

SK * DOS / 6 8 K
 H R
 SPELL ' N F I X SK * DOS
 N T
 CHECK ' N T A X
 A R
 STAR - K S P E L
 A L O D O S
 H U M B U G P L U S
 I ' E L L
 C R R W R I T E ' N S P E L L
 S O R T E M O F B C
 B U G N E W T A L K X I O 2
 E B
 C O M M T E R M



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STAR-K QUALITY

The best judges of our products are our customers. Each of our software manuals contains a User Registration form which asks for our customers' comments on our programs. Here is what they write about our products:

"This is a very interesting piece of software. Keep up the good work."
P.H., N.Y.

"I really enjoy Spell 'N Fix. It is very simple to operate. I will recommend the program to all my friends." C.J.K., CA

"We think your program is great. Do you have any others?" C.S., IL

"Great Program!" R.F., PA

"Excellent - Keep up the good work." D.D.M., NJ

"Without a doubt one of the best programs that I'll ever use!" B.M.,
Canada

"Works great!" R.M., CA

"The documentation is excellent." J.D., MA

"This is one of the handiest programs I have." T.N., IL

"Best monitor on the market!" J.S., LA

"The DIR command alone is worth the price!" L.O., IL

"Very nice piece of software. Does the job, good clear manual, and easy to use." G.M., MO

"Excellent operating system." J.D., MA

"Good work. Excellent program!!!" L.S., CA

"I am very pleased with the performance of Spell 'N Fix." K.E., IL

"Outstanding program." L.T., OH

"Impressive." K.M., MO

"Good program - Easy to use - Good manual." W.W., NV

"Intelligible user's manual! Congratulations." L.H., PA

"Works fine. It's actually teaching me to spell after 30 years of misspelling." K.G., MN

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Call our BBS at (914) 241-3307 for information/support.

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SK*DOS[®]/68K Disk Operating System

SK*DOS/68K is a single-user disk operating system for computers using Motorola 68000 family microprocessors. It is ideal for applications in

- Industrial Control
- Business Use
- Educational Computing
- Scientific Computing
- Number Crunching
- Dedicated Systems
- Turnkey Systems
- Data Collection
- Single-Board Computers
- Bus-Oriented Computers
- Graphics Workstations
- One-of-a-Kind Systems
- Advanced Hobbyist Use

SK*DOS/68K is available either already configured for various systems (such as those on the following pages), or in a generic version which is easily adapted to run on a variety of other systems from 32K up to many megabytes.

SK*DOS has been adopted by several manufacturers as the DOS of choice for their systems, and is currently running on a wide range of systems, from small 68008 computers up to full-blown 68020 systems.

SK*DOS/68K comes with over 40 commands and system programs, including an editor, assembler, Basic, 6809 emulator, RAMdisk, disk cache, and utilities to read and write MS-DOS disks, copy-by-date, undelete, show differences between files, prompted delete, text file browse, and more.

SK*DOS is written to let you easily access the advanced features of the 68000 processor. For example, a simple program in assembly language to print out your name may take a page or two on other 68000 systems; it takes only six lines under SK*DOS.

Languages and other software, available from other vendors and through public domain sources, include compilers (C, Modula-2, and Whimsical), a full Basic, screen editors, disassemblers, spelling checkers, text formatters, music editors, hard disk managers, and communications programs.

SK*DOS/68K (continued)

SK*DOS Features:

- Full DOS documentation plus on-line help
- Multiple directories
- User-installable device drivers
- Install up to 8 different I/O devices
- Keyboard typeahead
- Print-Screen
- Virtual (RAM) disk
- Disk Cache
- Up to 10 drives
- 5-1/4" and/or 3-1/2" floppy drives
- Hard drives to 64 megabytes each
- I/O redirection to files or I/O
- Time/date stamping of files
- File or disk write protect (even hard disk)
- Batch files
- Support for 68000, 68010, 68020 processors
- Monochrome or video board support
- Read and write MS-DOS files
- User support via newsletter and BBS
- 6809 Emulator included
- Simple Basic included
- Fast assembler included
- Line editor included
- User-friendly prompts; includes undelete

SK*DOS/68K Prices

SK*DOS is available for single-copy or dealer sales, as well as OEM licenses. Single copies cost \$75; the optional Configuration Kit for adapting to new systems costs an additional \$25. SK*DOS is also available bundled with various 68000 systems at very attractive prices – contact us for details.

SK*DOS/68K (Continued)

Overview

SK*DOS/68K is a single-user disk operating system for computers using Motorola 32-bit CPUs such as the 68008, 68000, 68010, and 68020.

Although SK*DOS/68K contains quite a variety of advanced features, these are totally transparent to a beginning user, and are not necessary for actual use. They are there for those who want them.

System Compatibility

SK*DOS/68K can be used in systems from as small as 32K up to 16 megabytes or more. To date, it has been configured for 68xxx systems made by

- Data-Comp Inc.
- Dominic Evans Industries, England
- Emerald Computers Inc.
- Hazelwood Systems
- Marion Systems
- Micro Concepts, England
- NCR
- Peripheral Technology
- Ralph Allen Engineering, England
- VCS Computer Systeme GmbH, Germany

and others. Some of these versions are available from us, others are supplied by the equipment manufacturers. In addition, a number of other manufacturers are using SK*DOS in embedded applications such as data collection or machine control. A do-it-yourself 68000 computer project using SK*DOS was featured in a series of articles beginning in the October 1987 issue of Radio-Electronics Magazine.

