platform card by providing software services to smart card application programs. The code includes a collection of traps, interrupt handlers, and tasks that provide support for task naming, timing services, and inter- and intra-card communications using messages.

The manual provides information about the Macintosh Coprocessor Platform and A/ROSE software. It also provides a general overview of the product as well as detailed information on both the hardware and software components of the product. In addition, there are sample programs and instructions on how to create applications using the services of the hardware and software.

Licensing note

If the developer plans to redistribute any portion of the AROSE software, either within their own company our outside, they must sign a license agreement with Apple Software Licensing. See the software licensing page for full details.

System requirements

For development with the Macintosh Coprocessor Platform you need a Macintosh II computer (with NuBus) running Macintosh System Software v. 6.0.2 or later, A/ROSEsoftware and the Macintosh Coprocessor Platform, MPW v. 2.0 or later, MPW C and/or MPW Assembler.

Product contents

Macintosh Coprocessor Platform NuBus card, two Macintosh disks, and one developer's guide

M0793LL/B **$500.00**

Macintosh Coprocessor Platform Developer's Guide

Apple Computer, Inc. Class 1B

This product is intended for those who wish to evaluate the Macintosh Coprocessor Platform or for those who require additional copies of the manual. (412 pages)

Product contents

One Developer's Guide.

M0301LL/B **$65.00**

BusTrak NuBus Analyzer (Nissho N9300)

Applied Physics, Inc.

This product consists of a single desktop form factor card and cable that communicates with a standard ASCII terminal or emulator. The bus analyzer is transparent to the host system and is used to capture NuBus traffic from the backplane in real time. The tool is highly useful for hardware and low-level code development. Its features include the ability to capture 32,000 full NuBus states, a built-in search feature, a histogram mode that displays NuBus traffic by slot space statistics, the ability to trace up to five external signals in tandem with bus activity, and a BNC connector that provides a trigger-out signal to other test equipment. Trigger options include address, data bus, transaction type, status and error codes, attention cycles, arbitration, pretrigger, external triggers, and a pass count.

System requirements

A NuBus Macintosh

T0356LL/A **$2,495.00**

Programming libraries

3d Graphic Tools v. 2.0

Micro System Options

3d Graphic Tools is an original set of functions (not based on Graf3d) that provide fast, three-dimensional point, line, wireframe, and solid-object drawing capabilities. Facilities are included for vector and matrix arithmetic, rotation, scaling, translation, viewer and nested instancing transforms, clipping, facet level hidden surface removal, polygonal facets, spline curves and surfaces, 3d fonts, conversion of bitmaps to solid objects, dithering, color and monochrome shading based on surface and light source angles, multiple light source rendering with ambient light effects, linked lists, stacks, queues, storage and retrieval of hierarchical objects as resources, and more.

Monochrome and color demo programs and complete source code are also included for your choice of the development environments listed below.

For educators, a HyperCard based tutorial addressing the fundamentals of 3d graphics (developed by Professor J.M. Anderson of Franklin and Marshal University) is available as a separate option directly from Micro System Options.

Not copy protected; no licensing fees. Specify development environment when ordering.

System requirements

A Macintosh computer with at least 1MB of RAM, 128K ROMs or later, plus a hard disk. Also required is MPW v. 3.0 or later, THINK C, or THINK Pascal.

T0331LL/C **MPW C v. 3.0 version** **$149.95**
T0339LL/C **THINK C version** **$149.95**
T0338LL/C **THINK Pascal version** **$149.95**

Extender DialogHandler

Invention Software

Extender DialogHandler contains over 160 routines which significantly decrease the time required to write support code for completely functional modal and modeless dialogs. Dialogs which used to take hundreds of lines of code can now be written with less than ten.

DialogHandler fully supports the List Manager and builds in advanced features such as range checking; on-the-fly character filtering to maintain number integrity and full cut, copy, and paste support with context checking. There is no need to sacrifice quality for ease of implementation.

DialogHandler comes with full source code including 4,000 lines of example code and useful Tutorial and Reference manuals, all designed to allow you to use the product with minimal effort. Whether you are a novice or professional programmer, Extender DialogHandler will save you days of development time on each dialog.

Full source code is provided to support the following compilers: MPW C and Pascal, THINK C and Pascal, TML Pascal II.

System requirements

A Macintosh with Macintosh System Software v. 6.0.2 or later and 1MB of memory. A hard disk is recommended.

T0391LL/A **$189.95**

FaceWare Pack

FaceWare

FaceWare Pack consists of preformed resources that can be used to rapidly add all the features of a good Macintosh interface to existing programs. It instantly adds complete support for text editing and spreadsheet-like and graphic windows, including cut, copy, paste, print, and file handling capabilities. It also helps manage complex dialogs with special items and provides easier access to many of the utilities seen in competing, library-based products.

FaceWare Pack works with nearly all of the most popular languages and compilers, including FORTRAN. The FaceWare Pack resources can be moved to any program file or kept as a separate file and shared by multiple programs created using different languages and compilers.

It offers an extremely fast and efficient way to convert scientific and engineering programs for use on the

Macintosh. This product was formerly known as FaceIt.

System requirements

A Macintosh Plus or later with at least 2MB of RM (68020 or 68030 microprocessor recommended), a hard disk, Macintosh System Software v. 6.0.2 or later.

T0200LL/B **$150.00**

MacExpress

ALSoft, Inc.

MacExpress is a generic application development tool that reduces the amount of time required to write programs by as much as 50 percent, while maintaining a complete user interface that is consistent with the published Apple Human Interface Guidelines. It lets you concentrate on writing applications instead of on the complexities of implementing and managing the Macintosh user interface.

MacExpress acts as an application manager by providing flow-of-control for events, menu handling, and the creation and management of windows, panels, views, and dialogs, including activation, resizing, scrolling, splitting, and scaling. All MacExpress standard behaviors can be easily overridden or modified at any time.

It supports all versions of the Macintosh ROM, system software, MultiFinder, and the full 32-bit memory manager of A/UX.

System requirements

MacExpress requires THINK C or THINK Pascal. An MPW and TML version is available directly from ALSoft, Inc.

T0262LL/A **$195.00**

NuTools: Numerical Methods in C v.1.2

Nicus

NuTools: Numerical Methods 1.2 is comprehensive assortment of more than 200 numerical algorithms implemented in ANSI C. These consistent and extensible routines are based on core numerical types, including real numbers, complex numbers, real-number vectors, complex-number vectors, real-number matrices, complex-number matrices, polynomials, and rational polynomials. All numerical types are supported by arithmetic primitives and advanced operations. Advanced operations include curve fitting, eigen values and vectors, interpolation, integration, linear systems, ordinary differential equations, root solving, and signal processing.

In addition to numerical routines, more than 100 input and output routines are included. This diverse selection provides entry, display, and editing windows, expression parsers, two-and-three dimensional graphics, and file dialogs. This product supports both THINK C and MPW C. Extensive documentation, C source code, project files, and Make files are included.

System requirements

THINK C v. 4.0 or MPW C v. 3.0 or later.

T0275LL/A **$295.00**

Object GrafPak

Invention Software Corporation

Object GrafPak is a 100% source code library of powerful object tools for creating presentation quality color or b/w charts and graphs in your application. The object-oriented nature of the product allows complete flexibility and independence of each aspect of a graph including: user-defined tick marks; titles and labels in any font, size, style or color; regular notation, scientific notation, or both; and custom grid lines, patterns and symbols.

Manipulate each aspect of a graph on a low-level or use the CGraph object to orchestrate the objects at a high-level, allowing graphs to be implemented quickly. GrafPak is compatible with new system and QuickDraw enhancements. Other features include column plots; unlimited plot area and number of data points; and multiple plots per window. Source code includes C and Pascal for use with both the THINK class Library and MacApp.

System requirements

A Macintosh with Macintosh System Software v. 6.0.2 or later and 1MB of memory are required. A hard disk is recommended.

T0392LL/A **$189.95**

Professional Extender GrafPak

Invention Software Corporation

Professional Extender GrafPak creates professional presentation-quality, completely customizable, color or black-and-white graphs and plots in your application. It is ideal for scientific and financial graphing. The Professional Extender GrafPak includes 100 percent source code.

Compatible with large high-resolution displays, Extender GrafPak graphics may be drawn directly or saved in PICT or PICT2 format for incorporation into any page-layout or presentation graphics package.

The program's many features include line, scatter, x-y, polar, bar, column, semilog, log-log, and dB plots; titles and labels in any font, size, or style; regular notation, scientific notation, or both; multiple curves on one plot; error bars and drop lines; custom grid patterns and patterns under curves (area plots); and multiple plots on one graph.

The Pascal version is compatible with the THINK Pascal, MPW Pascal, and TML Pascal II compilers. No licensing fees are required.

System requirements

A Macintosh Plus or later with at least 1MB of RAM. A hard disk and a 68881/882 coprocessor are recommended, but not required.

T0270LL/A **$159.95**

Professional Programmer's Extender v. 3.5

Invention Software Corporation

The Professional Programmer's Extender simplifies and enhances Macintosh programming by fully implementing the

user interface, drastically reducing application development time. It allows you to make windows, offscreen pixmaps, custom tear-offs, hierarchical, and pop-up menus, controls, scroll bars, dialogs and alerts, text editing, low-level file I/O, graphics I/O, list management, printing, and a host of other routines a part of your personal Toolbox.

The Professional provides complete Color QuickDraw support, including a color lookup table (CLUT) display and editor; a unique DBug library which displays data structures, status comments and saves DBug transcripts to disk; extensive, well written tutorial-style documentation; and cross-referenced and alphabetical indexes.

More than 50 mini-applications are provided to demonstrate the product's versatility. 100% of the source code is included to support THINK C and MPW C, THINK Pascal, MPW Pascal, and TML Pascal II compilers (no secondary licensing fees).

System requirements

A Macintosh Plus or later.

T0271LL/B **$395.00**

System Software

Special system software note: International versions of system software and HyperCard are available on the Developer Essentials CD *that is included with* d e v e l o p, *Apple's quarterly technical journal. For information on subscribing to* d e v e l o p, *please see the Technical Resources listings in the front section of this catalog.*

Macintosh System Software v. 6.0.7

Apple Computer, Inc. Class 1

System software is required on any disk that is to be the start-up disk for a Macintosh computer. Developers will use this product to test their software for compatibility with the Macintosh Classic, Macintosh LC and Macintosh IIsi computers.

This package contains the October 1990 release of Macintosh System Software, version 6.0.7. It is required for (and included with) the Macintosh Classic, Macintosh LC and Macintosh IIsi computers.

Version 6.0.7 is compatible with all Macintosh computers including and after the Macintosh Plus. Use this version to test your software's compatibility with the new system software.

This product is designed for developers and does not include user documentation. The consumer product is available at your authorized Apple dealer. This product is the same as the Macintosh System Software v. 6.0.7 sent to all Apple Partners and Certified Developers.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh Plus or later.

Product contents

Four Macintosh disks and twenty pages of release notes.

Special user note

If you already have Macintosh System Software v. 6.0.5 and you are not going to use v. 6.0.7 for testing, there is no need to upgrade to Macintosh System Software v. 6.0.7.

M1005LL/A **$35.00**

Macintosh System Software v. 6.0.5

Apple Computer, Inc. Class 1

System software is required on any disk that is to be the start-up disk for a Macintosh computer. Developers will use this product to test their software for compatibility with the Macintosh IIfx computer. This product is for All software and hardware developers who want their product to operate on the Macintosh IIfx computer. Also, Macintosh System Software v. 6.0.5 is the upgrade for users of Macintosh System Software v. 6.0 or later.

This package contains the March 1990 release of Macintosh System Software, version 6.0.5. It is required for (and included with) the Macintosh IIfx computer. Apple recommends that users of the Macintosh IIci and the Macintosh Portable upgrade to this version. Version 6.0.5 is compatible with all Macintosh computers including and after the Macintosh Plus. Use this version to test your software's compatibility with the new system software.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh Plus or later (except for the Classic, LC, and IIsi—see 6.0.7)

Product contents

Four Macintosh disks.

M0060LL/C **$35.00**

Macintosh System Software v. 5.0

Apple Computer, Inc. Class 3

M7088 **$20.00**

Macintosh System Software v. 1.0

Apple Computer, Inc. Class 3

M7027 **$20.00**

Kanji International Macintosh System Software –based on Macintosh System Software v. 6.0.4

Apple Computer, Inc. Class 1

This system software package is an internationalized version of the Macintosh System Software, based on v. 6.0.4. This version has been revised to support the

Macintosh IIci and Macintosh Portable. This is the first Kanji version of system software to support MultiFinder and Commontalk. Kanji 6.0.4 also now includes TextEdit 3.0 (styled text). This version is compatible with all Macintosh CPUs, but users do not need to upgrade unless they require one of the new features listed above.

The package contains system software disks and release notes detailing disk contents and software changes since the previous release.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh Plus, Macintosh SE, Macintosh Portable, or a member of the Macintosh II computer family, except for the Macintosh IIfx or IIsi computer.

Product contents

Nine Macintosh disks and 164 pages of documentation. Five Macintosh disks contain the LaserWriter fonts for Kanji.

M0008J/F **$70.00**

Books and references

Apple File Exchange Technical Reference Package v. 1.1

Apple Computer, Inc. Class 1

Apple File Exchange is a utility that converts data files from one format to another through the use of file-conversion routines, called translators, that specify the file-conversion process.

The package contains information pertinent to anyone interested in writing translators for Apple File Exchange. It includes the final edition of the Apple File Exchange Programmer's Reference and a disk showing the source code for a sample translator. This offering does not include the Apple File Exchange utility application. The utility application is included in Macintosh System Software v. 6.0.2 and later versions.

System requirements

A Macintosh computer with at least 1MB of RAM running Macintosh System Software v. 6.0.2 or later. A hard drive is also recommended.

Product contents

One Macintosh disk and one 184-page manual.

M7051 **$30.00**

Designing Cards and Drivers for the Macintosh Family, Second Edition

Addison-Wesley Publishing Company—1987, 1989, 1990

by Apple Computer, Inc.

This second edition replaces *Designing Cards and Drivers for the Macintosh II and Macintosh SE*, and covers Apple's more recently announced systems. This edition provides expanded information about the design of declaration ROM and driver software.

You will need this book if you want to build interface cards for Macintosh computers. It describes the implementation of the NuBus, processor-direct, and application-specific interfaces on the entire family, including the Macintosh IIfx, IIci, IIcx, II, IIx, SE, SE/30 and Portable. It includes an electrical and mechanical description of NuBus cards; information on data transfer lines, signals, and arbitration logic; and a comprehensive analysis of how to develop NuBus drivers and firmware. (464 pages, 8 1/2" x 11", paperbound)

M7075/B **$26.95**

Macintosh IIsi, LC, and Classic Developer Notes

Apple Computer, Inc. Class 1

These notes contain descriptions of unique features of the Macintosh IIsi, LC, and Classic as well as bus diagrams for slots. They provide useful information for developers about Apple's three latest Macintosh models: the Macintosh IIsi, Macintosh LC, and Macintosh Classic. This includes detailed information on the sound circuitry and processor direct slots in the Macintosh IIsi and LC. These notes are a companion to *Guide to the Macintosh Family Hardware*, Second Edition, published by Addison-Wesley, which covers the hardware characteristics of earlier Macintosh computers. (176 pages)

M0991LL/A **$25.00**

Display Card Developer Notes for the Macintosh Display Cards 4•8, 8•24, and 8•24 GC

Apple Computer, Inc. Class 2

This document describes the hardware and software characteristics of the Macintosh 4•8, 8•24, and 8•24 GC video display cards that were announced in March 1990. It covers electrical specifications, features of the declaration ROM, and the graphics accelerator on the 824 GC card.

It also contains useful tips on how applications can take better advantage of the graphics accelerator on the 8•24 GC card. The document will be of interest primarily to hardware designers and application developers who wish to fine-tune for maximum speed.

M0857LL/A **$25.00**

Inside Macintosh, Volume I

Addison-Wesley Publishing Company—1985

by Apple Computer, Inc.

Inside Macintosh, Volume I, covers the Macintosh 128K and Macintosh 512K computers, though most of the material

also relates to newer Macintosh models. It contains important introductory material and presents user-interface guidelines and descriptions of routines that help you to implement the standard user interface. Other subjects covered in this volume are memory management, using assembly language, the Resource Manager, QuickDraw, the Toolbox Event Manager, the Menu and Dialog Managers, and numerous additional Macintosh programming topics. (550 pages)
M7066 **$24.95**

Inside Macintosh, Volume II
Addison-Wesley Publishing Company—1985
by Apple Computer, Inc.

Inside Macintosh, Volume II, covers the Macintosh 128K and Macintosh 512K computers, though most of the material also relates to newer Macintosh models. It describes routines that perform such basic tasks as file and device I/O, memory management, and interrupt handling. Topics covered include the File Manager, the Printing Manager, device drivers, the AppleTalk Manager, the System Error Handler, and the operating system utilities, and many others. (428 pages)
M7067 **$24.95**

Inside Macintosh, Volume III
Addison-Wesley Publishing Company—1985
by Apple Computer, Inc.

Inside Macintosh, Volume III, covers the Macintosh 128K and Macintosh 512K computers, though most of the material also relates to newer Macintosh models. It explains how a program interfaces with the Macintosh Finder. It also provides a description of the Macintosh 128K and Macintosh 512K hardware and a summary of all the 128K and 512K ROM-based and disk-based software. Appendices provide useful information on Result Codes, routines that may move or purge memory, system Traps, and Global Variables. An extensive glossary clarifies important terms. (280 pages)
M7068 **$19.95**

Inside Macintosh, Volumes I—III, Hardcover Edition
Addison-Wesley Publishing Company—1985
by Apple Computer, Inc.

Volumes I through III of *Inside Macintosh* are bound together in this deluxe hardcover edition. (1,240 pages)
M7071 **$79.95**

Inside Macintosh, Volume IV
Addison-Wesley Publishing Company—1986
by Apple Computer, Inc.

Inside Macintosh, Volume IV, an update to Volumes I through III, explains the features of the Macintosh Plus and Macintosh 512K Enhanced computers. It provides descriptions of hundreds of changes and additions to the original set of programming tools as well as information on the Hierarchical File System (HFS), the interface to the Small Computer Systems Interface (SCSI) port, and disk I/O for the 800K disk drive and the Apple Hard Disk 20. (326 pages)
M7069 **$24.95**

Inside Macintosh Volume V
Addison-Wesley Publishing Company—1988
by Apple Computer, Inc.

Inside Macintosh, Volume V, a continuation of Volumes I through IV, explains the features of the Macintosh II and Macintosh SE. It contains information on the new system routines for the Macintosh II, Macintosh SE, and Macintosh Plus; routines that support color and expansion slots; and new user-interface guidelines that give programmers the information they need to design software for the entire Macintosh family. (640 pages)
M7070 **$26.95**

Inside Macintosh X-Ref
Addison-Wesley Publishing Company—1988
by Apple Computer, Inc.

This volume provides a comprehensive integrated index to *Inside Macintosh*, Volumes I—V, *Programmer's Introduction to the Macintosh Family*, *Designing Cards and Drivers for Macintosh II and Macintosh SE* (first edition), and *Technical Introduction to the Macintosh Family*. It also includes three global appendices, a comprehensive glossary, and a new index of constants and field names. (128 pages)
M7072 **$9.95**

Inside Macintosh X-Ref on Disk
Addison-Wesley Publishing Company—1988
by Apple Computer, Inc.

Addison-Wesley is the publisher of the *Inside Macintosh X-Ref*, a book that includes a comprehensive index to Macintosh Technical Notes for 1984–1987 and the following Addison-Wesley books: *Inside Macintosh*, Volumes I—V, *Programmer's Introduction to the Macintosh Family*, *Designing Cards and Drivers for Macintosh II and Macintosh SE* (first edition), and *Technical Introduction to the Macintosh Family*. It includes three global appendices, a comprehensive glossary, and a new index of constants and field names. This current version of the disk product contains all the text found in the *Inside Macintosh X-Ref* book, with the data stored as MPW text files.

Product contents

One Macintosh disk.
M7016 **$20.00**

Inside Macintosh, Volumes I–V Plus X-Ref, Looseleaf Edition

Addison-Wesley Publishing Company—1985, 1986, 1988

by Apple Computer, Inc.

This product is the same as *Inside Macintosh*, Volumes I-V and X-Ref, but in convenient, loose-leaf form. Although no formal updates are planned, you can easily integrate Apple Technical Notes, your own notes, and copies of technical articles with Apple's definitive Macintosh programming reference suite. Two binders are included.

B0059LL/B **$129.00**

Inside Macintosh, Kanji Edition

Addison-Wesley Publishing Company

by Apple Computer, Inc.

Inside Macintosh, Kanji Edition, is most applicable for commercial and corporate developers as well as hobbyists who understand Kanji and wish to program Macintosh computers using the Kanji language.

This is the Japanese translation of *Inside Macintosh*, Vol. I-V. This edition is a literal translation with no editing or additional information that would make it different in content from the English language version.

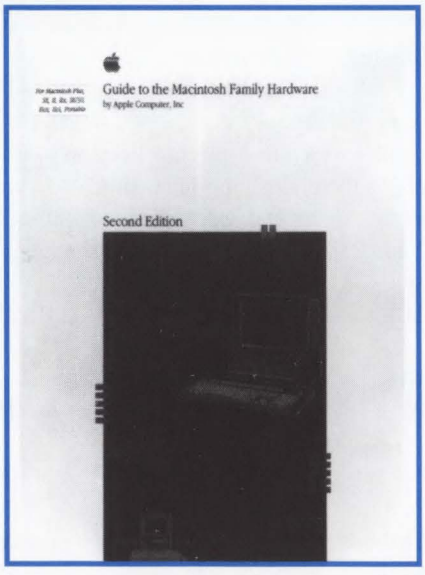
Available only in complete sets. The translations from English into Kanji were completed in 1988 and 1989.

M0601LL/A **$340.00**

Guide to the Macintosh Family Hardware, Second Edition

Addison-Wesley Publishing Company—1988, 1990

by Apple Computer, Inc.



This second edition of the *Macintosh Family Hardware Reference* includes information on all Macintosh computers, including the new Macintosh IIfx, IIci, and Portable. It also provides comprehensive information about the Macintosh 128K, 512K, 512K Enhanced, and Plus, the Macintosh SE and SE/30, and the Macintosh II, IIc, and IIcx.

The book has been completely revised and reorganized by feature, to better allow the reader to compare the differences and similarities among members of the family. Whole chapters are devoted to the VIA chip, memory configuration, power supply, mouse and keyboard, ADB interface, floppy disk interface, serial I/O, SCSI, video display, and sound. (8 1/2 x 11", paperbound, 560 pages)

M7074/B **$26.95**

Macintosh Worldwide Development: Guide to System Software

Apple Computer, Inc. Class 1B

This document includes information that you will need if you want your applications to be compatible with Macintosh system software around the world.

Macintosh Worldwide Development: Guide to System Software is an important document to most developers.

This reference introduces the subject of Scripts and the Script Management System. It covers techniques, constants and data structures, and routines. The appendices discuss how to test applications for script manager compatibility, international resources, how to construct break tables, keyboard structure and handling, sorting, and printing. (262 pages)

System requirements

A Macintosh 512Ke or later.

Product contents

A 235-page manual. A binder is included.

Special user note

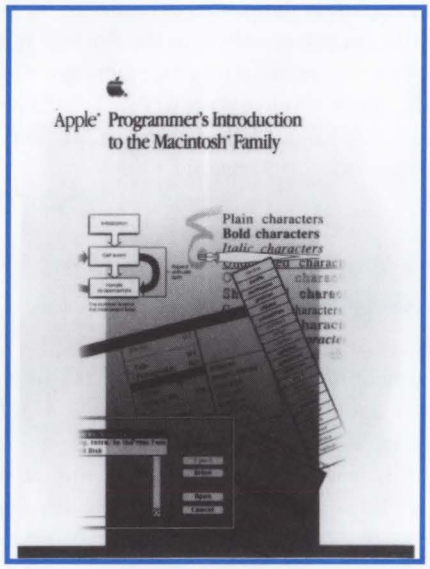
This package replaces the Script manager Developer's Package v. 1.0. For the latest versions of the Kanji and Arabic software that were included in that package, see the Macintosh system software section of this catalog.

M7047/A **$35.00**

Products

Programmer's Introduction to the Macintosh Family

Addison-Wesley Publishing Company—1986
by Apple Computer, Inc.



This overview of Macintosh programming covers event-driven programming, QuickDraw, the Macintosh Toolbox, MPW (Macintosh Programmer's Workshop), MacApp, and other topics. The appendix briefly describes more than 100 operating system and Toolbox calls. (224 pages)

M7076 **$22.95**

Programmer's Guide to MultiFinder

Apple Computer, Inc.—1988 Class 1

This manual outlines the MultiFinder programming form for the Macintosh computer family. It presents specific programming guidelines as well as C and Pascal code examples of the features of MultiFinder.

Through study of the *Programmer's Guide to MultiFinder*, developers ensure that their applications remain compatible with the evolving Macintosh programming environment.

Also included are descriptions of MultiFinder programming features such as the SIZE resource, the event call WaitNextEvent, suspend and resume events, and temporary memory allocation calls. Also included is a sample "MultiFinder-aware" application, written in both C and Pascal, and a description of the Notification Manager. The Programmer's Guide to MultiFinder is an invaluable reference manual for Macintosh application developers. (90 pages)

System requirements

A Macintosh Plus computer or later version with installed system software. A hard disk is recommended.

M7044 **$20.00**

Technical Introduction to the Macintosh Family

Addison-Wesley Publishing Company—1987
by Apple Computer, Inc.

This book provides an overview of the internal workings of Macintosh computers for sophisticated users, hobbyists, and programmers. It includes sections on the ROM, the user interface, graphics, system software, memory management, and the Macintosh file and operating systems, including the A/UX operating system for the Macintosh II. In addition, the hardware features of each Macintosh computer are thoroughly described. (320 pages)

M7077 **$19.95**

TrueType Spec–The TrueType Font Format Specification, v. 1.0

Apple Computer, Inc. Class 1

The TrueType Font Format Specification provides:

- An informative overview of TrueType outline font technology
- A concise description of the outline font format used in Macintosh System 7.0
- A description of the entire TrueType instruction set for hinting fonts
- Assurance that you can build fonts which conform to the specification in this document and that will work in System 7.0

This product contains a complete specification for the TrueType font format which is supported in Macintosh System 7.0. This reference is useful for font developers, printer driver developers, and application developers who want to better understand the TrueType data structures (150 pages).

M0825LL/A **$30.00**

A C++ Primer

Addison-Wesley Publishing Company—1989
by Stanley Lippman, AT&T Bell Laboratories

This book provides a tutorial introduction to C++ Release 2.0 that explains the underlying ideas of C++ in a clear and concise manner. An appendix details the difference between releases 1.2 and 2.0. Proposed updates to the languages are also discussed. (384 pages)

T0362LL/A **$30.25**

Algorithms

Addison-Wesley Publishing Company—1983
by Robert Sedgewick

This publication is a survey of the most important algorithms and data structures, including arithmetic, numerical methods, sorting, searching, string processing, graphing, geometry, graphics, and more.

T0175LL/A **$39.75**

C Programming Techniques for the Macintosh

Howard W. Sams and Company—1986
by Mednieks and Schilke

C—an elegant, fast, and easy language—is steadily growing in popularity. This book combines C programming with the Macintosh ROM toolkit to provide Macintosh programmers with a wealth of valuable information. It is a comprehensive introduction to the C programming language, as developed for the Macintosh environment. Users should have intermediate-level programming knowledge and experience with other languages.

T0145LL/A **$22.95**

Common Lisp: The Language, Second Edition

Digital Press-1990
by Guy L. Steele Jr.

Reflecting the latest changes and additions to the Common Lisp programming language, the second edition of this standard reference bridges the gap between the upcoming ANSI standards and the language as described in the first edition.

Included in this edition is material on topics such as CLOS, the Common Lisp Object System, with new features to support function overloading and object-oriented programming and complete technical specifications; Series and Generators, plus other subjects that are not part of the ANSI standards but that many professional programmers will find informative; Conditions, a generalization of the error signaling mechanism; and Loops, a powerful control structure for multiple variables.