There is a 'generic' version of SK*DOS which is user-configurable for other computers. This version includes a Configuration Manual, which describes how to implement SK*DOS/68K on a new system. It comes with a disk with source code for the terminal and disk drivers, boot program, disk format utility, and other valuable information. Builders of small systems will be especially interested in the source code for 68K HUMBUG, a boot ROM which provides for system startup and debugging while adapting SK*DOS for new systems. The disk is available in either SK*DOS format or in IBM PC format.

Technical Data

SK*DOS/68K is set up so that it defaults to a very simple system unless the user specifically calls its more advanced features. Some of these include multiple directories, I/O redirection, batch files, RAMdisk, disk caches, hard disks, time-stamping, etc. User-written device drivers are easily installed to provide customization to different terminals or other I/O devices.

To run SK*DOS/68K, a computer requires a minimum of 32K of RAM, with 128K or more being preferred. But the old maxim of 'the more, the better' certainly holds.

Although SK*DOS is not relocatable, we can provide it at a variety of different memory addresses on special order (and it is therefore also potentially ROMable). Since most 68000 computers will have RAM beginning at address \$0000, the most likely memory configuration will look as follows:

- \$0000 - 03FC Trap and interrupt vectors
- \$0400 - 0FFF Boot routines and stack space
- \$1000 - 7FFF (approx) SK*DOS/68K
- \$8000 to end of memory - available to user programs

This is just one possible configuration; different configurations are possible for systems which lack available memory beginning at \$0000.

All memory above SK*DOS/68K is available for user programs and utilities. It is relatively easy to implement TSR (Terminate and Stay Resident) programs; for example, SK*DOS/68K is supplied with a RAM disk program which can reserve 16K or more of memory as a RAM disk. This program and its data area would normally be loaded once and then stay in memory above SK*DOS; SK*DOS maintains memory pointers which define the bottom and top of free memory.

Unlike SK*DOS/68K itself, disk-resident commands (such as CAT or LIST), as well as user-written programs, are written in position independent code. When executed, these are loaded by SK*DOS/68K into the free space above SK*DOS/68K itself (and above any TSR programs that may have been previously loaded.) Hence such user programs and utilities will run in any SK*DOS/68K system, even one where SK*DOS/68K has been located at some other address.

Since SK*DOS/68K may not lie in the same place on all systems, user programs must be position independent. Moreover, all calls to SK*DOS/68K, as well as all references to SK*DOS/68K variables, must also be position independent. Hence all such calls are through exception

SK*DOS/68K (Continued)

vectors, and all references to SK*DOS/68K variables are through relative addressing.

For assembly language users, SK*DOS comes with an equates file which allows all system variables and functions to be called by their symbolic names. Using this method, DOS calls become simple DC commands. For example, instead of calls such as INT 16h, which are used in 8088 systems, SK*DOS uses calls such as DC SWRITE to write a sector, DC FOPEN to open a file, or DC OUTCH to output a character.

When used with a system ROM such as HUMBUG, SK*DOS allows convenient debugging of programs under development. A TRACE command in SK*DOS allows a program to be loaded and then entered in trace (single-step) mode. The ROM debugger then takes over and permits tracing or breakpointing.

Combined with the simple user interface, this makes it very convenient to use the 68000 for CPU-intensive applications.

SK*DOS Functions and Commands

SK*DOS/68K is provided with a full complement of utilities, including those needed to format, copy, backup, and test disks; display disk contents; build, list, append, rename, or delete files; and change system parameters. This includes the obvious utilities like COPY, CAT, RE-NAME or DELETE, as well as utilities which depend on specialized hardware, such as TIME, HDFORMAT, or PARK.

SK*DOS/68K is also supplied with an editor, a full 68000 assembler, and a (somewhat limited) Basic language interpreter, which allow you to immediately get started learning the power of SK*DOS. Other programs and utilities are supplied to make SK*DOS more convenient or to speed up its operation. The RAMDISK command allows you to set up a RAM disk up to 1 megabyte in size; the CACHE command sets up a disk cache which tremendously speeds up access in floppy - based systems. UN-DELETE permits files to be retrieved, sometimes as long as days or weeks after they have been deleted. REDOFREE permits disk space to be compacted or compressed to speed up disk access.

A rather unique utility is SK*DOS09. This is a complete 6809 SK*DOS and a 6809 emulator program. It allows you to run standard 6809 programs on your 68K system (although they do run at reduced speed). For those users who have a substantial base of 6809 software (using either 6809

SK*DOS/68K (Continued)

SK*DOS or 6809 Flex), this allows them to run such popular programs as 6809 editors, spreadsheets, assemblers and cross-assemblers, word processors, compilers, and more.

Like its 6809 predecessor, SK*DOS/68K contains program-callable functions to do file maintenance; open, read, write, and close sequential and random files; read and write individual sectors; access the disk directory; input and output characters, strings, and numbers; process command line arguments; parse file names; report errors, and more.

SK*DOS/68K has also been designed to make expansion easy. A standardized system of calling disk and terminal drivers makes it possible to add additional device drivers without great complexity. SK*DOS/68K supports up to ten logical disk drives, so a system can contain as little as one drive (plus perhaps a RAM disk), or as many as ten drives. Furthermore, the DEVICE and DRIVE commands allow I/O devices and disk drives to be reassigned as needed, so additional devices and drives can be brought in as needed.

Depending on the available hardware, SK*DOS can support floppy disks up to 16 megabytes in size, and hard disks up to 64 megabytes. Hard disks can be partitioned into up to four partitions. Files as well as entire disks can be software write protected.

SK*DOS/68K supports I/O redirection from the command line, using the < and > symbols as in Unix or MS-DOS, to either disk files or I/O devices. It also supports batch files, and batch files can call other batch files. In addition, application programs can pass a command line to SK*DOS as if it came from the console and have it executed. Combined with the fact that it is easy to reserve memory for resident programs, this makes it easy to add an alternate command processor or shell which totally changes the user interface.

Files written to disk normally contain the file creation or last modification date. In addition, each file entry may also contain a creation or modification time if the system contains a clock/calendar IC. If such hardware is not available, then SK*DOS/68K defaults to sequentially numbering files each day, and records the sequence number rather than the time. Disk catalog utilities are provided which list disk contents either in the order on the disk, in alphabetic order, in order by date and time, or in order by date and sequence number; the latter two show the latest files first.

SK*DOS/68K (Continued)

Available Software for SK*DOS/68K

The following partial list of SK*DOS software is coded as follows: UG = SK*DOS Users' Group; CSC = Computer Systems Consultants Inc.; PB = Palm Beach Software; SS = Spray Software; MC = Micronics Research Corp.; SKD = Supplied with SK*DOS System disk; BBS = Available for downloading from the SK*DOS BBS at (914) 241-3307; ME = Michael Evenson BBS at (817) 488-8398; OU = Other Users.

ACAT – Print alphabetized disk catalog (SKD)
APPEND – Append two disk files (SKD)
AREACODE – Finds telephone area codes (UG)
ASCII – Convert keypress into its ASCII code (SKD)
ASM – 68000/68010 Native assembler (SKD)
ASMK – Fast 68000 Assembler (PB)
ASMxx – Crossassemblers for Z80, 8048, 8085, many more (CSC)
BACKUP – Make a backup of a floppy disk (SKD)
BEEP – Add a beep to system prompt (SKD)
BIGCAL – Prints a big calendar (UG)
BUILD – Generate short text files without an editor (SKD)
C – Full K&R Compiler (UG or CSC)
CACHE – Cache program to speed up floppy disk operation (SKD)
CAL – Prints a calendar (UG)
CALLS – Does analysis of function calls within a C program (UG)
CAT – Print disk directory with additional data (SKD)
CCHECK – Check a C program indentation and comments (UG)
CHECKSUM – to checksum of disk contents (SKD)
CMODEM – Modem program for communications (UG)
CMON – Debugging monitor (OU)
CMP – File compare program by Jim Hughes (UG)
COMPAR – Compare two files (UG)
COMPARE – Compare two complete disks (SKD)
COPY – copy one or more files between disks, with options (SKD)
CURSOR – Adjust cursor type (OU)
CUT – Cut out columns from text files (UG)
DAMON – Display drive/track/sector for each disk access (SKD)
DELETE – Delete a file from a disk (SKD)
DEVICE – Install a new I/O device on system (SKD)
DIFF – Display differences between two text files (SKD)

SK*DOS/68K (Continued)

DIRS – Display current directories on a disk (P K Morrison / BBS)
DIS – 68000/68010 Disassembler (UG)
DISKEDIT – Examine and edit disk files (UG)
DISKNAME – Display or change name or date of disk volume (SKD)
DOSPARAM – Display or change current DOS or device parameters (SKD)
DRIVE – Install or change active system drives (SKD)
ECHO – Echo command line with hex/octal/etc (from Unix) (UG)
EDDI – Screen Editor (PB)
EDLIN – Simple line editor (SKD)
ED – Screen editor, written in C, available in source (UG)
EDX – Unix “ED”-like line editor (UG)
ELIZA – Popular psychiatrist simulator game (SKD)
EMACS – Editor based on Micro Emacs (from Unix) (UG)
EZMODEM – Screen-oriented modem communications program (ME)
FDUMP – Hex file dump program to examine disk files (UG)
FIND – Find a text string inside a file (SKD)
FORMAT – Format a floppy disk (SKD)
FROMSDOS – Import a file from MSDOS to SK*DOS (SKD)
FTOH – Copy an entire floppy disk to a hard or RAM disk file (SKD)
FUNIQ – Remove duplicate lines from non-sorted file (does not sort) (UG)
GREP – Find strings within a file (from Unix) (UG)
HDFORMAT – Format a hard disk (SKD)
HECHO – Hex Echo program by Jim Hughes (UG)
HELP – Provides instructions to user on how to use SK*DOS (SKD)
HERC – Driver for Hercules monochrome board, emulates TVI 920C (UG)
HTOF – Opposite of FTOH above (SKD)
IOSTAT – Show I/O equipment currently recognized by system (SKD)
JINK – Relocatable Loader (OU)
KRACKER – 68000 file-to-file disassembler, text can be reassembled (PB)
LINK – Prepare a floppy disk for booting (SKD)
LIST – Display contents of a disk text file (SKD)
LOCATE – Display load addresses of a binary file (SKD)
LOGIC – Schematic drawing program (PB)

SK*DOS/68K (Continued)