This book is included with the purchase of Macintosh Common Lisp. (1,031 pages)

T0301LL/A **$38.95**

Common Lisp: The Reference

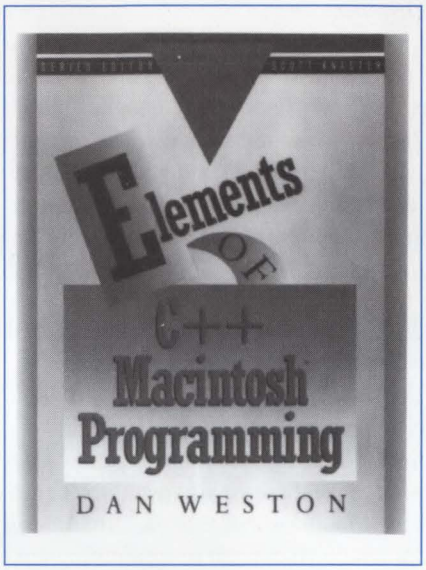
Addison-Wesley Publishing Company—1989
by Franz Inc.

Lisp is the programming language often used for artificial intelligence (AI) applications. Common Lisp is a recognized standard version of Lisp. *Common Lisp: The Reference* is a comprehensive reference to this language,corresponding to the first edition of Common Lisp, the Language, which is the basis for Macintosh Common Lisp v.1.3.2. It is arranged alphabetically: Each entry describes a Common Lisp symbol, with information on its usage, effects on other symbols, and practical examples. In addition to the entries, the book includes essays on Common Lisp programming concepts and numerous in-depth examples. (850 pages)

T0282LL/A **$29.95**

Elements of C++ Macintosh Programming

Addison-Wesley Publishing Company—1990
by Dan Weston



This book teaches the basic elements of C++ programming, concentrating on the object-oriented programming style and syntax. Through numerous hands-on examples, both beginning and more experienced programmers will learn how to design practical and effective programs with C++, including the newest version, Release 2. You will also learn how to: create document and application classes that simplify programming; derive document classes that can scroll pictures and text; use streams for easily displaying debugging information; create powerful hybrid classes using multiple inheritance; and use C++ Release 2 with MacApp version 2. In addition, the appendices include the complete original source code used in the examples in this book. (490 pages)

T0403LL/A **$22.95**

Encyclopedia MAC ROM

Brady Books—1988
by Keith Matthews and Jay Friedland

This book provides comprehensive access to concise information about the nearly 800 ROM instructions. This reference is organized so that users can put their fingers on the routines they need without wading through tutorial text. Thorough indexing ensures instant look-up for commands from the Macintosh operating system, Toolbox, QuickDraw, and all the Managers. Specifications of all the ROM calls and Managers are provided. Models of memory management, interrupt handling, screen graphics, window creation, and menu manipulation are given in assembly language and C. (650 pages)

T0149LL/A **$29.95**

How to Write Macintosh Software, Second Edition

Hayden Books—1986
by Scott Knaster

This book thoroughly discusses memory allocation, reallocation, purging, and implicit and explicit dereferencing, as well as how to reduce memory fragmentation and segment an application. It tells how to use two powerful object-code debuggers and how to make software more effective. Included are valuable appendices, an assembly-language overview, and a list of common programming problems. (528 pages)
T0150LL/A **$28.95**

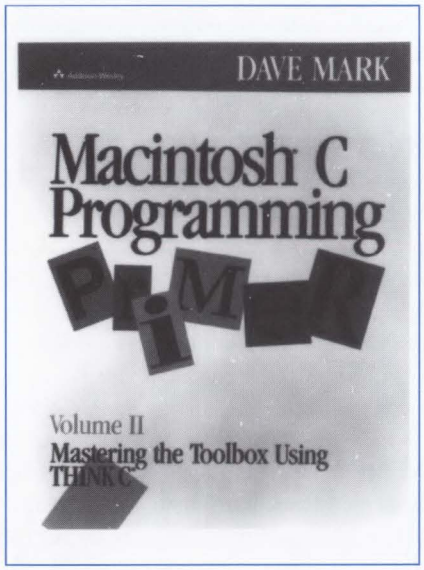
Macintosh C Programming Primer, Volume I, Inside the Toolbox Using THINK C

Addison-Wesley Publishing Company—1988
by Dave Mark and Cartwright Reed

The *Macintosh C Programming Primer* is a tutorial for any programmer or enthusiast who wants to begin creating software for the Macintosh. The book introduces the reader to such fundamental Macintosh programming concepts as event-driven programming and window manipulation, menus, dialog boxes, and file management. Numerous complete programs, using the THINK C environment, demonstrate the application of these concepts and familiarize readers with the Macintosh Toolbox. (544 pages)
T0256LL/A **$24.95**

Macintosh C Programming Primer, Volume II, Mastering the Toolbox Using THINK C

Addison-Wesley Publishing Company—1990
by Dave Mark



Volume II of the popular *Macintosh C Programming Primer* covers additional, more advanced topics using the most recent object-oriented version of Symantec's compiler, THINK C 4.0. Like the first book, Volume II teaches Macintosh programming by creating a series of applications that focus on different aspects of the Macintosh Toolbox, covering such topics as memory management, code resources, color QuickDraw, TextEdit, and object-oriented programming. (496 pages)
T0402LL/A **$24.95**

Macintosh Pascal Programming Primer, Volume I, Inside the Toolbox Using THINK Pascal

NEW!

Addison-Wesley Publishing Company—1991
by Dave Mark and Cartwright Reed

Like the other Macintosh Programming Primer volumes, this book is a tutorial in the art of Macintosh programming. Programmers new to the Macintosh will learn how to use the powerful Toolbox, resources, and the Macintosh interface to create stand-alone applications with the distinctive Macintosh look and feel. All examples are in THINK Pascal 3.0, the most recent version of Symantec's popular compiler.

The authors' user-friendly approach and step-by-step instructions make the Macintosh Pascal Programming Primer required reading for all aspiring Macintosh programmers. (544 pages)
T0422LL/A **$24.95**

Macintosh Programming Secrets

Addison-Wesley Publishing Company—1988
by Scott Knaster

This book offers dozens of hints, tips, and insights on how to take full advantage of the rich and complex programming tools available in the Macintosh system software. Information is included on the specifics of Macintosh architecture, the differences between the various Macintosh computers and maintaining compatibility among them, and the distinctive features of the Macintosh II and Macintosh SE computers. (336 pages)
T0157LL/A **$24.95**

Macintosh Revealed, Volume One: Unlocking the Toolbox, Second Edition

Hayden Books—1987
by Stephen Chernicoff

In addition to covering the Macintosh 128K and Macintosh 512K, this edition concentrates on the Macintosh Plus and its expanded memory management, I/O routines, graphics and text handling, and serial communications. (500 pages)
T0158LL/A **$26.95**

Macintosh Revealed, Volume Two: Programming with the Toolbox, Second Edition

Hayden Books—1989
by Stephen Chernicoff

This edition focuses on the Macintosh Plus, Macintosh 128K, and Macintosh 512K. It covers HFS, 800K double-sided disks, new standard file and disk initialization packages, window-zooming, and zoom boxes. (696 pages)
T0159LL/A **$26.95**

Macintosh Revealed, Volume Three: Mastering the Toolbox
Hayden Books—1987
by Stephen Chernicoff

This third volume in the Macintosh Revealed series leads readers further along the road to mastery of the Macintosh Toolbox. Continuing where the two earlier volumes left off, this volume covers a range of more advanced topics in Toolbox programming, including "customizing" windows, controls, and menus; the structure and operation of device drivers; printing from a Macintosh application; and sound generation. A chapter on writing desk accessories rounds out the coverage. (600 pages)
T0267LL/A **$26.95**

Macintosh Revealed, Volume Four: Expanding the Toolbox
Hayden Books—1990
by Stephen Chernicoff

With *Expanding the Toolbox*, the fourth volume in the *Macintosh Revealed Series*, you will learn about some of the more recent additions to the Macintosh Toolbox. Topics covered include new utilities and routines, programming with MultiFinder, complete coverage of programming with color, and the new TextEdit which allows the use of styled text. Each topic is accompanied by an extensive technical description, analysis, and cross-referencing with other volumes. Commented Pascal source code examples are also included. (548 pages)
T0401LL/A **$26.95**

The Best from MacTutor Magazine
MacTutor

Compilations of articles from *MacTutor* magazine, popular with many programmers, include detailed sections organized by language—BASIC, assembly language, C, Pascal, FORTH, FORTRAN, Lisp, Modula-2, and APL—as well as descriptive and programming articles.

The following volumes are available:

T0160LL/A
The Best of MacTutor, Volume 1 $24.95
T0161LL/A
The Complete MacTutor, Volume 2 $24.95
T0162LL/A
The Essential MacTutor, Volume 3 $29.95
T0206LL/A
The Definitive MacTutor, Volume 4 $29.95

MC68000 8-, 16-, 32-Bit Microprocessors User's Manual, Sixth Edition
Prentice Hall
by Motorola, Inc.

This is the latest authoritative reference on the Motorola 68000 family of microprocessors. Designed to aid software architects and design engineers in the implementation of hardware and software systems using this family of chips, this volume includes a complete description of the instruction set, execution times, and architectural and bus operations for the MC68000/008/010/020 and MC68HC000. (368 pages)
T0164LL/A **$22.95**

MC68020 32-Bit Microprocessor User's Manual, Third Edition
Prentice Hall
by Motorola, Inc.

The MC68020 is a high-performance microprocessor implemented in HCMOS, Motorola's low-power, small-geometry process. This volume is Motorola's official documentation for the MC68020. A complete description of this microprocessor's two main sections—the bus controller and the micro machine—is provided. This manual also contains a complete instruction set summary, with time diagrams and specifications. New addressing modes that support the structure of high-level languages are treated in a comprehensive manner. In addition, bit-oriented applications, such as video graphics, are fully described.
T0214LL/A **$22.95**

MC68030 Enhanced 32-Bit Microprocessor User's Manual
Prentice Hall
by Motorola, Inc.

The MC68030 provides twice the performance of the powerful Intel 80386 chip. The 030 is the first microprocessor to have on-chip data and instruction caches, parallel or "Harvard-style" architecture, and dual modes of address. This microprocessor retains all the essential features of the 68020 and includes many enhancements that increase the processor's parallelism (the number of functions it can perform simultaneously) and its bandwidth (the rate at which it can feed information to its central executive unit). (627 pages)
T0216LL/A **$22.95**

MC68851 Paged Memory Management Unit User's Manual, Second Edition
Prentice Hall
by Motorola, Inc.

Operating as a coprocessor to the MC68020, the MC68851 provides a logical extension to program control and processing capabilities of the main processor. Thus, the

MC68851 facilitates multitasking, the performance of multiple tasks simultaneously. This volume is Motorola's official description of the MC68851's new addressing modes, bus signals, registers, and coprocessor instruction dialogs. The complete instruction set is included in this volume. In addition, design engineers and software architects will find many useful tables, illustrations, and operating instructions. (336 pages)

T0217LL/A **$22.95**

MC68881/882 Floating-Point Coprocessor User's Manual, Second Edition

Prentice Hall
by Motorola, Inc.

Functioning as a coprocessor to the MC68020/030, the MC68881/882 is designed to perform floating-point arithmetic tasks. It is implemented using VLSI technology to give designers the highest possible functionality in a physically small device. This manual describes the programmer's model of the coprocessor, the floating-point instruction set, and the hardware interface. Also included is a discussion of execution times and signal operations. Bus cycles, timing diagrams, and more are discussed from the viewpoint of the MC68020/MC68030 hardware specifications.

T0218LL/A **$22.95**

On Macintosh Programming, Advanced Techniques

Addison-Wesley Publishing Company—1989
by Daniel K. Allen

This book is written for anyone interested in creating software for the Macintosh family of computers. The book is organized into three main sections: Fundamentals, Tools, and Sources. The Fundamentals section describes the Macintosh hardware, software, operating system, QuickDraw graphics, Toolbox routines, and architecture. The basics of 68XXX assembly language and the use of MacsBug (the Macintosh debugger) are also presented.

The Tools section serves as a compact set of quick reference manuals for Macintosh programming tools. A description of HyperCard and HyperTalk is included, along with a thorough presentation of MPW and its many useful language tools. An introduction to object-oriented programming includes details about Object Pascal, MacApp, and C++. The sources section presents the full source code for a variety of Macintosh applications and MPW tools. This software illustrates how to program the Macintosh in color graphics, text processing, numerical analysis, system software, and more. (350 pages)

T0257LL/A **$24.95**

ResEdit Complete

NEW!

Addison-Wesley Publishing Company—1991
by Peter Alley and Carolyn Strange

Created by Apple Computer, Inc., ResEdit is one of the most flexible and useful programs for the Macintosh. All Macintosh users and programmers can use ResEdit to customize every aspect of the Macintosh interface—from creating intriguing screen backgrounds and icons to the more serious programming tasks of customizing menus and dialog boxes.

This book/disk package includes a full working version of the program as well as a complete guidebook that shows how to use it. Written by the Project Leader of the ResEdit development team at Apple, ResEdit Complete introduces the ins and outs of the newest version, ResEdit 2.1. This task-oriented book begins with very easy examples, such as changing icons and patterns, and slowly progresses to more complex activities such as writing editors and creating templates. (576 pages)

Special user note

This book is not the *ResEdit Reference*, the Apple manual that documents ResEdit. You can find the *ResEdit Reference* in the More Macintosh section under Debuggers and supplemental tools.

T0424LL/A **$29.95**

The C++ Programming Language

Addison-Wesley Publishing Company—1986
by Bjarne Stoustrup

Intended primarily for serious, experienced programmers, this book serves as a basic reference text on the C++ programming language, the newest extended version of C. It provides a complete description of C++, many complete examples, and many program fragments. Its coverage is broad enough for the reader to both learn the language and utilize it for various projects. (400 pages)

T0191LL/A **$31.25**

HyperCard contents

HyperCard

Tools

HyperCard Development, Kit Version 2.0
Claris Corporation

HyperCard 2.0 is the personal development toolkit for the Macintosh. It provides immediate access to the power of Macintosh computer programming, with greater flexibility to manage and create information, using virtually any type of media. The new version HyperCard 2.0v2 is a major update of HyperCard and offers significant new tools and functionality. It is one of the most powerful and accessible programming systems for both novice and advanced Macintosh developers.

The Development Kit is designed for Macintosh owners who have purchased their Macintosh after November 1990, or for owners of the Classic and LC Macintosh families. It is also designed for current HyperCard users who are now doing HyperCard development for the first time. It provides complete tools, samples, and documentation necessary to learn HyperCard, scripting, and stack development.

System requirements

A Macintosh Plus, Macintosh Classic, Macintosh SE, Macintosh Portable, Macintosh LC, or member of the Macintosh II family of computers. Two 800K floppy disk drives or one floppy drive and one hard drive (a hard drive is highly recommended). Minimum 1 MB of memory (2 MB to use MultiFinder). System Software v. 6.0.5 (v. 6.0.7 to record using the Audio Palette).

Special user note

For current HyperCard 1.2.5 users, a HyperCard 2.0 upgrade package is available directly from Claris for $49.00. It provides the software, tools and documentation necessary for an experienced HyperCard user to take advantage of HyperCard 2.0. For more information, contact Claris directly at 1-800-628-2100.

Outside the U.S., contact your local Apple representative to obtain this upgrade.

T0419LL/A **$199.00**

HyperCard v. 1.2.5 Update
Apple Computer, Inc. Class 1

HyperCard v. 1.2.5 Update contains HyperCard v. 1.2.2 and a stack of release notes that lists the features implemented since HyperCard v. 1.2.2. Also included is a text file of programmer's notes specifically written for HyperCard v. 1.2.5. This release supports the Macintosh Portable and Macintosh IIci, 32-bit QuickDraw, and A/UX v. 1.1. It also allows more than one user to browse stacks on file servers.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh computer with at least 1 MB of RAM and 2 floppy drives. A hard disk is highly recommended. Also required is Macintosh System Software v. 6.0.4 or A/UX v.1.1. If you are using, or plan to use Macintosh System Software v. 6.0.4 with HyperCard, you must use HyperCard v. 1.2.5 or a later version.

Product contents

One Macintosh disk.

M0053LL/B **$15.00**

HyperCard IIGS v. 1.0
Apple Computer, Inc.
Class 1

NEW!

HyperCard IIGS include:

- Support for multiple media. It lets you work with information in virtually any form, including text, graphics, video, sound, and animation.
- Color graphics features. With HyperCard IIGS, you can take full advantage of the advanced color graphics capabilities of the Apple IIGS.
- Built-in stacks and templates. The program comes with a collection of ready-to-use stacks, to let you get started right away. And its templates and card designs will help you as you begin to create your own stacks.
- HyperTalk scripting language. The HyperTalk language expands your options for customizing the functions of buttons, cards, and stacks to build more sophisticated programs. It includes advanced debugging tools, as well as other utilities designed to speed the preparation and performance of your stacks.

HyperCard IIGS is intended for Apple II developers of home and educational products or current Macintosh HyperCard developers who wish to port their Macintosh HyperCard products onto the Apple IIGS. For hobbyists, HyperCard IIGS is the AppleSoft of the desktop generation. HyperCard for the Apple IIGS provides the functionality of Macintosh HyperCard with specific features to improve performance and to take advantage of the color capabilities built into the Apple IIGS. HyperCard IIGS will be able to do

many things, from information management to multimedia authoring.

HyperCard IIGS lets you create your own custom software and personalize the way you store, explore, and present information and knowledge. With it you can!

Organize your personal records so that they can be searched with a click of the mouse; develop an interactive tutorial, complete with sound; create a computerized slide show—taking full advantage of the Apple IIGS computer's advanced color graphics capabilities. These are just some of the thinGS you can do with HyperCard IIGS.

HyperCard IIGS brinGS the power of the famous HyperCard information management software to the Apple IIGS computer, providing a unique personal environment for storing, exploring, and presenting information. Like the original HyperCard, it functions much like a pack of index cards. You store information in documents called stacks, which are made up of individual units called cards. Cards can contain text, graphics, scanned images, and even sound. Buttons on the cards can be used to dynamically link cards and stacks, to control a videodisc player, and much more. In fact, virtually the only limit to what you can do with your Apple IIGS and HyperCard IIGS is your own imagination.

Licensing note

Before you can ship HyperCard IIGS with your stacks you must obtain a license from: Software Licensing, Apple Computer, Inc., 20525 Mariani Avenue, M/S 39-I, Cupertino, CA 95014. See Software Licensing page for licensing details.

System requirements

An Apple IIGS with at least 1.5 MB of RAM and Apple IIGS System Software 5.0.4 or later. A hard drive or a network environment is also required.

Product contents

Six 3.5-inch Apple IIGS disks and three manuals (*Getting Started With HyperCard IIGS*, *HyperCard IIGS Reference*, and *HyperTalk Beginner's Guide*).

A0027LL/A **$99.00**

Related products

- Apple IIGS Video Overlay Card.
- *HyperCard IIGS Script Language Guide: The HyperTalk Language* (Addison-Wesley Publishing Company)
- 'Quickie' hand-held scanner (Vitesse, Inc.)
- 'LightningScan' hand-held scanner (ThunderWare, Inc.)

Apple toolkits

HyperCard AppleTalk Toolkit v. 2.5

Apple Computer, Inc. Class 2

This toolkit contains XCMDs, XFCNs, and source code for accessing AppleTalk networks. The code is useful for interactive HyperCard systems that communicate over AppleTalk networks. The toolkit supports the Name Binding Protocol and AppleTalk Transaction Protocol. Not yet supported are data streaming and zones.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh computer with at least 1MB of RAM. A hard disk is also recommended.

Product contents

Two Macintosh disks and two pages of documentation.

M7013 **$20.00**

HyperCard CD Audio Toolkit v. 1.0

Apple Computer, Inc. Class 1

This product contains a set of HyperCard external commands designed to give HyperCard users control over interaction and random access to CD audio tracks on any compact disc. The toolkit lets developers and users add the sound quality of CD audio to presentations, courseware, and other interactive applications created with HyperCard. Working in tandem with HyperTalk, the extensions provide simple to advanced control of audio tracks on CDs to 1/75th of a second. The toolkit accesses the full range of control and status information from the AppleCD SC drive.

With these XCMDs and XFCNs, developers can create HyperCard stacks for a variety of applications, from business and educational presentations to narrated courseware, music publishing, language learning, and multimedia CD-ROM products.

The HyperCard CD Audio Toolkit includes a set of sample stacks that provides an idea of the diverse and exciting possibilities of these extensions.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh computer with HyperCard 1.2 or greater, Macintosh System Software v. 6.0.2 or later, and an AppleCD SC CD-ROM drive with CD Setup v. 2.0.1 or later.

Product contents

One Macintosh disk, one audio CD, and one 22-page manual.

M0152LL/A **$75.00**

HyperCard MacTCP Toolkit v. 1.0

Apple Computer, Inc. Class 2

This toolkit contains XCMDs and source code for using HyperCard with MacTCP. Included is a sample stack for reading "netnews" and a documentation stack. MacTCP software is not included.

Products

Licensing note
See Software Licensing page for licensing details.
System requirements
A Macintosh with at least 1 MB of RAM. Also recommended is a hard disk drive.
Product contents
One Macintosh disk.
M0228LL/A **$20.00**

HyperCard Macintosh Communications Toolbox Toolkit Version 1.0b2
Apple Computer, Inc. Class 2

This toolkit contains everything you need to access the facilities of the Communications Toolbox from HyperCard. In addition to the XCMDs and XFCNs needed, the Toolkit also provides a complete set of documentation, and the full source code for the XCMDs and XFCNs.

The Toolkit disk includes:

- CTB Toolkit Docs — A HyperCard stack describing the communications Toolbox XCMDs and XFCNs.
- CTB Configuration Docs — A HyperCard stack which lists the configuration string parameters for the basic Communications Toolbox tools. These strings are used to configure a tool from within a script.
- CTB Tookit Example — A HyperCard stack that uses the Toolkit. This should serve as an example of how to get started using these facilities.
- Net Looker — An example of using the name binding protocol (NBP) XCMDs included with the Toolkit. This stack lists zones and names on the local network.
- Source Code — A folder containing the complete source code for the toolkit.

Licensing note
Before you can ship products that use HyperCard Communications Toolbox Toolkit, you must obtain a license from Apple Computer Software Licensing, 20525 Mariani Ave., M/S 39-I, Cupertino, CA 95014. See Software Licensing page.
System requirements
A Macintosh with at least 1 MB of RAM. Also recommended is a hard disk.

This product runs with HyperCard 1.2.2 and Macintosh Communication Toolbox v.1.0.
Product contents
One disk
Special user note
This product is compatible with HyperCard 2.0, with one known exception. Because of the way both applications allocate memory, you will encounter the following: When you open a window HCMCTT and HyperCard 2.0, the second window you open cannot be opened any larger than the first window. This is the only known incompatibility.
M0983LL/A **$30.00**

HyperCard Serial Communications Toolkit v. 2.5
Apple Computer, Inc. Class 2

This toolkit, which is not fully tested, contains XCMDs, XFCNs, example stacks, and source code for HyperCard communications through the Macintosh serial port. An example terminal emulator and bulletin board software are included.
Licensing note
See Software Licensing page for licensing details.
System requirements
A Macintosh computer with at least 1MB of RAM and HyperCard v. 1.2 or later. A hard disk is recommended.
Product contents
One Macintosh disk and one page.
M7015 **$20.00**

HyperCard VideoDisc Toolkit
Apple Computer, Inc. Class 1B

This toolkit contains all the materials needed to extend HyperCard to access, organize, and control still images, motion, sequences, and sounds recorded on videodisc. *The HyperCard VideoDisc Toolkit User's Guide*, which introduces the concept of interactive video and presents materials in the toolkit itself, is also included.
Licensing note
See Software Licensing for licensing details.
System requirements
A Macintosh computer with at least 1MB of RAM and HyperCard v. 1.2 or later. Also recommended are a Level 3 externally controlled videodisc player and a hard disk.
Product contents
Two Macintosh disks and 178 pages of documentation.
M6059 **$40.00**

Apple stacks

Boston Macworld Kiosk HyperCard Stack v. 1.3
Apple Computer, Inc. Class 1

This stack is the information kiosk stack from the 1987 Boston Macworld Exposition. It allows the user to browse through exhibitor listings, calendars of events, a floor plan of the Boston Exposition Center, and information about Boston in general. It is provided as a demonstration HyperCard stack and is a template that can be used for other shows.
Product contents
Two Macintosh disks.
M7011 **$20.00**

Macintosh SE Technical Tour and MegaCorp Demo Disk

Apple Computer, Inc. Class 1

The tour provides the user with a basic understanding of the Macintosh SE system's internal architecture, through an exploded view of the computer. The user clicks on the computer part in question to get more information on the specific Macintosh SE component. The stack provides a demonstration of the capabilities of HyperCard as well as how it can be used to make learning entertaining.

The MegaCorp Demo Disk is an orientation program for a fictitious company named MegaCorp. This product shows how HyperCard stack developers can create effective business applications. The stack shows many of the visual effects possible with HyperCard, as well as how to link various cards, search for a user-specific word, and use sound and pop-up fields. The MegaCorp Demo Disk also shows the user how to use HyperCard scripts.

System requirements

A Macintosh computer with at least 1MB of RAM. A hard disk is recommended.

Product contents

Two Macintosh disks.

M0055LL/A **$20.00**

Third-party tools

101 Scripts & Buttons for HyperCard

Individual Software, Inc.

101 Scripts & Buttons for HyperCard is a collection of HyperCard shortcuts, tips, and programming tools designed to save time and help HyperCard users develop professional-looking stacks quickly.101 Scripts & Buttons for HyperCard is intended to be used as a library of ideas and resources, as well as a collection of building blocks that you can use within your HyperCard stacks. Also included are 1,000 icons, buttons, cards, cursors, and scripts for HyperCard.

This product adds new capabilities to HyperCard through XCMDs and XFCNs. These HyperCard extensions focus on new interfaces for HyperCard, including powerful browsing tools, menu controls, visual effects, and several other capabilities standard in Macintosh applications.

System requirements

A Macintosh Plus or later with at least 1 MB of RAM, HyperCard v. 1.2 or later, and Macintosh System Software v. 6.0 or later. A hard disk is highly recommended.

T0302LL/A **$69.95**

3d Graphic Tools XCMD v.2.0 with Source Code

Micro System Options

3d Graphic Tools XCMD version 2.0 provides wireframe and solid rendering capabilities including: object and viewer rotation, scaling and translation; clipping; monochrome or color shading using multiple light source reflection angles and distances; ambient light effects; full color windows; camera viewing; improved hidden surface removal; solid generators; spline curves and surfaces; matrix data representation; 3d fonts and labels; general grids; dithering; hierarchical structure; resource storage and retrieval; PICTs; co-processor support; and a freestanding, script simulator application. Not copy protected; no licensing fees.

System requirements

A Macintosh computer with 1 MB of RAM (2 MB or more recommended), HyperCard 1.2 or later, 128K ROM or later, and a hard disk. To utilize the source code included in this package, the THINK C compiler is also required.

T0303LL/C **$164.95**

Dialoger Professsional 1.5.2

theResult Software, Inc.

- Dialoger Professional includes:
- Modal and modeless dialogs for any stack
- Floating windoids and tool palettes
- Full interactive control
- One-click installation
- Custom-defined controls and lists
- Picture buttons, color pictures and icons
- Styled scrolling text, pop-ups, and more

Dialoger Professional provides a complete environment for the creation of dialogs in and for HyperCard. Such dialogs include modal and modeless windows as well as tool palettes and complex windoids.

Dialog Maker, the heart of the Dialoger package, comes filled with example dialogs that extend HyperCard's built-in abilities and enables users to begin using advanced dialogs within minutes. More importantly, this stack allows users to create custom dialogs using already familiar HyperCard objects (buttons and fields). Once designed, these dialogs may be installed into any stack along with the necessary script—in just one click.

Dialoger Help, an extensive tutorial/help stack, discusses the fundamental concepts needed to create and manipulate dialogs and provides extensive cross-referencing abilities.

System requirements

A Macintosh computer or later model with 1 MB RAM, Macintosh System Software v. 6.0 or higher.