LONGSIDE – Prints two files side-by-side for comparison (UG)
LS – Similar to LIST command (from Unix) (UG)
MAKEMPTY – Generate an empty data file (SKD)
MEMTEST – Memory test program (UG)
MICRO-SPELL – Spelling checker (UG)
MODULA-2 – Compiler soon to come
MOZART – Music composition program (PB)
MSDIR – Display directory of MSDOS disk (ME, BBS)
MSREAD – Read an MSDOS disk (ME, BBS)
MSWRITE – Write an MSDOS disk (ME, BBS)
NCB – C beautifier program to restructure a C program (UG)
NOBEEP – Opposite of BEEP above (SKD)
NRO – “Runoff”-type text processor (from Unix) (UG)
PAGE – Unix-like program to page through a text file (UG)
PARK – Park a hard drive before shutting it off (SKD)
PASTE – Paste data from multiple files together (UG)
PAT – Screen Editor (OU)
PDELETE – Prompted delete utility (SKD)
PEEK – Allow examining memory from SK*DOS command line (SKD)
POKE – Allow changing memory from SK*DOS command line (SKD)
POSITION – Position cursor on line (Frank Neuner / BBS)
PPR – Page printer program to format output to printer (UG)
PROMPT – Change SK*DOS prompt (SKD)
PROTECT – Change file attributes to delete protect etc. (SKD)
RAMDISK – Set up a RAM disk to speed up system (SKD)
RBASIC – Full Basic Interpreter (MC)
READ – Browse through text files backwards and forwards (SKD)
REDOFREE – Display disk parameters and rearrange free space (SKD)
RENAME – rename a disk file (SKD)
REPLACE – String replacement program (UG)
S4SKDOS – converts S4/S3 records to .com file (UG)
S4LOAD – convert S4/S3 records binary, for EPROM programmer (UG)
S4UNDOS – converts .com file to S4/S3 format file (UG)
S4UNLOAD – converts a binary memory image to S4/S3 (UG)
SC – Small C compiler (available in source and object) (UG)
SCAT – Sequenced catalog utility (SKD)

SK*DOS/68K (Continued)

SCSIEVE – Sieve program for testing C compiler (UG)
SE – Screen editor (UG)
SEQUENCE – Change sequence number (for systems without clock) (SKD)
SFIND – String find program (UG)
SHAR – Archive program for combining files for transmission (UG)
SINSTR – Another version of SFIND (UG)
SKCC – C Compiler (CSC)
SLEEP – Time delay program for batch files (Frank Neuner / BBS)
SORT – Sort a file by various fields (UG)
SPELLB – Spelling Checker (PB)
STEPRATE – Change default drive steprate time (SKD)
STONES – Awari-type game (UG)
STRINGS – Find text strings in text or command files (UG)
SUBCAT – Subdirectory Manager (PB)
SYSTEM – Change or display current system default drive (SKD)
TCAT – Display disk catalog with latest files on top (SKD)
TIME – Display or set clock/calendar setting (SKD)
TMODEM – Modem program for Xmodem protocol (from Unix) (UG)
TOLOWER – Change upper case files to upper/lower case (SKD)
TOMSDOS – Export files from SK*DOS to MSDOS (SKD)
TRACENAB – Set up a program for tracing (SKD)
UBASIC – Basic language interpreter (SKD)
UNCOMP – uncompress an LZ compressed file done with compress (UG)
UNDELETE – Bring back a deleted file (SKD)
UNIQ – Delete duplicate lines from a sorted file (UG)
UNSQCMPR – Compare two text files for differences (from Unix) (UG)
VERIFY – Turn disk verify on or off (SKD)
VERSION – Display version number of a command file (SKD)
WC – Word count program (from Unix) (UG)
WHIMSICAL – Structured language compiler (SS)
WORK – Change or display current work default drive
XARC – File uncompress program (ME)
XREF – create a cross reference listing of a program file (C, asm, etc) (UG)
YASE – “Yet Another Screen Editor” (OU)

THE PT68K-4 / SK*DOS 68000 COMPUTER

The PT68K-2 68000 Computer is a high performance, low cost single-board computer designed for industrial and educational applications. It is available as a kit, as a semi-kit, as an assembled printed circuit board, or in complete systems.

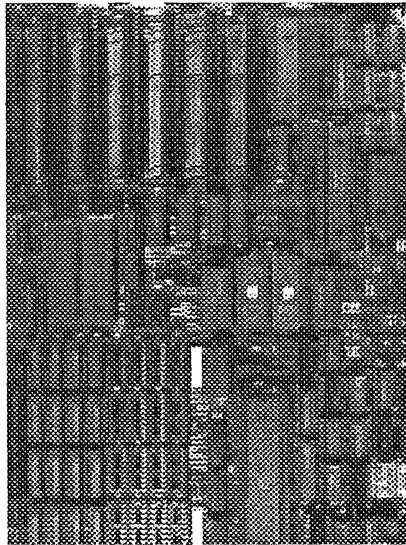
The unique feature of the PT68K-4 is that it is designed to be physically and electrically compatible with an 'XT-style' motherboard. It fits into the same cabinet, takes the same power supply and keyboard, and its six XT-compatible I/O connectors accept the same expansion cards, such as monochrome or color video boards and hard disk controllers.

On-board is up to 4 megabytes of DRAM, four serial ports, two parallel ports, two floppy disk controllers, clock/calendar chip, programmable timers, and more. Additional I/O interfaces may be plugged into its seven PC/XT-compatible I/O connectors. Teamed with SK*DOS to provide floppy and hard disk support, RAMdisk and disk cache, and other advanced features, the PT68K-4 offers powerful 68000 computing, in kit or wired form, at a very attractive price.

Complete systems mount in an XT-sized 'baby-AT style' cabinet with a 150-watt switching power supply. The cabinet includes an LED display panel monitoring power, disk activity, and 'HALT' status. The cabinet has space for four half-height floppy or hard disk drives.