Special user note

At the time of publication, Dialoger Professional 1.5.2 was not compatible with HyperCard 2.0. However, all customers will receive a free upgrade from theResult Software, Inc., if a revision is needed for compatibility.

T0379LL/B **$125.00**

HyperBASIC

Teknosys, Inc.

Designed for both beginning and experienced HyperCard developers, HyperBASIC greatly simplifies the creation of XCMDs and XFCNs. It is an editor, compiler, and resource mover all rolled into one easy-to-use tool.

HyperBASIC is a full-featured, multiple window editor and a very fast BASIC compiler. Unlike other compilers, the user is spared the need to set up project control files, organize all the glue code, and find the right libraries. On the average, successful compiles are completed in less than one minute, including generating the external resource and automatically attaching it to a destination stack. Removal of external resources can also be accomplished from within HyperBASIC.

For the experienced Macintosh developer, HyperBASIC provides debugging support through optionally generated assembly language listings and MacsBug symbols. Easy access to the Macintosh Toolbox coupled with HyperCard callbacks make HyperBASIC a versatile developer tool. Thirty examples with source code provide an excellent introduction to the real power of the Macintosh for beginners.

Developers are at liberty to incorporate their HyperBASIC resources into commercial products without licensing obligations to Teknosys.

System requirements

Macintosh Plus computer or later model with 1 MB of RAM, Macintosh System Software v. 6.0.2 or later, HyperCard 1.2.1 or later; hard drive recommended.

T0395LL/A **$99.00**

HyperExternals Pro

Boojum Computer Systems, Inc.

HyperExternals Pro is a set of over 50 general purpose external functions (XFCN) and commands (XCMD) for use with HyperCard. These professionally written externals include some of the fastest and most flexible routines available anywhere. HyperExternals Pro includes all of the XFCNs contained in the four volumes of the popular HyperExternals series along with several new XFCNs written especially for this package.

The routines in HyperExternals Pro include: arrayToArray, arrayToConstant, characterConvert, dateToJulian, defaultFolder, deleteDups, elapsedTime, exponentialArray, exponentialToHyperCard, fileCopy, fileDelete, fileInfo, fileName, fileRename, fileDirectory, findInField, fitToLine, getColumn, getDate, getNum, getPathName, getString, HyperCardToExponential, insertColumn, interest, isEqual, julianToDate, justify, linearEquationSolve, listString, matchList, matrixCreate, matrixInvert, matrixMultiply, matrixRandom, minMax, newFileName, newFolder, numericArray, numberFormat, replaceCharacter, resourceDelete, restart, removeColumn, setColumns, setFileInfo, shutDown, slowDown, sortContainer, soundex, statistics, transpose, trigonometricArray, trimCharacters, trimLines, volumeEject, volumeName, and whichItemIsIn.

All of the externals in HyperExternals Pro are compatible with HyperCard 1.2, HyperCard 2.0 and SuperCard.

System requirements

A Macintosh computer and operating system capable of running HyperCard.

T0381LL/A **$79.00**

HyperGraph

Boojum Computer Systems, Inc.

HyperGraph is the complete graphics package for HyperCard. Now HyperCard users can easily add the visual impact of charts and graphs to their HyperCard stacks. HyperGraph provides the capability of creating line, bar, pie, and polar graphs from within HyperCard. HyperGraph is easy to use and provides over 35 options for the customization of graphs. These options include control of graph size and limits, axis and grid types, and axis and graph labeling.

HyperGraph is an XFCN that accepts numeric data and an option list as input from which it creates a graph. The graph is left on the clipboard where it can be easily pasted into a card from within a script. HyperGraph supports color graphs and large card sizes under HyperCard 2.0, but is also compatible with HyperCard 1.2 and SuperCard 1.5.

HyperGraph can easily be localized into foreign languages, a process described in detail in the user manual.

System requirements

Any Macintosh computer and HyperCard.

T0404LL/A **$79.00**

HyperKRS + HyperIndexer v. 1.2

KnowledgeSet Corporation

HyperKRS and HyperIndexer are software tools that work with Apple's HyperCard to allow quick and easy access to information stored in a HyperCard stack. HyperIndexer indexes each word in a selected stack or stacks and HyperKRS replaces the HyperCard Find function with a full-featured text retrieval engine. Combine the flexibility of HyperCard as an authoring tool with the retrieval speed and query-building features of HyperKRS and the result is practical stackware for individual, corporate or commercial use, regardless of stack size.

The full text search function allows the user to enter a single word or build a complex query and find all the cards in a stack that meet the search criteria. A title list, or "hit list" is displayed along with the number of matches in each card. Click on any card title to display the card itself. Query features include: and, or, not, exact order, proximity, adjacency, right truncation, intermediate search, field specific search. Once in the card, the user may select

next/previous match or next/previous card from the hit list.

System requirements

HyperKRS: Macintosh Plus or later with a minimum of 1MB RAM memory. HyperIndexer requires 2MB of RAM memory.

T0385LL/A **$195.00**

HyperTMON

ICOM Simulations

HyperTMON is the first debugger for the HyperCard programming language, HyperTalk. If you are just learning HyperCard, HyperTMON will enable you to learn it more quickly and easily. If you are already familiar with HyperTalk, HyperTMON is just what you need to write more advanced scripts and to solve the mysteries of existing scripts.

HyperTMON brings advanced interactive debugging facilities to HyperCard, yet is as easy to use as HyperCard itself. Its intuitive interface allows you to take full advantage of all the features HyperTMON has to offer—features powerful enough for the HyperTalk expert, yet simple enough for the beginner.

At the click of a button, HyperTMON is installed and ready for use. Cut and paste the "Debug" button from your HyperTMON into any other stack, and you are one mouse-click away from your debugger. HyperTMON shows exactly what is happening, not just the end results.

System requirements

A Macintosh Plus or later with a hard disk or two floppy drives, and HyperCard 1.2.2, or HyperCard 1.2.5.

T0307LL/A **$99.95**

ScriptEdit v.1.1

Somak Software, Inc.

ScriptEdit is a powerful desk accessory that increases your HyperTalk scripting productivity by replacing the built-in editor with a multiwindow script editor that's fast and intuitive. It features the ability to edit multiple scripts at one time from different stacks, limited only by the amount of memory available.

Select the scripts you want from a scrolling list of stack objects, and they open instantly for editing. It's easy to locate your scripts, since the objects already containing scripts are instantly highlighted in the list. Two scripts can be automatically compared line by line, or you can use the powerful Find-and-Replace function to search through single or multiple scripts, even scripts that aren't open for editing.

The ScriptEdit system is controlled from an XCMD that passes information between HyperCard and the DA, allowing parameter passing and customized control over the editing process. ScriptEdit can also edit standard text files, and its automatic tabs/spaces conversion makes it easy to move formatted scripts into other word processing and desktop publishing applications.

System requirements

A Macintosh Plus or later with Macintosh System Software v. 6.0 or later and HyperCard 1.2.2 or 1.2.5.

T0380LL/A **$79.00**

The Voyager CD Audio Stack

The Voyager Company

This HyperCard toolkit allows Macintosh users to control CD-audio discs as well as the audio tracks of CD-ROM discs so that off-the-shelf compact discs can become audio resources for HyperCard stacks. The tools in the AudioStack will help users develop entertaining and instructional HyperCard stacks that use the musical or spoken information recorded on a CD. These stacks might include commentary on music or instruction in foreign languages.

The key element is the Audio Event Maker which allows the user to index or "map out" any CD. It lets the user define and play audio events of any length (including, for example, Beethoven's Ninth Symphony). Passages can be played in any order. The Audio Event Maker can show users the scripts that trigger an audio event, create a corresponding button to activate the event, and then add it onto a reference list.

System requirements

HyperCard software, hard disk drive, Macintosh-compatible CD-ROM player

T0350LL/A **$99.95**

The Voyager VideoStack 2.0

The Voyager Company

The Voyager VideoStack v. 2.0 is a toolkit for interactive video that allows HyperCard developers to control industrial and commercial videodisc players. The kit comes with all the necessary XCMDs and XFCNs to communicate with more than 20 laserdisc players, and makes it easy to install these drivers into any stack.

It also includes an Event Maker that lets the user create motion or still-frame video events and organize and play back video events in any sequence, as well as a complete on-line manual discussing the Voyager video syntax and an "Ideas" section.

System requirements

A Macintosh Plus or later with at least 1 MB of RAM, HyperCard v. 1.2 or later. A hard disk and a laser videodisc machine are also recommended. Commercial players also require the BOX, an interface for simulating an RS-232 port, which is available directly through the Voyager Company.

T0310LL/A **$99.95**

VidClip VideoTape Control Toolkit for HyperCard

Abbate Video Productions

This toolkit contains everything needed for the HyperCard developer to write multimedia applications that

control Sony consumer videotape players. Depending on the capabilities of the videotape deck used, the VidClip Toolkit can be used to develop applications in desktop video, videotape indexing and retrieval, desktop media, and low-cost videodisc emulation. The kit includes a sample stack, ClipKeeper, XCMD/XFCN documentation, instruction manual, a custom serial interface cable, and a run-time license for a single machine. The VidClip Toolkit for HyperCard is compatible with existing videodisc toolkits, allowing developers to create integrated videotape and videodisc stack presentations and to integrate their own visual material with commercially available videodisc libraries.

System requirements

A Macintosh Plus or later with at least 1 MB of RAM and HyperCard 1.2.2; Sony video player with Control-L5-pin DIN remote control jack.

T0370LL/A **$199.00**

Wild Things

Language Systems Corporation

Wild Things unleashes the power of HyperCard with 40 new commands for animation, math, and statistics. Four stacks demonstrate creative techniques for using XCMDs to create more interesting and functional stacks, including simultaneous animation of many objects. Manuals and stacks contain a complete guide to using and creating XCMDs. Tools include WildIcons, ResCopy, and HyperCard. Source code is provided for all XCMDs in Pascal, FORTRAN, and C, along with templates and utility routines. Wild Things works with HyperCard, Language Systems Fortran, TML Pascal II, THINK Pascal, MPW Pascal v. 2.0.2 and 3.0, MPW C v. 3.0, THINK C v. 3.0, RMaker and Rez, and MultiFinder.

System requirements

A Macintosh Plus or later.

T0311LL/A **$150.00**

XTRA

Fidcor USA

XTRA is an XCMD/XFCN toolkit for adding THINK C functions to HyperCard stacks. The royalty-free library source includes standard callbacks and THINK C glue, debugging functions, QuickDraw globals, rectangle and point parsing, and QuickDraw card graphics. The XTRA shell stack automates the compile/resource copy/ test cycle and includes a button to create icon resources from graphics created with the HyperCard paint tools. Useful, documented example source code and complete manual are included. XTRA is THINK C compatible.

T0112LL/A **$95.00**

Books and references

HyperCard IIGS Script Language Guide—The HyperTalk Language

NEW!

Addison-Wesley Publishing Company—1991

by Apple Computer, Inc.

HyperCard IIGS Script Language Guide is the definitive description of the HyperTalk language incorporated into the recently-released HyperCard for the Apple IIGS.

This comprehensive guide includes a complete description of HyperTalk for HyperCard IIGS Version 1.0. It covers such topics as buttons, backgrounds, cards, stacks, message handling, and values. In addition, the book also gives instructions for converting Macintosh HyperCard stacks into HyperCard IIGS stacks. The appendices include a list of HyperTalk terms as well as a command syntax reference and a description of the external command and function interface.

As the official reference to an exciting new product, this book will be essential for everyone who wants to write HyperCard IIGS scripts, from beginners to experienced HyperCard developers.

R0016LL/A **$24.95**

HyperCard Stack Design Guidelines

Addison-Wesley Publishing Company–1988

by Apple Computer, Inc.

HyperCard Stack Design Guidelines is an essential book for everyone who creates HyperCard stacks. Written, illustrated, and produced by the people at Apple Computer, this book covers the basic principles involved in designing HyperCard stacks. This book includes completely illustrated discussions of the following topics:

- Guidelines for stack development—audience evaluation, subject matter requirements and constraints, mode of presentation, testing, and more
- Navigation—the importance of making sure users can get around in your stacks; some techniques that help users navigate; perceived order versus actual order of cards
- Graphic design and screen illustration–including the use of grids to determine card and background layout
- Text in stacks–placement, readability, and special considerations when writing for the screen; Paint vs. field text
- Music and sound in stacks–as subject matter, reinforcement, entertainment, alert mechanism, or transition
- A step-by-step stack development scenario

- Special considerations for collaborative stack development
- An appendix containing the Stack Design Checklist

HyperCard Stack Design Guidelines covers the human-interface considerations of stack building rather than scripting mechanics. This book is an excellent companion to *HyperCard Script Language Guide* and *Human Interface Guidelines* as well as other Apple Technical Library books available through Addison-Wesley. The information in this book applies to HyperCard versions through 1.2.2. (161 pages)

M6057/A **$16.95**

The Complete Book of HyperTalk 2

NEW!

Addison-Wesley Publishing Company—1991

by Dan Shafer

HyperTalk is the powerful scripting language that is incorporated into Claris' Computer's HyperCard software. With the release of HyperCard 2.0, HyperTalk's features and capabilities are greatly expanded.

Every HyperTalk programmer—from beginner to expert—will appreciate this practical guide for its complete coverage of HyperTalk 2.0 commands, operators, and functions. In addition to detailed explanations of such topics as XCMDs, dialog boxes, menus, dialing and communications, and stack design, The *Complete Book of HyperTalk 2* includes numerous tips collected from expert HyperTalk programmers as well as dozens of ready-to-use scripts. (480 pages)

T0423LL/A **$24.95**

Cooking with HyperTalk 2.0

Bantam Books—1990

by Dan Winkler and Scott Knaster

HyperTalk's creator Dan Winkler collaborates with Macintosh expert Scott Knaster to show you how to get the most out of HyperCard 2.0 by using the power of HyperTalk. Each of the hundreds of scripts presented in this book is explained in line-by-line detail. You can simply use these scripts—a library stack makes them easy to access–or you can study them and fully understand them, unlocking the techniques that will enable you to write your own scripts. The book also contains whole stacks that you can use for practical applications, for aimless fun, or as another rich source of scripts. Every script listed or discussed in the book is included on the accompanying disk.

Cooking with HyperTalk 2.0 is filled with recipes for: text processing, true group selection of objects, a seamless system of shorthand abbreviations for any command, automatic repositioning of windoids, broadcasting messages to sets of objects; and lots more shortcuts, techniques, and script tips.

The disk contains all of the scripts from the book, plus stacks that demonstrate graphics, animation, speech synthesis, and encryption. (303 pages)

T0398LL/A **$39.95**

HyperTalk 2.0: The Book

Bantam Books—1990

by Dan Winkler and Scot Kamins

Dan Winkler, the creator of HyperTalk, and Scot Kamins, well-known Macintosh author, have written the definitive book on this revolutionary language. *HyperTalk 2.0: The Book* covers the latest release 2.0 of HyperCard and clearly defines the components of HyperTalk. In addition to revealing the complete syntax and semantics of this scripting language, the book also divulges many valuable facts and tips that were previously undocumented, enabling users to take full advantage of its power and flexibility. (832 pages)

T0399LL/A **$29.95**

The Complete HyperCard 2.0 Handbook, Third Edition

Bantam Books—1990

by Danny Goodman

This is a major revision to Danny Goodman's popular book about HyperCard. This edition of The Complete HyperCard 2.0 Handbook covers the latest 2.0 release of HyperCard. It includes a tutorial on HyperCard, with much more extensive coverage of the XCMD and XFCN, and HyperTalk, the HyperCard scripting language. It fully documents the dozens of new features in Version 2.0, including multimedia applications, resizeable card size, customizable menus and windows, and improved hypertext support. (864 pages)

T0148LL/B **$29.95**

XCMD's For HyperCard

MIS: Press—1988

by Gary Bond

This book addresses both Pascal and C programmers looking for a unique Macintosh environment in which to develop and experiment with new programming skills by creating and building their own commands within HyperCard. Author Gary Bond offers a complete step-by-step approach to creating and using HyperCard external commands and functions, referred as (XCMDs and XFCNs). By developing these "hooks" inside HyperCard, programmers can use XCMDs and XFCNs to create new commands and extend and tailor existing HyperCard commands to specific programming needs. Specific topics include definition of XCMDs and XFCNs, how to call them from HyperTalk, where they fit into the inheritance path, how to develop an XCMD interface with glue routines, how to pass data to and from your XMCDs and XFCNs, and how to use the call-back interface. (468 pages)

T0173LL/A **$24.95**

Multimedia

Multimedia and Authoring Tools contents

Multimedia and Authoring Tools

Apple II family

HyperStudio

Roger Wagner Publishing, Inc.

HyperStudio is a hypermedia system designed specifically to take advantage of the special abilities of the Apple IIGS computer with respect to sound, graphics, text, and interactive video. Based on the hypermedia concept, HyperStudio provides you with a complete package for creating your own hypermedia applications and viewing or editing existing HyperStudio stacks.

Simply put, hypermedia is a creative environment that enables even nonprogrammers to bring graphics, sound, and in an interactive and interconnected way. HyperStudio uses the analogs, on which graphics, text, sounds, and video images can be placed (visible or invisible) and are then attached to the card and "linked" to other cards, so that the user can move interactively through the cards based on information or prompts in the current card.

HyperStudio provides everything you need to create your own hypermedia application, in one complete package. HyperStudio can integrate Super Hi-Res graphics, text (from an ASCII text file or built-in editor), and digitized sound files.

Adding a button is as simple as choosing an item from a pull-down menu. When positioned, the button action is likewise chosen from a simple dialog box. Designed for easy student use, HyperStudio still provides many exciting options when creating stacks, including animated graphics, live recording of digitized sounds, and test functions. Adding text, graphics, and even video sequences to a card is easy.

HyperStudio can also control videodisc players, linking specific video images or sequences to any given card in the stack. Both still and play sequences can be selected with a remote-control-like display. When combined with the Apple II Video Overlay Card, video images can be put on the computer screen as part of a card.

The package also includes the Sound Shop digitizing software to record, edit, and save your own sound samples and the Sight 'n Sound utility, which lets you set up a disk to bring up a Super Hi-Res picture and/or sound file while a disk is starting up.

HyperStudio is a complete system and includes a no-slot sound-digitizing hardware card, small amplified speaker, and microphone. This means you can add your own voice or sound effects to your applications while you're creating them.

Although ideal for creating educational software, other possible applications include a genealogy file, with family pictures and voices; an introduction to musical instruments; and animals of the world with sounds and video images.

The four-disk package includes example stacks, sound samples, and more than 250 clip-art images.

System requirements

An Apple IIGS computer with at least 768K of RAM and a 3.5-inch disk drive.

T0291LL/A **$129.95**

Tutor-Tech Hypermedia Toolkit v. 2.6

Techware Corporation

Tutor-Tech is designed for hypermedia developers and enthusiasts using the Apple II computer family for project development.

In the tradition of HyperCard, a Tutor-Tech stack is a collection of pages composed of text, drawings, and imported artwork. Pages can be linked to other pages by adding buttons. Buttons link facts, concepts, and images, so that information can be organized and accessed not just hierarchically, but also intuitively—by association. Buttons also allow you to perform tasks such as playing a videodisc movie. Tutor-Tech offers a Macintosh-like user interface with pull-down menus; a graphical toolbox of object-oriented drawing tools; dialog boxes; Undo, Cut, Copy, and Paste commands; a variety of text fonts; full international character sets; and various colors and patterns. Using these tools interactively, stacks of unlimited size can be created quickly without traditional programming.

This toolkit includes example stacks; more than 300 clip-art images; the ability to import Hi-Res and Double-Hi-Res pictures, as well as Print Shop, Newsroom, and scanned images; and drivers to control videodisc players, VCRs, Apple's new Video Overlay Card, and speech synthesizers. Tutor-Tech is compatible with Koala Pad, Touch Screen, Muppet Learning Keys, any ProDOS hard disk, networking, and AppleShare software.

The company offers technical support to all users via mail, phone hotline, and both personal and corporate accounts on AppleLink.

System requirements

An Apple IIe, IIc, IIc Plus, or IIGS computer with 128K of memory. To create stacks, a mouse, joystick, touch window, or other hand control is required.

T0292LL/B **$195.00**

Tutor-Tech Gradebook v. 2.6

Techware Corporation

This gradebook manager tracks student performance on computerized exams created with Tutor-Tech, and automatically collects, grades, plots, and prints the results. You can set preferences for grading ranges, letter grade quotas, curving methods, and class rolls.

System requirements

An Apple II computer with at least 128K of RAM, Tutor-Tech Hypermedia Toolkit, and a mouse, joystick, touch window, or other hand control.

T0293LL/B **$95.00**

VidClip Videotape Control Toolkit for the Apple IIGS Developer

Abbate Video Productions

This toolkit contains everything needed for the Apple IIGS developer to write multimedia applications that control Sony consumer videotape players. Depending on the capabilities of the videotape deck used, the VidClip Toolkit can be used to develop applications in desktop video, videotape indexing and retrieval, desktop media, and low-cost videodisc emulation. It includes a sample application with APW C source code, linkable APW object code, an instruction manual, a custom serial interface cable, and a run time license for a single machine. The VidClip Toolkit is compatible with the Apple II Video Overlay Card, allowing developers to create integrated videotape-control computer graphics applications.

System requirements

An Apple IIGS computer with a 3.5-inch disk drive and a Sony videotape player with Control-L5-pin DIN remote-control jack.

T0360LL/A **$89.00**

Macintosh

GUIDE v. 2.0

Owl International

A powerful, full-featured, hypertext authoring system, Guide is designed to work in much the same way humans think, by providing the ability to freely associate pieces of information.

You can write documents tailored to specific needs simply by embedding links in Guide documents. Readers of the documents click on buttons (denoting link origins) with a mouse to access information at a desired level of detail.

Unlike HyperCard, which uses a notebook metaphor, Guide is document-based. It does not restrict the author to a single screen of information; a document's length is unlimited, which affords greater flexibility to users. Links are located at specific points on the document in order to reference information that may lie in other documents several layers below.

Guide provides practical and efficient methods to organize, manage, and access large volumes of information in multiple media formats, text, graphics, illustrations, animation, maps, video images, and sound. Common applications include training, publishing, business communications, applications research, and teaching/courseware. Guide is supported with Readers, Interpreter Kits, and the Guidance development kit.

System requirements

A Macintosh computer with at least 512K of RAM and a hard disk.

T0314LL/A **$199.95**

MacAuthor

Edudisc, Inc.

MacAuthor Version 3.4 is a comprehensive authoring system for producing interactive courseware, lessons, tests, tutorials, and presentations. No programming is required. MacAuthor gives authors the ability to combine text, monochrome and color graphics, multiple-choice and fill-in-the-blank responses, digitized audio, synthesized speech, and sophisticated branching.

MacAuthor launches other Macintosh applications and executes routines written in other programming languages. Code is provided to feed messages from one to the other. Courseware may be run in a single-user or multiuser environment for centralized administration. MacAuthor registers and tracks individual viewers, group scores, and related statistics.

MacAuthor offers multilevel authoring that reduces the cost of developing courseware while maintaining power and performance. An author is able to create, view, and edit courseware on the spot from any point in the course. The system will automatically upgrade courses to Mentor/MacVideo, the interactive video version for enhancing courseware with videodisc images. MacAuthor provides extensive software tutorials and templates for cutting and pasting into the user's own lessons. The product supports touch-screen applications. Site licenses for MacAuthor are available directly from Edudisc, Inc.

System requirements

A Macintosh 512K or later with two disk drives; a hard disk is recommended. A Macintosh 512K requires Macintosh System Software v. 4.2 or later. A Macintosh Plus or greater requires Macintosh System Software v. 5.0 or later.

T0316LL/A **$395.00**

Mentor/MacVideo

Edudisc, Inc.

Mentor/MacVideo Version 3.4 is an integrated authoring and videodisc-editing system for producing interactive video courseware. A typical system consists of a Macintosh computer coupled with an industrial videodisc player and a video monitor. Mentor gives authors the ability to combine text, monochrome and color graphics, multiple-choice and fill-in-the-blank responses, digitized audio, synthesized speech, and sophisticated branching and nesting without programming. The MacVideo editing panel controls 18 different videodisc players and recorders.

Mentor launches other Macintosh applications, such as HyperCard stacks, and executes routines written in other programming languages. Code is provided to feed messages from Mentor to other applications. Mentor registers and tracks individual viewers' and group scores and related statistics.

Mentor/MacVideo offers multilevel authoring that reduces the cost of developing videodisc-based courseware while maintaining power and performance. An author is able to create, view, and edit courseware on the spot from any point in the course. This includes direct videodisc recording (WORM) and editing with one or two videodisc players simultaneously. Viewer access to videodisc-controls allows video browsing in run time mode. Mentor provides extensive authoring tutorials and templates for cutting and pasting into the user's own lessons. The product supports touch-screen applications.

Licensing note

Site licenses for Mentor/MacVideo are available directly from Edudisc, Inc.

System requirements

A Macintosh 512K or later with two disk drives; a hard disk is recommended. A Macintosh 512K requires Macintosh System Software v. 4.2 or later. A Macintosh Plus and above requires Macintosh System Software v. 5.0 or later.

T0318LL/A **$695.00**

The CD-ROM Developer's Lab

Software Mart, Inc.

The CD-ROM Developer's Lab is a comprehensive multimedia production reference on CD-ROM for developers creating CD-ROM applications compatible with Apple systems. The fully searchable, full-text database contains proven how-to information on all aspects of production. Topics include design, project management, programming, data preparation, transportability, media production, encryption, data assembly, premastering, and manufacturing.

This unique resource also includes fully functional applications created using Media-Mixer subroutine libraries for retrieval engine design and data preparation. You can use these applications to see how these tools can be used to create exciting applications. Source code and usage license pricing and information are also included.

The CD-ROM Developer's Lab also includes important technical specifications, demonstrations of off-the-shelf tools for media production, and industry contacts. These include animation, sound production and editing, and high-resolution images as well as CD-ROM XA.

System requirements

A Macintosh Plus or later with at least 1MB of RAM, a CD-ROM drive with an Apple-compatible SCSI interface (such as the AppleCD SC), and Apple CD-ROM driver v. 2.0 or later with the following files: Apple CD-ROM, Foreign File Access, ISO 9660 File Access. A printer is also recommended.

T0333LL/A **$795.00**

The Course Builder Series v. 3.0

TeleRobotics International, Inc.

The Course Builder Series is a family of solutions for training applications that offers you total control of your training environment. Course Builder's easy-to-use visual language gives the university professor, the training professional, and the corporate trainer the ability to create stand-alone training applications for any purpose.

Course Builder converts your ideas and knowledge into an interactive presentation for your students. Absolutely no programming syntax is needed. The automatic report-generation feature provides you with feedback on the student's progress. By using the built-in animation, graphics, and pixel editing systems, you can create graphic animations to simulate real-world events. Text parsing, number comparison, scoring functions, timing functions, and intelligent routing based on student performance are all supported by the "states" in Course Builder. Course Builder even supports a HyperCard browser, so that you can use available stacks to add to the learning experience. You can even add color to your presentation with one of the most recent additions to the Course Builder Series, Course Builder Color.

Top it all off with the options of adding multimedia genlock (mixing computer graphics and video) and touch screens, and you have a system solution for stand-alone kiosks, polished presentations, and public-opinion polling stations.

Another module, Video Builder, adds the capability to control a laserdisc, videotape recorder, or slide projector from any point in the course. The videotape system offers an inexpensive and flexible way to present film clips to the student. The laserdisc interface provides top-of-the-line capabilities for advanced interactive training needs. A complete line of computer-controllable video devices is supported. Video Builder Color for the Macintosh II is also available.

Products

T0312LL/A
Black & White Course Builder **$395.00**
T0341LL/A
Color Course Builder **$695.00**
T0319LL/A
Black & White Video Builder **$695.00**
T0342LL/A
Color Video Builder **$995.00**

System requirements

For black-and-white authoring: A Macintosh Plus or later; a hard disk is recommended.

For black-and-white run time use: A Macintosh 512K Enhanced or later.

For color authoring: A Macintosh computer with 8-bit color capability and at least 2MB of RAM; a hard disk is recommended.

For color run time use: A Macintosh computer with 8-bit color capability and at least 1MB of RAM.

VideoDisc Accessory Series

The Voyager Company

This desk accessory series allows the user to control a laserdisc while working in any Macintosh application, such as Microsoft Word, Microsoft Excel, or VideoWorks. In addition to still frame, search, slow, scan, fast forward, and reverse, it has capabilities most remotes do not. It provides text overlay when supported by the player and allows you to set and play sequences repeatedly, even in reverse. It includes three desk accessories, which are tailored specifically for the following videodisc players: Pioneer 4200 and 4100, Pioneer 6000 series, and all Sony industrial players.

System requirements

A Macintosh computer, HyperCard, a hard disk, and a videodisc player.

T0359LL/A **$49.95**

VideoSync, Version 1.0

Apple Computer, Inc. Class 1

This product contains a Macintosh utility designed to allow the video recording of Macintosh monitor screens with standard consumer video camera equipment. VideoSync supports the Macintosh Display Card 4•8, 8•24, 8•24 GC, Apple High Resolution Video Card, and the Macintosh II Video Cards when connected to an AppleColor High Resolution RGB Monitor or Macintosh 12-inch RGB Display. The utility is an extension to the Monitors Control Panel Device (CDEV) that adjusts the timing of the Apple Display Card so that the monitor image appears stable when viewed by an external NTSC camera. VideoSync does not create RS-170A timing for directly recording Macintosh screens to a VCR. VideoSync can be licensed as a stand-alone utility for video integration applications, or serve as a platform on which to add other video timing alternatives.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh II-class computer with Macintosh System Software v. 6.0.4 or later, an AppleColor High-Resolution RGB Monitor or Macintosh 12-inch RGB Display, and one of the following display cards: Macintosh Display Card 4•8, Macintosh Display Card 8•24, Macintosh Display Card 8•24 GC, Apple High Resolution Video Card, and Macintosh II Video Card. Also supported is Apple's 12-inch RGB display.

Product contents

One Macintosh disk and one 15-page manual

Special user note

VideoSync, Version 1.0 does not work with Macintosh built-in video, e.g.., Macintosh IIci, Macintosh LC or Macintosh IIsi.

M0951LL/A **$35.00**

A/UX

IRIS Intermedia 3.0

IRIS, Brown University

IRIS Intermedia is an A/UX-based multiuser hypermedia system with a powerful, integrated application environment. Developed by the Institute for Research in Information and Scholarship (IRIS) at Brown University, it provides nonprogrammers with a means of developing sophisticated interconnected webs of information.

IRIS Intermedia includes InterWord, a text editor; InterDraw, a structured graphics editor; InterVal, a timeline editor; and InterPix, a scanned image viewer. With IRIS Intermedia, you can create relationships between ideas and information by establishing links between material in any of the above media. Establishing links between related information is as easy as copying and pasting.

IRIS Intermedia's link markers provide a quick means of retrieving information. Links can be established between blocks of information of any size—a word, a paragraph, a graphics object, or even a whole document—in order to provide exact referencing.

IRIS Intermedia also provides a multiuser environment. Multiple workstations have access to the same "ideabases," so you and your colleagues can share resources and jointly explore information. Intermedia allows multiple users to simultaneously access and annotate the same documents.

Additional features include a powerful access rights system, a multiple-window display, and "infinite" Undo and Redo commands. IRIS Intermedia also allows you to import existing documents created with Microsoft Word, MacDraw, MacPaint, and other Macintosh O/S applications.

An on-line dictionary server and example "webware" are available separately from IRIS/Brown University.

System requirements

For networked installation: one dedicated A/UX 1.1 system with at least 4 MB of RAM to act as the server, one or more A/UX 1.1 systems with at least 4 MB of RAM designated as Intermedia clients for other users on the network, and an EtherTalk card for the server and each client machine.

For single-user installation: one A/UX 1.1 system with at least 4 MB of RAM. For storing large databases with many documents and links, an additional 40 MB or 80 MB hard disk or server is recommended.

T0255LL/A **$150.00**

A/UX contents

A/UX

Tools

A/UX Device Drivers Kit, Version 2.0
Apple Computer, Inc. Class 1

This product contains a manual, release notes, a licensing agreement, and two disks with driver source code to aid developers in building device drivers for A/UX Version 2.0. The manual is designed as both a how-to guide and a reference.

A licensing agreement and cover sheet are included. Satisfactory completion of this form and payment of a licensing fee allow the buyer to modify the drivers in the Kit for use in his or her own product.

System requirements

The A/UX Operating System v. 2.0.

Product contents

Two Macintosh disks, one manual, one set release notes, and one licensing agreement.

M8037/C **$80.00**

cdb Interactive Debugger
Apple Computer, Inc. Class 1

This debugger includes:

- Display of original source code
- Expression handling such as automatic coercion, type casting and procedure invocation.
- Access to variables and procedures through C operators
- Commands for break point setting, assertions, formatted structure dumps, full signal handling, command record and playback, output recording, alternate source directories, initialization files, statement-level stepping and instruction-level single stepping.
- cdb is a debugging utility for developers who wish to create applications for A/UX and improve their programming productivity.

cdb is an interactive source-level debugger for C and assembly language programs. This debugger supports programs generated from the C compiler included with A/UX or from third-party compilers which generate Common Object File Format (COFF) symbol tables. All variables are accessible using any combination of C operators.

System requirements

A/UX operating system versions 1.1, 1.1.1 or 2.0

Product contents

One Macintosh disk for cdb and cdbtrans utilities and 25 pages.

M0574LL/B **$250.00**

MacFortran/AUX
Absoft Corporation

This is a new approach to FORTRAN, dubbed "RAT" (RISC Architecture Technology). This new compiler takes better advantage of the 68020 register set and executes programs an average of 30 percent faster in comparison with other UNIX compilers.

MacFortran/AUX meets full ANSI FORTRAN 77, IEEE P754, and MIL-STD 1753 specifications. The language supports most VAX/VMS and many 8X extensions, COMPLEX*16, and NAMELIST. Full access is provided to UNIX, the Toolbox, and support for interlanguage calling with C. A standard UNIX-style command line interface is included, along with a Macintosh-style interface written in FORTRAN, complete with the source code (with more than 150 Toolbox calls). No licensing fee is required.

System requirements

An A/UX operating system, version 1.1, 1.1.1, or 2.0.

T0025LL/A **$495.00**

NKR BASIC Compiler
NKR Research, Inc.

This product provides efficient native code for fast execution of BASIC programs and is a companion product to the NKR BASIC Interpreter. NKR BASIC conforms to the new ANSI X3.113 standard, which is now required by the U.S. government as Federal Information Processing Standard (FIPS) 68-2, and the European ECMA-116 standard. The NKR BASIC Compiler implements the same language as the NKR BASIC Interpreter.

Language features include matrix and string operations as well as true subroutines and functions. Excellent UNIX integration is provided. Programs in other languages may be called without interfacing subroutines. There is also convenient portability to other UNIX and non-UNIX systems that support standard BASIC.

System requirements

A/UX Operating System v. 1.0 or v. 1.1.

T0287LL/A **$395.00**

NKR BASIC Interpreter
NKR Research, Inc.

This product provides an easy-to-use development environment for BASIC programs and is a companion product to the NKR BASIC Compiler. NKR BASIC conforms to the new ANSI X3.133 standard, which is now required by the U.S. government as FIPS 68-2, and the European ECMA-116 standard.

Language features include matrix and string operations as well as true subroutines and functions. A powerful debugger and Help facility are included. Excellent UNIX integration is provided, as well as convenient portability to other UNIX and non-UNIX systems that support standard BASIC.

System requirements

A/UX Operating System v. 1.0 or v. 1.1.

T0288LL/A **$395.00**

NKR FORTRAN Globally Optimizing Compiler
NKR Research, Inc.

This is a high-performance mainframe-quality production compiler that includes VAX/VMS FORTRAN and MIL-STD 1753 extensions to the ANSI 77 standard. A sophisticated optimizer built for the FORTRAN language is included. There is seamless integration within A/UX; programs in other languages may be called without interfacing subroutines. The compiler also generates in-line code to make full use of the MC68881/882 math coprocessor. The compiler has passed the U.S. government validation test suite and will allow convenient portability to and from other UNIX environments.

System requirements

A/UX Operating System v. 1.0 or v. 1.1.

T0289LL/A **$495.00**

Books and references

A/UX Guide to POSIX, Version 2.0
Apple Computer, Inc. Class 1

A/UX Guide to POSIX, Version 2.0 should be used by decision makers to evaluate Apple's implementation of POSIX in A/UX 2.0. This includes managers charged with purchase decisions (primarily government sales) who will need to evaluate the implementation of POSIX in A/UX 2.0.

POSIX, as specified in Federal Information Processing Standard (FIPS) #151, provides for portability of applications across UNIX operating systems. This manual is designed to be used with the POSIX specification document published by the IEEE. The information presented in this document is also available in *A/UX Programming Languages and Tools*, Volume 1 in the A/UX Programmer Manual Kit. (28 pages)

Product contents

One manual: *A/UX Guide to POSIX.*

M7090LL/B **$25.00**

A/UX Network Applications Programming Version 2.0
Apple Computer, Inc. Class 1

This guide is intended for programmers who wish to write A/UX network applications based on TCP/IP (B-NET), Network File System (NFS), and AppleTalk software. It provides introductory and advanced tutorials on interprocess communication (IPC). The IPC level is the level at which an application can access the network through sockets.

Network programmers who wish to use AppleTalk to write their own applications will find this book useful, as it includes AppleTalk Phase 2 information.

Other topics covered include the NFS Remote Procedure Call (RPC) software, which an application can use to access remote systems. The guide also includes protocol specifications for RPC, XDR (external data representation), NFS, and NIS (Network Information Services, formerly known as Yellow Pages). This book covers A/UX 2.0. (346 pages)

Product contents

One manual: *A/UX Network Applications Programming*

M8034/B **$60.00**

Tricks of the UNIX Masters
Howard W. Sams and Company—1987
by Russell G. Sage

Containing the shortcuts, tips, tricks, and secrets needed by UNIX programmers, *Tricks of the UNIX Masters* presents examples based on an assortment of programming problems ranging from I/O functions and file operations to those involved in porting UNIX to a different computer. Valuable working examples of several important UNIX and C utilities are included. (416 pages)

T0187LL/A **$24.95**

Xlib Programming Manual for Version 11, Volume One
O'Reilly & Associates, Inc.—1988
by Adrian Nye

This book is a complete programmer's guide to the X library which is the lowest level programming interface to X. It includes chapters on: X concepts, basic window programming, window attributes, graphics context, drawing, programming in color, events, keyboard and pointer, interclient communication, managing user preferences, and window management, as well as a glossary, indexes, complete sample application, and many useful appendices. It is designed to be used with Volume Two, *Xlib Reference Manual*, which provides other essential reference information. (611 pages)

T0346LL/A **$34.95**

Xlib Reference Manual for Version 11, Volume Two

O'Reilly & Associates, Inc.—1988
edited by Adrian Nye

This book provides a complete reference to the X library which is the lowest level programming interface to X. It provides: reference pages for each Xlib function, a permuted index to the Xlib functions, reference pages for each event type, a description of macros, a listing of the standard color name database, alphabetical index and description of structures, alphabetical index and description of defined symbols, a list of keysyms and their meanings, a list and illustration of the standard cursor font, a list of standard fonts with illustrations of each font, a function group index for finding the right routine for a particular task, and single-page reference aids for the GC and window attributes. (700 pages)

T0347LL/A **$34.95**

MacWorkStation contents

MacWorkStation

MacWorkStation v. 3.1

Apple Computer, Inc. Class 1

MacWorkStation (MWS) is a high-level programming tool designed to allow the creation of host applications that look and feel like standard Macintosh applications. With MacWorkStation, programmers have full access to and control over all of the Macintosh user interface features—without having to learn the details of working with a traditional Macintosh programming environment. Host applications can drive the Macintosh user interface, as well as printing and filing processes, in a manner consistent with that of local applications, achieving complete transparency between local and remote programs. Application logic can either reside entirely in the host application or be distributed to MacWorkStation.

MacWorkStation consists of two components. The first is the MacWorkStation Server Application (MSA), which runs on a Macintosh computer and provides the standard Macintosh user interface and printing and filing services to client applications on remote computers. The second component is the MacWorkStation Message Protocol (MMP), a high-level Command and Event protocol designed to be easy to learn and easy to use from a wide variety of host environments. The MMP consists of three major subcomponents: Interface Message Protocols (IMPs), Data Message Protocols (DMPs), and Processing Message Protocols (PMPs). Messages are split into object classes called Directors, and there is a separate MacWorkStation Director for each major object in the Macintosh world (such as Window, File, and Menu).

The MacWorkStation programming model is a client-server design, with the server application running on the user's machine to provide services to the client applications, which usually run on a remote computer. The client program can be written in any language and reside on any type of general-purpose computer. The only restriction is that the program be able to send and receive the MWS Message Protocols through some type of virtual or real communications network.

MacWorkStation has built-in communications modules that handle all message traffic across the networks. The code modules can be "plugged in" at run-time and act to insulate MWS from network dependency. TTY and AppleTalk communications modules are shipped with MacWorkStation. TCP/IP, DECnet, and IBM 3270 communications modules are available through third parties.

MacWorkStation also has the ability to run Executable Code Segments (EXECs), which can be written in any compilable language and "plugged into" MWS. EXECs provide an easy mechanism for expanding the functionality of MWS by distributing application logic down to the Macintosh, creating new user interface objects, and/or expanding the MacWorkStation Message Protocol set.

Licensing note

In addition to a single-user version, MacWorkStation is available under both site licensing and commercial licensing agreements—for $2,500 and $5,000, respectively. See the Software Licensing information page in this catalog for full details.

System requirements

A Macintosh computer with at least 1MB of RAM, running System Software v. 6.0 or later. This product is fully compatible with MultiFinder.

Product contents

Two disks—the MWS Program Disk and the MWS Utility Disk—the *MacWorkStation Programmer's Guide*, the *MacWorkStation Programmer's Reference*, a quick-reference card, and Apple's *Human Interface Guidelines* (included only with the site-licensed version).

M0684 **$100.00**

MacWorkStation v. 3.1 Documentation Kit

Apple Computer, Inc. Class 1

The MacWorkStation v. 3.1 Documentation Kit contains the documentation that comes with MacWorkStation 3.1—the *MacWorkStation Programmer's Guide*, the *MacWorkStation Programmer's Reference*, and the *MacWorkStation Quick-Reference Card*. It is intended for site-license customers.

M7059/A **$65.00**

MacWorkStation Dialog Builder v. 1.0B1

Apple Computer, Inc. Class 2

MWS Dialog Builder is a Macintosh application that allows a developer to quickly define MacWorkStation Dialogs.

With MWS Dialog Builder, MacWorkStation Dialogs can be created, saved, and recalled through a dialog manager window. Individual dialogs are created using a palette of objects, which are simply dragged into place. Each object can be double-clicked to change parameters.

Dialogs can be stored in MacWorkStation documents and called from the host with a single MWS command. The MWS commands to define the dialog may also be printed or saved to a file and transferred to the client host program. This allows the host program to contain the master

description, which allows for quick and easy updating of dialogs without redistributing code. Dialog Builder is designed for MWS 3.0 Dialogs, but will work within the MWS 3.1 environment.

System requirements

A Macintosh computer with at least 1MB of RAM, running Macintosh System Software v. 6.0 or later. This product is compatible with MultiFinder.

Product contents

One disk and a preliminary note.

M0124LL/A **$25.00**

MacWorkStation Event Handler v. 1.0B1

Apple Computer, Inc. Class 2

MWS Event Handler makes it easy for developers to design and prototype almost the entire user interface of a MacWorkStation application without local or remote programming.

MWS Event Handler is an MWS EXEC that enables quick prototyping of MacWorkStation applications. Using MWS Event Handler, you can build scripts to respond to MacWorkStation events, such as choosing a menu item or clicking a button in a dialog box. These scripts contain a series of MacWorkStation commands that would normally be sent by the host client application. A distinct advantage to prototyping with MWS Event Handler is that the prototype can become the finished application, because Event Handler is basically an extension of MacWorkStation. MWS Event Handler comes with MWS Event Player, a run-time version that does not allow the user to edit the scripts.

System requirements

A Macintosh computer with at least 1MB of RAM, running Macintosh System Software v. 6.0 or later. This product is fully compatible with MultiFinder.

Product contents

One disk and a preliminary Note.

M0123LL/A **$25.00**

MWS v. 3.1 Quick-Reference Card (Three-Pack)

Apple Computer, Inc. Class 1

This product contains a reference summary of programming code from the *MacWorkStation Programmer's Reference Guide*, written in a quick reference format. This quick-reference card is for use with MacWorkStation v. 3.1. This product makes it easy for MacWorkStation developers to reference the programming codes.

Product contents

Three 16-panel quick-reference cards per set.

M0577LL/A **$35.00**

MacWorkStation 3270 Communication Module

NEW!

Apple Computer, Inc. Class 1

The MacWorkStation (MWS) 3270 Communication Module provides MWS access to the Apple 3270 Application Programmer Interface (API) using Structured Fields type D0. This allows a host developer to send and receive the Apple Terminal Service (ATS) protocols using the API over Coax, Token Ring, or Serial connections. This product has been tested using Apple's Coax, Token Ring and Serial NuBus cards.

System requirements

A Macintosh II computer with at least 1 MB of RAM, running System Software v.6.0 or later and MacWorkStation v.3.1. One of the following communication cards must be installed in your Macintosh II computer: the Apple Coax/Twinax Card, the Apple TokenTalk NB Card, or the Apple Serial NB Card

Product contents

One disk and a 33-page manual.

R0005LL/A **$25.00**

MacWorkStation third-party tools

ALAC for Windows

United Data Corporation

With ALAC and MacWorkStation you can write programs that will control an Apple Macintosh or an IBM PC/AT, PS/2 or any AT-compatible system in Any Language and on Any Computer. ALAC gives the programmer control of the graphical user interface of the IBM PC or compatible from any computer. Whether your host is an IBM mainframe, a DEC VAX, a Cray, or even a PC or Macintosh, ALAC gives you the ability to tap into the hardware with which your user community is most familiar. Additionally, there are no restrictions on the programming language you use to develop your host application. You can use COBOL, FORTRAN, C, BASIC, or even APL.

ALAC for Windows is compliant with Apple's MacWorkStation protocol. A PC running ALAC will respond to the same messages as a Macintosh running MacWorkStation. As a result, host applications can be written on any computer, in any language.

Like MacWorkStation, ALAC provides access to a graphical user interface. Programmers not familiar with the complexities and intricacies of Microsoft Windows and the Macintosh can build applications for both of these environments. Programmers have full access to and control over dialog boxes, menus, windows, and other features of Windows.

System requirements

MacWorkStation v. 3.1 (see listing above) for the Macintosh, an IBM PC or compatible with an 80286 or higher microprocessor, Microsoft Windows version 2.x or above, at least 512K of RAM (640K or above recommended), monochrome graphics monitor or color monitor, graphics adapter card, DOS 2.0 or above, and one double-sided disk drive (3.5-inch or 5.25-inch).

T0407LL/A **$250.00**

MWS Client Toolkit for VAX/VMS

Tribase Corporation

This toolkit provides:

- API library of 300+ functions that fully supports MWS 3.1
- API and I/O interface that supports multithreaded clients
- Fully functional program templates that offer a choice of single- and multi-threaded program architectures.
- High-level, table-driven menu, dialog, and window management extensions that simplify program logic

The MWS Client Toolkit is a programming support library designed to help programmers build MWS applications. The Toolkit includes a full-featured application programming interface to MWS 3.1, high-level I/O modules that integrate seamlessly with the API, a reference manual with sample code for each director and event, and a number of fully functional sample programs. On-site installation and training are available.

The MWS Client API library provides over 300 functions that construct and send Director messages, and parse resulting event parameters. For example, a single call to "mw_get_item_text_w" sends the D010 message, waits for the result D258 event, then extracts and returns the item text. The I/O interface supports multithreaded clients; a single MWS client can simultaneously provide services to many workstations. All standard MWS transports are supported, including AppleTalk/VMS.

System requirements

The MWS Client Toolkit for VAX/VMS requires VAX/VMS Version 5.3 or later and 5,000 blocks of disk storage.

T0415LL/A **$5,000.00**

telnet•PM version 2.0

Ramsay Consulting

telnet•PM is a protocol module for MacWorkStation. It provides the communications capability to enable MacWorkStation to interoperate with TCP/IP hosts using the Telnet virtual terminal protocol. It uses MacTCP to operate and, as a result, functions in the same communications regimes as MacTCP does (i.e. direct Ethernet or gatewayed LocalTalk). telnet•PM can be configured in various ways, including an option to help with debugging by logging all communications traffic.

Volume discounts and site licenses are available directly from Ramsay Consulting at (313) 665-2819.

System requirements

A Macintosh computer with at least 1MB of RAM, MacWorkStation, and MacTCP.

T0408LL/A **$75.00**

Networking and Communications contents

Networking & Communications

ADSP: AppleTalk Data Stream Protocol Development Kit, Version. 1.5

Apple Computer, Inc. Class 1

This fully tested and completed development kit provides the latest version of the driver and driver interfaces to incorporate the AppleTalk Data Stream Protocol (ADSP) into your AppleTalk products. ADSP is a symmetric, connection-oriented protocol that guarantees the ordered delivery of full-duplex streams of bytes between two given sockets in an AppleTalk internet. Interfaces are provided for the Macintosh under MPW Assembler, MPW Pascal, and MPW C languages. Included in this kit is documentation for the driver interface. The documentation makes the assumption that you are familiar with AppleTalk protocols.

AppleTalk software developers are the targeted audience. The software developer who will want to use the ADSP Development Kit will be writing applications that use ADSP services. To understand and use the information included in the kit, the developers should be familiar with AppleTalk.

ADSP features include":

- A built-in flow-control mechanism, ensuring that a sender never sends bytes to a receive with no buffer space
- An end-of-message mechanism that enables a client to break streams of bytes into logical messages attention messages that allow clients to signal each other outside the normal flow of data
- A forward-reset mechanism that enables a sender to abort the delivery of all outstanding bytes sent to the remote client

Version 1.5 of ADSP introduces a number of enhancements:

- Increases the number of simultaneous connections
- Constantly monitors the round-trip time between two connection ends and dynamically determines the values to use for retry intervals
- Uses better algorithms to manage the send and receive queues, which improves performance and frees buffer space formerly set aside for overhead
- Ignores open request packets for which it cannot find a connection listener or passive connection end—in this case, ADSP no longer sends open request denied packets
- Provides a new error code to distinguish between a failed and denied request to open a connection

Licensing note

See Software Licensing page for licensing details.

System requirements

One Macintosh disk, AppleTalk Data Stream Protocol (ADSP) 1.5, and a 56-page reference guide, *ADSP Driver Interface Command Reference*.

C0007LL/C **$25.00**

Apple 3270 API, Version 1.0

Apple Computer, Inc. Class 1

This product will be used by third-party developers and in-house developers to provide Macintosh-to-IBM value added applications. It allows applications written to the API to be portable across key IBM standard data links (coax, Token Ring and Serial connections).

The Apple 3270 API, a high-level application programming interface, gives application developers a consistent platform for developing customized 3270 applications. Because the Apple 3270 API is based on the IBM 3270 PC High-Level Language Application Programming Interface (HLLAPI), application programmers can apply their knowledge of HLLAPI to develop Macintosh-to-mainframe applications.

The API is designed to allow terminal emulators, file-transfer programs, and other Macintosh applications and tools, such as Data Access Language (DAL) and MacWorkStation, to use the 3270 services without being aware of the physical network connection details of coax, Token Ring, and SDLC.

The Apple 3270 API establishes and terminates sessions with a mainframe, maintains context separation between multiple mainframe sessions, and sends 3270 keystrokes to the mainframe.

Licensing note

See Software Licensingpage for licensing details. The 3270 API software is a licensed product only. An internal-use license and a commercial-use license—$500 and $1,000, respectively—are available through Apple's Software Licensing , 20525 Mariani Avenue, M/S 38-I, Cupertino, CA 95014. Customers must sign the appropriate agreement before receiving the Apple 3270 API software.

System requirements

Any NuBus Macintosh with at least 1 MB of RAM (2 MB is recommended) and Macintosh System Software v. 6.0.4 or later, an Apple Coax/Twinax Card, an Apple TokenTalk NB Card or an Apple Serial NB Card, and MacDFT version 1.1 software (available retail) required. MPW is recommended.

Products

Product contents

One Macintosh disk containing the 3270 API software, and one manual.

M0663LL/A **internal license** **$500.00**
external license **$1,000.00**

Apple 3270 API Programmer's Guide

Apple Computer, Inc. Class 1

This product will be used by third-party developers and in-house developers to provide Macintosh-to-IBM value-added applications. It allows applications to be written to the API to be portable across key IBM standard data links (Coax, Token Ring and Serial connections).

The manual kit will allow people to evaluate the product without having to sign a license and make the payment for the software. This kit contains the *Apple 3270 API Programmer's Guide*. This guide is intended for those who are interested in the Apple 3270 API but who have not acquired the product, or for those who desire additional copies of the documentation. This kit contains the manual only and does not include the Apple 3270 API software. (170 pages)

M0662LL/A **$50.00**

HyperCard AppleTalk Toolkit v. 2.5

Apple Computer, Inc. Class 2

This toolkit contains XCMDs, XFCNs, and source code for accessing AppleTalk networks. The code is useful for interactive HyperCard systems that communicate over AppleTalk networks. The toolkit supports the Name Binding Protocol and AppleTalk Transaction Protocol. Not yet supported are Data Streaming and Zones.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh computer with at least 1MB of RAM. Also recommended is a hard disk.

Product contents

Two Macintosh disks and two pages of documentation.

M7013 **$20.00**

HyperCard Serial Communications Toolkit v. 2.5

Apple Computer, Inc. Class 2

This toolkit, which is not fully tested, contains XCMDs, XFCNs, example stacks, and source code for HyperCard communications through the Macintosh serial port. An example terminal emulator and bulletin board software are included.

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh computer with at least 1 MB of RAM and HyperCard v. 1.2 or later. A hard disk is recommended.

Product contents

One Macintosh disk and one page.

M7015 **$20.00**

Macintosh to VAX Integration Toolkit

Apple Computer, Inc. Class 1

The Macintosh to VAX Integration Toolkit is a set of software components, APIs and documentation for commercial developers interested in building distributed applications between Macintosh and VAX computers. The Toolkit includes the following VMS based software: AppleTalk for VMS (version 3.0), an AppleTalk/DECnet Transport Gateway, and a VAX–based configuration utility. In addition, the Toolkit provides the following Macintosh-based software: the ADSP driver, the Macintosh Communications Toolbox, along with the ADSP and Transport Gateway Access connection tools for the Macintosh Communications Toolbox.

This Toolkit also provides programmer documentation, including documentation for all of the exposed APIs.

AppleTalk for VMS (version 3.0)

AppleTalk for VMS is Apple networking software that implements the AppleTalk Protocol Architecture on Digital Equipment's VMS operating system. It thereby lets VMS systems participate in an AppleTalk internet.

This implementation of the AppleTalk protocols offers significant enhancements over AppleTalk for VMS (version 2.x), such as support of the AppleTalk phase 2 protocols, a more versatile API, and easier system configuration and management. The AppleTalk for VMS protocol stack includes support for the following protocols: AELAP, AARP, DDP, EP, NBP, ZIP, RTMP (Full set), ATP, ASP (Server only), PAP (Client and Server). ASP client and AFP protocols are not implemented in the protocol stack.

AppleTalk for VMS Router

Another feature of AppleTalk for VMS (version 3.0) is the implementation of a fully-functional AppleTalk Router. The router provides internet routing, zone management, routing table maintenance, and name-binding broadcast request handling.

The router operates over any combination of Ethernet local area networks, and DECnet wide area networks. Routing through DECnet networks (called "tunneling") allows a DECnet wide area network to connect two or more geographically separate AppleTalk internets.

AppleTalk/DECnet transport gateway

The AppleTalk/DECnet gateway is software residing on the VAX that provides bidirectional conversion between AppleTalk ADSP and DECnet NSP protocols, making possible for a Macintosh running AppleTalk to connect to a DECnet-based server running on the VAX.