The system is operated from an external full-size keyboard and video display. You may use an RS-232C terminal, or any computer having a terminal-emulator program (using the serial interface on the system board). Alternatively, you may use an IBM XT/AT-compatible keyboard and either a monochrome or color video display board and compatible monitor (plugged into the expansion connectors on the system board).

Two floppy interfaces may be mounted on the system board, or an inexpensive external hard disk controller may be used. The PT68K-2



PT68K-4 Computer (Continued)

supports the PC/XT-compatible Western Digital MFM controller card such as the WD1002-WX2 or WD1002-GEN, which will plug into one of the IBM-compatible I/O slots. Any ST506- or ST412-compatible hard drive up to 64 megabytes can be used; the hard drive format program prompts for drive parameters.

The PT68K-4 is supplied with HUMBUG and a small Basic in ROM, which allows operation of even a minimal system, and supports keyboard and video output. (See the HUMBUG description on page 16).

Prices depend on current DRAM prices and are therefore subject to change. In general, PT68K-4 prices range from \$220 (for a minimal 12 MHz kit which includes static RAM and all components to execute HUMBUG and Basic, but no dynamic RAM, clock, parallel or expansion ports, and floppy interface), up to approximately \$489 for a 16 MHz 512K kit which includes the above components and SK*DOS. The minimal kit can be expanded to a full system by simply installing the extra components on the printed circuit board. Assembled versions are also available.

SPECIFICATIONS

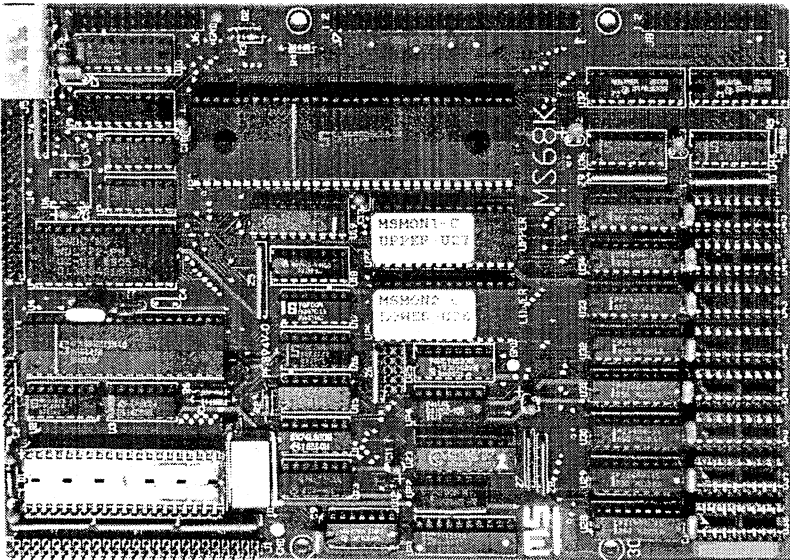
Processor	68000
Clock speed	12 MHz or 16 MHz
Size	12" L x 8.5" W (fits in XT cabinet)
Power Supply	Connector fits XT-style power supply
DRAM	512K to 4 Meg (no wait states)
SRAM	4K to 64K (optional battery back-up)
EPROM	32K, 64K or 128K
ROM monitor	HUMBUG® included
Serial ports	4 (using two MC68681 DUARTs)
Parallel ports	2 (using MC68230), usable for printer
Floppy interface	2 on motherboard
type	either WD1772 or WD37C65
number of drives	1 to 4
disk capacity	360K to 1.4 Meg per drive
Clock/calendar	on board (with battery)
Interrupt timers	2
Expansion	7 PC/XT-compatible I/O connectors 1 memory expansion connector
Operation	via serial terminal or PC keyboard/video

MS68K / SK*DOS 68000 COMPUTER

The MS68K Single Board Computer is a complete 68000 system on a 5¾" by 8" board which can mount on a 5¼" disk drive. It supports up to 512K of zero-wait-state DRAM, up to 128K of EPROM, two serial ports, a parallel port, an expansion bus, a built-in floppy disk controller, and an optional SCSI controller for controlling an external hard disk interface. Memory Expansion boards are available for up to 12.5 megabytes of total RAM.

Because of its compact size and reliable construction, the system is ideal for either software development or control applications. It includes a ROM monitor for debugging, and runs the SK*DOS disk operating system.

In normal use, the system is operated from a serial terminal (or any computer having a terminal-emulator program) via one of the serial ports. Teamed with SK*DOS, the system provides floppy and hard disk support, RAMdisk and disk cache, and other advanced features, at a very attractive price and form factor. It offers a very popular vehicle for 68000 software development.



MS68K Computer (Continued)

The MS68K is priced at \$375 with 128K DRAM. Options include the SK*DOS operating system (with editor, assembler, Basic, etc.) at \$70; DRAM expansion to 256K at \$75; and the SCSI controller at \$15.

SPECIFICATIONS

CPU	68000
Board size	5¾ x 8" (fits on 5¼" disk drive)
Clock speed	8 MHz (zero-wait-state RAM)
DRAM	128K, expandable to 512K
ROM	32K debugger, exp. to 128K
Serial ports	2 (MC68681), to 38.4 kilobaud
Parallel port	1 (printer port)
Floppy disk controller	Included (1772)
tracks	35 - 80
sides/density	single or double
disk capacity	to 720K per drive
SCSI Port for hard drive	5380 controller (optional)
Hard drive size	to 64 megabytes

HARDWARE PRICING

The following table shows comparative pricing for several typical 68000 systems; please keep in mind that the rapid fluctuations in DRAM prices may require some minor changes in system prices, so contact us for the current price before ordering. All prices shown are for the main printed circuit board assembly only; additional parts, such as cabinets, power supplies and disk drives are required to complete a system.