AppleTalk for VMS Manager (ATK$manager)

The AppleTalk for VMS Manager is the software component that system administrators use to manage and

maintain AppleTalk for VMS, the AppleTalk router, and the AppleTalk/DECnet transport gateway.

Licensing note

See Software Licensing page for licensing details.

System requirements

VAX equipment and software required

To use AppleTalk for VMS, you'll need: Any VAX running VMS 5.3 or later (Except asymmetric multiprocessors such as the VAX 11/782); Disk space: A minimum of 24000 blocks is recommended to install the software; a VAX Ethernet board and associated driver. To use the gateway or to use the "tunneling" capabilities, you'll also need a DECnet license for that VAX.

Macintosh equipment and software

Any Macintosh computer, minimum 1 MB RAM; System software 6.0.4 or later; Network connection (LocalTalk and/or Ethernet connection)

Software on the VAX

AppleTalk for VMS (version 3.0), includes the Protocol Stack and router, AppleTalk to DECnet Transport Gateway Configuration and Management utility (ATK$manager)

Installation procedure

Software on the Macintosh

ADSP driver, Macintosh Communication Toolbox Software, ADSP connection tool for the Macintosh Communications Toolbox Transport Gateway access connection tool for the **Macintosh Communications Toolbox**

Documentation

Planning and Installation Guide
System Administrator's Guide
System Administrator's Reference
Macintosh to VAX Integration Toolkit Programmer's Guide
Macintosh to VAX Integration Toolkit Programmer's Reference
Macintosh Communication Toolbox Documentation

M0942LL/A **$450.00**

Data Access Language

Data Access Language Developer's Toolkit for the Macintosh, Version 1.2

Apple Computer, Inc. Class 1

This toolkit provides:

- A HyperCard-based tool for defining Hosts.cl1 entries.
- Additional HyperCard XCMDs (CLBreak, CLUngetVal)
- Additional Debuggers & Installation Checker
- Code resources for Avatar's MacMainframe, DCA's MacIRMA and TriData's Netway 1000/2000 products. (Requires MacMainframe 3.1, 3.2, or 3.3.1, MacIRMA SNA 1.0.0, or Netway TriData API 1.1.8)
- *Data Access Language Developer's Guide* and *Data Access Language Programmer's Reference* included free.

Data Access Language (DAL) is designed to enable development of commercial products that are portable across multiple platforms and databases through a single programming effort. DAL is a high-level, SQL-based language that allows Macintosh databases to access and interact with host data on Digital VAX or IBM/370 host computers in a uniform way, regardless of the particular host operating system, database management system, or network connection.

The Data Access Language Developer's Toolkit for Macintosh is designed for use by Macintosh programmers, independent software vendors, and MIS departments designing Macintosh software. It will be of use to commercial developers involved in programming and developing products that will run on multiple platforms and databases. Additionally, DAL will be used by developers in MIS shops who wish to develop Macintosh applications that access data residing in one or more hosts' systems or database management systems.

The Data Access Language Developer's Toolkit for Macintosh is a set of software components that help programmers to build Macintosh personal computer applications with embedded access to host data. When linked to a system running a DAL Server, the resulting Macintosh application gives users consistent, transparent access to shared host data via the familiar Macintosh interface.

To achieve this connectivity, the Macintosh application uses the DAL language. All applications development is performed on the Macintosh. No expertise in host programming or host databases is required to use this toolkit.

In a single development effort, Macintosh software developers can build products that address the need for host data access in a wide range of customer environments. All host database access is accomplished using an ANSI standard set of SQL statements. Additional DAL statements are used for host connections, session control, and program control. DAL also standardizes return codes from the host databases into one set of consistent return codes, providing program portability. The DAL Programming Interface provides the ability to both read and update data residing in the host database.

Licensing note

Both commercial and internal distribution licenses are available for the Data Access Language Developer's Toolkit for the Macintosh through Apple Software Licensing. Each programmer intending to develop DAL applications needs to purchase one toolkit. The available licenses are for:

- distribution of an application internally within a corporation, $100 one time charge.
- distribution of an application commercially, $50 per year.

Should you wish to develop your own internal DAL applications, you do not need to purchase a toolkit for each intended user of the application, only for those programmers developing the application. However, if you intend to distribute any components of the Toolkit, you may must sign an Internal Use License for Data Access Language. For more information, contact Apple Software Licensing, 20525 Mariani Ave., M/S 38-I, Cupertino, CA 95014.

System requirements

An Apple Macintosh computer with at least 1 MB of RAM (2 MB recommended) running Macintosh System Software v. 6.0 or later. A Data Access Language Server to run the completed DAL application. MacDFT is required for access to the Data Access Language Servers for VM/CMS and/or MVS/TSO if connected via Apple's communications cards. Those who purchased Version 1.1 will be automatically upgraded to Version 1.2.

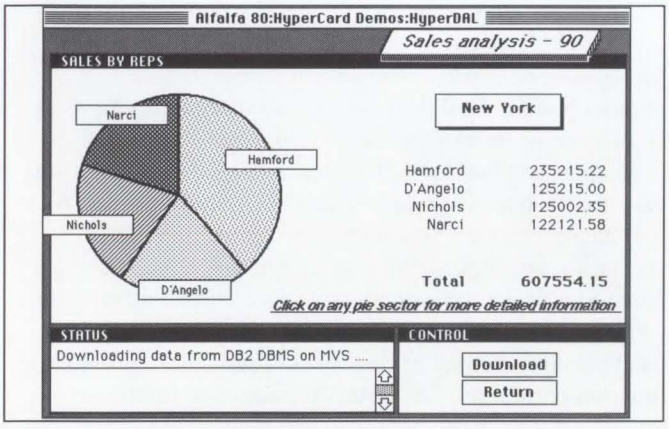
Product contents

Six Macintosh disks, a sample application, and three manuals: *Data Access Language Developer's Toolkit for the Macintosh Installation Guide*, *Data Access Language Programmer's Reference*, and *Data Access Language Developer's Guide*.

M9004LL/C $695.00
M0933LL/A Toolkit Installation Guide—free

Data Access Language Server for MVS/TSO, Version 1.2

Apple Computer, Inc. Class 1



Data Access Language Server MVS/TSO screen

The Data Access Language Server for MVS/TSO is a networking software product that provides Data Access Language Server (DAL) access to files and databases on an MVS/TSO host system. Running on the MVS/TSO host, the DAL Server works cooperatively with personal computer applications that have been developed using the Data Access Language Developer's Toolkit for Macintosh.

This product is intended for use by commercial Macintosh programmers who are developing or running Macintosh applications that support DAL (i.e., using the Data Access Language Developer's Toolkit for Macintosh) on an MVS/TSO host. Either a commercial developer or in-house MIS developers writing Macintosh applications using the Data Access Language Toolkit will require a Data Access Language Server for MVS/TSO to access data from the MVS/TSO host. Also, users purchasing third-party software packages incorporating DAL support will also require a DAL Server for the same purpose of retrieving host data.

This offering is a total DAL connectivity solution for MVS/TSO that includes a Macintosh personal computer running an application with embedded DAL support, and an MVS/TSO host with the DAL Server. The DAL Server receives requests from the Macintosh application, carries them out on the mainframe with DB2 data requested by the application, and sends the desired data back to the application for desktop processing.

The Data Access Language Server for MVS/TSO provides uniform support for DAL-based applications using data residing in IBM's DB2 databases. It works with existing DB2 databases, operating under standard MVS and database security, providing users with seamless, transparent access to DB2 data they have been authorized to access. The DAL Programming Interface empowers applications with the ability to read and update data residing on the host databases. Volume discounts are available.

Those who purchased Version 1.1 will be automatically upgraded to Version 1.2.

System requirements

Supports MVS/XA release 2.2 or greater, and DB2 releases 2.1, 2.2, and 3. Also requires Apple's MacDFT along with Apple's Coax/Twinax, TokenTalk NB, or Serial NB cards. TriData's Netway 1000 or 2000, Avatar's MacMainframe, and DCA's MacIRMA hardware and software products can be used in place of Apple's 3270 products listed above.

Product contents

There is one manual included with the Data Access Language Server for MVS/TSO v. 1.2: *Data Access Language Installation and Operating Guide for MVS/TSO*. Also included is a 9-track tape, support registration card, and a license sheet.

C0164LL/B MVS/TSO Server $20,000.00
M0936LL/A Server Installation Guide—free

Data Access Language Server for VM/CMS, Version 1.2

Apple Computer, Inc. Class 1

The Data Access Language Server for VM/CMS is a

networking software product that provides Data Access Language (DAL) access to files and databases on a VM/CMS host system. Running on the VM/CMS host, the DAL Server works cooperatively with personal computer applications that have been developed using the Data Access Language Developer's Toolkit for Macintosh.

This product is intended for use by commercial Macintosh programmers who are developing or running Macintosh applications that support Data Access Language (i.e., using the Data Access Language Developer's Toolkit for Macintosh) on a VM/CMS host. Either a commercial developer or in-house MIS developers writing Macintosh applications using the DAL Toolkit will require a Data Access Language Server for VM/CMS to access data from the VM/CMS host. Also, users purchasing third-party software packages incorporating DAL support will also require a DAL Server for the same purpose of retrieving host data.

This offering is a total Data Access Language connectivity solution for VM/CMS that includes a Macintosh personal computer running an application with embedded DAL support, and a VM/CMS host with the DAL Server. The DAL Server receives requests from the Macintosh application, carries them out on the mainframe with SQL/DS data requested by the application, and sends the desired data back to the application for desktop processing.

The Data Access Language Server for VM/CMS provides uniform support for DAL-based applications using data residing in IBM's SQL/DS databases. It works with existing SQL/DS databases, operating under standard VM and database security, providing users with seamless, transparent access to SQL/DS data they have been authorized to access. The DAL Programming Interface empowers applications with the ability to read and update data residing on the host databases. Volume discounts are available.

Those who purchased Version 1.1 will be automatically upgraded to Version 1.2.

System requirements

Supports VM/SP releases 3, 4 and 5, and SQL/DS releases 2.1, 2.2, and 3.

Also requires Apple's MacDFT along with Apple's Coax/Twinax, TokenTalk NB, or Serial NB cards. TriData's Netway 1000 or 2000, Avatar's MacMainframe, and DCA's MacIRMA hardware and software products can be used in place of Apple's 3270 products listed above.

Product contents

There is one manual included with the Data Access Language Server for VM/CMS v. 1.2: *Data Access Language Server Installation and Operating Guide for VM/CMS*. Also included is a 9-track tape, support registration card, and a license sheet.

C0163LL/B VM/CMS Server $15,000.00
M0935LL/A Installation Guide—free

Data Access Language Server for VAX/VMS, Version 1.2

Apple Computer, Inc. Class 1

The Data Access Language Server for VAX/VMS is a networking software product that provides Data Access Language (DAL) access to files and databases on a VAX/VMS host system. Running on the VAX/VMS host, the DAL Server works cooperatively with personal computer applications that have been developed using the Data Access Language Developer's Toolkit for Macintosh.

This product is intended for use by commercial Macintosh programmers who are developing or running Macintosh applications that support DAL (i.e., using the Data Access Language Developer's Toolkit for Macintosh) on a VAX/VMS host. Either a commercial developer or in-house MIS developers writing Macintosh applications using the Data Access Language Toolkit will require a Data Access Language Server for VAX/VMS to access data from the VAX/VMS host. Also, users purchasing third-party software packages incorporating DAL support will also require a DAL Server for the same purpose of retrieving host data.

This offering is a total Data Access Language connectivity solution for VAX/VMS that includes a Macintosh personal computer running an application with embedded DAL support, and a VAX/VMS host with the DAL Server. The DAL Server receives requests from the Macintosh application, carries them out on the VAX with whatever data source is targeted by the application, and sends the desired data back to the application for desktop processing.

The Data Access Language Server for VAX/VMS provides uniform support for DAL-based applications using data residing in Informix, Ingres, Oracle, Sybase, or Rdb databases. It works with existing VAX databases, operating under standard VMS and database security, providing users with seamless, transparent access to VAX data they have been authorized to access. The DAL Programming Interface empowers applications with the ability to read and update data residing on the host databases.

Those who purchased Version 1.1 will be automatically upgraded to Version 1.2.

System requirements

The Data Access Language Server for VAX/VMS requires VAX/VMS Version 4.7 or later and one of the supported database management systems. The levels of database support required is as follows:

- Informix Version 2.10.04 or later
- Ingres Version 6.2 or later
- Oracle Version 5.1.22 or later (version 6 is now supported)
- Sybase SQL Server Version 3.2 or later
- Rdb/SQL Version 3.1 or later
- AppleTalk for VMS 2.06 for AppleTalk Phase 1

networks; AppleTalk for VMS 3.0 for AppleTalk Phase 2 networks (included with Server software)

Product contents

There is one manual included with the Data Access Language Server for VAX/VMS v. 1.2: *Data Access Language Server Installation and Operating Guide for VAX/VMS.*

Also included is the TK50 tape or 9-track tape format (depending upon the version you require), support registration card, and a license sheet.

Volume discounts are available.

C0142LL/C 9-track format $5,000.00
C0143LL/C TK50 format $5,000.00
M0934LL/A Installation Guide–free

Data Access Language Database Adapter for VAX/VMS, Version 1.2

Apple Computer, Inc. Class 1

The Data Access Language Database Adapter for VAX/VMS includes database adapters for the following supported database management systems:

- Informix Version 2.10.04 or later
- Ingres Version 6.2 or later
- Oracle Version 5.1.22 or later (version 6 is now supported)
- Sybase SQL Server Version 3.2 or later
- Rdb/SQL Version 3.1 or later

These database adapters are made available for those customers who have purchased Digital Equipment Corporation's PathWORKS and intend to use the Data Access Language Server components with database management systems other than Rdb.

Product contents

There is one manual included with the Database Adapters for VAX/VMS: *Data Access Language Database Adapters for VAX/VMS Installation Guide*. Also included is the TK50 or 9-track tape format (depending upon the version you require), support registration card, and a license sheet.

C0195LL/A 9-track format $1,495.00
C0196LL/A TK50 format $1,495.00
M0937LL/A Installation Guide–free

Data Access Language Programmer's Reference

Apple Computer, Inc. Class 1

The *Data Access Language Programmer's Reference* manual describes the Data Access Language (DAL).

This book is for use by programmers who are developing Macintosh applications using the Data Access Language Developer's Toolkit for Macintosh. It is intended for Macintosh developers whose applications use or modify data in a host database. The manual assumes the reader is familiar with the concepts and terms of the C programming language and the Structured Query Language (SQL).

The Data Access Language Programmer's Reference manual describes the two main elements of DAL:

The Data Access Language program statements which allow you to connect to host computers, manipulate data, control program flow, and write data and descriptive information to an output stream

The Data Access Language Application Programming Interface (API) functions, which allow you to send and execute DAL statements to retrieve data from the output stream generated as a result of the statements.

The manual is organized into the following three sections:

- Section 1, General Information, describes how DAL works and introduces important concepts
- Section 2, Data Access Language Language, describes the language elements used in DAL statements and provides instructions for programming with these DAL statements
- Section 3, Application Programming Interface, describes the API functions that you will need to execute your DAL statements.

M0877LL/A $50.00

Data Access Language Developer's Guide

Apple Computer, Inc. Class 1

The Data Access Language Developer's Guide is a 200-page guide that introduces application developers to Apple's Data Access Language (DAL), a connectivity language that allows a Macintosh application to access, manipulate, and update data on a host system.

Developers wishing to build applications using the DAL functionality or add DAL capability to existing applications will gain an understanding of how to access and handle data from the Macintosh. It is written for developers who are already familiar with C or Pascal programming and Structured Query Language (SQL). Developers who intend to build Macintosh applications in HyperCard should understand the HyperCard application, HyperTalk scripting, and the HyperCard external function and command interface.

This manual provides a base of information from which an application developer can learn Data Access Language principles. It explains the functions through which a Macintosh application communicates with a host system, providing pertinent information for all Macintosh application developers, whether their application is written in C, Pascal, or HyperCard.

M0878LL/A $50.00

MacAPPC

MacAPPC v. 1.1
Apple Computer, Inc. Class 1

MacAPPC v.1.1 includes:

- An implementation of IBM SNA LU 6.2/PU 2.1 protocols
- Support for peer-to-peer communications between Macintosh and other systems supporting the LU 6.2 protocol, via APPC facilities
- Macintosh Toolbox extension
- Support for distribution of APPC services over AppleTalk networks
- Standard programmatic interface
- A HyperCard APPC prototyping and learning tool

MacAPPC is an implementation for the Macintosh of IBM's SNA Logical Unit 6.2 (LU 6.2) and Physical Unit 2.1 (PU 2.1) communications protocols. These protocols, which are becoming the IBM standard for distributed processing, enable peer-to-peer communications in IBM SNA environments and any other environments that support the LU 6.2 protocol. By implementing these protocols on the Macintosh, MacAPPC provides programmers and developers with the necessary software tools to support communications services between Macintosh computers and SNA networks via IBM's Advanced Program-to-Program Communication (APPC) facilities. MacAPPC enables Macintosh computers to participate in peer-to-peer communications in mainstream SNA environments.

MacAPPC is designed for programmers and developers who wish to create Macintosh applications for distributed processing in an LU 6.2 SNA environment.

The programming interface, which conforms to the LU 6.2 standard architecture, includes complete conversation routines, control operator drivers, node operator drivers, and transaction program driver routines.

The LU 6.2 device driver conforms to the standard Macintosh device-driver format and acts as the programmatic interface for the Macintosh Toolbox. The well-defined and documented programmatic interface defines the LU 6.2 protocol boundary for MacAPPC. The protocol boundary is designed to follow as closely as possible the verb definition, parameter names, and syntax used in the IBM protocol boundary, with which developers may already be familiar.

Interface files for the LU 6.2 device drivers are available for three languages: MPW Assembler, MPW C, and MPW Pascal.

The HyperCard APPC interface is a prototyping and learning tool that developers may use instead of programming directly to the LU 6.2 programmatic interface. This version of HyperCard includes external commands (XCMDs) that provide access to all MacAPPC verbs and gives developers access to the APPC protocol suite.

MacAPPC runs on any NuBus Macintosh II family of computers equipped with either an Apple TokenTalk NB Card or an Apple Serial NB Card. It is a modular extension to Macintosh System Software, which ensures its availability on all members of the Macintosh family. A NuBus Macintosh II running MacAPPC software can be connected to an AppleTalk network and act as a server to provide communications services to the other Macintosh computers on the network. For example, a Macintosh SE or Macintosh Plus computer on the network can access APPC services from that server.

MacAPPC is implemented in a client-server configuration. The server code resides on a Macintosh Coprocessor Platform communications card—such as the Apple TokenTalk NB Card or Serial NB Card—plugged into one of the NuBus expansion slots of the Macintosh II. The Toolbox portion (the client) exists as a set of device drivers on the same Macintosh and/or on one or more Macintosh computers connected to the server via AppleTalk. Since the Macintosh Coprocessor Platform is providing the services and using only the resources found on the card, MacAPPC offers LU 6.2 connectivity without requiring a dedicated Macintosh II.

MacAPPC is available as a single-user Evaluation Kit or as a Developer Kit with a license for redistribution. The documentation is also available separately. See "Product contents" for details.

The complete MacAPPC package provides a programming interface for communications, a HyperCard prototyping tool, administration and configuration utilities, and sample application programs.

License note

In addition to an evaluation kit, MacAPPC v. 1.1 is available with both an internal-use and commercial-use license—for $2,500 and $5,000, respectively. See the Software Licensing page for full details.

System requirements

A NuBus Server: Any member of the Macintosh II family and an intelligent NuBus plug-in communications card that adheres to the Macintosh Coprocessor Platform architecture. Two cards are available from Apple: The Apple TokenTalk NB Card (M0237) and the Apple Serial NB Card (M0265). Both these products are available from Apple authorized N&C dealers. In addition, if the Apple Serial NB Card is used, either one of two cables must also be ordered, an RS232 Cable (M0128LL/A), or a V.35 Cable (M0127LL/A).

Client: Macintosh Plus, SE, SE/30 or any member of the Macintosh II family with the appropriate LocalTalk, Ethernet or Token Ring adapter hardware and software.

Product contents

The MacAPPC Evaluation Kit includes the MacAPPC software (5 disks), a 584-page manual, and a single-user license. It also contains HyperCard APPC.

The MacAPPC Developer Kit contains the same items as the Evaluation Kit, but with a redistribution license.

The MacAPPC Documentation Kit contains the MacAPPC manual (included with other two kits).

MacAPPC v. 1.1 Developer Kit

Apple Computer, Inc. Class 1

Please see the MacAPPC v. 1.1 listing for information. This kit must be ordered through Apple Software Licensing, 20525 Mariani Ave., M/S 38-I, Cupertino, CA 95014.

M0698/A **$2,500.00**

MacAPPC v. 1.1 Documentation Kit

Apple Computer, Inc. Class 1

Please see the MacAPPC v. 1.1 listing for information.

M0701/A **$100.00**

MacAPPC v. 1.1 Evaluation Kit

Apple Computer, Inc. Class 1

Please see the MacAPPC v. 1.1 listing for information.

M0218LL/B **$200.00**

Macintosh Communications Toolbox

Macintosh Communications Toolbox v. 1.0

Apple Computer, Inc. Class 1

The Macintosh Communications Toolbox includes:

- Support for protocol-independent access to a byte-stream data connection
- Support for any registered NuBus communications card
- Open, modular, extensible architecture
- Consistent network/service access and configuration interfaces
- Execution-time binding of tools

The Macintosh Communications Toolbox provides standard Application Programming Interfaces (APIs) that make it easy for developers to add communications services (data connections, terminal emulations, or file transfer protocols) to any application without doing the low-level development themselves. Ready-to-use tools that implement this communications functionality are available from Apple. (See Basic Connectivity Set below.) Hardware developers can use the Communications Toolbox to make their NuBus communications devices easily accessible from both applications and tools. Specialists in communications software can more easily create customized communications tools that work with any application written to Communications Toolbox.

The Macintosh Communications Toolbox is an integral part of system software that provides Macintosh applications with standard access to communication services, including data, and file transfer protocols. It is Apple Computer's strategic communications development platform and has been designed to support multivendor connectivity for Macintosh computers in Digital Equipment Corporation, IBM, OSI, TCP/IP, and AppleTalk environments.

An extension of the Macintosh Toolbox, the Macintosh Communications Manager consists of four key managers:

- Connection Manager
- Terminal Manager
- File Transfer Manager
- Communications Resource Manager

These managers have been designed to work in concert with tools created by Apple and third-party developers–such as a modem connection tool or VT102 terminal emulation tool–in order to provide applications with standard communication functions.

The Macintosh Communications Toolbox makes communications capabilities much easier for people to use because all applications written according to the Communications Toolbox standard will provide the familiar Macintosh user interface.

License note

See Software Licensing page for licensing details.

System requirements

A Macintosh Plus or later with at least 1 MB of RAM (2 MB and a hard disk recommended), running Macintosh System Software v. 6.0.4 or later (the Communication Toolbox will be a standard part of System Software v.7.0). The Macintosh Communications Toolbox is supported by the MPW v. 3.0 and later development platforms. Third-party platforms that can convert MPW interface files and object files can also be used.

Product contents

Two disks: Communications 1, which contains the Connection Manager, the Terminal Manager, the File Transfer Manager, and the Communications Resource Manager, along with an installation script; and Interfaces 1, which contains Pascal and C interfaces for managers and tools. The package includes various other utilities and the *Macintosh Communications Toolbox Reference Guide* with binder.

M0232LL/D **$80.00**

Macintosh Communications Toolbox, Source Code Examples v. 1.0B17

Apple Computer, Inc. Class 2

These source-code examples are intended for instructional purposes. Studying them should make it easier for developers to make use of the Communications Toolbox and tools.

The Sources 1 disk contains a Pascal-based shell application called Surfer Plus. This source-code example enables developers to see how calls are actually made in a Communications Toolbox application. Source code for scroll-back cache is included. The Sources 2 disk contains "dummy" tools source-code for each of the Communications Toolbox Managers. These tools meet minimal tool criteria and provide examples of all the calls that tools should support. Source code for a sample serial card INIT is also provided.

System requirements

A Macintosh Plus or later with at least 1 MB of RAM (2 MB of RAM and a hard disk recommended), running Macintosh System Software 6.0.4 or later (the Communication Toolbox will be a standard part of System Software v. 7.0); the Macintosh Communications Toolbox v. 1.0; and Communications Tools, Basic Connectivity Set v. 1.0B15

Product contents

Macintosh Communications Toolbox, Source Code Examples consists of two disks: Sources 1, which contains source code for a sample Communications Toolbox application; and Sources 2, which contains source code for three "dummy" tools, an example serial card INIT, and related release notes.

M0380LL/A **$30.00**

Macintosh Communications Tools Basic Connectivity Set, Version 1.0

Apple Computer, Inc. Class 1

These communications tools can be used with any Macintosh Communications Toolbox-supported application. The Communications Toolbox enables application developers to enhance their applications with communications functionally, using tools from Apple or third parties. It is designed for commercial and in-house developers of applications, communications devices/hardware, and communications software.

The Basic Connectivity Set provides applications with actual data connection, terminal emulation, and file transfer functionality. Each tool provides a specific service; for example, the VT102 Terminal Tool provides Communications Toolbox applications with VT102 terminal emulation capabilities. This set of tools provides the types of communications services most desired by application developers. See package contents for list of tools.

Licensing note

The annual fee for licensing the Basic Connectivity Set is $50. With the license you will also receive the Sample Documentation for the final Basic Connectivity tools on disk. See the Software Licensing page for licensing details.

System requirements

A Macintosh Plus or later with at least 1 MB of RAM (2 MB of RAM and a hard disk recommended), running Macintosh System Software v. 6.0.5 or later (the Communication Toolbox will be a standard part of System Software v. 7.0); and the Macintosh Communications Toolbox v. 1.0.

Product contents

One disk, Basic Connectivity Set, which includes the following final version communications tools:

- Serial Connection Tool
- Teletype (TTY) Terminal Emulation Tool
- Text File Transfer Tool
- XMODEM File Transfer Tool
- Apple Modem Connection Tool
- AppleTalk ADSP Connection Tool
- VT102 Terminal Tool

One disk which includes a sample Communications Toolbox application, sample end-user tool documentation, and additional technical notes.

M0379LL/B **$50.00**

HyperCard Macintosh Communications Toolbox Toolkit Version 1.0b2

Apple Computer, Inc. Class 2

This toolkit contains everything you need to access the facilities of the Communications Toolbox from HyperCard. In addition to the XCMDs and XFCNs needed, the Toolkit also provides a complete set of documentation, and the full source code for the XCMDs and XFCNs.

The toolkit disk includes:

- CTB toolkit docs—a HyperCard stack describing the communications Toolbox XCMDs and XFCNs.
- CTB configuration docs—a HyperCard stack that lists the configuration string parameters for the basic Communications toolbox tools. These strings are used to configure a tool from within a script.
- CTB toolkit example—a HyperCard stack that uses the toolkit. This should serve as an example of how to get started using these facilities.
- Net looker—an example of using the name binding protocol (NBP) XCMDs included with the toolkit. This stack lists zones and names on the local network.
- Source code—a folder containing the complete source code for the toolkit

Licensing note

See Software Licensing page for licensing details.

System requirements

A Macintosh with at least 1 MB of RAM (2 MB of RAM and a hard disk recommended), running Macintosh System Software v. 6.0.4 or later (the Communications Toolbox will be a standard part of System Software v. 7.0); and the Macintosh Communication Toolbox v. 1.0. This product runs with HyperCard 1.2.2.

Products

Product contents
One disk

Special user note
This product is compatible with HyperCard 2.0, with one known exception. Because of the way both applications allocate memory, you will encounter the following: When you open a window HCMCTT and HyperCard 2.0, the second widnow you open cannot be opened any larger than the first window. This is the only known incompatibility.

M0983LL/A **$30.00.**

LAT: Local Access Transport Connection Tool, Version 1.0
Apple Computer, Inc. Class 1

The LAT Connection tool is used for establishing access to Local Area Transport, a DEC proprietary protocol designed for efficient handling of terminal traffic over Ethernet networks. It is the recognized method for network-based connections of terminals to VAX systems. The LAT Connection Tool can be used in conjunction with a communications application such as MacTerminal and a terminal emulation tool. This allows the Macintosh to emulate a Digital terminal a gives access to services on VAX computers. The Local Area Transport (LAT) communications protocol, developed by Digital Equipment Corporation, supports high-speed asynchronous communications for terminals and other devices connected to Ethernet local area networks. The LAT protocol provides an efficient connection between terminals and services on a network, and minimizes the VAX computer processing resources required to provide the services. The LAT Connection Tool is a Macintosh Communications Toolbox tool that lets a customer establish LAT connections between a Macintosh computer and VAX computers. The LAT Tool can be used with any Communications Toolbox application.

Licensing note
See Software Licensing page for licensing details.

System requirements
A Macintosh Plus or later with at least 1 MB of RAM (2MB of RAM and a hard disk recommended), running Macintosh System Software v. 6.0.4 or later (the Communications Toolbox will be a standard part of System Software v. 7.0); and the Macintosh Communication Toolbox v. 1.0. Also:

- an Ethernet card such as the Apple EtherTalk NB Card
- EtherTalk 2.0 (AppleTalk Phase 2) software
- a Communications Toolbox application such as MacTerminal 3.0 or MacX
- LAT drivers installed in System Folder

Product contents
One Macintosh disk: one 20-page user manual and one 3-page programmer's release note.

M0800LL/A **$50.00**

Serial NB Tool, Version 1.0F11
Apple Computer, Inc. Class 1B

Developers who wish to develop applications that can take advantage of up to 4 serial ports on the Serial NB Card will find this useful.

The Serial NB Tool is a beta-quality tool that, when combined with the Macintosh Communications Toolbox and the Apple Serial NB card, allows a Macintosh to have up to 4 additional serial ports. The Serial NB Tool and Serial NB Card Programmer's Reference allow a software developer to develop applications that can use the additional serial ports.

In addition, there is a source code example to assist the developer in writing their own driver to the Serial NB Card.

Licensing note
See Software Licensing page for licensing details.

System requirements
Any Macintosh computer built with the NuBus architecture running Macintosh System Software v. 6.0 or later. Also required is the Serial NB Card and cables.

Product contents
One Macintosh disk: Serial NB Tool, and one 32-page document: Apple Serial NB Card Programmer's Reference.

M0950LL/A **$40.00**

VT320 Terminal Emulation Tool, Version 1.0
Apple Computer, Inc. Class 1

Developers can incorporate the VT320 Terminal Emulation Tool into their communications products, as well as test compatibility.

Digital Equipment Corporation VT320 terminal is an enhanced terminal that accommodates international environments through support of 8 bit character sets and simple graphics. The VT320 Terminal Emulation tool, when used with a Communications Toolbox application, allows the user to easily set general, screen, keyboard, and character set attributes so that a Macintosh emulates a VT320 terminal. A DEC VT320 terminal is an enhanced Digital Equipment Corporation text-only terminal that accommodates international environments through support of 8-bit character sets. This product contains the VT320 Terminal Emulation Tool, user documentation, and programmer's notes. Developers can incorporate the VT320 Terminal Emulation Tool into their communications products, as well as test compatibility.

Licensing note
See Software Licensing page for licensing details.

System requirements
A Macintosh Plus or later with at least 1 MB of memory (2 MB and a hard disk recommended), running Macintosh System Software v. 6.0.4 or later (the managers will be a standard part of Macintosh System Software v. 7.0). The Macintosh Communications Toolbox v. 1.0 is also required. Macintosh Communications Tools - Basic Connectivity Set is recommended.

Product contents

One Macintosh disk, with documentation and programmer's notes.

M0801LL/A **$50.00**

MacTCP

MacTCP v. 1.0.1

Apple Computer, Inc. Class 1

MacTCP v.1.0.1 features:

- TCP/IP protocol implemented as drivers for the Macintosh operating system
- Co-resident with AppleTalk, for concurrent TCP/IP and AppleTalk operations
- Simplified address configuration via the Control Panel

MacTCP is Apple's implementation of the TCP/IP protocol for the Macintosh operating system. It is co-resident with the AppleTalk protocol and runs over both Ethernet- and LocalTalk-compatible systems.

MacTCP is designed for developers who wish to create Macintosh applications for networking environments that use TCP/IP protocols.

MacTCP includes TCP, UDP, and IP protocols, and is fully compliant with relevant Internet RFCs and MIL-STDs, thus ensuring interoperability with systems on the TCP/IP Internet. The program consists of object-code libraries and associated files for C development. Libraries include TCP and UDP interfaces along with a name-to-address resolver. MacTCP can be installed on a Macintosh 512K Enhanced computer or later model.

The program is implemented as a set of protocol drivers, so multiple applications can access TCP/IP services simultaneously. It runs over both Ethernet- and LocalTalk-compatible cabling systems and is co-resident with AppleTalk protocols, so TCP/IP and AppleTalk can operate concurrently. For example, users can run MacTCP to communicate with a UNIX host while simultaneously accessing an AppleShare file server via AppleTalk. Network addresses can be configured easily via the Macintosh Control Panel—simplifying installation and setup procedures for end users and network administrators.

MacTCP has a throughput of 3.0 megabits per second memory-to-memory (on a Macintosh II over Ethernet).

MacTCP implements the following protocols: IP (RFCs 791, 894; MIL-STD 1777); UDP (RFC 768); TCP (RFC 793, MIL-STD 1778); ARP (RFC 826); RARP (RFC 903); ICMP (RFC 792); BootP (RFCs 951, 1048); RIP (IDEA004); DNR (RFCs 1034, 1035); Internet Subnetting (RFC 950); and Internet Assigned Numbers (RFC 1010).

License note

MacTCP is available as a single-user Developer Kit, a license is required for redistribution. The documentation is also available separately. See specific product listings below for details.

MacTCP v. 1.0.1 is a maintenance release of MacTCP v. 1.0; licensees of MacTCP v. 1.0 automatically receive an upgrade kit.

To redistribute MacTCP with your applications, both an internal-use and commercial-use license are available for $2,500 and $5,000, respectively. See software licensing page for licensing information.

System requirements

A Macintosh 512K Enhanced computer or later model and the appropriate LocalTalk- or Ethernet-compatible cable connectors. On a LocalTalk-compatible system, you will also need a router with AppleTalk and TCP/IP support, such as the Shiva FastPath 4 or the Cayman Gatorbox. On an Ethernet-compatible system, you will need the appropriate Ethernet interface card.

MacTCP v. 1.0.1 Developer's Kit

Apple Computer, Inc. Class 1

The MacTCP v. 1.0.1 Developer Kit contains the MacTCP software (two disks), the *MacTCP Programmer's Guide* (70 pages), and the *MacTCP Administrator's Guide* (90 pages). Two additional disks contain the text and illustrations of the Administrator's Guide, to be used if desired in the creation of a manual for the developer's product.

M0230LL/D **$100.00**

MacTCP v. 1.0 Documentation Kit

Apple Computer, Inc. Class 1

This kit contains the complete documentation for MacTCP v.1.0.1. Please see the MacTCP v. 1.0.1 listing for information.

M0217LL/A **$60.00**

HyperCard MacTCP Toolkit v. 1.0

Apple Computer, Inc. Class 2

This toolkit contains XCMDs and source code for using HyperCard with MacTCP. Included is a sample stack for reading "netnews" and a documentation stack.

Licensing note

See Software Licensing page for licensing details.

Product contents

One Macintosh disk.

M0228LL/A **$20.00**

MacX25

MacX25 v. 1.0

Apple Computer, Inc. Class 1

Products

MacX25 v.1.0 features:

- MacPAD connection tool for easy applications development via the Communications Toolbox.
- Sophisticated MacX25 Programming Library for ease of creating applications requiring the full power of X.25.
- Ease of administration and use via "special" administrator's and user's screens

MacX25 software links Macintosh personal computers to packet-switched data networks (PSDN). MacPAD, a packet assembler/disassembler is included with MacX25 Implemented as a server, MacX25 allows a single Macintosh to be the entry point to the PSDN. Access to host computers and end-user services on the PSDN is conveniently distributed from the server to the users' Macintosh computer via the AppleTalk network system.

MacX25 is designed for developers who wish to create applications for accessing data and services over an X.25-based wide area network.

The MacX25 software links Apple Macintosh personal computers to packet-switched data networks supporting CCITT Recommendation X.25.

MacPAD software, included with MacX25, works in conjunction with the server software and provides packet assember-disassember connectivity to the PSDN. Implemented as a connection tool for the Macintosh Communications Toolbox, MacPAD allows terminal applications using the toolbox to connect to host systems on the PSDN.

MacX25 features an administrator's application that facilitates configuration and administration of the server. An address service allows administrators to set up addressing details on the Macintosh server, presenting MacPAD users with a menu listing available hosts and end-user services by name. Users connect to services simply by selecting the appropriate name—they aren't required to know PAD commands and address numbers.

The MacX25 Programming Library works in conjunction with the MacX25 server to provide X.25 access to applications, enabling developers to create Macintosh solutions that give users access to packet-switched networks. The Library is a toolkit, a collection of routines that offer a high-level program interface for applications.

System requirements

MacX25 Server

To set up a MacX25 server, you will need:

- Any personal computer in the Macintosh II family with an internal hard disk (2 magabytes of RAM recommended)
- Macintosh System Software version 6.0.4 (or later)
- An Apple Serial NB Card with the appropirate RS-232C or V.35 cable.
- The appropriate LocalTalk™ network-compatible cable connectors.*

MacPAD

To use MacPAD, you'll need:

- A Macintosh Plus, Macintosh SE or Macintosh SE/30 personal computer, or any computer in the Macintosh II family
- A terminal-service application that uses the Macintosh Communications Toolbox
- The appropriate LocalTalk compatible cable connectors.*

* To use MacX25 on an Ethernet or Token Ring network, you will need the appropriate Ethernet or Token Ring interface card and software for your Macintosh.

For development work, the Macintosh Programmer's Workshop (MPW) Version 3.0 or later with MPW C is required.

MacX25 Developer's Kit, v. 1.0

Apple Computer, Inc. Class 1

This kit includes the MacX25 Server Software Kit, the MacX25 Programming Library Kit (with preliminary manual), an Apple Serial NB card and an RS232 cable. See MacX25 v.1.0 listing above for more information.

B0314LL/B **$2,324.00**

MacX25 Programming Library Kit

Apple Computer, Inc. Class 1

This product includes MacX25 Programming Library Software and the *MacX25 Programmer's Guide*. See MacX25 v. 1.0 listing for more information.

M0788LL/B **$200.00**

MacX25 Programmer's Guide

Apple Computer, Inc. Class 1

This product includes a single copy of the *MacX25 Programmer's Guide*. See MacX25 v. 1.0 listing for more information.

M0998LL/A **$50.00**

MacX25 Server Software Kit, v. 1.0

Apple Computer, Inc. Class 1

This product is available for MacPAD/Communications Toolbox Developers who do not need the MacX25 Programming Library. See MacX25 v. 1.0 listing above for more information.

It includes the MacX25 Server Software, MacPAD Software, *MacX25 Administrator's Guide* and the *MacX25 User's Guide*.

M0711 **$800.00**

MacX25 Server Software Kit with Serial NB Card, v.1.0

Apple Computer, Inc. Class 1

This kit includes the MacX25 Server Software Kit, an Apple Serial NB card and an RS232 cable. See MacX25 v.1.0 listing above for more information.

B0315LL/A **$2,124.00**

MacX25 User's Guide Manual Kit

Apple Computer, Inc. Class 1

This product includes five copies of the *MacX25 User's Guide*. See MacX25 v.1.0 listing above for more information.

M0374LL/A **$129.00**

MacX25 Administrator's Guide

Apple Computer, Inc. Class 1

This product includes a single copy of the *MacX25 Administrator's Guide*. See MacX25 v.1.0 listing above for more information.

M0789LL/A **$40.00**

Books and references

A Guide to Apple Networking and Communications Products

Apple Computer, Inc. Class 1

This guide to Apple networking and communications products is designed to assist the developer, network administrator, and user in making product-buying decisions. This book provides an overview of the networking and communications products developed by Apple Computer, Inc. *A Guide to Apple Networking & Communications Products* will be useful to anyone who wants to know more about extending the Macintosh into multivendor environments.

Included are descriptions of the AppleTalk Environment, Connecting to DEC Environments, Connecting to IBM Environments, Connecting to TCP/IP Environments and Application Enabling Tools. (74 pages)

M5116/B **$5.00***

*or free with any purchase.

AppleShare PC Developer's Guide

Apple Computer, Inc. Class 1

Providing guidelines for developers who are writing "network-aware" software applications for personal computers running the MS-DOS operating system, this guide is the latest publication to discuss concepts specific to AppleShare PC, such as directory access privileges and file extension mapping. It is valuable reading for all developers interested in writing or updating their existing PC applications to exploit the potential of a multiuser networked environment, which could include the ability to share data transparently with Macintosh computer systems. (57 pages)

C0001LL/A **$20.00**

Apple Serial NB Card Programmer's Guide

Apple Computer, Inc. Class 1

Developers who want to write drivers to the Serial NB card will need this document. The drivers will probably be written in assembly language or C, so a working knowledge of either language is required. Additionally, developers should understand serial communication and device drivers.

The Apple Serial NB card provides an interface between a Macintosh computer using the NuBus architecture and a network device that uses serial communication. With appropriate software, the Serial NB card can send data to a Systems Network Architecture network, a wide area network, or an AppleTalk network. This guide describes the Apple Serial NB card. It is intended for developers within Apple Computer, Inc. and for third-party developers. It provides an overview of topics related to writing drivers for the Serial NB card. It also describes the card's hardware and software and gives technical specifications for each hardware component. Suggestions on writing code that uses the Direct Memory Access Controller (DMAC) on the card are included (32 pages).

System requirements

- Any Macintosh computer built with the NuBus architecture
- System Software, version 6.0 or later
- The Serial NB Card and cables
- The Serial NB Card distribution disk, Sample Serial NuBus Driver Code
- The A/ROSE distribution disks, A/ROSE1 and A/ROSE2
- The appropriate programming tools
- The appropriate debugging tools

Product contents

A 32-page document.

Special user note

Before reading this manual, the developer should have a thorough knowledge of these manuals:

- *Macintosh Coprocessor Platform Develper's Guide* (available from APDA)
- *Zilog Z8030 Z-BUS SCC/Z8530 SCC Serial Communications Controller Technical Manual* (available from Zilog)
- *Motorola MC68450 Direct Memory Access Controller (DMAC) Advance Information* (available from Motorola

M0941LL/A **$20.00**

Products

AppleShare Programmer's Guide for the Apple II Family, Beta Draft

Apple Computer, Inc. Class 1B

This guide:

- provides specifications and tools for the Apple II computer family to implement AppleTalk protocols
- provides GS/OS support
- provides ProDOS 8 support
- enables full AppleShare compatibility
- includes automatic upgrade to final product

This is a preliminary note for developers who wish to develop new network-specific applications for the Apple II computer or who wish to modify existing application programs to implement AppleTalk protocols on the Apple II family of computers.

If you want to develop network-aware programs for the Apple II family under GS/OS, or if you want your ProDOS programs to work under GS/OS, this document provides specifications and tools that will enable you to accomplish your goal. Also, support for the GS/OS operating system aids Apple II developers in writing programs that are compatible with AppleShare.

This reference provides basic information to get you started on development of either ProDOS 8- or GS/OS-based applications that use the AppleTalk network system. ProDOS 8 applications have the advantage of working with both Apple IIe and Apple IIGS workstations, while GS/OS applications will be able to use the advanced features of the Apple IIGS workstation.

The price includes an automatic upgrade to the final document when it becomes available.

AppleShare Programmer's Guide for the Apple II Family, Beta Draft, replaces *AppleShare Programmer's Guide for Apple IIGS*; it offers more complete and current information on the development of products that work over an AppleTalk network. (175 pages)

A2G0051/A **$50.00**

AppleSingle/AppleDouble Formats for Foreign Files Developer's Note

Apple Computer, Inc. Class 1

The AppleSingle or AppleDouble format can be used:

- as a standard format for intercomputer file transfer–a standard format for transferring files among differing, or heterogeneous, computers.
- as a standard format for intracomputer file transfer–a standard format for transferring files within a single computer.

This document describes the AppleSingle and AppleDouble file formats that allow files to maintain their file attributes on foreign file systems that do not normally support the same attributes.

The AppleSingle and AppleDouble formats were initially developed to store Macintosh files on file systems that do not support the Macintosh file structure. However, these formats can also be used to represent almost any kind of file on almost any file system. They assume only that the file systems used allow you to create a file as a set of contiguous bytes.

The AppleSingle/AppleDouble file format is not tied to a single home file system. A file is stored as a heterogeneous collection data and attributes, which are interpreted as needed by the application reading the file.

This document describes version 2 of the AppleSingle/AppleDouble file formats. To compare this version with version 1 of the AppleSingle/AppleDouble file formats, refer to Appendix B of the *A/UX Toolbox: Macintosh ROM Interface* manual. (15 pages)

M0908LL/A **$15.00**

AppleTalk Filing Protocol (AFP) Engineering Technical Notes

Apple Computer, Inc. Class 1B

AppleTalk Filing Protocol enables AppleTalk workstations to access files on file servers that are connected to the network. This beta version document contains notes that specify version 1.1 of this protocol, including the AFP system model, AFP calls, and AFP packet formats. (188 pages)

A7G0018 **$25.00**

AppleTalk Network System Overview

Addison-Wesley Publishing Company—1989
by Apple Computer, Inc.

The *AppleTalk Network System Overview* introduces Apple's network system to developers experienced with networking as well as to those developing networks for the first time. This book defines networking and communications terms, describes the functionality of different Apple products, and explains how these products fit together to allow computers—the Macintosh and Apple II families as well as IBM PCs and a range of others—to communicate on the same network with printers and other devices. Topics include:

- Components of an AppleTalk network system
- Various connection methods
- Sharing files and printers
- An introduction to the AppleTalk protocol suite
- The Macintosh computer's AppleTalk Manager

In addition to these topics, *AppleTalk Network System Overview* points readers needing more technically detailed information to other useful Apple and Addison-Wesley publications. The appendices provide a glossary of terms and guidelines for developing worldwide networking products. This book will assist developers, network administrators, managers, and developers in making informed decisions

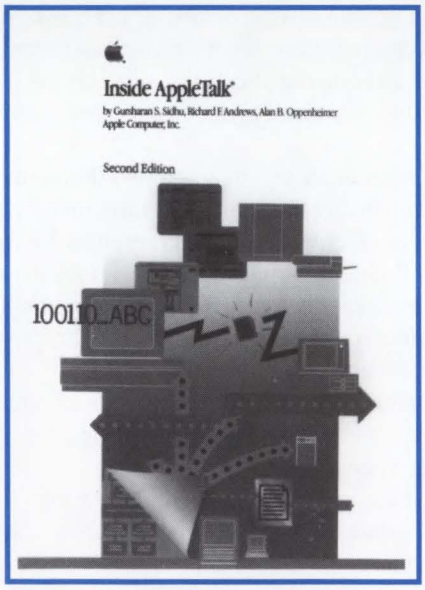
about new product development and product purchases. (200 pages)
C0077LL/A **$14.95**

AppleTalk Phase 2 Protocol Specification: An Addendum to Inside AppleTalk
Apple Computer, Inc. Class 1

This companion to the first edition of *Inside AppleTalk* (published in June 1989) describes changes and improvements related to the Phase 2 protocols. This information has been incorporated into *Inside AppleTalk*, Second Edition (C0078LL/B), described below. This document is intended for those who already own the earlier edition and do not wish to purchase the new Second Edition.

The AppleTalk Phase 2 Protocol Specification introduces terms and concepts relevant to the new AppleTalk enhancements, provides an operational overview of the extended addressing scheme, and describes in detail the ways in which the following AppleTalk protocols have changed: EtherTalk and TokenTalk Link Access Protocols (ELAP and TLAP), AppleTalk Address Resolution Protocol (AARP), Datagram Delivery Protocol (DDP), Routing Table Maintenance Protocol (RTMP), Name Binding Protocol (NBP), and Zone Information Protocol (ZIP). (48 pages)
C0144LL/A **$20.00**

Inside AppleTalk, Second Edition
Addison-Wesley Publishing Company—1989, 1990
by Apple Computer, Inc.



Inside AppleTalk is written by Gushuran S. Sidhu, technical director of Apple's Network Systems Development Group, and Richard F. Andrews and Alan B. Oppenhiemer, two senior staff engineers. This second edition includes information relevant to the AppleTalk Phase 2 Protocols. It provides an in-depth discussion of the protocol architecture of the AppleTalk network system.

Key topics include:

- Physical and data link alternatives
- Transmission between nodes via the LocalTalk, EtherTalk, and TokenTalk Link Access Protocols (LLAP, ELAP, and TLAP)
- Handling addressing differences with the AppleTalk Address Resolution Protocol (AARP)
- Facilitating end-to-end transmission of data via the Datagram Delivery Protocol (DDP), Routing Table Maintenance Protocol (RTMP), and AppleTalk Echo Protocol(AEP)
- Handling naming and data flow with the AppleTalk Transaction Protocol (ATP), Name Binding Protocol (NBP), and Zone Information Protocol (ZIP)
- Guaranteeing reliable, sequenced data delivery over the network via the Printer Access Protocol (PAP) AppleTalk Data Stream Protocol (ADSP), and AppleTalk Session Protocol (ASP)
- End-user services with the AppleTalk Filing Protocol (AFP) and print spooling appendices cover LocalTalk specifications, the LLAP procedural model, and AppleTalk parameters.

This book incorporates information found in *AppleTalk Phase 2 Protocol Specification: an Addendum to Inside AppleTalk*, APDA part # C0144LL/A. Inside AppleTalk is the essential developer tool and the programmer's compendium of AppleTalk protocols. With this reference volume, Apple Computer provides developers with the information they need to create applications on the AppleTalk Network System. (650 pages)
C0078LL/B **$34.95**

Macintosh AppleTalk Connections Programmer's Guide
Apple Computer, Inc. Class 1

The *Macintosh AppleTalk Connections Programmer's Guide* is written for Apple software developers who wish to develop an AppleTalk connection. This reference replaces the *EtherTalk and Alternate AppleTalk Connections Reference Guide* and includes information about AppleTalk Phase 2.

This reference provides the developer with an overview of the Macintosh AppleTalk network connections software architecture and describes each software component available for developing 'adev' files that implement network connections such as EtherTalk and TokenTalk. It also discusses call definitions, register usage, and call applications. An appendix contains information on EtherTalk that is useful when developing applications that

use Ethernet directly or developing Ethernet cards for use in the AppleTalk environment. (85 pages)
M7056/A **$25.00**

ODI: Open Data-Link Interface Developer's Guide
Apple Computer, Inc. Class 1

This document describes how to write drivers to the Open Data-Link Interface for network card drivers. By writing drivers and stacks that follow the Multiple Link Interface (MLI) and Multiple Protocol Interface (MPI) specification, you obtain a range of benefits for yourself that will ultimately profit the user community. The MLI/MPI specification gives you a standard by which to design network card drivers and protocol stacks that use the MLI/MPI interface. Writing to the specification guarantees that the drivers and stacks work with each other. You only need to develop once, develop correctly, and you will ultimately save development resources and time to market.

Hardware developers who write drivers to this specification can have their drivers transparently communicate with any protocol stack written to this specification. Similarly, protocol stack developers who modify their stacks to meet this specification can have their stacks communicate with any driver written to this specification. If you are a PC hardware developer and wish to ensure compatibility of your product with AppleTalk networks, this document provides the information on the AppleTalk version that you need. The specifications included in this ODI guide were jointly developed by Apple Computer, Inc. and Novell, and provide the standard for AppleTalk compatibility in different development environments. (159 pages)
M0355LL/A **$45.00**

Print Spooling in an AppleTalk Network
Apple Computer, Inc. Class 1

This publication explains how to perform print spooling in an AppleTalk network. It is written for those developers who are developing print spoolers for an AppleTalk network and for those who wish to make their PostScript printers fully print-spooling compatible. (67 pages)
A7Z0013 **$20.00**

Software Applications in a Shared Environment
Apple Computer, Inc. Class 1

Network file servers and multitasking operating systems are shared environments. This document details the considerations necessary for all applications to function in a shared environment, including the proper treatment and open permissions for documents, byte range locking to allow concurrent writers in the same document, and correct application architecture to allow application sharing. The document also includes helpful tips on how existing applications can be modified to function correctly in a shared environment. (40 pages)
A7Z0014 **$20.00**

TokenTalk NB Programmer's Guide
Apple Computer, Inc. Class 1B

The TokenTalk NB Programmer's Guide is intended for Apple software developers who wish to develop a protocol interface to the Apple TokenTalk NB card in conjunction with the Macintosh Operating System. This manual describes how to interface to the data link layer by way of calls to the SubNetwork Access Protocol interface and the 802.2 logical link control interface.

This document provides a description of the programming interface to the TokenTalk NB card and includes programming information on the SubNetwork Access Protocol (SNAP) interface, the logical link control (LLC) interface and the interprocessor communication (IPC) interface provided in the Macintosh OS. The Macintosh services that initialize the TokenTalk NB card are also presented. (172 pages)
M0827LL/A **$30.00**

Understanding Computer Networks
Addison-Wesley Publishing Company—1989
by Apple Computer, Inc.

Today's revolution in computer networking is making it possible for people to share information and resources on an unprecedented scale. Whether they are in business, education, or private homes, computer users may now use networks to communicate via electronic mail, share spreadsheets and other applications, store information for common access, and share printers and other costly resources.

But confusion often accompanies revolution: even experienced computer users may not fully understand the vast array of productivity solutions presented by computer networking. People in businesses and schools often find themselves evaluating their needs and making important purchasing decisions based on only minimal exposure to the principles of computer networking.

Understanding Computer Networks provides the basics about computer networks, including descriptions of:

- What a network is
- Hardware and software used by networks
- How protocols govern the exchange of information on a network
- How small, local area networks can be joined together
- Telecommunications and wide area networks
- Network services, such as electronic mail and file sharing

• The future of computer networking

Written and illustrated by Apple Computer's Networking and Communications Publications department, *Understanding Computer Networks* is a valuable instructional tool for dealers, teachers, trainers, and in-house developers. It is nothing less than a primer for those interested in joining the computer network revolution. (96 pages)

C0080LL/A English version $9.95
C0080F/A French version $20.00

Support Services

Technical Answerline: Networking & Communications (N&C) Option

Apple Computer, Inc. Class 1

The Technical Answerline includes:

- Toll-free 800# access to Apple support engineers
- Yearly subscription for unlimited questions
- 12 hour daily access (6:00 am to 6:00 pm PST)
- Two authorized contacts
- Quarterly usage reports
- Specific support for Data Access Language, MacWorkStation, MacAPPC, Communication Toolbox.

The Technical Answerline is phone support provided directly from Apple to assist customers in solving questions regarding product usage.

The current option assists customers with Apple Networking and Communication products, specifically AppleTalk, IBM connectivity, and Integration products.

The Technical Answerline is primarily targeted toward MIS departments and other groups using Data Access Language, MacWorkStation, MacAPPC, and Macintosh Communications Toolbox. This service is useful for MIS and PC support departments requiring effective backup for their network problem resolution. Developers will also find this support service valuable for those products mentioned earlier.

The Technical Answerline is phone support provided directly from Apple to assist customers in solving questions regarding product usage.

With this N&C option, Answerline engineers will respond to Apple product questions in the following areas:

- Compatibility
- Configuration
- Installation
- Fundamental usage
- Administration
- Troubleshooting

There is also an A/UX option available through Apple resellers.

The Networking and Communications Technical Answerline provides subscribers assistance on products such as those listed below. Additional products will be added to the program in the future as appropriate.