MS68K (wired with 128K)	\$375
MS68K (wired with 256K)	\$450
MS68K (wired with 256K and SK*DOS)	\$525
PT68K-4 (12 MHz minimal kit, no DRAM)	*
PT68K-4 (16 MHz kit with 512K DRAM, SK*DOS etc.)	*
PT68K-4 (wired with 1 meg DRAM and SK*DOS)	*
PT69 (USED, wired 6809 system with 64K and SK*DOS)	\$325

Other systems are available; * contact us for details.

HUMBUG[®] / 68K

In order to operate, every 68K system needs a system monitor in ROM. This monitor program contains the very first instructions performed when the computer is first turned on. It performs the basic initialization of the system which is required to allow it to work, and becomes the 'monitor' which oversees the direct operation of the hardware - at least, until such time as you boot a DOS or other application program. The HUMBUG monitor performs that function.

Specifications

HUMBUG responds to two-letter commands from the keyboard. Although there are slight variations between versions, most versions implement the following commands:

AD	Formatted ASCII dump.
AI	ASCII Input.
AO	ASCII Output.
BP	Print Breakpoints.
BR	Breakpoint set/reset.
CO	Continue.
CS	Checksum.
FD	Boot SK*DOS from floppy disk.
FI	Find.
FM	Fill memory.
HA	Hex and ASCII dump.
HD	Hex Dump.
HE	Help.
JS	Jump to System program.
JU	Jump to User program.
LO	Load S1 - S9 binary format
MC	Memory compare.
ME	Memory examine and change.
MO	Move memory.
MS	Memory Store.
MT	Memory Test.
RC	Register Change.
RD	Return to SK*DOS.
RE	Register Examine.
SS	Single-step.
ST	Start single-stepping.

HUMBUG/68K (Continued)

Specifications (continued)

WB Winchester disk boot.
!! Monitor reset command.

To provide a convenient programming interface, HUMBUG also contains a number of entry points for routines which may be used by user programs. These include the following:

COLDST	Cold start
WARMST	Warm start
INEEE	Input 7-bit char to D5, echo (current device)
INCH7	Input 7-bit char to D5, no echo
INCH8	Input 8-bit char to D5, no echo
INCHEK	Check input device status, return NZ if has char
OUTCHX	Output char from D5, no control-S check
OUTEEE	Output char to current device, control-S check
OUTCHM	Output char to serial port (DUART 1A)
OUTCHP	Output char to serial printer (DUART 1B)
OUTCHB	Output char to monochrome video board
PSTRNG	Print string pointed to by A4
OUT4HS	Output 4 hex digits from D4
OUT8HS	Output 8 hex digits from D4
OUTCHC	Output char to color video board
INCH16	Input 16-bit extended char to D5, no echo
CHEK16	Check extended char status, return NZ if has char

Prices

Since HUMBUG directly controls the I/O hardware of the system, it must be customized to the specific system it is to run on. It is currently available on several computer systems (such as the PT68K-4), already configured and installed in an EPROM. In such systems, the price of HUMBUG is already included in the system price.

HUMBUG is also available in a generic source-code version, usable for adaptation to new systems. A source-code version is also supplied with the SK*DOS Configuration Kit. In both forms, the price is \$100. The source code is contained on a floppy disk, available in SK*DOS, MS-DOS, or Flex format.

HUMBUG is also available for OEM licensing at attractive terms; contact us for additional information and prices.

6809 Disk Operating Systems

6809 SK*DOS[®]

SK*DOS is a single-user disk operating system for 6809 based computers such as the Elektra, SWTP, Gimix, Hazelwood, and others, including many of the 6809 single-board computers such as the PT-69 from Peripheral Technology. It is a very much simplified version of our SK*DOS/68K, described on earlier pages, but for users who do not need the full power of a 68K system.

SK*DOS was originally designed to run all the same programs which run with Flex from Technical Systems Consultants. There is a wide variety of software available, including Basic, editors, assemblers and cross-assemblers, sort-merge, text processors and formatters, compilers for Pascal, C, and Basic, modem programs, spell checkers, etc.

It is available in several variations (depending on your hardware), and is also supported by other manufacturers.

Individual copies of SK*DOS cost \$75; a Configuration Manual is available for \$25.

STAR-DOS[™]

STAR-DOS is an earlier version of 6809 SK*DOS, designed to run on a Color Computer I or II. It uses the same disk format as Radio Shack DOS uses, but it is programmed and behaves like SK*DOS. In fact, on a 64K system, STAR-DOS will run many Flex or SK*DOS programs without change, which explains why other software vendors have licensed STAR-DOS to aid in porting their own software to the CoCo.

STAR-DOS can run on any CoCo I or II system from 16K up, and costs \$34.95.

STAR-DOS PLUS+[™]

STAR-DOS PLUS+ is a version of our 6809 SK*DOS, adapted by Data-Comp Inc. of Hixson, Tennessee, for the Color Computer.

STAR-DOS PLUS+ runs Flex and SK*DOS/6809 programs, uses the same disk format, supports single or double density, single or double sided disks, etc. It adheres closely to the 6809 SK*DOS implementations on larger 6809 systems.

STAR-DOS PLUS+ comes with the same detailed user's manual as our larger systems, and costs just \$34.95 (Sorry - STAR-DOS PLUS+ is not available for the Color Computer III.)