AppleTalk Products
AppleShare PC
AppleTalk for VMS
AppleTalk Internet Router

IBM Networking and Connectivity Products
Apple TokenTalk NB card and TokenTalk software
Apple Serial NB card
Apple Coax/Twinax card
Apple EtherTalk NB card and EtherTalk software

Integration Products
MacAPPC
MacX25
Macintosh Communications Toolbox
MacWorkStation
Data Access Language

Subscribing customers receive a welcome kit and access code. Customers begin the process by calling the toll-free, 800 number. Once connected, the system asks for the access code and your call is routed directly to an Apple engineer. Every quarter, the primary contact will receive a usage report with a history of the calls made and questions asked. This report could be useful, for example, in pinpointing additional training needs.

Special user note

The Answerline is designed for user-level questions. Developers should still contact Developer Technical Support for development assistance.

This product is available for APDA and Developer Tools Express customers within the U.S. International customers should contact the local Apple office or distributor in their country.

M0595LL/A new subscription $1,175.00
M0766LL/A subscription renewal $1,175.00

Peripherals contents

Peripherals

Tools

Lasertalk
Adobe Systems

Lasertalk provides all the tools needed to design, code, and debug PostScript programs. A preview-page capability gives an on-screen view of exactly how the PostScript page will look. Use the program editor and debugger to write and change command files, as well as Adobe Illustrator, Cricket Draw, PageMaker, or other software files. The program includes a dictionary browser and look-up for access to PostScript procedures and font information. Lasertalk is MultiFinder compatible.

T0066LL/A **$249.00**

Books and references

LaserWriter Reference
Apple Computer, Inc. Class 1

This reference provides the necessary information for programming Apple Computer's PostScript-based printers—the LaserWriter, the LaserWriter Plus, the LaserWriter IINT, and the LaserWriter IINTX. Specific topics covered include a description of the operational modes of all LaserWriter printers, the unique features of the new PostScript interpreter resident in the LaserWriter IINT and LaserWriter IIntx, and a specification for designing a LaserWriter IINTX font-expansion card. (184 pages)

M7073 **$19.95**

LaserWriter IISC Reference
Apple Computer, Inc. Class 1B

This technical documentation for the Apple LaserWriter IISC explains how to properly interface to the LaserWriter IISC or any other Apple printer. It also includes information on developing fonts. (50 pages)

M7062 **$20.00**

ImageWriter II Technical Reference Manual
Addison-Wesley Publishing Company—1986
by Apple Computer, Inc.

For programmers creating software compatible with the Apple ImageWriter II printer, this guide presents principles for using printer control codes in programs, selecting character features, and sending graphics commands to the printer. A command summary is provided. (232 pages)

A7G0026 **$19.95**

ImageWriter LQ Reference
Addison-Wesley Publishing Company—1988
by Apple Computer, Inc.

Written for programmers and serious hobbyists, this reference provides techniques for implementing the advanced features of the Apple ImageWriter LQ printer. The book includes complete descriptions for the hardware and software switches that control printer setup; commands that select character sets and features; and the process for sending graphics, color-printing commands, and printer-control codes in programs. A printer command summary is provided. (272 pages)

A7G0027 **$22.95**

AppleCD SC Developer's Guide, Revised Edition
Apple Computer, Inc.—1989 Class 1

This guide (revised in March 1989) is for anyone interested in CD-ROM development. It provides a description of the CD-ROM product design and creation process. It also discusses the software interface to the High Sierra and ISO 9660 file systems and guidelines for using HyperCard as a retrieval engine for interface to Macintosh CD-ROM products. A sample program showing how to implement the CD-Audio capability of the AppleCD SC CD-ROM drive is included.

This guide contains a functional description of how the Macintosh and Apple II software work at the operating-system level to allow the user to read data from the AppleCD SC. It also includes a description of the Macintosh control and status calls and the Apple II Smartport control calls for the drive. (226 pages)

A7G0023/A **$25.00**

Products

AppleFax Modem Developer's Notes

Apple Computer, Inc. Class 2

These are preliminary notes to the AppleFax Modem. They describe the firmware that resides in the modem's ROM and explain how to use the modem's commands. They also explain how to use the AppleFax library to access low-level firmware commands. (112 pages)

C0006LL/A **$20.00**

Apple Scanner Reference

Apple Computer, Inc.—1988 Class 1B

With the Apple Scanner, users have available an input peripheral to match the output quality of the Apple LaserWriter printer family.

The *Apple Scanner Reference* is a beta-version guide for anyone interested in writing application programs that use the scanner and for those interested in understanding how the scanner works. The reference includes information on basic scanning concepts and scanning terms; how to make calls to the Apple Scanner driver; how to customize Apple Computer's scanner application, AppleScan; and how to write your own scanner driver.

The *Apple Scanner Reference* will be especially useful to application program developers experienced in a high-level language, such as Pascal or C. Because any computer equipped with a SCSI connector can use the Apple Scanner, both Macintosh application program developers and developers of application programs for other computer systems will find this reference highly useful.

Product contents

One Macintosh disk and 120 pages of notes.

M7078 **$30.00**

PostScript Language Reference Manual, Second Edition

NEW!

Addison-Wesley Publishing Company—1990

by Adobe Systems, Inc.

The *PostScript Language Reference Manual* is the definitive guide to PostScript, the popular page description language resident in a steadily increasing number of printers, typesetters, and film recorders, including the Apple LaserWriter. The second edition of this best-selling book is a significant update covering the many new powerful features added to PostScript, including the Display PostScript System, color extensions, and font extensions.

Written by the experts at Adobe Systems, Inc., this comprehensive reference discusses the individual PostScript operators in detail. In addition, the book contains important background material and dozens of graphic examples and is fully cross-referenced and indexed for easy access.

Anyone who deals with PostScript, from programmers developing compatible application software to sophisticated users of graphics software, will find this book to be an indispensable resource. (784 pages)

T0182LL/B **$28.95**

Apple II family contents

Apple IIGS

Apple II

Apple II Family

Apple IIGS

This section includes products specifically designed for the Apple IIGS computer. For Apple II, Apple II Plus, Apple IIe, and Apple IIc computers, and products that apply to the entire line of Apple II computers, see the Apple II section that follows.

Apple IIGS Programmer's Workshop

APW: Apple IIGS Programmer's Workshop v. 1.0.2

Apple Computer, Inc. Class 1

This is Apple Computer's native development system for the Apple IIGS computer. As a complete development system, it includes a command shell, a linker, utilities, and a complete 65816 macro assembler. This system is the host for other APW language products such as APW C and several third-party language products.

The command shell performs functions such as file management, directory listing, I/O redirection, and pipelining. The shell environment also provides utility programs with useful extensions to ProDOS 16. The full-screen text editor copies, moves, and deletes blocks; searches and replaces; and executes editor command macros.

The assembler produces 65816 programs that assemble into relocatable object modules. Utility macros are provided to aid programming as are tool interface macros. You may also create your own macros and library files. Taking files created by the assembler, C, or other compatible languages, the linker resolves external references and generates load files (which include relocation dictionaries).

Version 1.0.2 contains M16 and E16 interface files to provide call macros and equates for all tools on the Apple IIGS System Disk v. 4.0. Interfaces for all tools on Apple IIGS System Disk v. 5.0.4 can be found in the APW Tools & Interfaces v. 1.1 package.

System requirements

An Apple IIGS computer with at least 1.25 MB of RAM and either one or two two 3.5-inch disk drives. A hard disk is highly recommended.

Product contents

Two 3.5-inch Apple II disks and one 600-page manual. A binder is included. Volume-discount available.

A0001LL/B **$100.00**

APW C: Apple IIGS Programmer's Workshop C v. 1.0.2

Apple Computer, Inc. Class 1

The most recent C compiler for the Apple IIGS Programmer's Workshop from Apple Computer, this compiler offers full Kernighan and Ritchie implementation of the C language. The compiler generates APW object files. Extensions include void and enumerated types as well as structure passing. The product supports source-level segmentation of load files.

APW C includes standard C I/O library interfaces and Apple IIGS tool interfaces. Version 1.0.2 contains header files for the GS/OS operating system as well as corrected and updated interfaces for all tools on the Apple IIGS System Disk v. 4.0. Interfaces for all tools on Apple IIGS System Disk v. 5.0.4 can be found in the APW Tools & Interfaces v. 1.1 package.

System requirements

APW v. 1.0 or later. This compiler does not work with earlier versions of APW. The package requires a minimum of 1.25 MB of RAM and either two 3.5-inch disk drives or one 3.5-inch disk drive and a hard disk; a hard disk is highly recommended.

Product contents

One 3.5-inch Apple II disk and a 300-page manual. A binder is included. Volume discount available.

A0003LL/B **$100.00**

APW C: Apple IIGS Programmer's Workshop C Bundle v. 1.0.2

Apple Computer, Inc. Class 1

Developers can purchase an entire APW development package for a reduced price with this bundled offering. The APW C Bundle includes:

- APW Development Environment v. 1.0.2
- APW C v. 1.0.2
- GSBug and Debugging Tools v. 4.0B1

System requirements

An Apple IIGS computer with at least 1.25 MB of RAM and either two 3.5-inch disk drives or one 3.5-inch disk drive and a hard disk. A hard disk drive is highly recommended. Binders are included.

B0048LL/C **$190.00**

APW Tools & Interfaces v.1.1

Apple Computer, Inc. Class 1

These tools are used to take full advantage of the new features in Apple IIGS System Disk v. 5.0.4 (i.e. Resource Manager, ExpressLoad, etc.) and to update many of the tools that are in the APW 1.0.2 package. These tools can be used under the APW shell, the ORCA shell, or the ORCA Desktop.

They are designed for developers currently using APW, APW C, ORCA/M GS, ORCA/C, and/or ORCA/Pascal to develop Apple II software. This includes the customers who bought the earlier Programming Tools & Interfaces for APW package.

This product contains the APW (Apple IIGS Programmer's Workshop) tools that are essential to accessing the new features of Apple IIGS System Disk v. 5.0.4, revisions to several existing APW tools, and interfaces for both APW C and Assembly. All known bugs in both the tools and interfaces have been fixed, new tools have been added, and several tools have had features added since their release in APW v. 1.0.2. The new tools in this package are a resource compiler (Rez), a resource decompiler (DeRez), a new scriptable linker (LinkIIGS), a stack segment creation utility (MakeDirect), a disk integrity checking utility (DiskCheck), a file copying utility that supports resource forks (Duplicate), a resource compare utility (ResEqual), and a utility to convert existing applications into ExpressLoad (Express) compatible applications. With the exception of Express, all of the new tools are ports of their MPW IIGS counterparts.

Rez compiles textual resources descriptions into Apple IIGS resources. DeRez is a resource decompiler that converts IIGS resources into a textual representation (that can be recompiled by Rez). This combination of a resource compiler and a resource decompiler provides an easy way to convert resources created with other tools into a textual representation which can be studied, changed, corrected, added to, etc. and then recompiled for inclusion in Apple IIGS applications. Rez makes it possible to add any type of resource to a file, including custom resources, thus lifting the barriers imposed by some other resource creation tools.

LinkIIGS is faster than the standard APW 1.0 linker. LinkIIGS is a fully scriptable linker, allowing programmers to control the segmentation of their applications at link time. Scripts used with the older APW scriptable linker (Linked) are not compatible with LinkIIGS. Applications created using LinkIIGS are automatically compatible with Apple IIGS System Disk v. 5.0.4's ExpressLoad. Existing applications can be converted using Compact and Express so they take advantage of the IIGS' ExpressLoad without having to be relinked.

Revised tools included with this product are the OMF 1.0 to OMF 2.0 conversion utility (Compact), the file compare utility (Equal), the directory display tool (Files), the string finding tool (Search), the library creation utility (MakeLib), a binary file converter (MakeBin), the canonical spelling aid (Canon), and an OMF display utility (DumpObj).

DumpObjIIGS, MakeLibIIGS, and LinkIIGS fully support OMF 1.0, 2.0, and 2.1. MakeLibIIGS includes an option now to convert existing OMF 1.0 libraries to OMF 2.1. LinkIIGS will automatically convert OMF 1.0 object modules to OMF 2.1 at link time.

Both ResEquals and Equal can be used to compare resource forks of two files against each other. Equal does a byte for byte comparison while ResEquals simply compares that the same resources are present in both resource forks, regardless of what order they appear in the file.

Files containing resource forks can be manipulated easily using the DUPLICATE tool that is included in this package. Duplicate performs similarly to the built-in COPY command except DUPLICATE can move and copy resource forks. Duplicate does not support wildcards.

These tools now work correctly with the ORCA languages from The Byte Works, Inc. The CrunchIIGS exec script is still needed prior to linking files compiled using an ORCA language. CrunchIIGS does not prevent or interfere with the use of partial compiles under the ORCA shell.

Interfaces for APW and APW C are included as well. These interfaces have been updated to be current with Apple IIGS System Disk v. 5.0.4. All known bugs in the interfaces have been corrected.

System requirements

Apple IIGS System disk v. 5.0.2 or later, APW v. 1.0 or later or one of the ORCA languages from The Byte Works, Inc.

Product contents

Three 3.5-inch disks, one 150-page manual, and 16 pages of release notes

A0240LL/A **$50.00**

Related products

APW v. 1.0.2
APW C v. 1.0.2
APW C Bundle v. 1.0.2
ORCA/Desktop
ORCA/M v. 1.1
ORCA/C
ORCA/Pascal

TML Pascal II (if you own either the APW or ORCA shell)
GSBug and Debugging Tools v. 4.0B1
Apple IIGS Toolbox Reference Volume 3
Apple IIGS Toolbox Reference Volume 2
Apple IIGS Toolbox Reference Volume 1
GS/OS Reference Manuals (Volumes 1 & 2)

APW Tools & Interfaces Update v.1.1

Apple Computer, Inc. Class 1

These tools are used to take full advantage of the new features in IIGS System Disk v. 5.0.4 (i.e. Resource Manager, ExpressLoad, etc). These tools can be used under the APW shell, the ORCA shell, or the ORCA Desktop.

They are intended for developers currently using APW, APW C, ORCA/M GS, ORCA/C, and/or ORCA/Pascal to develop Apple II software.

This product contains the fully tested version of the "APW Tools & Interfaces v. 1.1" package. These tools are essential to accessing the new features of Apple IIGS System Disk v. 5.0.4. This release is primarily a bug fix release and nearly every tool in this package has been updated.

Interfaces for APW Assembler and APW C are included as well. These interfaces have also been updated to be current with Apple IIGS System Disk v. 5.0.4. All known bugs in these tools and interfaces have been corrected.

System requirements

Apple IIGS System disk v. 5.0.2 or later, APW v. 1.0 or later or one of the ORCA languages from The Byte Works

Product contents

Three 3.5" disks and 17 pages of release notes

A0241LL/A **$25.00**

MPW IIGS Cross-Development Suite

MPW IIGS provides developers with MPW-based tools for Apple IIGS programming. For more information, please turn back to the "MPW IIGS Cross-Development Suite" heading in the MPW section of this catalog.

Assembly

Merlin 8/16 Plus

Roger Wagner Publishing, Inc.

Merlin is an assembler for the entire Apple II family. With features like macros, macro libraries, nested macros, conditional assembly, assemble to memory or disk, linked files, dummy program segments, XREF utilities, and more, Merlin 8/16 includes four separate assemblers: Merlin 8 (DOS v. 3.3 and ProDOS) for use on standard Apple IIe or IIc computers; Merlin 16 (ProDOS 8) for the Apple IIGS but also usable on an Apple IIe or IIc computer with a 65802 or 65816 microprocessor installed; and Merlin 16+ (GS/OS), a GS-specific version.

Merlin 8/16 includes a powerful Full Screen Editor, a Relocating Linker to generate relocatable object code for both ProDOS 8 and ProDOS16, the use of Local Labels, and a GS Macro Library. The Merlin 16 linker also supports batch processing and a powerful command file to automate assemblies. Merlin 8/16 supports and assembles all 6502, 65C02, 65802, and 65816 opcodes. The product includes an APW/ORCA-to-Merlin source-code conversion utility. Merlin 8/16 also includes SOURCEROR, an easy-to-use disassembler that creates Merlin 8/16 source files from binary programs, and SOURCEROR.FP, which produces a fully labeled and commented source listing of Applesoft BASIC.

Many sample files of working Apple II programs, such as ProDOS 16 system files and desk accessories, are also included. Merlin 8/16 is unlocked, copyable, and hard-disk compatible. Merlin 8 is equivalent to the earlier RWP product, Merlin Pro.

T0002LL/B **$110.00**

ORCA/M 1.1

Byte Works, Inc.

ORCA/M 1.1 is an enhanced version of APW, the standard development environment for the Apple IIGS. ORCA/M includes ASM65816, a fast and sophisticated assembler that separates programs into real subroutines and data segments, with true local and global labels, just like a high-level language. The macro language can call libraries, pass parameters, and define local and global parameters as well as call other macros.

ORCA/M 1.1 contains a UNIX-like shell with more than 50 built-in commands. New commands may also be added, and a command language enables programmers to write powerful script files.

Other features include on-line help; a standard linker (which performs automatic library searches and links any standard OMF object modules); a full-screen editor with AppleWorks keystrokes, cut, copy, paste and global search and replace; user-definable macros; several utilities; extensive macro libraries; libraries for integer math and formatted I/O; and free samples.

System requirements

An Apple IIGS computer with 512K of RAM and one 3.5-inch disk.

T0005LL/A **$69.95**

BASIC

Apple IIGS BASIC v. 1.0B4

Apple Computer, Inc. Class 3

This offering is a BASIC interpreter for the Apple IIGS. It features structured programming control structures, procedures and functions with local labels, sophisticated I/O functions, and SANE numerics. It also includes full support for the Apple IIGS Tools via a high-level, symbolic interface. The language allows use of the expanded memory of the Apple IIGS computer. It includes complete tool interface files as well as a sample program that demonstrates use of Apple IIGS BASIC to program desktop-style applications.

System requirements

An Apple IIGS computer with a minimum of 512K of RAM and one 3.5-inch disk drive.

Product contents

One 3.5-inch Apple II disk.

Special user note

Apple IIGS BASIC v. 1.0B4 is intended for personal enjoyment only and should not be used to develop commercial software. It has not been upgraded or revised and does not take advantage of new features in system software releases, ROM revisions, or computer model changes.

A2Z2014 **$50.00**

C

ORCA/C

Byte Works, Inc.

ORCA/C is the only ANSI C compiler available on the Apple IIGS. It is powerful enough for the professional programmer, yet so easy to use that the beginner will have no trouble using it to learn C. Sophisticated compiler optimizations enhance the speed of programs and compact the code. Debugging is fast and painless with the source-level debugger; you can view program variables and watch their values change during execution; set and clear break points; and step, trace, and execute some or all of your program at full speed.

The package comes with two environments: a Macintosh-like desktop development system and a UNIX-like shell environment. The Desktop features pull-down menus, multiple windows, and full access to the expandable and programmable shell. ORCA/C features function prototyping and standard ANSI C libraries, plus numerous extensions to support the Apple IIGS Toolbox. A separate samples disk filled with source code provides you with examples of NDAs, CDAs, and text and desktop programs, giving you a head start on your Apple IIGS C programming.

ORCA/C is compatible with APW C, so you can port your old programs with little effort.

System requirements

An Apple IIGS computer with at least 1MB of RAM and one 3.5-inch disk drive.

T0299LL/A **$150.00**

Pascal

ORCA/Pascal

Byte Works, Inc.

ORCA/Pascal is a complete, stand-alone ISO/ANSI standard compiler plus extensions. Extensions include UCSD-style units for elegance in modularization, in-line tool calls, type casting, pointer operations, powerful compiler directives, an OTHERWISE clause in CASE statements, additional data types of longint, double precision, and byte; both C- and Pascal-type strings with numerous built-in string functions, bit-manipulation operations, and the ability to redirect output anywhere desired; and the ability to call routines written in any APW-compatible language.

ORCA/Pascal comes with both the popular Desktop environment and the traditional full-screen text editor. The Desktop features a source-level debugger: programmers can step, trace, set auto-go and break points, and specify variables they wish to track. The Desktop contains a special graphics window so users can see graphics output without having to leave their desktop. The number of open windows is limited only by available memory.

Also included are GS/OS, a standard linker, system libraries, a text editor, full support for the Apple IIGS Toolbox interface files, and a separate disk with free samples.

System requirements

An Apple IIGS computer. The text version requires 768K of RAM. The Desktop and debugger each require 1 MB of RAM.

T0012LL/A **$150.00**

Debuggers and supplemental tools

Apple II High-Speed SCSI Card Utilities

Apple Computer, Inc. Class 1B

This package is of use to Apple II developers who want to develop applications that make use of the various SCSI drivers Apple Computer provides (hard disk, CD-ROM, scanner, tape backup).

This package is provided for developers who want to license the SCSI software and for those who want to develop applications that use the High-Speed SCSI card or the SCSI

drivers. Additionally, it is provided for APDA members who own the previous SCSI card and wish to use this new software.

The software includes the SCSI Manager and device drivers for use with the IIGS and the following devices: hard disk, CD-ROM, scanner, tape backup. There are also ProDOS 8 utilities to partition and verify hard disks as well as a utility to backup data. You will also find a "CD-Remote" desk accessory for using audio CDs with the Apple IIGS computer. This product contains two disks of utilities and system software for the Apple II High-Speed SCSI Card. Disk #1 includes all the software that ships with the card: the SCSI Manager; device drivers for hard disk and CD-ROM drives; hard disk utilities HD SC Partition, Backup II, and SCSI Verify; and CD-Remote, the IIGS desk accessory for playing audio CDs in the AppleCD SC drive. Disk #2 contains beta versions of device drivers for the Apple Scanner and Apple Tape Backup 40SC. It includes end-user documentation for the hard disk utilities.

Licensing note

Only disk #1 will be licensable by developers through Software Licensing. See the Software Licensing information page elsewhere in this catalog for full details.

System Requirements

An Apple IIGS or an Apple IIe enhanced computer with an Apple II High-Speed SCSI Card or an Apple II SCSI Card. A 3.5-inch floppy disk drive is also required.

Product contents

Two 3.5-inch Apple II disks and 29 pages of release notes.

Special user note

The partition and verify utilities do NOT work with the original Apple II SCSI Card.

A0242LL/A **$30.00**

Related products

- *Apple IIGS Toolbox Reference*, Volume I–A2G0057
- *Apple IIGS Toolbox Reference*, Volume II–A2G0058
- *Apple GS/OS Reference*, Volume II, Beta Draft–A0008LL/A

Apple IIGS Icon Editor v. 1.1

Apple Computer, Inc. Class 2

Due to its usefulness, the Apple IIGS Icon Editor is a tool Apple has decided to make available early in its development cycle. This product is designed to create and modify icons for display by the Apple IIGS Finder. Icons can be created for applications or for documents. Using the Icon Editor, a programmer can match application icons to document icons. When a user opens a document from the Finder, the appropriate application is launched by double-clicking on its icon.

System requirements

An Apple IIGS computer.

Product contents

One 3.5-inch disk and a 15-page reference guide.

A0015LL/A **$25.00**

GSBug and Debugging Tools v. 4.0B1

Apple Computer, Inc. Class 1B

This beta version of Apple Computer's machine-language debugger works on any Apple IIGS with System Software v. 4.0 or later.

With GSBug, you can step through your code; save a trace history to a file on disk; define breakpoints and insert them into your code; define and use memory protection windows; and view the debugger's master display, which shows the contents of the 65816 registers, breakpoints, and memory-protection ranges that you have set, portions of the stack and memory, and a disassembly of your program's code.

Also included with GSBug are the Loader Dumper, Memory Mangler, and Scrambler classic desk accessories (CDAs). Loader Dumper lets you see where in memory the System Loader has loaded each segment of your program and gives you information about the various tables and variables that the loader uses. Memory Mangler lets you execute a variety of Memory Manager routines and provides lists of the memory blocks that are in use, purged, and disposed of by the Memory Manager. Scrambler helps you find out whether your application has incorrectly dereferenced a memory handle by not having first locked the handle.

The GS/OS Exerciser, also included in this package, lets you "exercise" GS/OS by practicing its calls from the keyboard. This utility is supplied both as an application and as a CDA.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIGS computer.

Product contents

One Apple II disk and one 140-page manual.

A0037LL/A **$30.00**

MIDI Synth/synthLAB Version 1.0B3

Apple Computer, Inc. Class 1B

MIDI Synth/synthLAB offers:

- Synthesizer, sequencer, and MIDI interface integrated into one tool
- Simple development interface
- Use of only 25-30 percent of CPU overhead while running in the background

The combination of MIDI Synth and synthLAB provides Apple IIGS developers with powerful tools for integrating sound into their applications.

Developers using sound within their applications. This includes games, music applications, and much more. Anyone

interested in experiencing the full capability of the Apple IIGS' sound circuitry should get this product.

This product contains a beta version of a new toolset (MIDI Synth) for the Apple IIGS. MIDI Synth is a second generation note synthesizer tool for the Apple IIGS. By integrating a completely new sequencer, MIDI interface and synthesizer into one programming tool, MIDI Synth offers developers a powerful but simple solution to many of their sound needs. Because of this integration, most of the work required by an application to produce music is handled by the the tool.

synthLAB is a support application for developers who are creating programs using MIDI Synth. Like MIDI Synth, synthLAB has three basic parts: a synthesizer, a sequencer, and a MIDI driver. With synthLAB, you can create the instruments you will need for your application, either by modifying existing ones, or by creating totally new and original ones. With the synthLAB recorder, you can record your custom sequences used in you application. synthLAB is built around MIDI Synth and makes a great learning tool for understanding how MIDI Synth works.

System requirements

Apple IIGS (1 MB suggested); System Software 5.0.2 or later.

Product contents

Two manuals, one for the MIDI Synth tool and one for the SynthLab application, and one 3.5-inch disk.

A0250LL/A **$25.00**

The Programmer's Online Companion, Apple IIGS Version

Addison-Wesley Publishing Company

For those who use the Apple IIGS Toolbox, this on-line reference utility is a welcome addition to all programming tools. This is a classic desk accessory accessed from within any development system through the desk accessory menu. From there, the Toolbox calls can be accessed quickly, then copied and pasted directly into source code. The language editor remains active at all times. Typing errors are virtually eliminated.

System requirements

An Apple IIGS computer with at least 150K of memory beyond that required by the development system.

T0189LL/A **$49.95**

Genesys

Simple Software Systems International, Inc.

Genesys is a full-featured resource creation, editing, maintenance, and source code generation tool. Genesys uses a WYSIWYG environment that allows creation of resources without typing, compiling, or linking a single line of code. The resources created by Genesys can be saved as standard resources for your application, or as fully commented source code in any language. The interface created with Genesys is attached directly to your program, so additions and modifications take effect instantly.

Genesys is for experienced programmers who want to automate the coding of the standard parts of their application; beginning programmers who want to cut their learning curve on Apple IIGS programming techniques; and non-programmers who want to design, implement, or modify an Apple IIGS user interface.

Genesys is a CASE tool with an open-ended architecture, allowing for support of new resource types as they are released. The Genesys Source Code Generation Language (SCGL) allows you to fully customize the source code output, as well as create and modify source code generation for any language, existing or not. Genesys supports source code generation for Pascal, C, assembly language, and BASIC for APW, MPW IIGS Cross Development, ORCA, TML, Micol Systems, and other language products as they are released.

Simple Software Systems International provides full technical support via telephone, U.S. Mail, MCI mail, America On-line, and GEnie information services.

System requirements

An Apple IIGS computer with at least one megabyte of RAM and one 3.5-inch disk drive.

T0406LL/A **$150.00**

Call Box (Toolbox Programming System)

So What Software

This software is a programming enhancement for use with various languages that provides facilities for creating data template structures used by the Toolbox functions through WYSIWYG style editors. These editors are standard desktop applications. Any file type S16 application can be integrated into the system.

Version 1.0 has Window, Dialog, Menu, and Image editors. The Window, Dialog and Menu editors use OMF2 relocatable code and relocatable resources as input and are able to output both Omi2 and Resource type in addition to APW/ORCA M type assembly source code.

The Image editor is able to load PICT type files as well as Binary and Resource type data and output Binary, Resource, and APW/ORCA M type assembly source code.

An Applesoft BASIC interface for the Toolbox is included which provides the Applesoft programmer access to the functions of the Toolbox. This driver uses a "parameter call" type of syntax and is capable of issuing specialized ProDOS 8 commands which accommodate certain Toolbox functions. A superset of commonly used functions is provided with specialized syntax, and full Toolbox access is also possible with the use of "generic" calls in this driver. This package also includes an interactive demo/tutorial that demonstrates the use of this Toolbox driver.

All of the separate facets of this system are tied together with a desktop style launching shell which acts as a distributor for accessing these features as well as containing several utilities to aid in the developer's programming tasks. This system is designed to be expandable in order to encompass newer functional components.

System requirements

An Apple IIGS with 1MB of RAM, Apple IIGS System Disk v. 5.0 or later, one or two disk drives and/or hard drive.

T0378LL/A **$99.00**

System software

Apple IIGS System Disk v. 5.0.4 NEW!

Apple Computer, Inc. Class 1

This product contains the most recent release of the Apple IIGS system software, including GS/OS. This version supports networking with the Apple IIGS AppleShare file server. The package contains 18 pages of release notes that summarize program bug fixes and additions to the system software.

For complete information on GS/OS, you need the *GS/OS Reference*, Volumes 1 and 2. For complete information on all tool calls refer to the *Apple IIGS Toolbox Reference*, Volumes 1, 2, & 3. All these documents are available separately from APDA.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIGS computer with 1 MB of RAM and at least one 3.5" drive.

Product contents

Two 3.5-inch Apple IIGS disks and18 pages of release notes. This product is designed for developers and does not contain the end-user documentation. The end-user product is available from authorized Apple dealers.

A2Z1002/C **$30.00**

Apple IIGS System Disk v. 5.0.2

Apple Computer, Inc. Class 1

This product is designed for developers and does not contain the end-user documentation. The end-user product is available from your authorized Apple dealers.

This product contains the most recent release of the Apple IIGS system software, including GS/OS. This version supports networking with the Apple IIGS AppleShare file server. The package contains a 30-page release note that summarizes program bug fixes and additions to the system software.

For complete information on GS/OS, you need the *GS/OS Reference*, Volumes 1 and 2, Beta Drafts. For complete information on all tool call changes since the compilation of the *Apple IIGS Toolbox Reference*, you need the *Apple IIGS Toolbox Reference*, Volume 3, Beta Draft. All these documents are available separately from APDA.

The current version of Apple IIGS System Software is version 5.0.4 which requires a minimum of 1 MB of memory. Apple IIGS System Software v.5.0.2 is still being made available because it operates on systems with at least 512K of memory.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIGS computer with 512K of RAM; a total of 768K of RAM is required for AppleShare.

Product contents

Two 3.5-inch Apple IIGS disks and 44 pages of release notes. This product is designed for developers and does not contain the end-user documentation. The end-user product is available from authorized Apple dealers.

A2Z1002/B **$30.00**

Apple IIGS Video Keyboard v. 1.0B1

Apple Computer, Inc. Class 1B

The Apple IIGS Video Keyboard is a desk accessory for the Apple IIGS that provides on-screen emulation of a physical keyboard. Its main purpose is to provide a way to enter text data into Apple IIGS desktop applications by using only a pointing device.

The Apple IIGS Video Keyboard has been introduced for developers who have requested information on this product's adaptability with their specific software applications. This is an adaptive tool, allowing people who can not use a standard keyboard to use the mouse to click keys on a keyboard from the screen of the computer.

Video Keyboard has all the functionality of a physical keyboard and its use is transparent to the system, making it useful in situations where a hardware keyboard is impractical.

System requirements

An Apple IIGS computer with at least 1 MB of RAM and System 5.0.2 or later.

Product contents

One 10-page manual and one 3.5-inch disk.

A0028LL/A **$20.00**

Books and references

Apple IIGS Assembler Toolbox Quick Reference

Apple Computer, Inc.—1988 Class 1

The *Apple IIGS Assembler Toolbox Quick Reference* is a summary of the Toolbox calls, shown as used from assembly

language, up to date for System Disk 3.2. The entries include the call names, parameters, and short descriptions of the calls. This quick reference summarizes the 1,476 pages of the *Apple IIGS Toolbox Reference* in a compact document, but does not replace it: not enough detail is supplied to use this reference as a stand-alone product. (150 pages)

A0018LL/A **$20.00**

Apple IIGS C Toolbox Quick Reference

Apple Computer, Inc.—1988 Class 1

The *Apple IIGS C Toolbox Quick Reference* is the most recent summary of the Toolbox calls, shown as used from C, for System Disk v. 3.2. The entries include the call names, parameters, and short descriptions of the calls. This quick reference summarizes the 1,476 pages of the *Apple IIGS Toolbox Reference* in a compact document, but does not replace it: not enough detail is supplied to use this reference as a stand-alone product. (150 pages)

A0019LL/A **$20.00**

Apple IIGS Firmware Reference

Addison-Wesley Publishing Company—1987
by Apple Computer, Inc.

The *Apple IIGS Firmware Reference* provides an extensive description of the internal operations of the Apple IIGS and its firmware facilities. It begins with an overview of the firmware and then offers in-depth information on how to use the firmware to access the system monitor, mini-assembler, disassembler, keyboard, mouse, video displays, serial ports, and disk drives. Appendixes demonstrate methods of including firmware calls in programs. (352 pages)

A2G0054 **$24.95**

Apple IIGS Firmware Reference 1 MB Apple IIGS Update

Apple Computer, Inc. Class 1

The firmware of the 1 MB Apple IIGS is somewhat different from the firmware of the original Apple IIGS. This reference describes all the new features including the System Monitor and Mini-Debugger commands as well as the changes made to the SmartPort firmware and the keyboard interface. For a complete description of all firmware features you will also need the *Apple IIGS Firmware Reference*. (Addison-Wesley, 1989–see A2G0054 above). (58 pages)

System requirements

1 MB Apple IIGS

A2G0054/A **$15.00**

Apple IIGS GS/OS Device Driver Reference

Apple Computer, Inc. Class 1

This reference describes the GS/OS application interface to device drivers and describes all device-specific calls. It contains detailed descriptions of how to interact with the following GS/OS drivers: the SCSI driver, the AppleDisk 3.5 driver, the UniDisk 3.5 driver, the AppleDisk 5.25 driver, AppleTalk drivers, and GS/OS generated drivers.This reference also shows how to design and write drivers for hardware devices you may want to use with the Apple IIGS.

This reference replaces the beta draft of *GS/OS Reference*, Volume 2. Purchasers of that interim draft should also buy the *GS/OS Device Driver Reference* to ensure they have the latest technical information available to them. (Approx. 300 pages)

System requirements

Apple IIGS computer.

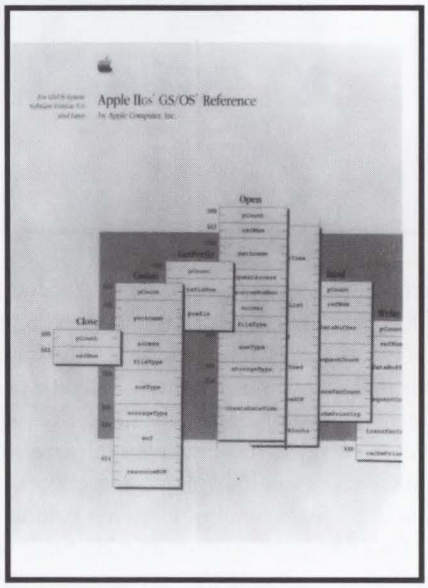
Product contents

One manual.

A0008LL/C **$35.00**

Apple IIGS GS/OS Reference

Addison-Wesley Publishing Company—1990
by Apple Computer, Inc.



This book covers topics of interest to all Apple IIGS application developers, including how to access disk files and disk volumes, use the GS/OS System Loader, use the Console Driver for character-based screen and keyboard I/O, and handle interrupts in a GS/OS environment. It also explains how to use File System Translators, which are code modules that enable GS/OS to work with a variety of file systems including ProDOS, ISO 9660 (for CD-ROMs), and the file system used by AppleShare file servers.

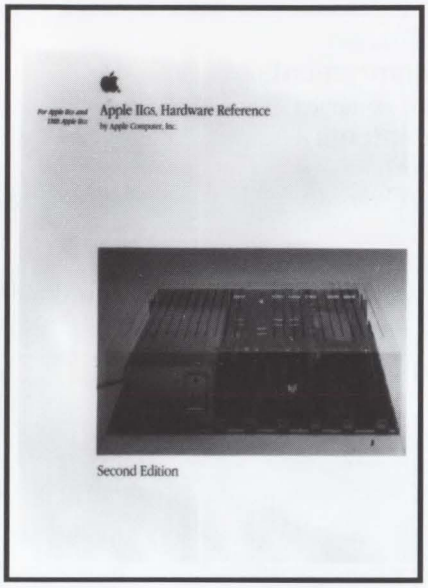
Appendixes describe the Object Module Format (OMF), Apple extensions to the ISO 9660 standard, and the ProDOS 16 commands that GS/OS supports.

This volume replaces the GS/OS Reference, Volume 1, Beta Draft previously offered by APDA. It also incorporates some information contained in the Volume 2 Beta Draft, specifically the procedures to write and install GS/OS

interrupt and signal handlers, how to use the Console Driver, and how to make GS/OS loader calls. (528 pages)
A2F2037/A **$28.95**

Apple IIGS Hardware Reference, Second Edition

Addison-Wesley Publishing Company—1987, 1989
by Apple Computer, Inc.



This second edition of the *Apple IIGS Hardware Reference* has been revised and expanded to include information about the 1 MB Apple IIGS. Illustrated with photographs and detailed schematics, this reference presents a comprehensive description of the Apple IIGS hardware. In addition, the manual provides detailed information on the use of input devices, video displays, disk drives, serial ports, and sound and graphics capabilities. This volume, along with the *Apple IIGS Firmware Reference* (A2G0054) and its *1 MB Apple IIGS Update* (A2G0054/A) provides authoritative information for assembly-language programmers and hardware designers. (300 pages, 8 1/2" x 11", paperbound)
A2G0055/A **$26.95**

Apple IIGS Toolbox Reference, Volumes 1 and 2

Addison-Wesley Publishing Company—1987
by Apple Computer, Inc.

Together, these two volumes provide a comprehensive guide to the Apple IIGS Toolbox, which is composed of more than 800 ready-to-use routines that enable programmers to comply with the Apple desktop interface standards and access the capabilities of the Apple IIGS. Organized alphabetically by tool set name, each chapter includes an overview of all the routines in the set, a complete description of each routine, and a summary of constants, data structures, and errors. Volume 1 contains 776 pages. Volume 2 contains 700 pages.

A2G0057 Apple IIGS Toolbox Reference, Volume 1 $28.95
A2G0058 Apple IIGS Toolbox Reference, Volume 2 $28.95

Apple IIGS Toolbox Reference, Volume 3

Addison-Wesley Publishing Company—1990
by Apple Computer, Inc.

This book supplements the *Apple IIGS Toolbox Reference*, Volumes 1 and 2, described above. It includes changes and enhancements to the Apple IIGS Toolbox since Apple IIGS System Software version 3.2, and includes new features introduced in versions 4.0 and 5.0. This new information includes resources, menus, controls, text edit, and windows. Also, the sound tools are discussed in more detail than previous notes. (1,100 pages, 8 1/2" x 11", paperbound)
A0229LL/B **$39.95**

Programmer's Introduction to the Apple IIGS

Addison-Wesley Publishing Company—1988
by Apple Computer, Inc.

This guide explains essential concepts and provides practical advice for programming the Apple IIGS. Three versions of a functioning sample program in 65816 assembly language, C, and Pascal demonstrate crucial Apple IIGS programming topics such as event-driven programming, the Apple Desktop Interface, and effective use of the Apple IIGS Toolbox. Other topics include file handling, memory management, and writing specialized programs such as desk accessories. (544 pages)
A2G0060 **$32.95**

Technical Introduction to the Apple IIGS

Addison-Wesley Publishing Company—1986
by Apple Computer, Inc.

Technical Introduction to the Apple IIGS provides programmers and sophisticated users with numerous insights into the inner workings of the Apple IIGS.

The book presents an overview of the general design, system architecture, programming environments, Toolbox, graphics modes, and sound capabilities. It also serves as an introduction to the entire series of Apple IIGS technical manuals.
A2G0062 **$9.95**

Apple II

This section includes products for Apple II, Apple IIe, and Apple IIc computers, and products that apply to the entire Apple II product line. For products running on the Apple IIGS , see the preceding Apple IIGS section.,

Assembly

ORCA/M 4.1 for the Apple II

Byte Works, Inc.

ORCA/M 4.1 is a development environment for 6502, 65C02, and 65816 assembly-language programming under the ProDOS 8 operating system. The assembler supports real subroutines and data segments with true local and global labels.

The text editor offers cut, copy, and paste as well as global search and replace. The macro language calls libraries, passes parameters, defines local and global parameters, and calls other macros. The subroutine libraries include 2-, 4-, and 8-byte integer mathematics and full graphics libraries, including double Hi-Res.

The package includes a linker (which performs automatic library searches), a command processor, a disassembler, and numerous utilities. Programs written with ORCA/M can easily be modified to run with ORCA/M 1.1 on the Apple IIGS.

System requirements

An Apple II Plus, Apple IIe, or Apple IIc computer with 64K of memory.

T0018LL/A **$99.95**

Pascal

Apple II Desktop Toolkit Pascal v. 1.0B5

Apple Computer, Inc. Class 3

This is a library of routines that support MouseText and/or double Hi-Res graphics for the Apple II family of computers.

The library also manages the desktop environment, which includes pull-down menus, windows, cursors, and event handling. The MouseText Toolkit manual and disks manage these activities in text mode. The MouseGraphics Toolkit manual and disks provide equivalent functions in graphics mode. This package includes graphics primitives. Apple II Desktop Toolkit Pascal is intended for personal enjoyment only and should not be used to develop commercial software. It has not been upgraded or revised and does not take advantage of new features in system software releases, ROM revisions, or computer model changes.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIc or Apple IIe computer with 128K of RAM, or an Apple IIGS computer.

Product contents

Four 5.25-inch Apple II disks and one 336-page manual.

A2Z2009 **$30.00**

Apple II Pascal with Device Support Tools v. 1.3

Apple Computer, Inc. Class 3

This is Apple Computer's implementation of the University of California San Diego (UCSD) p-system for the Apple II family of computers. It provides a complete development and operating environment supporting the Pascal language, and includes a Pascal compiler, linker, filer (file-management utility), editor, 6502 assembler, p-code interpreter, and sample programs. The compiler generates p-code files executed by the interpreter.

The included Apple II Pascal v. 1.3 Device Support Tools provide support for writing and attaching device drivers for use with the Pascal v. 1.3 operating system. A system.attach file allows the drivers that were written for v. 1.2 to work correctly with v. 1.3.

Apple II Pascal v. 1.3 and the Device Support Tools are intended for personal enjoyment only and should not be used to develop commercial software. They have not been upgraded or revised and do not take advantage of new features in system software releases, ROM revisions, or computer model changes.

Licensing note

See the Software Licensing page for licensing details.

System requirements

The package supplies different versions of the interpreter for 64K systems (the Apple II and Apple II Plus), 128K Apple IIe computers, and Apple IIc computers. The program is compatible with the Apple IIGS computer. It calls for two 5.25-inch disk drives or one 3.5-inch drive plus 64K of RAM.

Product contents

Five 5.25-inch Apple II disks, one 3.5-inch Apple II disk, one 104 page manual, and one 400-page manual. Binder included.

A2Z2012/A **$125.00**

ProDOS

Apple II Desktop Toolkit ProDOS v. 1.0B5

Apple Computer, Inc. Class 3

This is a library of routines that support MouseText and/or double Hi-Res graphics for the Apple II family of computers. The library also manages the desktop environment, which includes pull-down menus, windows,

cursors, and event handling. The MouseText Toolkit manual and disks manage these activities in text mode. The Mouse Graphics Toolkit manual and disks provide equivalent functions in graphics mode. This package includes graphics primitives.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIc or Apple IIe computer with 128K of RAM, or an Apple IIGS computer.

Product contents

Four 5.25-inch Apple II disks and one 336-page manual.

A2Z2010 **$30.00**

ProDOS Assembly Tools

Apple Computer, Inc. Class 1

These up-to-date ProDOS Assembly Tools enable programmers to write assembly-language programs for Apple II computers. The tools include an editor, assembler, Bugbyter debugger, and relocating loader. These tools help programmers create, debug, and execute programs for any computer in the Apple II family.

System requirements

An Apple II computer with at least 64K of RAM. The ProDOS 8 Technical Reference Manual and ProDOS Utilities Manual are recommended.

Product contents

One 5.25-inch Apple II disk and one 270-page manual.

A2Z2021 **$35.00**

SuperPILOT

Apple II SuperPILOT and Apple II SuperPILOT Special Edition v. 1.0

Apple Computer, Inc. Class 3

SuperPILOT is a complete system for experimenting with and designing programs in the PILOT programming language. Apple II SuperPILOT is the original version of SuperPILOT and is fully documented. (Included in this bundle is Apple II SuperPILOT Special Edition v. 1.0.) The Special Edition document describes the differences between this edition and SuperPILOT.

Licensing note

See the Software Licensing page for licensing details.

Product contents

Eleven 5.25-inch disks, two manuals, and release notes.

Special user note

Apple II SuperPILOT and Apple II SuperPILOT Special Edition v. 1.0 are intended for personal enjoyment only and should not be used to develop commercial software. These products have not been upgraded or revised and do not take advantage of new features in system software releases, ROM revisions, or computer model changes.

A0014LL/A **$75.00**

System Software

Apple II System Disk v. 3.1

Apple Computer, Inc. Class 1

This is the latest version of ProDOS 8, the system software for 8-bit Apple II computers. This product is fully compatible with the AppleShare File Server. Included in this package are release notes detailing changes in ProDOS since v. 1.1. Designed for developers, this package does not contain end-user documentation, which is available from authorized Apple dealers.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIc or Apple IIe computer with 128K of RAM, or an Apple IIGS computer.

Product contents

One 3.5-inch, double-sided ProDOS disk; one 5.25-inch, single-sided ProDOS disk; and one 24-page manual.

A2Z1004 **$20.00**

Utilities

Apple II Filecard Toolkit

Apple Computer, Inc. Class 3

This prototype package contains a variety of user interface utilities for the Apple II program developer. Included is the Pascal Filecard Menu Support Unit, which is a simple AppleWorks-like interface written in Pascal for screen management and menu selections. The second utility is the Apple II Console and Keyboard Tools. This is an adaptation of the Apple III Console Driver for the Apple IIc and Apple IIe. It permits developers to use a consistent interface for display and control procedures. The driver can be carried out in Pascal, Applesoft, and assembly language.

The package has release notes 1.0B1 for the console drivers and ConsoleStuff Library external reference specifications. The Apple II Filecard Toolkit is intended for personal enjoyment only and should not be used to develop commercial software. It has not been upgraded or revised and does not take advantage of new features in system software releases, ROM revisions, or computer model changes.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIc, Apple IIe, or Apple IIGS computer.

Product contents

Five 5.25-inch Apple II disks and 100 pages of engineering release notes.

A2Z2011 **$35.00**

Apple II Video Overlay Card Development Kit v. 1.1

Apple Computer, Inc. Class 1

This kit provides basic design information about the Apple II Video Overlay Card. The notes include information on how the Apple II Video Overlay Card works with application programs, descriptions of the Video I/O Interface Tool Set routines for controlling the operation of the Apple II Video Overlay Card, an overview of the Apple II Video Expansion Bus (AVEB) architecture, and a description of relevant new features incorporated into the Apple IIGS VideoMix desk accessory and the Apple IIe Video Setup program.

The disk includes interfaces for the APW and MPW IIGS development systems and an object file for Apple IIe programmers. The disk also includes Tool 33 (the Video Overlay Card tool), the VideoMix desk accessory (for the Apple IIGS), and the Apple IIe Video Setup program.

Licensing note

See the Software Licensing page for licensing details.

System requirements

An Apple IIe or Apple IIGS computer with the Apple II Video Overlay Card.

Product contents

One disk and one 96-page manual.

A0221LL/B **$35.00**

Books and references

Apple IIe Technical Reference Manual

Addison-Wesley Publishing Company—1987
by Apple Computer, Inc.

This guide for Apple programmers provides detailed descriptions of all Apple IIe hardware and firmware. It offers information on I/O features such as MouseText, memory organization, and the use of the monitor firmware. This manual has been revised to cover the 128K Apple IIe with extended keyboard. (408 pages)

A2G0053 **$24.95**

Apple II Memory Expansion Card Reference Manual

Apple Computer, Inc. Class 1B

This beta manual provides a technical description of the Apple II Memory Expansion Card. The card can add as much as 1 MB of RAM (in 256K increments) to any Apple II computer. The manual is written for professional programmers and technical enthusiasts who want their application programs to take advantage of the expanded memory features of the card. (75 pages)

A2G0022 **$20.00**

Apple IIc Memory Expansion Card Reference Manual

Apple Computer, Inc. Class 1B

This beta reference contains technical data dealing with the Apple IIc Memory Expansion Card. It is written for technical enthusiasts who take advantage of the card's expanded memory features. (78 pages)

A2G0047 **$20.00**

Apple II SCSI Card Technical Reference Manual

Apple Computer, Inc.—1987 Class 1B

This beta guide to the Apple II SCSI Card provides a functional overview of card hardware and firmware features and operation. (This book describes Apple's original SCSI card, not the new High-Speed SCSI card.)

The manual is written for programmers, designers of peripheral devices, and computer enthusiasts who want to know what makes the card work and how to use it. The manual detailed descriptions of the Smartport command set plus step-by-step instructions on using non-Smartport SCSI commands. Included is information on the latest Revision C ROM that provides support for the AppleCD SC CD-ROM drive. (70 pages)

A2G0029 **$20.00**

Applesoft Tutorial

Addison-Wesley Publishing Company—1985
by Apple Computer, Inc.

This classic introduction teaches Applesoft BASIC fundamentals with concise explanations and hands-on exercises. The Sampler disk provides program examples of games and programming tools.

Product contents

One Apple II 5.25-inch disk and one 304-page manual.

A2Z2023 **$29.95**

DOS 3.3 Programmer's Manual

Apple Computer, Inc—1982 Class 3

APDA has the only remaining copies of the discontinued *DOS 3.3 Programmer's Manual*. These remain valuable for history buffs, educators, and hackers who still use DOS 3.3 software. The manual describes the DOS environment, text files, programming DOS commands in Applesoft, and more. It covers the Apple II, Apple II Plus, and Apple IIe computers. (216 pages)

Special user note

DOS 3.3 User's Manual is intended for personal enjoyment only and should not be used to develop

commercial software. These products have not been upgraded or revised and do not take advantage of new features in system software releases, ROM revisions, or computer model changes.

A2G0066 **$20.00**

DOS 3.3 User's Manual

Apple Computer, Inc. Class 3

This manual, also discontinued, is far less detailed than the programmer's manual described in the previous listing. It contains a tutorial, covers the basics of how DOS operates, and contains information on how to use disks, files, and programs. It addresses the Apple II, Apple II Plus, and Apple IIe computers. (174 pages)

Special user note

This manual is intended for personal enjoyment only and should not be used to develop commercial software. These products have not been upgraded or revised and do not take advantage of new features in system software releases, ROM revisions, or computer model changes.

A2G0050 **$20.00**

X-Ref (Cross Reference) Apple II Books & Notes

Apple Computer, Inc. Class 1

X-Ref (Cross Reference) of Apple II Books and Notes is the key to all the programming books for the Apple II family of computers and to the Technical Notes from the Apple II Developer Technical Support team. The X-Ref contains complete indexes to all of the books as well as a compiled glossary of terms. It is a valuable guide to Apple Computer's official programmer references for the entire family of Apple II computers. (100 pages)

A0021LL/A **$20.00**

Apple IIc Technical Reference Manual

Addison-Wesley Publishing Company—1987
by Apple Computer, Inc.

This manual covers all models of the Apple IIc except the Apple IIc Plus. It presents essential information on hardware, memory organization, I/O capabilities, and interrupt handling. We recommend this book to users of earlier Apple IIc systems who want to know more about their systems. However, if you're developing software that is to run on all Apple IIc models, purchase the second edition described below. (576 pages)

A2G0052 **$24.95**

Apple IIc Technical Reference Manual, Second Edition

Apple Computer, Inc.—1989 Class 1

This is the definitive reference guide to all members of the Apple IIc family of computers, including the Apple IIc Plus. It presents essential information on hardware, memory organization, I/O capabilities, and interrupt handling. It also describes the Apple IIc Plus microprocessor caching techniques. If you're developing software that is to run on all Apple IIc models, purchase this reference instead of the original edition published by Addison-Wesley. (685 pages)

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Applesoft BASIC Programmer's Reference Manual

Addison-Wesley Publishing Company—1985
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This complete reference details all the features of Applesoft BASIC and explains advanced concepts in program design. Topics covered include how to create high-resolution graphics, memory organization, and information on peeks, pokes, and calls. (368 pages)

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Daytime telephone number Telex Fax

Payment method

☐ VISA (13 or 16 digits) ☐ MasterCard (16 digits) ☐ American Express (15 digits) ☐ Check/Money Order to Apple Computer, Inc. ☐ Apple Credit Card (11 digits)

Credit Card Account Number

Expiration date
Month ☐☐ Year ☐☐

Signature

Qty	Apple Part Number	Description	Prior Purchase Verification	Unit Price	Total Price
	—If you own **NONE** of the components of **E.T.O.**, order the Starter Package—				
	M0895LL/A	Starter Pkg. (inc'l Update Subscr.)		$ 995	
—If you own **SOME** of the components of **E.T.O.**, you must order the ones you don't own **plus** the Subscription—					
	M0911LL/A	MPW & Utilities		$ 250	
	M0884LL/A	MacApp		$ 150	
	M0883LL/A	MPW C		$ 125	
	M0881LL/A	MPW Pascal		$ 125	
	M0887LL/A	MPW C++		$ 125	
	R0011LL/A	Virtual User		$ 40	
	M0917LL/A	Quarterly Update Subscription		$ 300	
				Merchandise subtotal	
				Local sales tax	
				Shipping & handling	
				Additional E.T.O. subscription charge*	
				ORDER TOTAL	

•• See the shipping table on the "How to order" page and enter that dollar amount in the "Shipping & handling" box to the right.

- **Add the appropriate state and local sales tax for your area.**
- **Indicate delivery method: surface ☐ air ☐**
- **International customers:**
  –call 1-408-562-3910 for the total cost of your order, and
  –please print your name and customer number on your checks

***U.S.–$15, Canada–$40, other countries–$100**

Mail this form with payment to: APDA, Apple Computer, Inc., 20525 Mariani Avenue, M/S 33-G, Cupertino, CA 95014-6299

Phone orders: 1-800-282-2732 U.S., 1-800-637-0029 Canada, 1-408-562-3910 International

If you are ordering by phone, please have the order form completed before placing your call.

APDA ORDER FORM

PLEASE PRINT ALL INFORMATION

APDA customer # | | | | | | | | |

Date of order: _____
month day year

First name middle initial last name

Billing address:

Street

City

State / Province / Country

Zip / Postal Code

Shipping address (if different than billing address):

Street

City

State / Province / Country

Zip / Postal Code

Daytime telephone number Telex Fax

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Month | | Year | |

Signature

Note for international customers: We do not accept checks drawn on international banks, whether in your country's currency *or* in U.S. dollars.

Quantity	Apple Part Number	Description	Unit Price	Total Price

- **Please add the appropriate state and local sales tax for your area.**
- **Only order Class 1 products if you are not an APDA participant.**
- Read the shipping table on the "How To Order" page and enter that dollar amount in the Shipping & Handling box to the right. Only one shipping method per order. Please indicate the delivery method you have selected.

☐ *UPS Surface (US only)* ☐ *Air*

- International customers:
  —call (408) 562-3910 for the total cost of your order, and
  —please print your name and customer number on your checks

Merchandise Subtotal	
Local Sales Tax	
Shipping & Handling	
ORDER TOTAL	

- **Mail this form with payment to: APDA, Apple Computer, Inc., 20525 Mariani Avenue, M/S 33-G, Cupertino, CA 95014-6299**

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Apple Computer
20525 Mariani Avenue
M/S 33-G
Cupertino, CA 95014

Bulk Rate
U.S. Postage Paid
Permit No. 1452
Seattle, Washington

APDA*log*