6800 / 6802 / 6809 HUMBUG[®]

If you do any kind of programming in machine or assembly language, or if you would like to learn how your computer works internally, then you need a monitor program like HUMBUG. It is the ultimate monitor - a complete debugging system that is unquestionably the best.

Every larger 68xx(x) system has a monitor program in Read Only Memory (ROM), and we have been supplying HUMBUG for those systems for years. As a bare minimum, a monitor should allow you to examine and change the contents of your computer's memory, and start a program. In fact, some monitors do only that! But HUMBUG is different. Not only can you start programs, you can also perform them just one step at a time, or you can insert breakpoints which let you perform entire sections of programs at a time. You can load and dump memory in various formats, including (on 6800 and 6809 systems) an instruction-by-instruction formatted display which lets you see and understand programs like never before. You can switch I/O devices on and off, fill and move memory, check memory and its contents, and more. And, as a special feature, the HUMBUG manual contains not just full instructions on its use, but a complete listing of HUMBUG as well. Examining this listing is educational in itself, since the best way to learn a new language is to see how other people use it.

The versions identified with * below are stock items; others are made to order after you specify your exact system configuration. (Before ordering one of the unstarred versions listed below, we suggest that you contact Star-K for information on versions and options available.)

* CoCo/TDP-100 16K to 32K, disk or cassette	\$39.95
* Dragon 16K to 32K, disk or cassette	\$39.95
* Disk for STAR-DOS, SK*DOS, or Flex systems	\$59.95
* Cassette for the MC-10 Micro Computer	\$29.95
* 4K ROM for Peripheral Technology PT-69	\$75.00
4K ROM for SWTP or similar SS-50 6809 systems	\$75.00
3K ROM for Percom SS-50 6809 systems	\$65.00
4K ROM for SWTP or similar SS-50 6800 systems	\$65.00
2K ROM for SWTP or similar SS-50 6800 systems	\$45.00
2K ROM for Star-K SBC-02B computer	\$45.00
2K MICROBUG (Reduced version of HUMBUG for Elektra or SWTP-compatible systems)	\$25.00
68000/68008/68010/68020 versions - see pages 16-17	

SPELL 'N FIX II

Spell 'N Fix II finds and fixes spelling and typographical errors in your text files, so your printed output looks and is perfect. Completely menu driven - even a child can do it.

Spell 'N Fix II is a joy to use. As it proofreads your text, it shows the text (in full upper and lower case) on the top part of your screen, while looking up every word in its dictionary. When a suspect word is found, you see it in context as part of the text, and Spell 'N Fix II asks you what to do with it. You then decide - let it pass, add it to the dictionary, fix it, or look it up in the dictionary. If the correct spelling is there, you can substitute it with just two key strokes and go on.

Spell 'N Fix II comes with a 20,000+ word dictionary which has been carefully compiled from words commonly used; in addition, you may add your own favorite words (such as names, addresses, or special technical or even foreign words). Spell 'N Fix II requires a minimum of 32K memory and at least one disk drive, and right now is only available for the Color Computer.

SHAREWARE

SPELL 'N FIX II is a "shareware" program. We will send you a disk with Spell 'n Fix II for \$2. Try it out for 30 days; if you find it useful, then we ask that you register your copy for \$25, and we will send you the full manual and registration. Or send \$50 and receive a larger, 40,000-word dictionary as well.

SPELL 'N FIX

The Original Spell 'N Fix is still available for 6800 and 6809 DOS users, and for CoCo users who do not have disk. The tape version finds errors in your text file and displays them on the screen or printer. Disk versions also add valid words to the dictionary, and correct words in the text file as well.

Color Computer (without disk)	\$49.29
6809 STAR-DOS, SK*DOS, STAR-DOS PLUS+ or Flex	\$49.29
6800 Flex 2.0 or Miniflex	\$49.29
Percom 6800 DOS	\$49.29
Color Computer OS-9 (XSPELL)	\$49.95

CHECK 'N TAX

It's difficult to explain CHECK 'N TAX in just a few short words, but we'll try. It is a package of eleven programs which maintain four data files which contain information about checks you write and bills you pay. At any time you can print out data in the files, either completely or by type of expense, or search for specific items. The files are standard sequential files, so if for some reason you want to add, delete, or change information or edit it in any way, any standard editor or word processor will do it. At the end of the year, CHECK 'N TAX can print a yearly summary of expenses by category. CHECK 'N TAX supports up to 99 categories of your own choosing, and any check or other item can be assigned to up to two categories.

How does the data get into the files in the first place? In one of two ways. First, items such as bills, receipts, or even income items can be entered simply by typing them at the keyboard; one of the CHECK 'N TAX programs is called ADDITEMS and is used just for that.

Checks can be entered that way too, but a better way is to use the checkbook balancing part of CHECK 'N TAX. There are other checkbook balancing programs available, but most of them just use an expensive computer to do what a cheap calculator could do better. Not CHECK 'N TAX - it contains two programs called BALANCE1 and BALANCE2 which are quite unique. They do a complete cross-check between the actual checks, what your checkbook stubs say about those checks, and what the bank says about them. Any differences get identified - fast. They also maintain a monthly file of outstanding checks and deposits; this is done automatically so you never have to check off checks on your stubs, or search to see whether a particular check has come back from the bank or not. Each month, you get a complete printout of what checks or deposits are still outstanding, and any differences between what you think your account should have, and what the bank thinks you have. In short, you know exactly where you stand at all times.

CHECK 'N TAX is available for Coco disk systems (using Radio Shack disk Basic) or for SK*DOS, STAR-DOS, or Flex (using TSC Extended Basic or RBASIC). It is also available for 6800 systems using Percom, MiniFlex, or Flex 2.0 DOS. The cost is \$50 for any version.

REMOTERM

REMOTERM lets you operate your Color Computer through its serial RS-232C port. If you connect a terminal (or another computer which is running a communications program such as COMMTERM), you can run programs on your computer from this remote keyboard. The terminal can be right next to your computer, or it can be far away, linked through a modem. Sitting at the remote terminal's keyboard, you can start and stop programs, load or save programs on disk or cassette, and more.

There is a catch. REMOTERM only runs with Basic programs, and it does not support graphics, PRINT AT statements, or the INKEY\$ command. Except for these limitations, it is extremely versatile and can be used for uploading or downloading files, remote control, and even bulletin boards. It is available for the CoCo I or II, and costs \$19.95 on disk or cassette.

COMMTERM

COMMTERM is a simple communications program for the Color Computer or the MC-10 Micro Color Computer. COMMTERM allows you to use your computer as a terminal to another computer.

Commterm is a "shareware" program. We will send you a disk with Commterm for \$2. Try it out for 30 days; if you find it useful, then we ask that you register your copy for \$10.

ELIZA/SHRINK

A version of the popular Eliza game, available for the Color Computer or for 6800 or 6809 systems running SK*DOS or Flex. \$15 on disk or cassette.

NEWTALK

A speech program for the Color Computer, talks through the TV speaker. A cute demonstration program, designed mainly for machine language experimentation. NEWTALK reads out the hexadecimal contents of memory in English, so you can compare what you entered with what is actually in memory. \$15 in disk or cassette.

EDUCATIONAL PROGRAMS

NUMERICAL METHODS

This is a college level course on a subject that is required in almost all engineering schools and computer science curricula. Although computers can do simple arithmetic operations such as adding or subtracting, they cannot directly solve for the roots of equations or do some of the more elementary operations from calculus. This is where Numerical Methods comes in – this is the study of how to do these more complicated operations on a typical computer. Our Numerical Methods course includes a 300+ page textbook (which is actually used in many colleges and universities), a disk or cassette with programs to run to try out each of the techniques described in the text, and course notes which list each program and describe it.

This is a college level course, and knowledge of algebra and calculus is required to understand the course. But it is written in a very clear style and should present no undue difficulties. The course is available for the CoCo as well as other 6800, 6809, and 68K systems, and MS-DOS and costs \$75. All versions are in Basic, and Pascal or Fortran are also available for MS-DOS.

68000 Hardware Course

This course covers 68000 hardware in a very simple do-it-yourself approach. It consists of the PT68K-2 computer (described earlier) in kit form, plus a textbook which is keyed to the kit.

The book breaks down the computer system into small, easily understood circuits. Each chapter of the book starts by describing a circuit, how it works, and why each component is there. Then it provides a construction procedure to build that circuit, and finally a test procedure to check it out and see how it works. One customer told us "the explanation of how dynamic RAM works alone is worth the price!"

You learn about 68000 hardware, and finish with a fully functional 68000 development system capable of running sophisticated software, all at a very reasonable cost.

The 68000 Hardware Course is available as a bundled set of hardware plus book, or the book is available separately for \$25. Contact us for complete system prices.

SBC-02-B COMPUTER/CONTROLLER

The SBC-02-B is a single-board computer, using a 6802, which is designed primarily as a controller. That is, it is the ideal system for controlling a burglar alarm, industrial machine, or any other device which would benefit from an intelligent computer.

The SBC-02-B is a printed-circuit board approximately 5-1/2" by 7", which contains a 6802 processor; the 6802 is similar to a 6800 (a simplified 6809) but contains 128 bytes of built-in RAM. The board also has space for a 2Kx8 or 4Kx8 EPROM, 1K of RAM, one 6821 PIA for up to 20 input/output lines, and a serial RS-232C port which uses two of the PIA lines. Only an external power transformer is required for operation, as the rectifier, filter, and regulator are also onboard. There is also a wire-wrap area which allows you to wire custom interfaces or other circuitry.

A big feature of the SBC-02-B is its cost - the bare board with full instructions is just \$25, and full parts kits are also available starting at \$50.

To support operation of the SBC-02-B, we provide the following software:

- * HUMBUG which provides control of the computer via a serial terminal operating at 110, 300, or 1200 baud (specify which) costs \$45.
- * 4K BASIC which provides full floating point operation and costs \$50.
- * A 6800/6802 cross-assembler which is written in Basic, and can run on almost any other computer, including Apples, TRS-80s, etc. The listing of this version is \$10.

System prices are as follows:

Bare board with instructions	\$25.00
Controller Kit (128 byte RAM, no RS-232)	\$50.00
Computer Kit (includes 1K RAM, RS-232C)	\$70.00
Complete Kit with HUMBUG (specify baud rate)	100.00
Complete Kit with Basic (specify baud rate)	100.00
Any of above wired and tested	add \$50.00

ORDER FORM

Name: _____

Street: _____

Town: _____

State & Zip: _____

Telephone: _____

System Description: _____

Quantity	Description	Price
	Subtotal	
	N. Y. Sales Tax	
	Shipping/Handling	
	Total	

Circle: Cash Check Money Order COD

(Sorry - no credit cards at this time. We recently switched to a new bank, and it will be some time until our credit card account is again established.)

Signature: _____

From: Star-K Software Systems Corp.
P. O. Box 209
Mt. Kisco, N.Y. 10549

Address Correction Requested

To: