Burroughs Major Systems Direction . . . A Natural Path

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Burroughs
WORLDWIDE MARKETING

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DIRECTION

Major Systems Direction

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B 1000 UPGRADE STRATEGY

The B 1000 product family has and continues to offer a very favorable cost/performance solution to the entry level mainframe market. By continued enhancement in both hardware and software attractive incremental upgrades are available. The recently announced B 1990 and the 11.0 Software Release are examples of continued enhancements to this product family. Many B 1000 users will choose multiple systems as an approach to provide further performance capability. Both SYCOM and BNA are available for systems communication.

Burroughs will continue marketing the B 1000 class system to this particular market segment as long as market demand exists. Future enhancements will comply with Burroughs established standards which will facilitate further compatibility with other product families.

B 1000 users who have reached a level of sophistication or whose performance and/or growth requirements exceed the potential of the B 1000 family are encouraged to consider the benefits of the A-Series to achieve their objectives. This includes B 5/6/7000 Systems as well as the recently announced A9 System. Additional A-Series Systems will be announced which extend this compatible product line both to lower and higher performance levels. Our commitment continues to provide state-of-the-art systems incorporating reliability, maintainability, capacity, environmental and performance improvement, and significant advantages in internal architectures.

The 3.5 Software Release recently announced for the A-Series provides users the most powerful, yet easy-to-use set of software products in our industry. It is important to note that the 3.5 Release was designed to dramatically simplify MIGRATION for the B 1000 users to the A-Series. This release truely marks the beginnings of Burroughs next generation in software. The introduction of resource conservation, performance and reliability, in addition to ease-of-use are highlights of this Release which will be described in detail within this document.

Some B 1000 users may consider the B 2/3/4000 product series as an upgrade path, depending on particular hardware and/or software requirements. The financial users, who have a requirement for reader sorters, for instance, are ideal candidates for this series. Users of application software with B 1000 and B 2/3/4000 functional equivalents also may choose to MIGRATE to the B 2/3/4000 Series. Both hardware and software enhancements for this series will continue to make the family of products an attractive price/performance offering.

Burroughs has announced through The Soft Services Organization, MIGRATION Services which allows the B 1000 user to contract for a full menu of services ranging from general consultation to total turnkey MIGRATION Services. Customer education courses will be available to allow B 1000 users who have previous training on B 1000 software products (DMS, WFL, GEMCOS etc.) to compare feature content to the A-Series equivalent. The customer will benefit in significantly reduced time and expense in overall training when MIGRATING to the A-Series.

We are also announcing MIGRATION tools that will allow a user to easily perform the MIGRATION effort from B 1000 to the A-Series. Burroughs is continuing it's long term goal to provide compatability between these systems. This convergence plan has been an evolutionary process started some time ago with this announcement being a very important milestone in the long term plan.

Many of the above services and products will initially be available on the A-Series. It is our intention to provide, in future releases, similar services and products on the B 2/3/4000 family of products.

Burroughs is providing the B 1000 user base a broad range of alternatives that will satisfy individual growth and performance requirements. The information contained in this guide should provide a solid foundation for providing a comprehensive growth plan for every B 1000 user.

Productivity InterPro™ Software

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(Release Level 3.5)

New Product Announcement

To Be Inserted Here When Released (2Q84)

B 1000 — A Series Systems Comparison

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B1000 — "A" SERIES SYSTEMS COMPARISON

A MIGRATION STRATEGY FOR B1000 SYSTEMS TO THE "A" SERIES OF COMPUTER SYSTEMS

B 1000 — "A" SERIES SYSTEMS COMPARISON

A MIGRATION STRATEGY FOR B 1000 SYSTEMS TO THE "A" SERIES OF COMPUTER SYSTEMS*

The purpose of this section is to familiarize you with the Hardware/Software benefits and issues underlying the migration of a B 1000 user to the "A" Series of computer systems.

A B 1000 user should consider migrating to the "A" Series systems in order to:

A. Satisfy the growth requirement of their company.

B. To take advantage of the expandibility, capacity, capability and design of the "A" Series systems.

There is no doubt in our mind that the B 1000 family of computer systems is well designed and fully featured. The existence of our large and contented B 1000 user base is a definite indication of this advanced and mature product.

In this document we are providing you a complete discussion on every aspect of "A" Series systems software that could be a major benefit to our larger B 1000 users in terms of additional features, functions, and system capabilities.

This section consists of two parts:

1. Summary of Hardware/Software extensions of the "A" Series systems versus B 1000.
2. Complete software discussion, highlighting the benefits and additional capabilities of the "A" Series of computer systems.

The following topics should be the focal points and are recommended to be emphasized strongly due to their unique and superior advantages and benefits that are exclusive to the "A" Series of Computer Systems.

- **Menu Assisted Resource Control (MARC)**
- **System Management Facility (SMF II)**
- **Advanced Data Dictionary (ADD)**
- **Extended Retrieval with Graphic Output (ERGO)**
- **Communication Management System (COMS)**
- **COMS (ENTRY)**
- **Interactive Data Communications Configurator (IDC)**
- **Transaction Processing System (TPS)**
- **Screen Design Facility (SDF)**
- **Binding Facility for Compilers**
- **SEPCOM**

"A" Series of Computer Systems include all B5/6/7000 as well, due to their advanced architecture and 100% Object Code Compatibility among the said processors.

SECTION I

HARDWARE/SOFTWARE SUMMARY

I. HARDWARE SUMMARY:

PROCESSORS			
FEATURE	**B 1990 SYSTEMS**	**B 5900**	**A9 SYSTEMS**
MEMORY	512KB TO 2MB	3.1MB TO 6.2MB	6MB TO 24MB
NUMBER OF PROCESSORS	1 CPU-B 1990 SP 2 CPU-B 1990 DP (primary/secondary relationship	1 TO 4 (with Global memory	1 WITH MULTIPLE LOGICAL PROCESSORS
CIRCUIT TECHNOLOGY	CTL/TTL	TTL	ECL/MSI
CIRCUIT PACKAGING	LSI	LSI	VLSI
CHIP TECHNOLOGY	64K	64K	64K
PIPELINE ARCHITECTURE	NO	YES	YES
RELATIVE PERFORMANCE RATING	19 FOR B 1990 SP 27 FOR B 1990 DP	30 (Single Processor)	60 TO 120 DEPENDING ON MODELS
DATA COMMUNICATIONS PROCESSOR	NO (MLC AVAILABLE)	YES	YES
MAINTENANCE ACCESS PROCESSORS	YES	YES	YES

I/O SUBSYSTEM			
FEATURE	**B 1990 SYSTEMS**	**B 5900**	**A9 SYSTEMS**
I/O MECHANISM	TOTALLY HANDLED BY SOFTWARE	HANDLED BY SOFTWARE AND HARDWARE	TOTALLY HANDLED BY HARDWARE
UNIVERSAL I/O	NO	YES	YES
NUMBER OF DLP's	NA	8 TO 20	8 TO 40
I/O IODC BASES	NA	TOTAL OF 8 INCLUDING DATA COMM IODC's	1 TO 5 EXCLUDING DATA COMM IODC's
MAXIMUM NUMBER OF TOTAL I/O BASES	NA	8	2 TO 6
I/O BANDPASS SUSTAINED BURST	 .8MB 1.0MB	 1.6MB 2.3MB	 4.5MB 6.0MB
NUMBER OF I/O PATHS TO THE DISK SUBSYSTEM	ONE PATH TO A DISK SUBSYSTEM AND MAXIMUM OF 2 SUBSYSTEMS PER SYSTEM	1 TO 16	1 TO 16
DISK EXCHANGE CAPABILITY	NO	YES	YES

I/O SUBSYSTEM (CON'T)			
FEATURE	**B 1990 SYSTEMS**	**B 5900**	**A9 SYSTEMS**
I/O PERIPHERALS			
PAGE PRINTER	NO	YES	YES
READER/SORTER	YES	NO	NO
TAPE STREAMER	YES	NO	NO
1600 BPI TAPE	YES	YES	YES
6250 BPI TAPE	NO	YES	YES
MEMOREX DISK	YES	YES	YES
INTERFACE	YES	YES	YES
SEQUENTIAL	NO	NO	YES
NSP/LSP REDUNDANCY IN A MULTISYSTEM ENVIRONMENT	NA	YES	YES
PERIPHERAL REDUNDANCY	VIA EXTERNAL T-BAR SWITCHES ONLY (limited)	YES	YES
THE ABILITITY OF ACQUIRING I/O PERIPHERALS EASILY VIA SOFTWARE COMMANDS AMONG INDEPENDENT PROCESSORS	NO	YES	YES

DATA COMMUNICATIONS			
FEATURE	**B 1990 SYSTEMS**	**B 5900**	**A9 SYSTEMS**
DATA COMMUNICATIONS PROCESSOR	NO (Only MLC)	YES	YES
MAXIMUM NUMBER OF NSP's	NA	3	1 TO 4
MAXIMUM NUMBER OF LSP's	NA	24	2 TO 9
MAXIMUM NUMBER OF LINES	32	96	20 TO 144
MAXIMUM NUMBER OF QLA's	8	24	5 TO 36
DATA COMMUNICATIONS IODC BASES	NA	UP TO 8 TOTAL (including I/O IODC bases)	1 TO 5 (excluding I/O IODC bases)
TOTAL NUMBER OF I/O BASES MAXIMUM	NA	8	2 TO 6
DATA COMMUNICATIONS PROCESSOR LOCAL MEMORY	NA	YES	YES

SECTION II

SOFTWARE SUMMARY

II. SOFTWARE SUMMARY:

SYSTEM SOFTWARE/UTILITIES:	B 1000	"A" SERIES
MASTER CONTROL PROGRAM MCP)	MCPII 11.0	MCP 3.5
MENU ASSISTED RESOURCE CONTROL (MARC)	NO	YES
WORKFLOW LANGUAGE (WFL)	YES	YES
ACTIVITY REPORTING	RD	BARS
BILLING SUPPORT LIBRARY	TABS	YES
LOGGER	NO	YES
SECURITY SUPPORT LIBRARY	OPTIONAL	YES
SORT	YES	YES
STANDARD UTILITIES	YES	YES
SYSTEM MANAGEMENT FACILITY (SMF II)	NO	YES

LANGUAGES/COMPILERS:	B 1000	"A" SERIES
ALGOL	NO	YES
APL	NO	YES
BASIC	COMPILER & INTERPRETIVE	COMPILER ONLY
BINDER	NO	YES
COBOL 68	YES	YES
COBOL 74	YES	YES
DASDL	YES	YES
FORTRAN 66	YES	YES
FORTRAN 77	YES	YES
PASCAL	YES	YES
PL/1	NO	YES
RPG II	YES	YES
SEPCOM	NO	YES

PRODUCTIVITY AIDS:	B 1000	"A" SERIES
DATA MANAGEMENT SYSTEMS (DMS II)	YES	YES
ADVANCED DATA DICTIONARY (ADD)	NO	YES
DM INTERPRETER	NO	YES
DM INQUIRY	YES	YES
EXTENDED REPORTING WITH GRAPHIC OUTPUT (ERGO)	NO	YES
TRANSACTION PROCESSING SYSTEM (TPS)	NO	YES
LINC	YES	YES
REPORTER III	YES	YES
SCREEN FORMATTER	YES (SCOPE)	YES (SDF)
SCREEN DESIGN FACILITY (SDF)	NO	YES
DATA ENTRY SYSTEM (DES)	ODESY	DES
BUSINESS PLANNING SYSTEM (BPS)	YES	YES
INFOSTATS	YES	YES
TEMPO	NO	YES
TEXT MANAGEMENT & COMMUNICATION SYSTEM	YES	YES
CANDE	YES	YES

DATA COMMUNICATIONS:	B 1000	"A" SERIES
BNA	YES	YES
COMMUNICATIONS MANAGEMENT SYSTEM (COMS)	NO	YES
GEMCOS	YES	YES
INTERACTIVE DATACOM CONFIGURATOR (IDC)	NO	YES
COMS (ENTRY)	NO	YES
RJE	YES	YES
SMCS	YES	COMS
X.25 MCS	YES (VIA BNA)	YES (BNA NOT REQUIRED)

SECTION II

SYSTEM SOFTWARE AND UTILITIES

Complete software discussion highlighting the capabilities of the "A" Series as of 3.5 release of software.

SECTION II
SYSTEM SOFTWARE & UTILITIES

SYSTEM MANAGEMENT FACILITY (SMFII)

The **System Management Facility II (SMFII)** is a powerful software package that allows a comprehensive evaluation of total system performance. Data is collected on a wide variety of system activities via system logs, on-line statistical samples and manual input. Sophisticated analysis programs are provided that can manipulate, analyze and display the data and print reports.

Two major SMFII modules are available: **SMFII/ SITE Management** and **SMFII Resource Management.** These may be integrated or used in a stand-alone fashion. Both modules use the SMFII/ QUERY program which provides comprehensive customized reporting and graphical output in an interactive or batch environment.

The **Site Management** module enables installation management to assess the operating condition of the system's hardware and software components. The Hardware Information relates to the incidence and nature of system detected faults in mainframe and peripheral devices. The AVAILABILITY information relates to the incidence, nature, extent and resolution of disruptive events which occur on the total system.

The **RESOURCE Management** module enables installation management to characterize the workload imposed on the system and the utilization of the system resources by the workload. The workload information relates to the nature of programs run on the system and the manner in which users demand service from the system. The UTILIZATION information relates to the use of hardware and software resources by the programs, and the behavior of the resource management mechanisms in the operating system (MCP).

SMFII

- Interactive
- Produces customized reports
- Modeling features
- Provides both dynamic and historical reports
- Site Management
- Resource Management
- Query Capabilities

MENU ASSISTED RESOURCE CONTROL (MARC)

Menu Assisted Resource Control (MARC) provides consistent user friendly interface for system services, executes ODT commands from workstations and allows Datacom-like operation from ODT workstations.

FUNCTIONS AND BENEFITS:

- Provides consistent easy to use input format for ODT, WFL, Tasking, COMS, Menu and Help commands.
- Permits execution of ODT commands from workstations.
- Allows D/C like operation from ODT workstations.
- HELP and teach text (Modifiable)
- Individual menu selection
- Permits translations to other languages; includes forms, menu, help, teach and multiple languages.
- Command input format option.
- Permits associated HELP/TEACH text.
- Permits tailoring for personal preferences.

MARC SUPPORTS THE FOLLOWING COMMANDS:

- COMS
- Menu and HELP
- ODT
- WFL
- Tasking

MARC PROVIDES SIMPLE OPERATIONAL INTERFACES:

- Provides ODT and CANDE "Command" Functions
- Available from ODT and TD830-Like Workstations (Subject to Security)
- Menu/Form Driven
- Extensive Help/Teach Information
- Ability to Modify Menus/Forms for Native Languages
- Ability to Modify Help/Teach
- Escape to Current Command Language

MARC OFFERS EXTENSIVE HELP/TEACH FACILITY:

HELP

- Context Sensitive
  For each selection on menu or field on form
- For menu or form
  Two line displayed with menu or form
- Help can be obtained by depressing the "Specify" key at selection or menu name

TEACH

- Result of second "Specify" key depression
- One or more screens
- Scroll capability

MARC ALLOWS CUSTOMIZED TAILORING:

- Menus/Forms
- Create/Modify Menus
  - Selection Key
  - Selection Text
  - Selection Command
  - Help/Text Book and Keyword
- Create/Modify Forms
  - Field Text
  - Defaults
  - Help and Teach text book and keyword.

MASTER CONTROL PROGRAM (MCP)

MCP is the operating system for all the "A" Series of computer systems and provides complete object code compatibility among all of the above systems.

FEATURES:

- File names can extend up to 14 levels of 17 characters each, including pack names and user codes.
- User code up to 17 characters
- Multi pack families
- Data base structures can extend over the pack boundry.
- Allows data communication operations from ODT.
- A-Series MCP is considered the superset operating system.
- Powerful and unique library capability.

HIGHLIGHTS OF THE "A" SERIES AS OF 3.5 RELEASE OF MCP

ERGO ENHANCEMENTS:

- Extraction of data
- Conventional file interface
- Advanced data dictionary interface
- Menu interface
- Ability to create/update records
- Ability to browse through data
- DTS support

INTERACTIVE DEFINITION MODULE (IDM):

- Ability to interactively describe new data definitions (databases, conventional files)
- Advanced data dictionary interface
- Ability to interface to existing data definitions (Utility provided to load existing DASDL into advanced Data Dictionary which can then be used by IDM).

MENU ASSISTED RESOURCE CONTROL (MARC):

- User friendly interface for system services
- Menu driven — multiple entry points (Guides user through requests)
- Help/Teach
- Tailorable (Menu and Help Screens)
- Communication Management System (COMS), ODT, WFL, Tasking Commands
- MT/TD Compatible Workstation and ODT Supported

COMMUNICATION MANAGEMENT SYSTEM (COMS):

- High performance and resource efficient
- Windows
- Agendas
- Network/Program Control
- Access/Process Security
- TPS Recovery
- Integrated with Screen Design Facility (SDF)
- Synchronized Recovery
- On-line Testability
- Access Security
- SMCS Features/Commands
- GEMCOS Compatibility (Format Library User Interface Code Compatibility)

DATA MANAGEMENT SYSTEM (DMSII)

- Detailored access routines providing major performance benefits
- Simplified reorganization permitting multiple structured reorganizations concurrently
- New Memory Management Option
  - Requires only two parameters
  - Performance improvements
- Supports continuous operations environment

SCREEN DESIGN FACILITY (SDF)

- Form painting
- Field validation
- Menu driven
- Highlighting, cursor positioning, etc.
- Interactive screen painting
- Format library generation
- Full screen maintenance
- Compiler interface
- Advanced data dictionary interface (optional)

ADVANCED DATA DICTIONARY (ADD):

- Description of system resources
- Menu-driven/Interactive
- Supports selected system software (COBOL 74, ERGO, Formatter, DASDL)
- Entities (Files, Forms, Programs, Items/Groups, Databases, Text)

INTERACTIVE DATACOMM CONFIGURATOR (IDC):

- Menu driven network configurator
- Separates Network Definition from Protocol Compilation
- Burroughs Compiled Network Information File (NIF)

DISK I/O

- All input/output functions are handled at the I/O processor level. (Except B 5900), thus, no extra burden on the main frame CPU.
- Multi-paths to disk subsystem via I/O Processors.
- Exchange capability on disk subsystem.

DISK SQUASH

- Files can be open, and operation can continue during the squash, even on the pack that is being squashed.
- Operates on any disk.
- Ignores "In Use" files.
- Uses approximation of "Best Fit" algorithm.

SYSTEM SOFTWARE UTILITIES

STANDARD UTILITIES

The System Software release includes several standard utility programs which provides many operational and program maintenance facilities.

BACKUP:

Manages Printer Backup Files

COMPARE:

Compares Files and Prints Differences

DCAUDITOR:

Prints Audit Information Produced by Network Support Processor (NSP) AUDITING

DCSTATUS:

Prints Datacom Configuration and Status Information

DUMPALL:

Transfers files between Media or Print files

DUMPANALYZER:

Analyze and Prints System Memory Dumps

FILECOPY:

Generates "Copy Job Decks" from users specifications

FILEDATA:

Produces Reports from File Header Information

GUARDFILE:

Provides Additional Security to Files and Databases

HARD COPY:

Captures system displays messages for later printing

INTERACTIVEXREF:

Provides on-line cross-reference

LISTVOLUMELIS:

Prints cataloged tapes and disks

LOADER:

Loads the MCP and performs some system initialization

LOGANALYZER:

Prints info from the system log. User can generate special reports (Reporter Type.)

MAKEUSER:

Maintain system access authorization

NSP DUMPANALYZER:

Analyzes NSP dumps

PATCH:

Merges program patches and aids program maintenance

PRINTBINDINFO:

Prints entry point information used by binder

PRINTCOPY:

Prints info collected by hardcopy

SORTSTAT:

Prints statistical information for SORTS

UTILOADER:

Used in System Initialization

XREFANALYZER:

Prints program cross-reference.
(For all compilers)

BILLING SUPPORT LIBRARY

The Billing Support Library provides an effective and efficient mechanism for processing accounting information. This library is used by the system manager to convert resource usage into billing and accounting information.

Some of the features are:

- User Defined Procedure
- Uses system log record information to calculate charges. No restriction on calling other procedures or on the use of DMS or other software.
- Used by job formatter and logger and/or by other user programs.
- Implemented as a procedure call on a system library
- Can define different rates for different programs and users.

SECURITY SUPPORT LIBRARY

The Security Support System Library provides an extended and flexible control mechanism for user LOG-ON identification for installation with on-line workstation.

SOME OF THE FEATURES ARE:

- User defined validation procedure.
- Called MCS's LOG-ON routine (CANDE, RJE, GEMCOS).
- Called when changing passwords/chargecode and when MCS detects security errors.
- May accept or reject LOG-ON, based on user-defined criteria, like time-of-day, use/availability or resources, station disposition, or error conditions.
- Total user control of LOG-ON security.
- Ease of software installation/maintenance.

ACTIVITY REPORTING (BARS)

The BARS' utility monitors the system's performance and displays it in the form of numeric values and bar graphs. Various system parameters are sampled and may be displayed in a user-controllable format on a display workstation.

FEATURES:

- Monitors the system's performance dynamically.
- On-line status.
- Can change scales.
- User's specificable formats.

LOGGER

LOGGER is a log analysis program that gives the installation manager the capability to obtain reports that aid analysis of system performance and utilizations and to serve as a basis for the installation's billing system. LOGGER can produce a wide variety of reports depending on installation requirements and has the ability to combine data over various time periods in order to generate longterm reports.

SORT COMPILER

FEATURES:

- Sorts one file.
- Merges two to eight files
- Up to 200 keys (ascending or descending).
- User can specify records to be included and or excluded from the sort or merge process.
- Output options can be:
  - Complete records.
  - Pointers indices to records.
- Compatible with B 1000 sort utility.
- Creates sort program code file.
- CANDE files of type "SORT" can be compiled by the sort utility (compiler) via cande and the resulting code file can be run by CANDE.
- The compile and/or run can be done via WFL.
- Ability to specify stable sort (records with equal keys maintain original order).
- Tag sort capability.

SYSTEM TEST AND DIAGNOSTIC PROGRAMS

The System Test and Diagnostic Programs are used to perform system confidence testing, maintenance, and problem diagnosis. They include hardware tests and compiler tests.

SOFTWARE TOOLS FOR DEBUGGING:

- DMSII DM MAP
- DB ANALYZER
- DB MONITOR
- DB CERTIFICATION
- DASDL ANALYZER
- SYSTEM COMPARE
- DISK MAPPING
- LANGUAGE TRACES
- COMPILER DUMPS
- ON-LINE TEST AND DEBUG

DATABASE MANAGEMENT SYSTEM (DMSII)

DATABASE MANAGEMENT SYSTEM (DMSII)

Burroughs Database Management System II (DMSII) is a specialized software package used to describe, maintain, and interface with a database. Application programs may run in batch, time-sharing or remote job entry environments, and all may use the database concurrently.

DMSII has been designed to support large, fast, economical database applications that provides information where and when needed.

FEATURES:

- Multiple databases are allowed to be open in a program
- On-line Recovery capability
- On-line Database Dump (special utility program that allows dumping of an open database)
- Roll back to a certain time, date, BOJ or EOJ of a program
- Reconstruction of a portion of a file
- Test database capabilities
- Database modify
- Database equate facilities
- Partitioned data sets and sets
- Can open Database Inquiry, Update
- Transaction Processing System (TPS)
- There are no restrictions on the number of databases that can remain open concurrently, nor the number of databases that can be open per program (except RPG).
- Maximum of 192 programs using a single database.

ADVANCED DATA DICTIONARY SYSTEM (ADD)

The Advanced Data Dictionary facility maintains information about DMSII databases, TPS transaction bases, and programs that reference those bases. The system provides programs to maintain, collate, cross reference, and report on this information.

DESCRIPTION:

- Central Depositories or Data Descriptions
- Ability to cross reference use of Data Description
- Ability to load existing databases and programs
- Integrated with system software
  - DMSII
  - User-language
  - Screen Design Facility (SDF)
  - Interactive Definition Module (IDM)

BENEFITS:

- Minimize Data Definitions
- Ability to share, control and standardize descriptions
- System Software Integration
- Descriptions of system resources (shared)
- Multiple dictionaries per system
- Menu-driven interactive interface
- Integrated with selected system software

ARCHITECTURE:

- DMSII based
- Entity level concurrency control
- Screen level recovery

EXTENDED RETRIEVAL WITH GRAPHIC OUTPUT (ERGO)

Extended Retrieval With Graphic Output (ERGO) is a query program designed to provide quick on-line access to the DMSII database producing tabular and graphic reports. ERGO is a powerful and easy-to-use means to analyze, relate, and graphically portray information from multiple databases concurrently.

FEATURES:

- Information systems Inquiry and Reporting language for application databases.
- Suitable for both end users and data processing personnel.
- Adapts to existing DMSII databases. Information may be retrieved from several (maximum of 5) databases concurrently.
- Up to 255 structures may be accessed in a single request.
- Provides normal DMSII security facilities.
- Tabular, statistical, and character-oriented graphic reports may be generated.
- On-line help facilities.
- Uses TD/MT compatible workstation devices as well as B 20 for high resolution graphics.
- Record searches optimized, wherever possible.
- Extensive data selection and manipulation capabilities.
- Provides a relational appearance for any DMSII data base.
- Release 3.5 menu driven option for extended ease of use.
  - Update, delete, create
  - Extract capabilities
  - Support of conventional files
  - Support of Advanced Data Dictionary (ADD)
  - Transfer command for DTS

TRANSACTION PROCESSING SYSTEM (TPS)

The Transaction Processing System (TPS) provides a framework and methodology for implementing an application system for high-volume on-line transaction processing. TPS has built-in means to synchronize database and input message recovery, centralize, formalize and simplify message interfaces and user programming. It also provides an interface to access remote databases using a BNA network.

FEATURES:

- Synchronous recovery without using GEMCOS
- Designed for multi-processing via BNA or ISC

DATA AND STRUCTURE DEFINITION LANGUAGE (DASDL)

DASDL is used to describe the physical and logical characteristics of a database and the criteria to be used to ensure integrity and security of the data contained in the database.

The DASDL compiler checks the input for proper syntax, and produces a coded DESCRIPTION file. This file is used in the compilation of all tailored database software and user application programs that access the database.

Interactive Definition Module (IDM) replaces DASDL, if the Advanced Data Dictionary (ADD) is used.

DATABASE LANGUAGE INTERFACES

- Burroughs Data Management System (BDMS) Compilers are ALGOL, RPG, PL/1, COBOL, and COBOL 74. The BDMS Compilers include Burroughs extensions to standard languages which provide access to Burroughs DMSII databases. These languages are also known as host languages since they provide access to DMSII constructs.
- Interface is also available to all other languages which have access to libraries via DMINTERPRETER.

DATABASE MONITOR

DBMONITOR is an interactive program which allows access to database status and statistics and permits changes to database options and parameters and in addition, database information may be sampled and captured on disk for subsequent off-line analysis.

Monitors performance of an active database.

DMSUPPORT LIBRARY

The DMSUPPORT LIBRARY provides an alternative interface for compilers and user language programs to access database structural information.

FEATURES:

- Implemented as entry points in a system library
- Localizes certain DMS functions
- Flexible interface (features can be added or updated without user program re-compilation)
- Entry points available
  - DM EXCEPTION NAME
  - DM STRUCTURE NAME
  - DM EXCEPTION TEXT
- Generative Software

DMINTERPRETER

DMSII DMINTERPRETER allows run-time access to a DMSII database from languages that do not have DMSII verb extensions. This allows FORTRAN 77 and APL users to access DMSII databases for econometric analysis, financial modeling and other unique applications which require database interface.

FEATURES:

- "Universal" access to DMSII from all languages that support libraries
- Dynamic interpretive run-time DMSII interface
- Implemented as entry points in a private library
- Generated as tailored software by DMSII building program
- Provides run-time determination of database structure
- User program may access multiple databases
- User program may access many invocations of one database
- Search optimization

LET'S COMPARE "DMINTERPRETER" INTERFACE WITH THE "STATIC" INTERFACE

"STATIC" refers to conventional programmatic access to DMSII databases via enhanced DMSII related constructs in the "host language" compilers.

"STATIC" INTERFACE	"DMINTERPRETER" INTERFACE
▪ Compile-time linking to call DMSII access routines.	▪ Run-time interpretation and linkage (small run-time processor overhead for interpretation)
▪ Accessible only to languages that have DMSII syntax extensions	▪ Accessible to all languages that support libraries
▪ DB structural changes require recompilation of affected programs	▪ Program can be isolated from DB structural changes
▪ Difficult to program for applications requiring interpretive decisions	▪ Designed for interpretive programming

DBCERTIFICATION

DBCERTIFICATION is a utility which provides a means of validating the integrity of DMSII database structures.

FEATURES:

- Interactive or batch mode
- Free format input commands
- User specifies degree of certification
- 3 levels of certification available:
  - Physical integrity (block level)
  - Structure internal consistency (Validate storage control information)
  - Structure linkage validation (Verify relationships between structures)
- On-line and off-line operation
- Prints error messages and addresses of error blocks
- Optionally prints hexa-decimal dumps of error blocks
- Not tailored software (uses tailored DMSUPPORT Library)
- Restart and automatic recovery
- HELP Command
- Partial or total database certification

DATABASE ANALYZER

The DBANALYZER provides an analysis of the logical and physical structure of a DMSII database and reports the attributes, disk utilization, control information, and data distribution for each structure.

DATABASE MANAGEMENT SYSTEM LIMITS AND MAXIMUM VALUES

	B 1000	"A" SERIES
IDENTIFIER SIZE	17 CHARS	17 CHARS
ALPHA ITEMS	8,191 CHARS	4,095 CHARS
ALPHA ITEMS AS KEYS	511 CHARS	4,095 CHARS
FIELD ITEMS	N/A	48 BITS
COMMENT SIZE	172 CHARS	255 CHARS
SUBSCRIPT LEVELS	3	NO LOGICAL LIMITS
DATA SET RECORD SIZE	8,192 CHARS	24,570 CHARS
TABLESIZE	8.1 K BYTES	780 K BYTES
AREA LENGTH	65,535	1,048,575
MAXIMUM RECORDS	123,863,040	268,435,456
AREAS	105	1,000
ISAM LEVELS	15	22
DATABASE STRUCTURES	255 (1023 IN 12.0)	1,023
MULTIPLE DATABASES PER PROGRAM	NO	YES

DATA COMMUNICATION

COMS (ENTRY)

COMS (ENTRY) eliminates the need for locally written MCS's and is totally integrated with the System Software. The following outlines the main features of the COMS (ENTRY):

- Log-on control
- Station-to-station routing
- Multiple user views
- Network control
- Datacomm error handling
- Windows
  - CANDE
  - GEMCOS
  - Command Processor
  - Multiple conversations per window

COMMUNICATION MANAGEMENT SYSTEM (COMS)

COMS is the most sophisticated Message Control System which is exclusive to the "A" Series of computer systems. COMS provides the following new, exciting features and functions:

- Dynamic On-line reconfiguration
  - Menus
  - Commands
  - Batch files
- TPS recovery
- SMCS remote file features and commands
- GEMCOS compatibility
  - GEMCOS format library interface
  - GEMCOS user interface code compatibility
- Network/program control
- Network error handling
- Access security
- Process security
- Multi-window sessions
  - Transaction routing windows
  - MCS windows
  - Remote file windows
  - Multiple conversations with the same window
- Agendas
- Diagnostic Aids
- Message key routing
- Performance
  - Extensive use of libraries
  - Special MCP Interfaces
  - Special DM Interfaces
- Ease of use
  - On-line menu driven system reconfiguration
  - Language interface to COBOL 74
  - Synchronized recovery interface to DM

COMMUNICATION MANAGEMENT SYSTEM (COMS)

One of the major benefits of COMS is its windowing capability and it provides the following features:

- Dynamic switching between applications
- Multiple conversations with the same applications
- Interface with remote files
  - CANDE Dynamic Remote Files
  - SMCS Line Declared Remote Files
- Interface with other MCS's
- Does not interrupt applications
- Usercode security provided

DATA COMMUNICATIONS
INTERACTIVE DATA COMMUNICATION CONFIGURATOR (IDC)

Provides easy-to-use menu-driven interface to allow a user to configure the datacom subsystem.

BENEFITS:

- Menu-driven utility for workstations and ODT
- Provide ability to Build/Reconfigure the network
- Permits the use of standard or user-provided protocols
- Integrated with the Communication Management System and Menu Assisted Resource Control (MARC)
- Supports on-line help for all menus, help, and error messages
- Accommodate the users native language
- No effect on DCP-Based systems
- No knowledge of NDLII is required to generate a standard Network Handler

BURROUGHS NETWORK ARCHITECTURE (BNA)

Burroughs Network Architecture (BNA) is a precise architectural plan for connecting Burroughs computer systems into networks. These networks facilitate the development and operation of distributed applications, allow resource sharing, and provide an environment for distributed processing.

BNA is a layered architectural plan that allows the user to view the entire network as an available resource. The two major layers of BNA are known as Network Services and Host Services.

Network Services can be thought of as the basic backbone that interconnects and provides a data transportation vehicle between any two points in the network.

Host Services can be considered to be extensions to the normal services provided by system software at a single host computer system. Host services provide operators, end-users and application programs with functions needed to operate in a distributed processing environment. These functions include the transfer of Jobs and files between different hosts and accessing files and control commands on remote systems. These functions are provided in a manner similar to those used on a local system.

BNA enhancements as of 3.5 release:

- Performance Improvement
- Logical I/O Improvements (Security Use, Tasking)
- Job Submittal via ODT Protocol
- Program Agents
- File Transfer Enhancements

X.25 MCS

The X.25 Message Control System (MCS) provides the user with a transport mechanism to communicate via an X.25 Public Data Networks (PDN). PDN's usually offer "packet switching" services conforming with CCITT Recommendation X.25.

It is important to clarify that the MCS functions are independent of Burroughs Network Architecture (BNA). BNA provides facilities for computer-to-computer interconnection for Burroughs host computers and may utilize an X.25 PDN services, including access to Burroughs and non-Burroughs host computers and terminals connected to the PDN.

Examples of PDN's are:

TELENET	(USA)
TYMNET	(USA)
TRANSPAC	(FRANCE)
DATANET-1	(NETHERLANDS)
PSS	(UK)
DDX	(JAPAN)
DATAPAC	(CANADA)
DATEC-P	(GERMANY)
AUSTPAC	(AUSTRALIA)
RENPAC	(BRAZIL)

REMOTE JOB ENTRY (RJE)

The Remote Job Entry MCS provides the capability to transfer information between Burroughs computer systems. It is primarily intended to allow distant RJE slave systems (typically small terminal processors) to input jobs and data to a central data processing system and to receive the generated printed output.

FEATURES

- Contains all the functions of SYCOM, RJE and HOST/RJE. (RJE used as host or terminal)
- RJE allows virtual terminals.

DATA COMMUNICATIONS DIAGNOSTIC TOOLS

- NDL II ANALYZER: System/NDLII-ANALYZER is an ALGOL program which aids in the Network Support Processor (NDL II) program diagnosis. System NDLIIANALYZER correlates an NSP memory dump file with the Network Information File (NIF) and prints an analysis of lines and stations, along with their associated control processes. This provides the NDL II program status information at the time of the dump.
- DIAGNOSTICMCS: DIAGNOSTICMCS is a basic general purpose Message Control System (MCS). This MCS can handle many Datacomm related activities such as: Station, Line, and Network Control; Station or Line Error Recovery; Remote-file Application Program Interface and Datacom Reconfiguration. DIAGNOSTICMCS is mainly used to verify and check out a data communication subsystem. It provides a variety of monitoring and error diagnostics facilities including line analysis.
- NSP DUMPANALYZER: The NSP DUMPANALYZER analyzes a Network Support Processor (NSP) dump file and produces a report.

DATA COMMUNICATIONS

- A large library of line speeds and protocol options
- A lot of flexibility on the line speeds, i.e. 335 BPS or 407 BPS
- Soft Protocol Control
- Network Handler runs on the Network Support Processor (NSP)
- More foreign workstation interfaces available
- Better maintainability by logging LSP errors.

DATA COMMUNICATION PROCESSOR

NETWORK SUPPORT PROCESSOR (NSP)

The Network Support Processor (NSP) is a microcomputer that serves as a front-end data communications processor. The NSP requires an operating system and interpreters to provide its functions.

FEATURES:

- Data Communication Handler runs locally in the NSP and no burden is placed on the main CPU
- The NSP handles all data communications activities
- NSP carries local memory for all data communication functions
- Full intelligence in NSP (Does not use any of the main CPU cycles)
- Much larger network can be expected due to independency of the NSP, its local memory, and the fact that an NSP is a fully featured independent processor
- Soft controlled adapters for various line protocols
- Data communication growth is virtually unlimited

PROGRAMMER PRODUCTIVITY AIDS

SCREEN DESIGN FACILITY (SDF)

Screen Design Facility (SDF) on the "A" Series provides many features of both screen painting facilities (i.e. SCOPE) and data entry system functions, such as, field verification, status checking, required field, and many more. The Screen Design Facility eliminates programming of the screen routines and most editing functions which are coded by programmers when using other conventional methods.

FEATURES:

- Screen Painting
- Field Definitions
- Field Validation Specification
- Complete Screen Maintenance
- On-line changes and modifications
- Ability to generate terminal operators manual
- User-language interface
- Can utilize data dictionary
- Menu driven definition
- Simple programmatic invocations
- Shared definitions of data
- Reduced application responsibilities

FEATURES:

- Message Key Field (Transaction Based Routing)
- Status Line Field
- Initial Cursor Position Field
- Special Form Character Definition
- Screen Refresh
- Highlights
- Field Suppress
- Cursor Addressing
- Dynamic Field Types
- Specify Information
- On-line Documentation and HELP Facilities
- Generated from text stored in Data Dictionary
- Integrated with Menu Assisted Resource Control (MARC)
- Interfaces to:
  - COBOL 74
  - Data Dictionary

VALIDATION FEATURES:

- Required
- Conditional
- Date/Time
- Justification
- Value Checking
- Value Substitution

FIELD TYPES:

- Input/Output
- Output transmittable
- Output only
- Input only

WORK FLOW LANGUAGE (WFL)

The Work Flow Language (WFL) is a job-control language that is a part of the MCP. It is a compiler that generates object code for program and job control. It provides a means of constructing a JOB specification that controls how TASKS or programs are run on the system.

FEATURES:

- Data deck supported (In-deck Data Cards)
- Asynchronous processing allowed, as well as, synchronous processing
- Automatic restart of WFL after Halt/Load
- Multiple compiles at the same time
- Sophisticated security system
- Start time attributes for start of the deck's execution
- String variables in copy, remove, change, and security statements
- Allows task attributes to be changed without editing the WFL Program

LOGIC AND INFORMATION NETWORK COMPILER

The Logic and Information Network Compiler (LINC) is a totally integrated system that generates complete business application systems from a single set of high-level instructions. LINC specifications are defined in LINC Definition Language (LDL), a "fourth generation" language that is used to define business in terms of "components", "events", and "profiles" along with the logic necessary to process each transaction. LINC will then generate a complete on-line data management application system including inquiry and reporting mechanisms with formatted screens and reports.

BENEFITS:

1. LINC's "Machine Independence" guarantees forward compatibility as transaction volumes increase. For example, LINC generated system running on a B 1000 can be transferred to "A" Series systems without modification.
2. On-line, real-time systems can be designed and implemented by business analysts rather than by computer specialists.
3. Much less need for staff with expertise in DMS II, GEMCOS, NDL, etc.
4. LINC is an ideal tool for system prototyping. The ease of "interactive refinement" via LINC helps to ensure that the final system provides the capabilities required by the end user in a manner acceptable to the end user.
5. Considerably reduced system development times as a result of LINC's increased productivity.

REPORTER III/ ON-LINE REPORTER III

The REPORTER III System provides the user with an effective method to retrieve, analyze, and report on information maintained on Burroughs' systems. It uses an English-like specification language and generates an ANSI74 COBOL program to perform the reporting function. It can assess data in DMSII databases, ISAM files or any Data file.

On-line REPORTER III is a separate module which provides the ability to browse through reports and change viewing attributes via a remote workstation.

DATA ENTRY SYSTEM (DES)

The Data Entry System (DES) provides a high speed, formatted, validated data entry mechanism. The DES package requires the ET2000 workstations or DE700.

Some of the highlights of the 2.0 release of DES are:

- Improved Verification Speed
- Program Load from Local Disk
- Manual Duplication Key
- Batch Grouping Controls
- Field Logic
- Off Load of host resources providing higher speed

CANDE

The Command and Edit (CANDE) Program provides generalized file preparation and updating capabilities in an interactive, workstation oriented environment. This MCS compiles and executes programs, provides program-to-workstation communication, and network control including error recovery and security.

FEATURES:

- CANDE essentially provides time-sharing and on-line file editing functions for terminal users. It is also a message control system (MCS).
- Compile listings are automatically routed to the workstation.
- Line and page editing available.
- Constructs for hand shaking with WFL.
- Sophisticated security system.

COMPILERS AND RELATED SOFTWARE

COMPILERS AND RELATED SOFTWARE

BINDER

The BINDER is used to combine one or more externally compiled subprograms into one resultant program. This process is similar to linkage editing on competitive machines.

FEATURES:

- BINDER is a compiler like any other compiler
- Allows the binding of the subroutines written in a different or the same language
- Parts of a program can be bound to part or parts of another program(s)

SEPCOMP

When changes are made to a source code program which has already been compiled, a compiler with SEPCOMP capabilities will only recompile the changed modules.

FEATURES:

- Significantly reduces recompilation times
- Improves turn-around time for compilations
- Frees machine resources

AVAILABLE IN:

- ALGOL
- COBOL 74
- FORTRAN 77
- NDL II

COBOL ANSI 68

The Common Business Oriented Language (COBOL) was designed by the CODASYL COBOL Programming Language Committee to be a machine independent procedural language for describing computer programs. The language is designed so the COBOL programs read much like ordinary English. Burroughs' COBOL contains many extensions to the CODASYL COBOL which provides the user with the complete facilities of the system without resorting to lower level languages.

FEATURES:

- Sharing of the same data area among multiple programs
- Interlanguage Binding
- Inter Program Communication

COBOL ANSI 74

The COBOL 74 compiler is compatible with the American National Standard Programming Language COBOL, X3.23-1974. It also has most of the features described for the COBOL (ANSI 68) compiler, including Burroughs' extensions.

FEATURES:

- Advanced Data Dictionary Interface
- Binary CD's supported
- Multi-Lingual Messages
- TPS Binding
- Library binding available
- Interface to Screen Design Facility (SDF) and Communication Management System (COMS)

REPORT PROGRAM GENERATOR RPG II

The Report Program Generator (RPG) language is a parameter driven, fixed-format language designed to help the application programmer generate computer programs.

- Data Base Management Systems and Data Communications Interfaces
- Optimized extensively for the 3.5 release

BASIC

The BASIC language is a beginner's all-purpose symbolic instruction code. The language is easy to learn and has powerful constructs.

FEATURES:

- Generates Executable Object Code
- Higher level BASIC than the B 1000 BASIC
- Object Code compatibility throughout the "A" Series of Computer Systems

PASCAL

Professor Niklaus Wirth designed the PASCAL language with two principle aims: to create a programming language that functions as a systematic discipline based on certain fundamental concepts and to design a language that is both reliable and efficient on data processing systems and equally suitable for teaching. Burroughs' PASCAL includes extensions that allow access to many Burroughs' software features.

BURROUGHS EXTENDED PASCAL

- Pascal-like Implementation Language suitable for applications, utilities and environmental software development
- Portable across product lines
- Performance equivalent to ALGOL's

RELEASE 3.4

- Initial Release
- Based on Tasmanian Pascal
- Conforms to ANSI Standards
- Targeted primarily at Educational Markets

RELEASE 3.4.1

- XREF Capability
- ALGOL-like Library Interface
- String Manipulation
- Port Files

RELEASE 3.5

- Improved Expression Handling
- I/O Extensions
- Array Parameter Enhancements
- Conformant Arrays
- Illegal Branch Detection
- Improved Expression Handling

A PROGRAMMING LANGUAGE (APL)

A Programming Language (APL) is a general purpose language for describing procedures concisely and consistantly in an interactive environment. Burroughs' APL/700 is a powerful and versatile language and Message Control System.

FEATURES:

- Industry-wide Language
- Micro Oriented
- A very high level language

FORTRAN 66 (IV)

The FORmula TRANSslation (FORTRAN) language is an industry standard language for engineering and mathematical applications. Burroughs' FORTRAN is generally compatible with other FORTRAN dialiects and contains extensions that allow access to Burroughs' software features.

FORTRAN 77
FORTRAN (ANSI77) OR FORTRAN 77

The FORTRAN-77 language is the implementation of the American National Standards Programming Language FORTRAN, ANSI X3.9-1978. The compiler includes several extensions to the language that allow access to Burroughs' software features.

FEATURES:

- Object Code compatibility throughout the Burroughs product line from B 5000 and up
- Data Communication Interface and Constructs
- Code Binding and Partial Compiling

PROGRAMMING LANGUAGE ONE (PL/1)

Programming Language One (PL/1) is a general purpose language that has constructs suitable to most applications.

ALGOL

The ALGOrithmic Language (ALGOL) is designed to represent algorithms or procedures. Burroughs' ALGOL is based on the "Revised Report on the Algorithmic Language ALGOL 60" with many extensions, data editing, and facilities for program debugging.

FEATURES:

- ALGOL is an Industry Standard Language
- Advanced Data Dictionary Interface
- Data Base Management Access allowed
- Synchronous and Asynchronous processing of various portions of different or same programs
- ALGOL Test and Debug System (TADS)

MANAGEMENT TOOLS

MANAGEMENT TOOLS

STATISTICAL ANALYSIS

Interactive forecasting and statistical analysis system is a powerful Terminal-Oriented Data Management and Analysis System. The statistics module provides graphical and statistical analysis of data, including multiple linear regression. The forecast module is also capable of graphic reporting and analysis.

BUSINESS PLANNING SYSTEM

Burroughs Business Planning System (BPS) is a tool for business modeling, forecasting, and reporting. BPS provides the financial analyst, corporate planners and management personnel with an interactive, easy-to-use tool for formulating models for testing policy scenerios, and reporting the results of such testing. It provides interfaces and infostats and DMSII databases and hierarchial consolidation and risk analysis capabilities.

MATHEMATICAL PROGRAMMING

TEMPO (Techniques for Extreme Point Optimization) is a complete mathematical programming system that solves linear problems related to linear programming and its extensions.

LOB Migration Concepts

Burroughs
WORLDWIDE MARKETING

B 1000 DISTRIBUTION LOB MIGRATION PLAN

I. THE INDUSTRY

The economic outlook for the distribution marketplace through the 1980's is extremely bright, expecting a growth rate greater than that of the GNP. The majority of this growth is expected from medium and large size firms which by 1990 are expected to represent over 60% of all wholesale distributors. This is mostly expected to be caused by productivity improvements in distribution systems, economic influences and increased value-added services.

The B 1000 Distribution LOB user base offers very attractive upgrade marketing opportunities because of the large number of installations, a rapidly increasing need for more useful management information due to increasing economic pressures, and the increasing demand for more EDP capacity and throughput as a result of increasing volumes of business activity.

The Distribution marketplace is very fragmented between many diverse types of businesses with requirements unique to almost each installation. Many businesses have other interfacing applications that may not be distribution oriented (i.e. manufacturing control systems) but have a very significant impact on their migration requirements. Typically, a high percentage of automated distribution applications are customized to fit specific management and/or operational requirements.

Based on all of this, you should expect your B 1000 Distribution users to be extremely interested in alternate growth paths. In helping management make their decision, make sure you understand exactly what the business goals are that they are trying to reach.

- Meeting the need for increasing information reporting
- Expanding their customer base
- Improving the sales/cost ratio
- Planning for expanding volumes

Then solve for the problem, not the symptom, by proposing a system that helps reach their business goals.

II. SOFTWARE/HARDWARE COMPATIBILITY CONSTRAINTS & OPPORTUNITIES

B 1990

Hardware — for those B 1700 and B 1800 users looking for greater processing power with a minimum capital investment, the B 1990 may be the right upgrade choice with up to 2MB of memory.

System Software — Newer levels of MCP (MCP 11.0) and GEMCOS (GEMCOS 600) offer significant performance improvements over prior levels.

Applications — Burroughs Distribution Information (DIS) System, available on the B 1000 now offers greater throughput and features with release level 5.0.

These new software offerings coupled with the new hardware enhancements for the B 1990 offer a viable upgrade solution for some B 1000 users.

B 5/6/7000 and "A" Series Systems

B 5919 — A new mid-performance range system offering one of the most attractive cost performance ratios in the market plan today.

B 5985 — A new enhanced B 5900 system with up to 9MB of memory and two B 5900 processors coupled together.

"A" Series — The new Burroughs mainframe series offers state of the art architecture at higher performance/investment ratios than previously released mainframes.

System Software — New levels of system software (MCP 3.4 GEMCOS 700) have enhanced the performance of current applications.

Applications — Burroughs Distribution Information Systems (DIS) is available on this size system and offers the present B 1000 DIS user compatible application software up through the B 7000 system.

III. MIGRATION AIDS

As most B 1000 DIS users can look to B 2/3/4/5/6/7000 versions of their current application software, conversion is not a significant issue. There are software tools available to transport custom applications to a new system.

IV. EDUCATION AIDS

Some of the more significant education aids appropriate to B 1000 users making a migration to other Burroughs systems are listed here.

MIGRATION

EP 6170	Managing the Migration
EP 6171	Overview of Migration Software
EP 6172	Use of Migration Software
EP 6173	Comparison of B 1000 to B 5/6/7000 "A" Series
EP 6174	Comparison of B 1000 to B 5/6/7000 "A" System Operations

B 2/3/4000 SERIES

EP 4038	B 2/3/4000	Operations
EP 4034	B 2/3/4000	Basic Systems Support
EP 4419	B 2/3/4000	Concepts and COBOL-74 Extensions

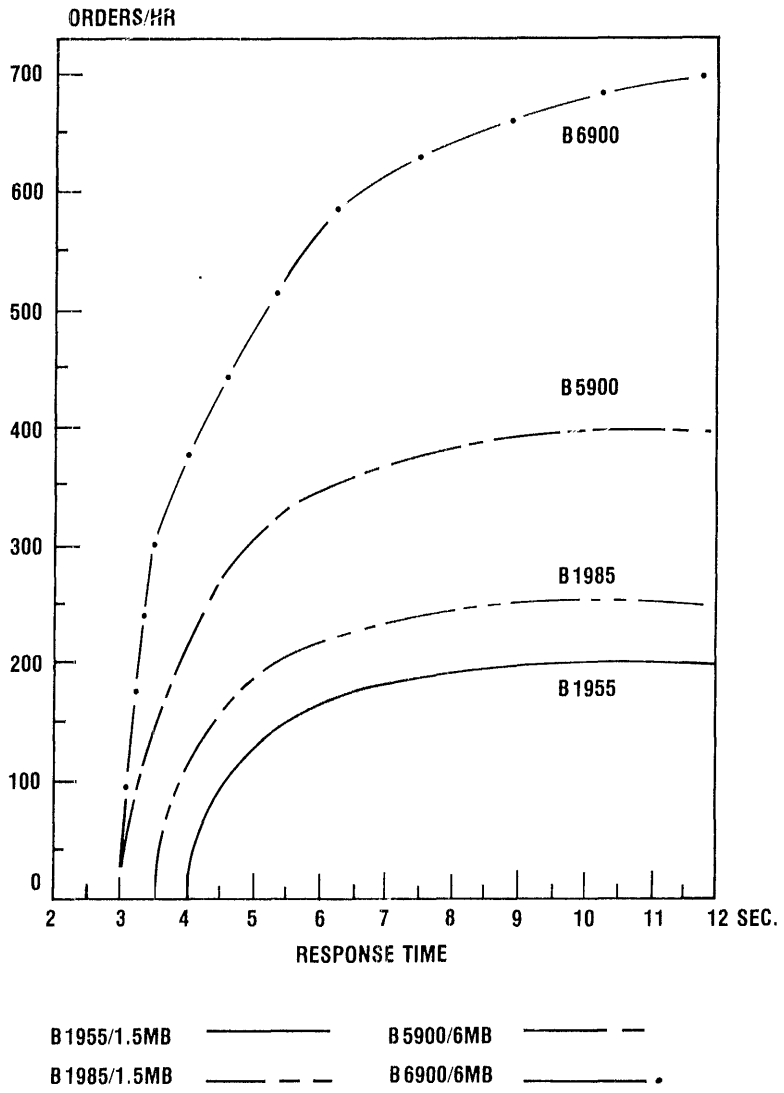
B 5/6/7000 SERIES

EP 4195		Introduction to Large Systems
EP 4045	B 5/6/7000	Operations
EP 4318	B 5/6000	Basic Systems Support
EP 4051	B 5/6/7000	COBOL-68 Extensions
EP 4044	B 5/6/7000	DMSII Usage

V. SOFT SERVICES

In any migration effort, Burroughs Software Products and Services group should be utilized to the maximum possible extent. This group has extensive experience in transitions from B 1000 to either B 2/3/4000 or B 5/6/7000 systems. By incorporating Software Products and Services into a B 1000 migration plan, a much smoother transition for the migrating B 1000 user can be assured.

DIS RELATIVE SYSTEM PERFORMANCE



The corresponding DIS timings were generated in a specific controlled environment. They should only be used as a guideline to help determine the relative performance of each system.

All timings were on 5.0 DIS. The B 1955 and B 1985 systems tested were with 1.5MB each, 15 terminals with 3 lines under MCP 11.0/GEMCOS 600 with 1 path to disk.

The B 5900 and B 6900 systems tested were with 6MB each, 20 terminals with 3 lines under MCP 3.4/GEMCOS 700 and 2 disk paths.

The data consisted of 11 line item orders with 6 on-line programs in the mix.

MANUFACTURING LINE OF BUSINESS
B1000 MIGRATION

I. THE INDUSTRY

The current standard application program products in use by Manufacturing LOB are PCSI, JACS/PACS, PCSII and PCSIII/TMS. Of those customers using Burroughs software, 39% use PCSI/II which is an unsupported product. The remaining 61% have some subset of the PCSIII/TMS package. In most cases these packages have been heavily modified by each customer. The migration to another machine will be facilitated by having standard products available on the targeted-new machine but it will not resolve the total migration issue. Some manufacturers may be reluctant to implement a totally new package and others may resist implementing the new standard package and having to reapply their local modifications. In both cases a migration/transportation of their current code should be considered.

For those customers still using PCSI/II a recommendation for upgrade to the latest software level would be appropriate. In doing this, it should be recognized that an implementation of these packages may require a one or two year effort. A positive argument for migration in this case will be the use of Burroughs supported code with more capabilities and features.

It should be kept in mind that the Manufacturing packages are all modified and that implementation of a new package may require, in some cases, a great deal of effort. The proposed migration should take into account the customer's future plans so that an appropriate path will serve him for all of his future needs.

II. SOFTWARE AND HARDWARE COMPATIBILITY CONSTRAINTS & OPPORTUNITIES

The standard application package PCSIII/TMS is available on the B1990, B1/2/3/4/5/6/7000 and "A" Series.

It is recommended that the B1700/B1800 customer migrate to the B1990. This will provide increased throughput with no recoding 100% compatibility. If additional growth is required, then an alternate path should be recommended.

For the current B1955/B1985 customers, a migration to B2/3/4/5/6/7000 of "A" Series is possible. The specific choice should be based on the future requirements of the customer. By using the performance data shown in the foregoing table, a relative level of performance can be arrived at. Caution should be exercised in the use of the table for there are many factors that affect performance and it cannot be guaranteed what the performance for specific application software in a particular environment will be. The choice of path should be designed to provide continued ease of migration.

III. MIGRATION AIDS

As most B1000 manufacture users can look to B2/3/4/5/6/7000 versions of their Burroughs supported application software, conversion is not a significant issue. There are software tools available to transport custom application to the new system.

IV. EDUCATION AIDS

Some of the more significant education aids appropriate to B 1000 manufacturing users making a migration to other Burroughs systems are listed here.

MIGRATION

EP 6170	Managing the Migration
EP 6171	Overview of Migration Software
EP 6172	Use of Migration Software
EP 6173	Comparison of B 1000 to B 5/6/7000 "A" Series
EP 6174	Comparison of B 1000 to B 5/6/7000 "A" System Operation

B 2/3/4000 SERIES

EP 4038	B 2/3/4000	Operations
EP 4034	B 2/3/4000	Basic Systems Support
EP 4419	B 2/3/4000	Concepts and COBOL-74 Extensions

B 5/6/7000 SERIES

EP 4195		Introduction to Large Systems
EP 4045	B 5/6/7000	Operations
EP 4318	B 5/6000	Basic Systems Support
EP 4051	B 5/6/7000	COBOL-68 Extensions
EP 4044	B 5/6/7000	DMSII Usage

V. SOFT SERVICES

In any migration effort, Burroughs Software Products and Services group should be utilized to the maximum possible extent. This group has extensive experience in transitions from B 1000 to either B 2/3/4000 or B 5/6/7000 systems. By incor- B 2/3/4000 or B 5/6/7000 systems. By incorporating Software Products and Services into a B 1000 migration plan, a much smoother transition for the migrating B 1000 user can be assured.

GOVERNMENT LINE OF BUSINESS
B 1000 MIGRATION PLAN

I. THE INDUSTRY

The governmental industry customer base is made up of users running a varied mix of applications. Of all systems installed in state and local government, small to medium systems are projected to grow at a growth rate of 31% between 1982 and 1987. There is a high pressure on county, municipal and township governments for higher quality and faster turnaround on services which require increases in automation. To Burroughs this provides an opportunity to migrate our B 1000 customers to more powerful systems. In many instances this may not require an RFP (competitive bidding) process since the migration can be classified as an upgrade rather than a replacement. This is particularly true with B 1000 users who are running Burroughs program products where the "upgrade" requires only a hardware swap to a larger machine. The applications software environment stays relatively unchanged.

II. SOFTWARE/HARDWARE COMPATIBILITY CONSTRAINTS & OPPORTUNITIES

A. Hardware

The recommended growth path for the governmental B 1000 user is to the B 5/6/7000 or "A" Series computer systems.

B. Software

- Of the approximately 400 B 1000 governmental users, approximately 48 are running the Burroughs' Fiscal package and 20 the Burroughs' Payroll program products along with a variety of custom applications. All other users are running custom or 3rd party developed applications.
- The Burroughs Fiscal/Payroll program products are released and available on the B 1/5/6/7000 and "A" Series systems.

III. MIGRATION AIDS

As most B 1000 governmental users can look to B 5/6/7000 versions of their current application software, conversion is not a significant issue.

There are software tools available to transport custom applications to the new system.

IV. EDUCATION AIDS

Some of the more significant education aids appropriate to B 1000 governmental users making a migration to other Burroughs systems are listed here.

MIGRATION

EP 6170	Managing the Migration
EP 6171	Overview of Migration Software
EP 6172	Use of Migration Software
EP 6173	Comparison of B 1000 to B 5/6/7000 "A" Series
EP 6174	Comparison of B 1000 to B 5/6/7000 "A" System Operation

B 5/6/7000 SERIES

EP 4195		Introduction to Large Systems
EP 4045	B 5/6/7000	Operations
EP 4318	B 5/6000	Basic Systems Support
EP 4051	B 5/6/7000	COBOL-68 Extensions
EP 4044	B 5/6/7000	DMSII Usage

V. SOFT SERVICES

In any migration effort, Burroughs Software Products and Services group should be utilized to the maximum possible extent. This group has extensive experience in transitions from B 1000 to either B 2/3/4000 or B 5/6/7000 systems. By incorporating Software Products and Services into a B 1000 migration plan, a much smoother transition for the migrating B 1000 user can be assured.

EDUCATION LINE OF BUSINESS
B 1000 MIGRATION PLAN

I. THE INDUSTRY

The Education Industry has spent $5 billion on EDP in 1983 and is expected to spend $8.7 billion on EDP by 1987. Burroughs has a complete line of hardware/software solutions for this industry, including B 20's, B 1000, B 5/6/7000 and "A" Series.

II. SOFTWARE/HARDWARE COMPATIBILITY CONSTRAINTS & OPPORTUNITIES

The Education LOB customers utilizing earlier models of the B 1000 family have upgrade possibilities within the B 1000 family with the introduction of the B 1990 single/dual processing systems.

Those B 1000 customers desiring significantly more power should be migrated to the B 5/6/7000 "A" Series.

B 1000 Customers having custom software and migrating to the B 5/6/7000 "A" Series have migration aids, Software Services and Education Services to assist in an orderly transition.

III. MIGRATION AIDS

As many B 1000 educational users can look to B 5/6/7000 versions of their current application software, migration is not a significant issue. Where custom applications have been written, there are a number of software tools available which will assist in transporting these custom applications to the new system.

Below are selected upgrade possibilities using the MSG "CASTS" software solution.

Installed	Upgrade	Migration
1910	1955/1985/1990	5900/6900/"A" Series
1955	1985/1990	5900/6900/"A" Series
1985	Multiple 1990	5900/6900/"A" Series
1990	Multiple 1990	5900/6900/"A" Series

IV. EDUCATION AIDS

Some of the more significant education aids appropriate to B 1000 educational users making a migration to other Burroughs systems are listed here.

MIGRATION

EP 6170	Managing the Migration
EP 6171	Overview of Migration Software
EP 6172	Use of Migration Software
EP 6173	Comparison of B 1000 to B 5/6/7000 "A" Series
EP 6174	Comparison of B 1000 to B 5/6/7000 "A" System Operation

B 5/6/7000 SERIES

EP 4195		Introduction to Large Systems
EP 4045	B 5/6/7000	Operations
EP 4318	B 5/6000	Basic Systems Support
EP 4051	B 5/6/7000	COBOL-68 Extensions
EP 4044	B 5/6/7000	DMSII Usage

V. SOFTWARE SERVICES

In any migration effort, Burroughs Software Products and Services group should be utilized to the maximum possible extent. This group has extensive experience in transitions from B 1000 to B 5/6/7000 systems. By incorporating Software Products and Services into a B 1000 migration plan, a much smoother transition for the migrating B 1000 user can be assured.

HEALTH CARE LINE OF BUSINESS
B 1000 MIGRATION PLAN

I. THE INDUSTRY

The Hospital Management System and the Health Care Financial Management System offer on-line interactive data bases for Patient Management and Financial Management. These capabilities assure a high rate of penetration in an industry which is demanding greater monetary and cost controls because of Federal Regulations and the ever increasing cost of Health Care in hospitals.

II. SOFTWARE/HARDWARE COMPATIBILITY CONSTRAINTS & OPPORTUNITIES

To provide a smooth migration for the hospital B 1000 user, the following are provided:

A. A software tool for the BHAS-II (batch) user to change from B 1000 BHAS-II to the modern on-line and interactive B 1000 Hospital Management System (HMS), which utilizes DMS-II and GEMCOS systems software.

B. Migratioin from B 1000 HMS to B 5900 HMS is functionally a matter of program recompilation.

C. Additionally, HMS is available on B 5/6/7000 and "A" Series computers for those who wish to consider a more powerful system.

For users who desire guidance and/or assistance in their migration efforts, Health Care Services, through its Professional Services organization, provides consultation and support, including on-site aid. These professionals may be reached by calling 704-365-1921.

III. MIGRATION AIDS

As most B 1000 Health users can look to B 2/3/4/5/6/7000 versions of their Burroughs supported application software, conversion is not a significant issue. There are software tools available to transport custom application to the new system.

IV. EDUCATION AIDS

Some of the more significant education aids appropriate to B 1000 medical users making a migration to other Burroughs systems are listed here.

MIGRATION

EP 6170	Managing the Migration
EP 6171	Overview of Migration Software
EP 6172	Use of Migration Software
EP 6173	Comparison of B 1000 to B 5/6/7000 "A" Series
EP 6174	Comparison of B 1000 to B 5/6/7000 "A" System Operation

B 2/3/4000 SERIES

EP 4038	B 2/3/4000	Operations
EP 4034	B 2/3/4000	Basic Systems Support
EP 4419	B 2/3/4000	Concepts and COBOL-74 Extensions

B 5/6/7000 SERIES

EP 4195		Introduction to Large Systems
EP 4045	B 5/6/7000	Operations
EP 4318	B 5/6000	Basic Systems Support
EP 4051	B 5/6/7000	COBOL-68 Extensions
EP 4044	B 5/6/7000	DMSII Usage

V. SOFT SERVICES

In any migration effort, Burroughs Software Products and Services group should be utilized to the maximum possible extent. This group has extensive experience in transitions from B 1000 to B 5/6/7000 systems. By incorporating Software Products and Services into a B 1000 migration plan, a much smoother transition for the migrating B 1000 user can be assured. Health Care Services Professional Services Group offers professional, technical and consulting services and support including implementation management, custom modification, and implementation consultation services.

FINANCIAL LINE OF BUSINESS
B 1000 MIGRATION PLAN

I. THE INDUSTRY

In the United States there are approximately 1,000 installed B 1000 systems in the financial marketplace. A number of excellent migration alternatives exist for the members of this large and valued portion of the Burroughs user community. As a general rule, most of these alternatives are to be found in the medium systems family but there are a number of important exceptions. The following are some guidelines and issues to consider in formulating migration alternatives for Burroughs B 1000 users in the financial industry.

DOCUMENT PROCESSING

The document processing capability is a requirement for many B 1000 users in the financial market. A large proportion of installed users are either using their systems for item processing or anticipating entering into item processing activity because of the dissolution of commercial bank/thrift distinctions. The three major item processing systems which can be considered as alternatives for a B 1000 migration are the B 2926, B 2927, and S 6000.

Important: There is no item processing capability available for Burroughs B 5000/B 6000/B 7000 "A" series systems.

II. SOFTWARE/HARDWARE COMPATIBILITY & OPPORTUNITIES

A gravitation from B 1000 systems to B 2000/B 3000/B 4000 systems is a relatively straightforward process for in-house banking users. A similar situation exists for many thrift users in that a B 5000/B 6000/B 7000 systems version of their application software is available. As an example, Tymshare software is available in either B 1000 or B 2000/B 3000/B 4000 systems versions and MISER is available for either B 1000 or B 5000/B 6000 systems. Thus for most in-house B 1000 users there is an existing alternative which is compatible with their present software. The major user categories and their migration alternatives are listed below.

USER CATEGORY	MIGRATION/UPGRADE ALTERNATIVE
B 1000 Banking System	B 2/3/4000 TBS
B 1000 Thrift	"A" Series MISER "A" Series BIS
B 1000 MISER	"A" Series MISER "A" Series BIS
B 1000 Infotech	B 2/3/4000 Infotech
B 1000 FTI	B 2/3/4000 FTI
B 1000 Credit Union (EPL)	B 2/3/4000 EPL
B 1000 RDP	B 2/3/4000 IPS S 6000 DPS
B 1000 PMS	B 2/3/4000 PMS

Hardware Compatibility. A hardware incompatibility exists for B 1000 users in the reader sorter area. As noted, no reader sorter capability exists on the B 5000/B 6000/B 7000 and "A" series systems, meaning that any "in-house" B 1000 user having a host system document processing requirement, i.e.,host applications as well as document processing, will have as his logical migration alternative the B 2000/B 3000/B 4000 systems. Furthermore, it should be noted that B 9134 reader-sorters installed in B 1000 sites are incompatible with the B 2000/B 3000/B 4000 series, meaning a B 1000 user moving to a "900" system must also order a new reader sorter.

III. THROUGHPUT AND CAPACITY

In-house B 1000 users. Good choices lie in either the B 2926 or B 2927 package systems or possibly even a B 3955 for very large B 1900 sites. The B 2900 series should show significant performance improvement over a B 1900. For the majority of B 1000 users, the most cost/effective Burroughs alternative will probably be the B 2926/B 2927 package system.

B 1000 RDP users. For this group of users, two basic alternatives exist, depending upon throughput requirements.

For lower volume users the S 6000 series of document processing systems is a highly satisfactory alternative in that it combines good throughput with inexpensive in-line microfilm and ink jet endorser capability. The S 6000 should be attractive to many lower volume B 1000 RDP users.

For the higher volume B 1000 RDP sites, many of which process in excess of 100,000 items per day. the B 2926 and B 2927 IPS systems are excellent alternatives. High volume B 1000 RDP users will find many benefits in a new IPS operating environment.

IV. MIGRATION AIDS

As most B 1000 users can look to B 2000/B 3000/B 4000/B 5000/B 6000/B 7000 versions of their current application software, conversion is not a significant issue. There are software tools available to transport custom application to the new system.

V. EDUCATION AIDS

Some of the more significant education aids appropriate to B 1000 financial users making a migration to other Burroughs systems are listed here.

MIGRATION

EP 6170 Managing the Migratrion

EP 6171 Overview of Migration Software

EP 6172 Use of Migration Software

EP 6173 Comparison of B 1000 to B 5000/B 6000/B 7000 "A" Series

EP 6174 Comparison of B 1000 to B 5000/B 6000/B 7000 "A" System Operation

B 2000/B 3000/B 4000 SERIES

EP 4038 B 2000/B 3000/B 4000 Operations

EP 4034 B 2000/B 3000/B 4000 Basic Systems Support

EP 4419 B 2000/B 3000/B 4000 Concepts and COBOL-74 Extensions

B 5000/B 6000/B 7000 SERIES

EP 4195 Introduction to Large Systems

EP 4045 B 5000/B 6000/B 7000 Operations

EP 4318 B 5000/B 6000 Basic Systems Support

EP 4051 B 5000/B 6000/B 7000 COBOL-68 Extensions

EP 4044 B 5000/B 6000/B 7000 DMS II Usage

BANKING APPLICATIONS

EP4465 B 2000/B 3000/B 4000 Item Processing Concepts

EP4074 B 2000/B 3000/B 4000 Item Processing System

EP6311 B 2000/B 3000/B 4000 Item Processing System

EP6096 S 6000 Intelligent Reader Sorter Language

EP6099 S 6000 Application Installation

EP6099 S 6000 Application Installation

VI. SOFT SERVICES

In any migration effort, Burroughs Software Products and Services group should be utilized to the maximum possible extent. This group has extensive experience in IPS and S 6000 installations as well as in transitions from B 1000 to either B 2000/B 3000/B 4000 or B 5000/B 6000/B 7000 systems. By incorporating Software Products and Services into a B 1000 migration plan, a much smoother transition for the migrating B 1000 user can be assured.

Migration/ Conversion

Burroughs
WORLDWIDE MARKETING

GENERAL MIGRATION GUIDELINES

Our customers today have a requirement for compatibility across a wide range of computer systems. By compatibility they mean the ability to run programs on any system in the range without *recompilation*. Burroughs has and will continue to provide a range of computer systems that *will provide* a growth path from a Relative Performance Index (RPI) 35 to 680. This range of systems is the Burroughs "A" Series and provides the B 1000 user with unlimited upward mobility.

STRATEGIC ISSUES FOR THE USER

One of the leading trends in Information Processing in the 1980's is the increasing emphasis and implementation of distributed processing. The growing awareness by end users of the capabilities of computers and the ability of computer systems to solve many of their business problems together with their growing confidence to manage computer systems within their own environment has led to much decentralized processing. A general move of the computer to the data has proved more cost effective than moving the data to a centralized site. A further move to strengthen distributed processing is the dedication of a processor to a specific function or application. This decentralization by function will continue during the 1980's.

This growth in distributed processing will generate a number of issues:

- More information will be readily available within a company to more people.
- Information will be distributed over numerous systems.
- Control and management at the decentralized information will be required.

The increasing number of business functions that are now computerized and the growth and implementation of on-line real-time systems have greatly increased the dependency of business organizations on computer systems.

The explosion in the use of computers make it less likely that a particular system's architecture will accommodate the growth profile of many organizations. If organizations are forced to move from one system to another, they will be forced into a conversion. The cost of conversions will continue to increase. These costs can be classified as being "direct and opportunity costs". The direct costs are those associated with machine time and manpower. While these costs are high, the most important costs are the opportunity costs of the conversion. This results from the delay caused by the conversion in the implementation of new systems.

The continuing shortage and resultant increased costs of skilled personnel to implement new systems is another problem facing the data processing industry. Yet another factor in today's business climate is that the effective life cycle of software is decreasing. Thus, unless systems are developed quickly, it is possible that the problem they were to address has either disappeared or significantly changed. This is known as the "disappearing" problem. The major requirement in the area of programming technology is the ability to define business problems quickly and accurately at the system level.

These are the issues facing our compatibility across a wide machine performance range. This range of computer systems must offer advanced state-of-the-art software with ease-of-use features, minimize the requirement for highly skilled system software programmers, and offer 4th generation Systems Development capabiliy.

The Burroughs "A" Series computer systems are able to satisfy each and every one of these user requirements today.

MIGRATION/CONVERSION

As New Burroughs Systems expand their range of processing power, they open up a larger market place with more opportunities. Not only does this larger market bring with it the potential for additional new applications, but also the increased requirement for a conversion from a much wider variety of systems and environments. For this reason, the question of conversion must be addressed early and become an integral part of the overall sales strategy.

There are many conversion situations that will be encountered by the Burroughs Marketing Representative. In regard to competitive replacement, a recent study showed that a fairly consistent attitude among users has been that a *vendor change is traumatic*. The same study, however, indicated that the question of a vendor change is not completely closed, particularly to the medium-scale prospect who is currently interested in a change.

As the size of the system increases, the magnitude and complexity of the conversion increases to a point where the user may not be able to easily justify a change. Here a much stronger emphasis on the benefits he will obtain from moving to the Burroughs system will be needed along with a convincing conversion strategy. This prospect may face a conversion even if he does not change vendors. This point should be emphasized along with reassurance that a well-planned and executed conversion by Burroughs can minimize any disruption to his computer operations.

Burroughs, over a number of years, has evolved towards a common implementation of software across the whole product line. (See Figure 1.)

Our operating system M.C.P., while obviously offering differing capabilities between ranges, has standardized on similar methods of operator interface; hence, reducing the need for retraining when moving from one range to another. As far as compilers are concerned Burroughs has evolved to similar implementations of compilers across all ranges of products. The compatibility between RPG II, Cobol 74, and Fortran 77 to B 1000 Systems and Burroughs "A" Series is very high.

In the case of Environmental Software, Burroughs has provided across the range implementation of these products to provide a similar concept in implementing on-line and real-time systems among all our computer systems. The application generator LINC is available across the complete range of Burroughs' computer systems.

The upgrade of B 1000 systems is a migration situation that will be encountered, *not* a conversion. The question of migration is, in many cases, just as important to the Burroughs customer as it is to the competitive user. The approach may be different but the emphasis and the degree of planning will be just as important.

An even greater challenge exists for the Burroughs Marketing Representative who is proposing a Burroughs System to replace many smaller systems in an effort by a user to consolidate his data processing function. This prospect has already accepted the fact that some amount of migration/conversion is imminent. In this case, the vendor with a well-planned migration/conversion will have a definite advantage at decision time.

COMPETITION

WHY BURROUGHS?

Growing from the IBM System/3 performance level to a large mainframe, the following vendor's solution should be of interest.

	IBM'S SOLUTION	BURROUGHS SOLUTION
OPERATING SYSTEMS	SCP, SSP, CPF, OS, DOS/VSE, VM, 370	MCP
DATA BASE	NONE CPF, DL 1, IMS, TOTAL, AND ADABASE	DMS II
JOB CONTROL LANGUAGE	OCL, CL, JCL	NONE REQUIRED WORKFLOW (OPTIONAL)
DATA COMMUNICATIONS	WORKSTATION CCP, CPF, NCP, CICS	NDL
HARDWARE	5-8 PROCESSOR CHANGES MULTIPLE PERIPHERAL AND TERMINAL CHANGES	2-3 PROCESSOR SWAPS 100% PERIPHERAL COMPATIBILITY (B 1990 FIELD UPGRADEABLE)
CONVERSION	S/3 TO S/34 YES S/34 TO S/36 MINIMAL S/36 TO S/38 YES S/38 TO 4300 YES* 4300 TO 303X YES*	ALL B 1000's NO B 1000 TO B 5000 MINIMAL B 5000 TO B 6000 NO** B 6000 TO B 7000 NO** B 5/6000 TO A9 SERIES NO**

* Severity of the conversion is depended upon operating system selections.

**Object code compatible.

In the distributed processing environment, the IBM solution requires a large and expensive centralized staff, able to support the complexities of different operating systems required by the different machine architectures.

FIGURE 1

It is important to note here that an early investigation into the availability of industry-oriented application packages should be made. Conversion to such application packages could ease the entire conversion question and lend a positive element to the selling effort. The objectives of this section are to define what is involved in a migration-/conversion and to identify those resources available to help plan and implement one. It is of primary importance that the Burroughs Marketing Representative establish prospect confidence by approaching the migration/conversion question in a professional manner and conveying to him the experience and quality of assistance that is available to him.

HOW TO SELL A MIGRATION/CONVERSION

The Burroughs Marketing Representative's prospect must be aware of the long-term economic value of the proposed system change. The pospect's D.P. Manager will be the one responsible for the migration/conversion and may be opposed or dubious towards it. It is this person, in particular, that will have to be convinced that a migration/conversion to a Burroughs system is certain of success and reasonable in cost and time. Burroughs can do this because of the solid, proven capabilities that it now has.

A few general points that can be made about migration/conversion to Burroughs systems are:

- it has been done successfully before.

  Many systems have been converted to Burroughs systems. In many cases, multiple systems have been replaced by a single Burroughs system.

  Competitive replacements have accounted for more than 80% of the conversions done on Burroughs equipment. Systems which have been replaced include those of IBM, Honeywell, Univac, NCR, HP, Data General, ICL. In addition, many other Burroughs customers with incumbent competitive equipment have successfully installed Burroughs systems to process new applications.

- Excellent migration/conversion tools exist.

  A planned program for the development and support of translators has been carried out for years. This, together with extensive migration/-conversion experience, has resulted in highly effective, proven translators for a large number of languages, dialects and data.

The following is a list of available conversion products with a short statement of the capabilities and/or limitations of each. These products, for the most part, are used and supported by The Irvine Support and Development Center and the Pasadena Plant. Check with the System Services Group to determine the current support details and status.

COMPETITIVE CONVERSION PRODUCTS

I. IBM TO BURROUGHS (ITS)

The IBM to Burroughs conversion aid consists of the following systems:

(1) The Conversion Project Management System Planning Module.

(2) B.A.L. to COBOL 68

This system converts IBM Basic Assembler Language to COBOL 68 for medium or large systems. This system supports the conversion of most peripheral devices of the original IBM systems with the exception of MICR, OCR, and data communications devices.

(3) IBM COBOL to COBOL 68

This system converts IBM COBOL to Burroughs COBOL 68.

(4) IBM COBOL to COBOL 74

This system converts IBM COBOL to Burroughs COBOL 74.

(5) IBM Data Conversion Generator

The data conversion system converts sequential data files from the IBM system to the family of Burroughs systems.

II. UNIVAC TO BURROUGHS (UTS)

The UNIVAC to Burroughs conversion aid consists of the following systems:

(1) The Conversion Project Management System Planning Module

(2) B.A.L. to COBOL 68

This system converts UNIVAC Basic Assembler Language to COBOL 68. This system supports the conversion of most peripheral devices of original systems with the exception of MICR, OCR, and data communications devices.

(3) UNIVAC COBOL to COBOL 68

This system converts UNIVAC COBOL to Burroughs COBOL 68.

(4) UNIVAC COBOL to COBOL 74

This system converts UNIVAC COBOL to Burroughs COBOL 74.

III. HONEYWELL TO BURROUGHS (HTS)

The Honeywell Information System to Burroughs conversion aid consists of the following systems.

(1) The Conversion Project Management System Planning Module

(2) Assembler to COBOL 68

This system converts Honeywell H-200 and H-2000 Easycoder to COBOL 68. It has similar characteristics as those described in the B.A.L. to COBOL 68 translator described earlier.

(3) COBOL to COBOL 68

This system converts H.I.S. H-200 and H-2000 COBOL to Burroughs COBOL 68.

(4) H.I.S. COBOL to COBOL 74

This systems converts H.I.S. H-200 and H-2000 COBOL to COBOL 74.

(5) Data Conversion Generator

The data conversion generator converts sequential data files from Honeywell systems to Burroughs systems.

ESTABLISHING CONVERSION OBJECTIVES

In each selling situation it is important for the Burroughs Marketing Representative to determine the prospect's specific concerns about the migration/conversion. What type of conversion is wanted — a straight program-to-program migration/conversion, a complete resystemization (redesigning and rewriting) or a combination of both? Does the prospect desire or have the capabilities for a full on-site migration/conversion, or are other arrangements necessary?

Once these facts are known, the Marketing Representative can begin to direct their efforts to demonstrate to the prospect how Burroughs can best meet their particular requirements. In answering specific conversion questions, a number of side issues can also be identified for instance, conversions are:

- An excellent time to redesign obsolete or ineffective systems, refine old processes, and incorporate desired new features.
- A convenient time to upgrade documentation — a good migration/conversion depends upon good documentation of how programs interact within the overall processing flow of the organization.
- A chance to incorporate new techniques and ideas in programs and systems.
- A means of upgrading programs written in an obsolete language. These programs must be converted someday — generally the longer the prospect waits the more expensive it will be.
- A convenient time to make minor modifications that can increase the efficiency of a program — thereby reducing future run times.
- The ideal time to review the whole approach to developing and maintaining computer programs and systems — make the necessary changes in standards and procedures to lay a firm foundation for future growth.
- An excellent opportunity to utilize new programming techniques and concept, like fourth generation languages (LINC).

As the migration/conversion strategy develops, it is important to get complete involvement by the prospect so that he will acquire a better understanding of the direction Burroughs is planning. This closer relationship allows the Marketing Representative to observe how each suggested approach is being accepted by the prospect so that, if necessary, a shift in strategy can be made.

In summary, selling a migration/conversion can be accomplished if the Marketing Representative shows his prospect that the advantage of converting to the New Burroughs System far outweighs the problems of a migration/conversion, and that, Burroughs has an excellent track record in past migrations/conversions.

We have the tools and the expertise to assist in the migration/conversion. He will get this same experienced help, when the time comes to implement and manage his migration/conversion.

CONVERSION TRAUMA IN THE COMPETITIVE MARKETPLACE

To successfully penetrate the competitive market, one of the key questions a salesperson has to address with the prospect is that of conversion. You should not allow your prospect to become preoccupied with conversion. It is merely a means to an end, the process the user must go through to gain the benefits of the identified target system; and, in particular, MCP, DMS II, etc. Naturally, it must be considered in the cost justification calculations, and you may have to overcome some unreasonable fears and prejudices. However, if the prospect is well qualified and your solution sufficiently attractive, convert he must.

Typically, conversion becomes an emotional issue at two points in the sales cycle. At the very beginning when the prospect is attempting to evaluate whether good reasons exist for considering Burroughs, he will wish to establish that conversion is feasible. The second time is at the very end. It is common for EDP management to get "cold feet" on the subject and require further assurances. You should take this into account in your strategy possibly deferring the conclusive "proof" of convertibility to a late stage in the sales cycle. Before a user can be convinced of conversion, he has to see a detailed plan which will not involve excessive first-year costs. He will usually expect conversion support from Burroughs — and practical conversion tools.

MIGRATION/CONVERSION CANDIDATES

When analyzing conversion prospects you will find that two general groups exist:

- Prospects who either desire or are receptive to a change of vendor or system. They have already decided that a migration/conversion is acceptable, and probably have a good idea of its impact on their organization. Here the emphasis should be on how well Burroughs can support and aid the process, and how the change can be used to refine their program base and increase capabilities.
- Prospects who wish to upgrade their systems and will migrate/convert only if it is absolutely necessary to obtain this goal. Here the initial emphasis should be on countering the resistance to a change. Remind them that even if they stay with their current vendor or system, they may well have to change to grow. Show them how the migration/conversion can be accomplished with minimum disruption, and highlight the benefits they can enjoy.

It is of primary importance that you establish confidence in your prospect by meeting the migration/conversion question head on. Don't avoid the issue. Show them that you are well aware of the problems and pitfalls of a change and that they can draw upon Burroughs experience and help in accomplishing the migration/conversion.

CONVERSION STRATEGY

High system availability is absolutely essential and minimization of business disruption is an important criterion in the selection process for a computer system.

Migration/conversion from one system to another generally necessitates moving and changing the data base, data media, job streams, sort and utility streams, and in many cases, extensive source libraries of production programs. Source language libraries normally require modification and recompilation because compiler implementation differs from manufacturer to manufacturer, from system to system, or when it is to facilitate reprogramming a system into a higher level language.

It can be understood, that this change is only acceptable to a prospect if he can be assured of a smooth, and efficient transition. He, therefore, must be convinced that change need not be feared, that it is an integral part of his transition from one computer system to another, which will occur irrespective of vendor change, if the new system is to be utilized at its optimum. Your sales plan, therefore, can only be successful if it includes a solution to a prospect's migration/conversion needs from the very beginning; don't offer just a business problem solution (hardware and software) but incorporate migration/conversion as an integral part of your strategy. This complete response to a prospect's total requirements is called "System Synergy".

MIGRATION/CONVERSION APPROACHES

Key to a successful migration/conversion is a well-prepared plan. Two basic approaches can be taken. It is important that the prospect understands his role in this effort.

ONE-FOR-ONE

This approach means simple program migration-/conversion with as few changes as possible. Several advantages will result from this method:

- *It's Fast:*
  Programs are changed sequentially in a "production line" fashion, capitalizing on the increasing experience of programmers during the process.
- *Easy Checkout:*
  Parallel run of programs is facilitated, as input/-output media and methods remain unchanged.
- *No Redesign:*
  Minimal preparation is required, as program structures are not modified.
- *Easy Use of Language Translators:*
  Efficient translators should successfully provide 80% to 95% of source statement translation, with nonconverted constructs being flagged for subsequent manual modifications. As the program logic is not changed, manual modification is facilitated and a clean compile on the target system can be obtained quickly.
- *Minimal Test Time:*
  Test time requirements and clean-up actions and are not related to logical program checkouts.
- *Short Term Cost Advantage:*
  One-for-one migration/conversion as can be seen from the above discussion, should generally provide a rather fast initial transition to the new system. Thus, start-up costs are comparatively low.

In summary, one-for-one migration/conversion should be considered the preferred method for fast transition to a new system.

RESYSTEMIZATION

Using this approach, a user will redesign and rewrite systems, rather than single programs, to capitalize on new techniques and features. Some advantages of this method are:

- *More Efficient System Results:*
  Redesign of systems will take into account any particularities of the new system, resulting in most effective use of its features. Even minor program modifications can increase the efficiency of a program — thereby reducing future run times.
- *Use of New System Features:*
  Redesign is an excellent time to modify obsolete or ineffective systems, refine old processes, and incorporate desired new features. This includes the upgrading or programs written in an obsolete language. These programs must be converted someday anyway — generally the longer this is postponed, the more expensive it will be.
- *Clean Base for Future Growth:*
  Resystemization is a good opportunity to take a hard look at programs which must be modified frequently to meet changing requirements. Usually, the difficulty of making a change to a program is indirectly proportional to the number of changes that have preceded it. Streamlining or partial redesign as part of the migration/-conversion can greatly reduce the difficulty of future changes. This process, naturally, includes house-cleaning, getting rid of programs that have not been used in years.

  At the same time the whole approach to the design, development, documentation and maintenance of the program and system should be reviewed. Where necessary the standards and procedures should be changed to insure the new system provides a standardized documented foundation for future growth. A good migration/-conversion relies heavily upon good documentation and a knowledge of how the programs interact within the overall processing flow of the organization.
- *Long Term Cost Advantage:*
  The costs of the migration/conversion should be calculated over the life time of the system. Obviously, resystemization will be more time-consuming initially than a straightforward migration/conversion, and is more costly in the short term. However, when calculating the cost of resystemization, do not lose site of all the cost savings potential which can be achieved with the new system. Many companies spend in excess of 60% of their yearly data processing budget, keeping obsolete batch oriented systems in production.

Most migrations/conversions will most likely be a combination of both approaches, with emphasis on resystemization and the one-for-one method being used as a preliminary step to off-load the old system quickly, or to transport routine type programs (reports, etc.) which may not be worth resystemizing.

Whatever method is proposed, it must make both economic and technical sense to the prospect. A plan may well solve economic problems, but if the prospect is not involved heavily in the effort, he will not be able to support the new system.

Development of a plan must therefore take the following aspects into consideration:

- *Prospect Involvement:*
  The prospect should be involved in general planning. This will help you determine what ancillary benefits they hope to gain from the new system and will insure that they are aware of the scope of the job and their responsibilities.
- *Involvement of System Services' Organization:*
  Enlist the help of the System Service's manager and support center specialists, to size the effort and to develop the preliminary plan. A more detailed plan should be developed by the project manager after selection.
- *Salesperson's Personal Involvement:*
  Lastly, and most importantly, don't leave the planning phase entirely to the prospect and the systems service organization. Remember that the plan is an integral part of your sales campaign, make sure that it is developing in a manner that is consistent with your sales strategy and requirements.

Elements that should be incorporated in the plan are:

- *Definition of the Task*
  The scope of the effort must be defined. Elements of a good definition should include:
  - Number of Programs
  - Language
  - Average Size (Number of Statements)
  - Relationship with other programs (e.g., this program is part of a system)
  - File usage, organization, size (e.g., tapes in/out, disk index seq., DMS, etc.)
  - Brief description or narrative of each program/system
  - Description of any unique techniques or language extensions used.
- *Methodology* — Define the manner in which the change is to be accomplished. This definition should include at least the following areas:
  - Specific definition of responsibilities of both the customer and Burroughs
  - General timeframe
  - Description of how the migration/conversion is to be done and the tools to be used
  - Mechanics of completion/acceptance
  - Availability of resources to accomplish task (e.g., machine time, manpower, work space, etc.)
  - Description of the standards to be adhered
  - Statement of foreseeable problem areas

One major decision that will have to be made according to the needs of the specific case is which applications will be transported "as is" and which will be redesigned and rewritten. Communications applications are usually redesigned to take full advantage of the new facilities. Users often take the opportunity of a system change to redesign and improve applications which have become obsolete or inefficient. These can generally be eliminated from the project.

Infrequently used programs can be deferred until resources are available and applications which will be redesigned later can be run temporarily in their original form without the need for extensive redesign.

CONVERSION SUPPORT

To assist field marketing with a conversion, the software services organization has staffed itself with highly experienced technical personnel.

This group has established a system conversion plan with the principal objectives of increasing new system orders and to ensure successful implementation of migration/conversion projects.

PRESALES

As stated, migration/conversion can be approached on a "one for one" basis, a "resystemization" basis or some combination of both. Choosing the correct approach can be fundamental not only to winning the order but also ensuring a successful implementation. Investigation needs to be done into competitive offerings, an assessment of programs of data to be converted, hardware options, software options, performance requirements and available resources. These tasks can collectively be referred to as "SIZING".

The extensive technical experience of the system services group makes them ideally suited to accomplish the key task of "SIZING". The accurate and professional sizing of a conversion workload will allow Burroughs to treat a conversion in an anticipatory rather than reactionary fashion. It is important to convey to the customer that Burroughs has the experience and clearly understands the business of migration/conversion. The software services group can also participate in the actual preparation of proposals, make presentations and eventually participate in the conversion.

It is to be expected that the utilization of personnel from the software services group will convey the impression of Burroughs thorough understanding and scientific approach to migration/conversion which will instill confidence in the prospect during the period when he is most likely to be in need of it.

POST SALES

Migration/conversion projects can be expected to contain all the problems implicit in other implementation projects. For this reason, it is essential that during the start-up phase of the project all technical, managerial and scheduling problems are quickly and properly addressed. To insure a successful implementation, sufficient standard check points and procedures should be established and closely monitored throughout the project.

Based on the results of the sizing exercise, we should be aware in gross terms of the work to be achieved. At this stage it will be necessary to identify a detailed plan for all aspects of the project and assign responsibility to the people.

If this function is performed properly and professionally, the project will be ensured success; realistic, detailed and accurate planning is the foundation upon which projects can be completed on time, within costs budgeted and to the satisfaction of the customer's technical expectations. It is important that local project managment be involved from the start and have complete understanding as it will become their responsibility to implement the plan.

The best planned projects do on occasions for some reason go out of control and fail to meet their implementation milestones. Unfortunately the same is true for migration/conversion projects. When this occurs, the customer can expect support from the software services group to assist in identifying the reasons for deviation, recommended remedial action, and if necessary, stay with the project until the project returns to a controlled environment.

USE OF THE SYSTEM SERVICES GROUP

Services of the group are on a fee basis. If you require support in migration/conversion, you should request this via your system service's manager.

BENEFITS OF MIGRATION/CONVERSION

Migration/conversion is a major cost factor that has to be considered in an investment justification. Show your prospect that Burroughs is well aware of this fact, and that you are prepared to discuss this subject intelligently.

Even though Hardware and communication costs continue to decrease, personnel and the associated cost of data processing continue to increase. Since personnel and associated costs represent the major portion of data processing expenditures today, the net effect is that total EDP costs continue to rise. A prospect will, therefore, only consider migration/-conversion if his (new) EDP expenditure will provide him with a proper return on investment.

Burroughs' systems derive their economic advantage in two basic ways:

- Time savings
- Outstanding system performance.

Time savings for the data processing staff is accomplished by providing productivity aids such as an easy to use yet powerful operating system, a data base management system and effective language compilers with complete diagnostics to speed up programming, debugging and interactive program development. Burroughs has been providing environmental software for many years which addresses the issue of programmer productivity.

Superior equipment performance, the second basic element of savings, results in a reduced cost of hardware necessary to accomplish a given workload. All system resources, which includes memory, and the various peripheral devices are controlled dynamically by the MCP. Through dynamic allocation of resources, the need for physical devices is reduced, lowering the hardware costs for Burroughs' systems.

The cost of not converting will vary with each customer's situation but there is a cost associated with it.

- *Cost to maintain obsolete programs:*
  The more difficult task of maintaining programs written in an unsupported or low level language causes increased maintenance expenses that could be eliminated if the program library was converted to a high level programming language like LINC.

  Continued training in former language syntax and debugging tools is a cost item which could be eliminated by changing to a higher programming language. This cost may become apparent when new staff must be hired who do not have current experience in a now obsolete program language.
- *Cost of running programs designed for prior hardware:*
  Computer programs are frequently designed for the specific machine they were written for. Consequently the efficiency of those programs on new systems is reduced.

B 1000 MIGRATION TOOLS

To ease the process of migration, Burroughs has available a wide range of automated aids for both programs and data files. Tools, where they are required, exist for most functions and cover all the commonly used programming languages.

B 1000 CONVERSION ASSISTANCE PACKAGE (ON-LINE CONTROLLER)

On-line controller is designed to include software to assist in the entire migration process.

It is available now and incorporates both existing well-tested migration/conversion tools and new developments which will maximize the level of automation and add project planning and control facilities to the process.

The source code and data files of the systems to be converted will be input to on-line controller along with simple parameters indicating the source and target. Systems syntax will then automatically invoke the appropriate translation. Ancillary information (such as the degree of difficulty of programs) will be collected to assist in estimating manpower and resource requirements. Automatic scheduling is optional.

The whole on-line controller philosophy is modular in that a user can either choose the automated approach or only specific functions which are required.

In summary, the Burroughs on-line controller package is planned to include software to assist the entire migration/conversion process. There are several well-proven components available.

DATA MANAGEMENT TRANSFER

Product Description:

This product solves the problems of converting a B 1000 Database to a B 5/6/7000. It will generate programs to dump data from the B 1000 and load the data on a B 5/6/7000 and A Series Systems.

Host System — B 5/6/7000

FILE TRANSFER UTILITIES

Product Description:

This product provides a method of transferring library tapes between the B 1000 and B 5/6/7000 and A Series Systems. B 1000COPY loads B 1000 library tapes on a B 5/6/7000 system and B 6000COPY loads B 5/6/7000 library tapes on a B 1000 system.

MIGRATION GUIDE

Product Description:

A comprehensive document that provides necessary information to plan and perform a successful conversion. The major topics included are:

- Language Translations
- Data Base and File Translations
- Data Communication Translation

COBOL TRANSLATION

Product Description:

This product filters and translates B 1000 COBOL68 to B 5/6/7000 and "A" Series COBOL74. The overall effectivity of translation is approximately 90 percent.

Host System — B 1000, B 5/6/7000 and "A" Series

RPG TRANSLATION

Product Description:

This product will filter and translate B 1000 RPG to B 5/6/7000 and "A" Series RPG. The overall effectivity of translation is approximately 90 percent.

Host Systems — B 1000, B 5/6/7000 and "A" Series

DATA COMM TRANSLATION (GEMCOS INTERFACE)

Product Description:

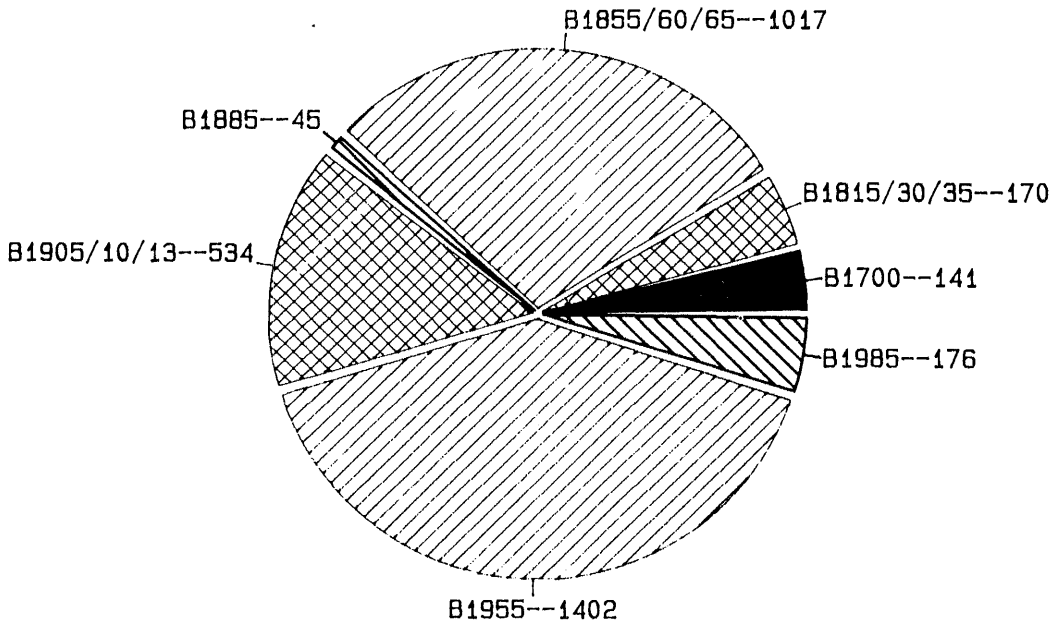
The product will translate data communication constructs found in both B 1000 COBOL68 and COBOL74 to B 5/6/7000 and "A" Series COBOL74 format. The overall translation effectivity is 70-80 percent.

Host Systems — B 1000, B 5/6/7000 and "A" Series

A FINAL WORD ABOUT MIGRATION/CONVERSION

Don't let the migration/conversion question get blown up out of proportion in a marketing situation. With proper preparation, it becomes a normal part of your marketing plan. Sell the BENEFITS of growing with a Burroughs system.

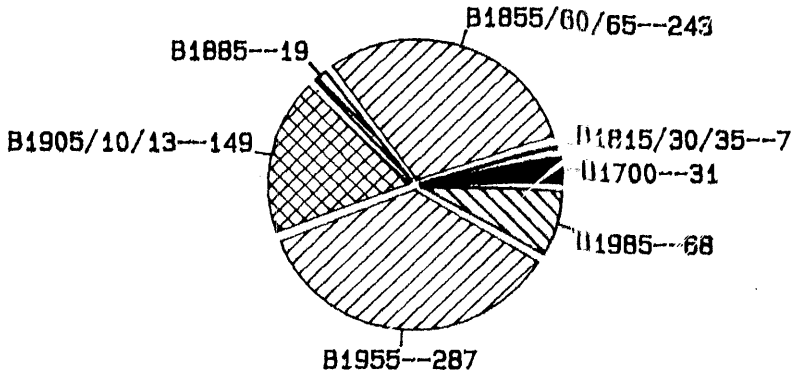
SURVEY OF BMG B1000 USER BASE



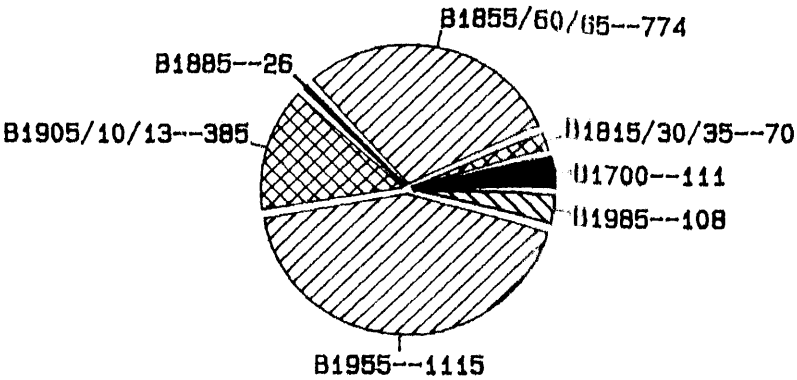
B1000 USER BASE

Produced using Graphwriter on the ET2000

BMG B1000 LEASE V. PURCHASE



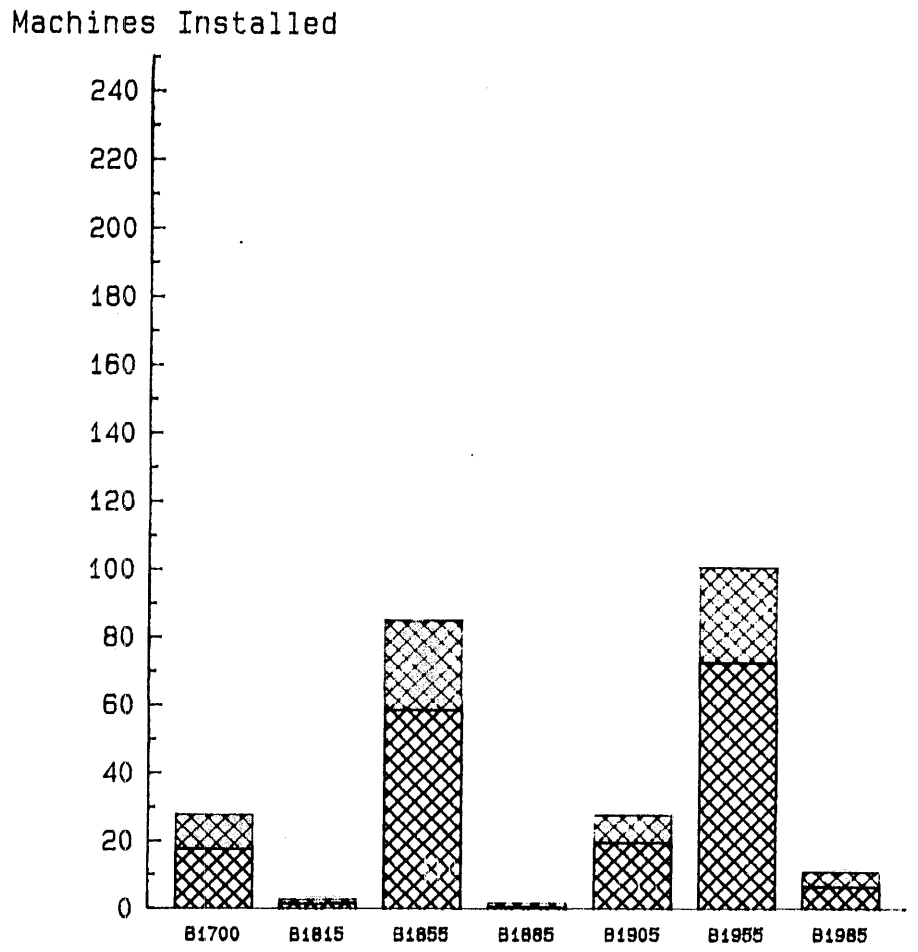
B1000 LEASE BASE



B1000 PURCHASE BASE

Produced using Graphwriter on the ET2000

NORTH EAST REGION B1000 USER BASE

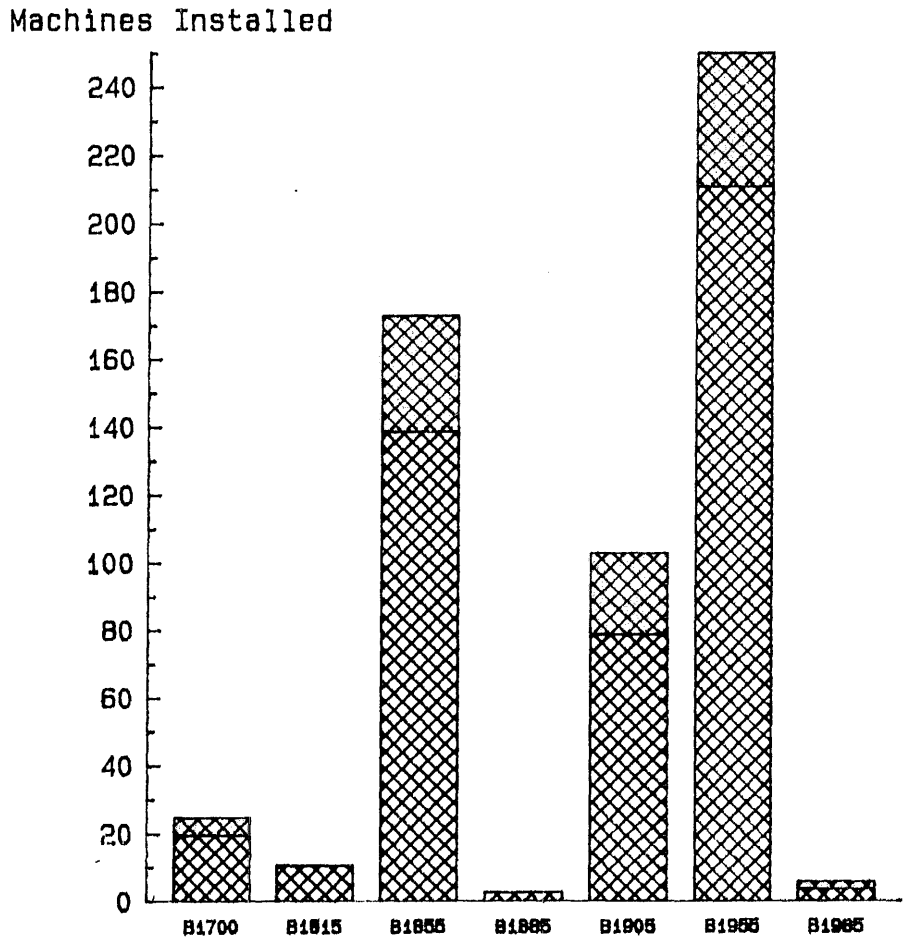


B1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

SOUTH EAST REGION B1000 USER BASE

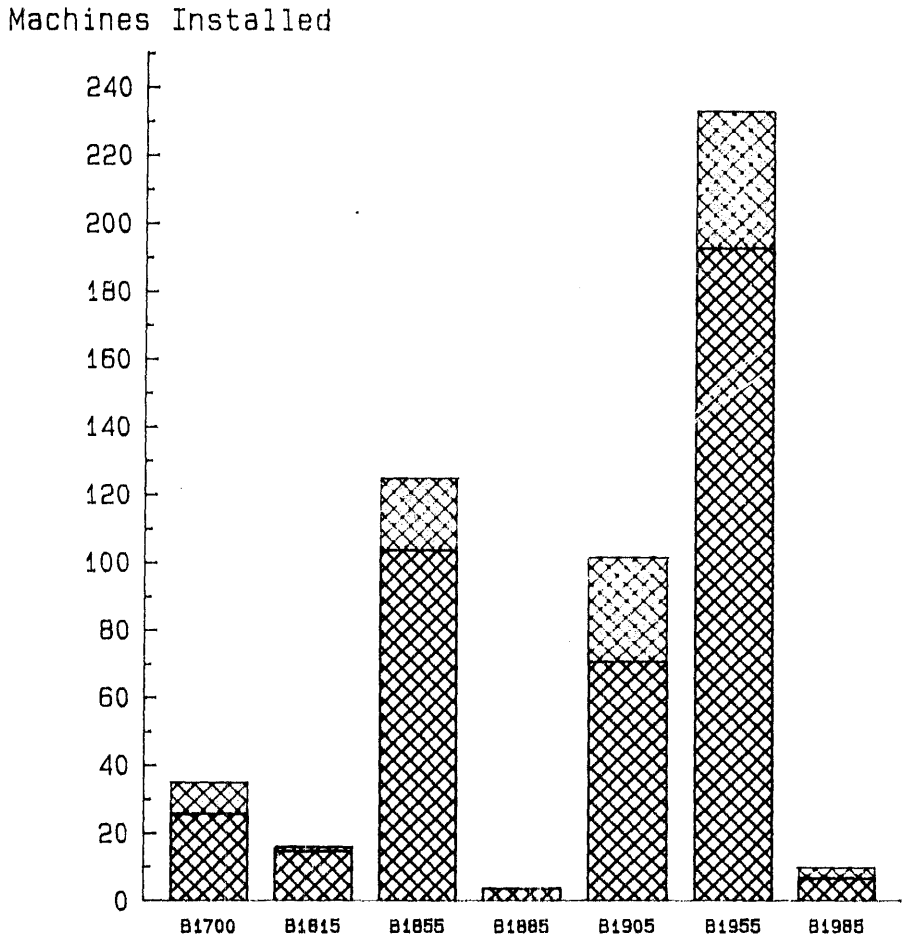


B1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

EASTERN REGION B1000 USER BASE

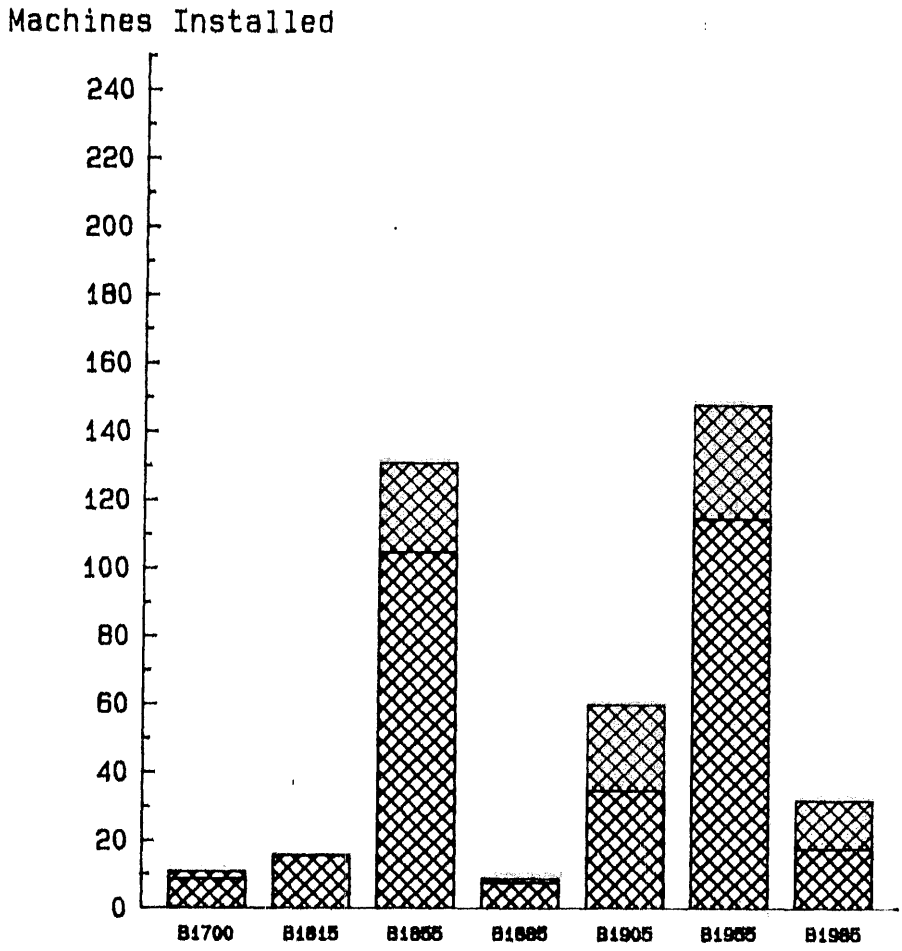


B1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

CENTRAL REGION B1000 USER BASE

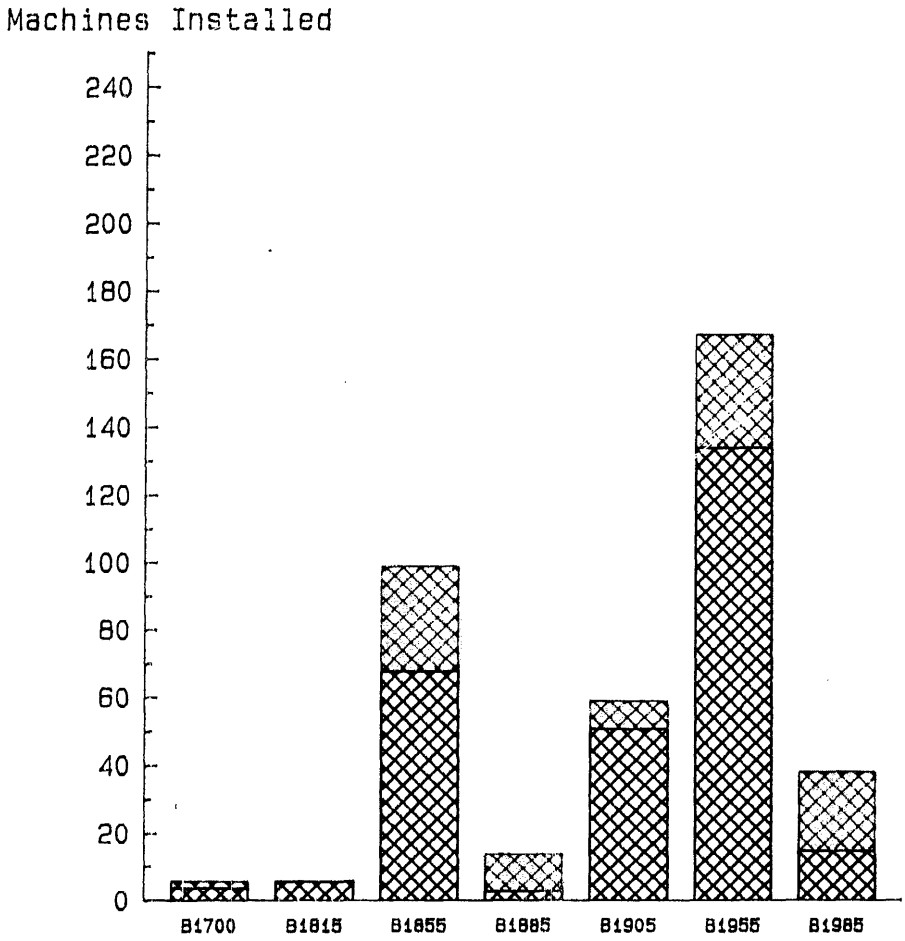


B1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

NORTH CENTRAL REGION B1000 USER BASE

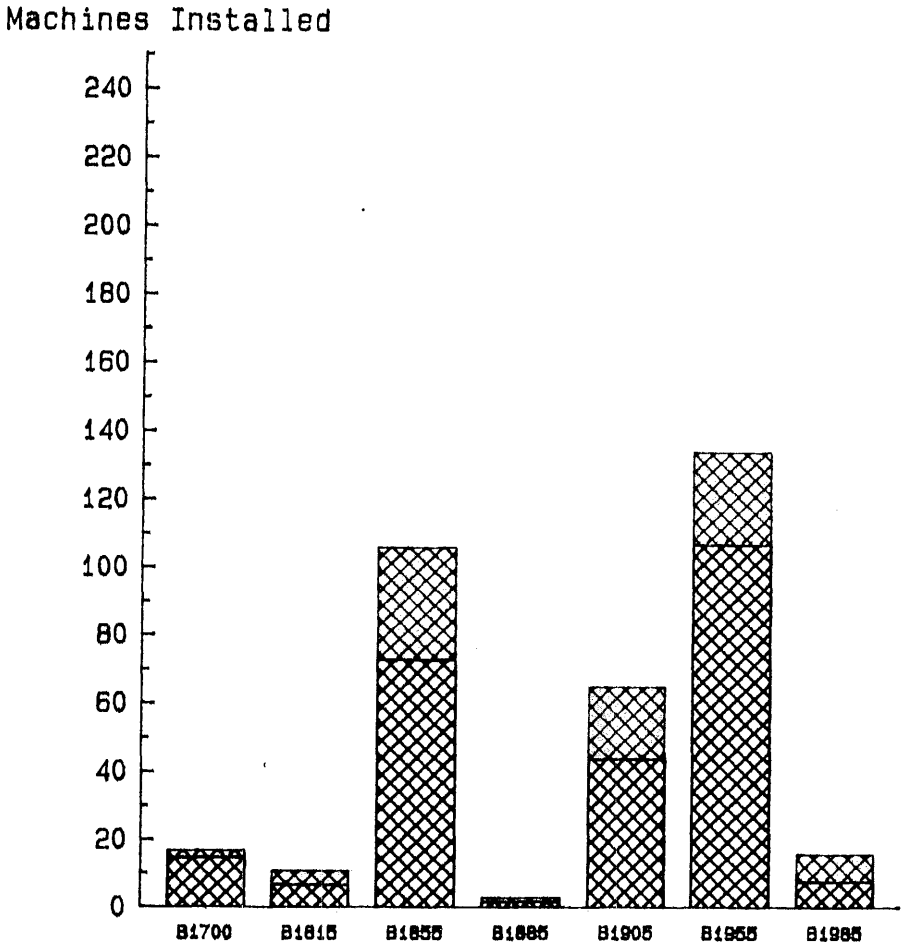


B1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

MIDWEST REGION B 1000 USER BASE

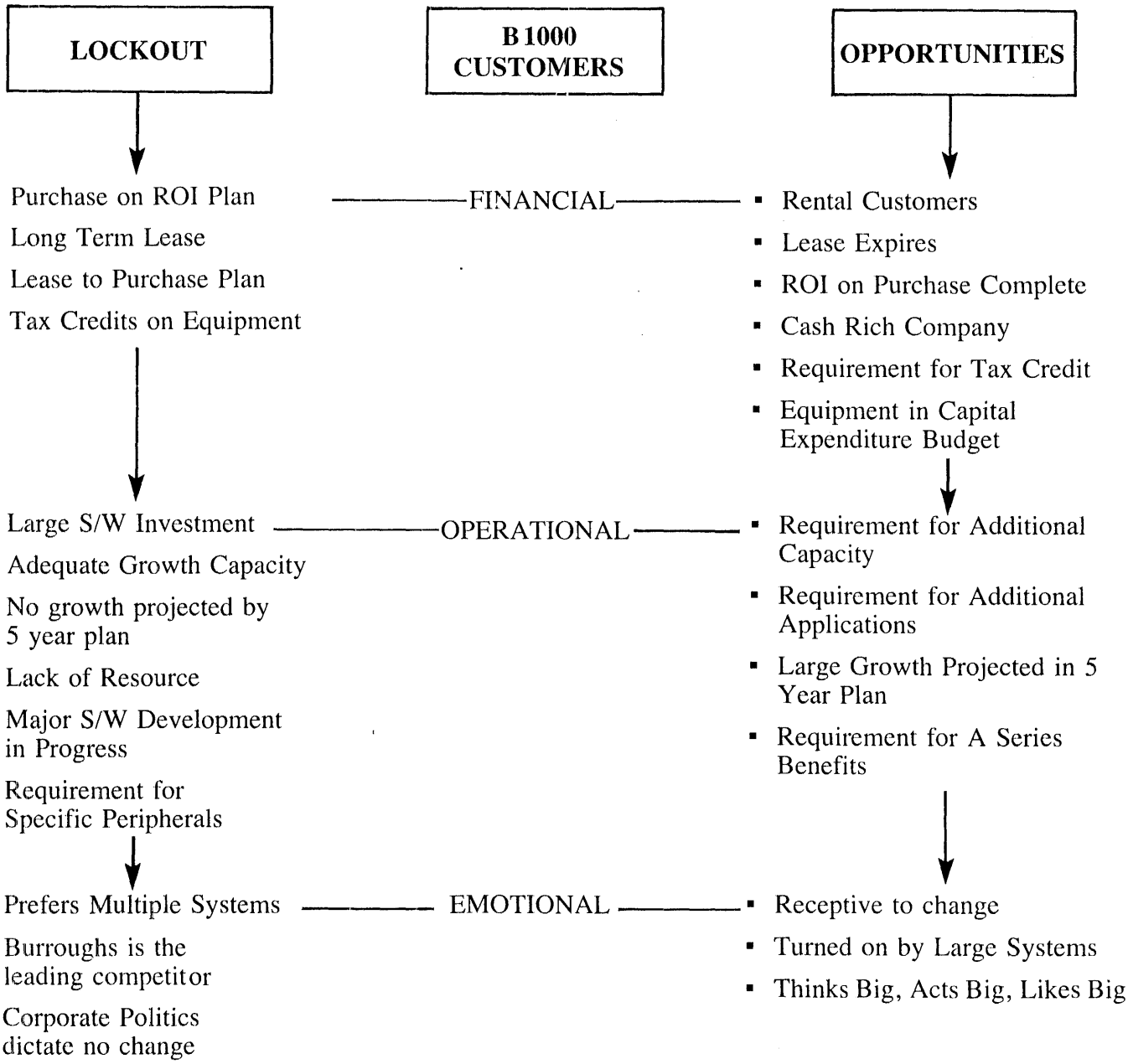


B 1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

B1000 MIGRATION OPPORTUNITIES



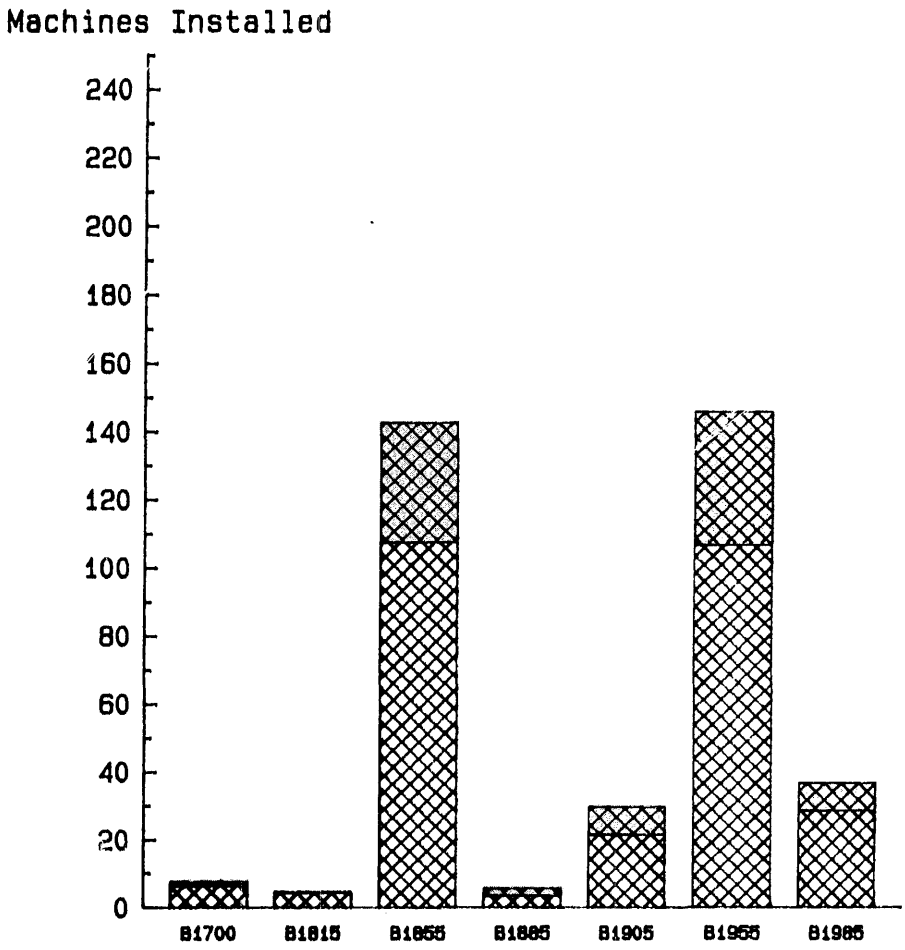
B 1000 GENERAL BUSINESS SYSTEMS

Burroughs Computer System Strategy is that the B 1000 User who requires a machine performance of RPI 35 or above should migrate to Burroughs "A" Series or B 5900 System.

The survey of the B 1000 User Base shows that there are considerable B 1800 users with 1/2MB or 1MB of memory and a large number of small B 1900 users who can gain considerable performance and capacity growth from within the B 1000 Family of Systems by upgrading to a B 1990 System.

The Migration Opportunities and Migration Guide Charts show areas to investigate and some proposed machine options you should consider when preparing your E.D.P. plan for your prospect. A list of the migration products with a short statement of the capabilities and/or limitations of each is also included. Check with the System Services Group to determine the current support details and status.

WESTERN REGION B 1000 USER BASE

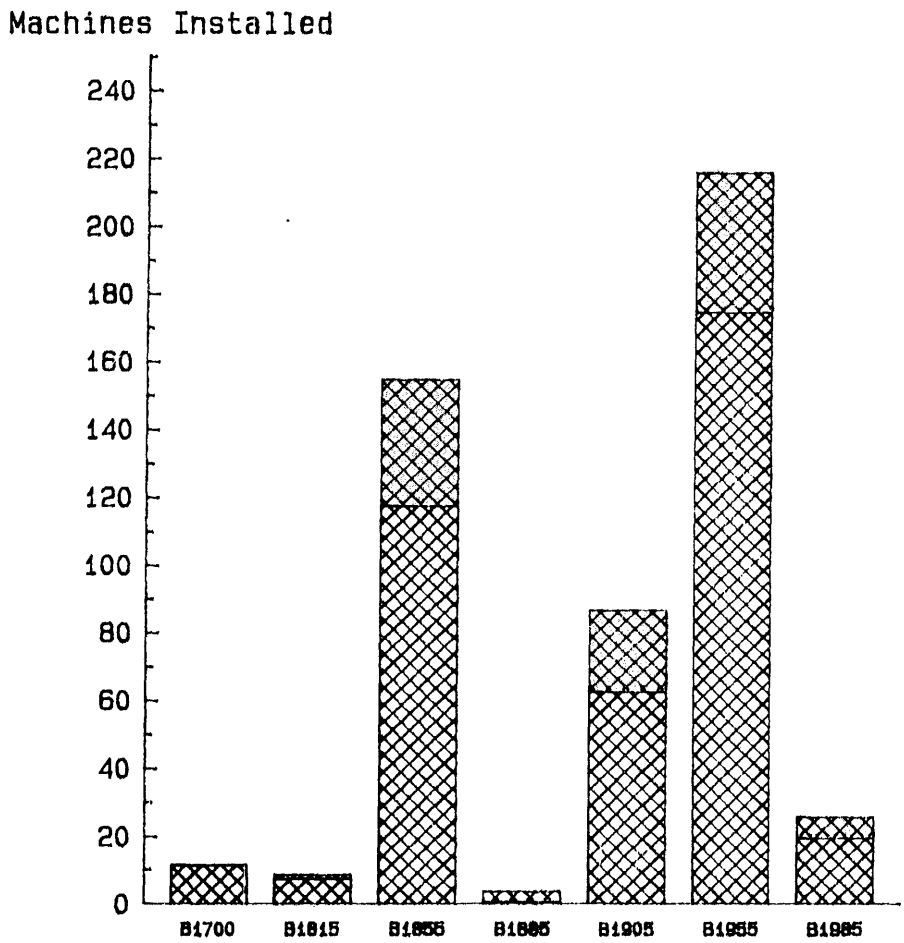


B 1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

SOUTH WEST REGION B1000 USER BASE



B1000 SYSTEMS

LEGEND: *LEASE* *PURCHASE*

Produced using Graphwriter on the ET2000

B 1000 MIGRATION GUIDE

Installed Machine	Target Machine	Benefits and Opportunities
B 1700	B 1990 S	Sell benefits of B 1900 System. Cache Memory New Software. Increased Data Comm. Reliability — lower cost M.A. Areas to investigate — Why is B 1700 still installed Why no growth of applications
B 1815/30/35 B 1905/10/15	B 1990 SP/DP	Sell greater capacity-B 1990 Benefits Increased memory-larger Data Comm. capability. Sell processor upgrade and retain some peripherals.
	B 5919	Propose where major growth in capacity required.
B 1865/55 B 1955	B 1990D	Sell benefits of B 1990 Systems-Sell greater capacity-no problem upgrade. Sell processor retain some peripherals This provides short term solution.
	Additional B 1990 S/D	Multiple systems allows some failsoft for critical applications. Areas to address-Requirement to split work over two machines. Greater operator involvement/control. Greater environmental impact. Increase-maintenance cost. Limited growth capacity.
	B 5919	Sell benefits of Burroughs 'A' Series. Sell the last migration-Sell ease of use software — sell unlimited growth. Retain some B 1000 peripherals-Use soft services to provide requirements definitions service.
B 1885 B 1985	B 5919/B 5985/A9	Sell benefits of Burroughs 'A' Series. Sell the last migration, ease of use, advanced software features, greater capacity. Develop medium term business plan with customer-use soft services help-agree projected workload before hardware proposal.

SPECIFIC MIGRATION/CONVERSION ENVIRONMENTS

This section gives additional details of specific migration/conversions. It will be expanded and updated in the future.

B 1000 FINANCIAL/READER SORTER SYSTEMS

PRIMARY SYSTEM

Burroughs Computer System Strategy is that the B 1000 Financial and/or Reader Sorter Users who require a machine performance of RPI 35 or above should migrate to Burroughs B 2/3/4000 Series Systems. Encouragement should be given to users to develop new applications, convert and re-systemize old applications around the DMS II, Data Management System, implement proven application software packages and in some cases, use the B 1000 System as a development system, i.e. LINC.

You should capitalize on the fact that Burroughs has the best approach for your customer because only Burroughs knows both the installed B 1000 system and the proposed B 2/3/4000 system.

OPTIONS

Certain B 1000 financial users should be encouraged to grow to the B 5/6/7000 or "A" Series of systems while retaining the B 1000 system for document processing. Inter-system communication can be accomplished via data communications or magnetic tape. The implementation of proven DMS II based applications software should be emphasized.

Again you should capitalize on the fact that Burroughs has the best approach for your customer because only Burroughs knows both the installed B 1000 system and the A Series system being proposed.

It is difficult to quantify the cost for inefficient use of a computer system but it remains a real cost item until migration is completed.

The biggest cost of not migrating that must be considered is the cost of a lost opportunity to increase the return on EDP investment. Once the EDP budget is spent, and much of it is spent in duplicate costs that could be eliminated, the money cannot be spent in developing the new system. This means less advantages gained from the new system and consequently, less return on investment. The cost of lost opportunity is probably one of the greatest costs by not making the necessary migration/conversion.

A migration/conversion to a Burroughs system on the other hand, does not only reduce the cost of data processing and in turn increase the return on investment, but it also reduces the cost of EDP change.

A migration/conversion to a Burroughs system eliminates the need for future change to different operating systems and protects the user's investment. The compatibility between all members of the B 5/6/7000 and "A" Series provided by Burroughs will certainly pay dividends in future years.

Can you think of a stronger argument to support our long-term marketing strategy?

System Services

Burroughs

WORLDWIDE MARKETING

SOFTWARE PRODUCTS AND SERVICES
B 1000 MIGRATION SUPPORT STRATEGY

The Software Products and Services organization, in support of the B 1000 migration marketing program, will provide under contract an extensive range of specialized services designed and developed specifically for the B 1000 migration program. These services, encompassing the areas of education, migration requirements definition, migration tools, programming and systems consulting all contribute to the professional presentation that the Burroughs marketing organization is able to make to its prospects.

One of the major new support services offered is the **B 1000 Migration Requirements Definition Service.** This service is critical to any successful migration, and should be highlighted in all B 1000 migration proposals. No customer should begin a migration effort without a comprehensive understanding of the tasks involved. This service is the cornerstone for all the support services the customer may need, assuring a visibility with the customer and enabling you to structure your Software Services marketing efforts to meet the needs of your customer.

SERVICES OFFERED

The Software Products and Services support strategy has been developed in concert with the marketing program and specifically addresses the marketing needs. The services which are specifically designed for B 1000 migration include the following:

- Requirements Definition Service
- Education Service
- Remote Processing Service
- Migration Service

Requirements Definition Service

This service is available to provide customers with a comprehensive plan for taking their existing programs to their new host system. We use a proven methodology to identify the tasks that will need to be done and establish an on-going plan. Our study will provide a quantitative analysis for each task including time and manpower required. A written report will be given to the customer that addresses these critical issues:

- What approach will be used to move from their existing system to the new system
- An overview of all Application Systems currently being utilized
- An analysis of the Data Communications requirements
- An analysis of the Data Base requirements
- A review of the migration staffing requirements
- Identification of the training requirements
- Specification of the System Software which will be utilized.

Education Service

Education service for the B 1000 migration customer is provided at our customer education centers or may be held on the customers premises or other convenient location. In addition to the standard courses, software and operations courses designed specifically for the B 1000 migration customers are available:

- Managing the Migration
- Overview of Migration Software
- Use of Migration Software

- B 1000 to B 5000/B 6000/B 7000/ A9 Enhancements
- B 1000 to B 5000/B 6000/B 7000/ A9 Operations
- 3.5 Software Release Seminar

Remote Processing Service (Block or Shared Time)

Remote Processing Service is available to customers for program development prior to the delivery of their system. Customers can compile and test their application programs on the target system without leaving their installation. This provides customers with management control over the migration of their program library and eliminates expenses involved in traveling to another facility.

To help meet customer's processing needs, we will offer both exclusive and shared time on many Burroughs systems at local Burroughs offices.

Migration Service

Migration Aids are available for customers for "Moving" source code and data files from a B 1000 system to another Burroughs system. With these aids customers will be able to accomplish the migration with their personnel. If the need arises, Software Services may provide a service to assist in the migration of application systems to the target system. This service would consist of filtering and recompiling the customer's source programs for an individual application system, moving the data files to the target system and returning them to the customer to test these programs on the target system. If necessary, Software Services may provide this service for one application system or all of the customer application systems.

If a customer wishes, Software Services can also act as a consultant during the migration period.

ADDITIONAL SERVICES OFFERED

In addition to the services specifically designed to assist in the B 1000 migration effort, when the migration has been completed, the following are other services which may be desired on the new host system.

- Installation Planning Service
- Environmental Consulting Service
- Application Consulting Service
- Application Software Modification Service
- Customer Training Service
- On-site Retainer Service
- Data Communication Technical Service
- System Performance Service

Installation Planning Service

Under these services, we will conduct installation planning sessions for the target system. Sessions are available to customers to cover such topics as backup procedures, software security features, data communications, system software operational considerations and advanced DMS II.

Productivity Software Consultng Service

Under this service, we will implement all or specific portions of Burroughs program products. This includes development of a project installation plan, program installation and testing of systems utilizing Data Management System, Generalized Message Control System, Network Definition Language or other productivity software.

Application Consulting Service

We will provide system analysis, design, programming, testing and operating documentation for the purpose of developing or recommending a solution to your customer's specific application needs.

COURSE:

MANAGING THE MIGRATION

WHO SHOULD ATTEND:

MANAGEMENT

LENGTH:

5 DAYS

OBJECTIVE: TO PROVIDE SKILLS NECESSARY FOR PROJECT MANAGEMENT AND ABILITY TO DEFINE THE MIGRATION REQUIREMENTS.

TOPICS:

MIGRATION LIFE CYCLE:

A. Requirements Definition. (Concepts, Design, Development, Documentation, Implementation).

B. Scope of Migration (Languages, DMS, GEMCOS, No. of Programs, etc.)

C. Physical Environment Considerations.

D. Definition of Responsibilties. (Customer, Outside Vendors)

E. Migration Timeframe and Other Interdependencies.

MANAGEMENT CONSIDERATIONS:

A. Project Management Techniques.

B. Skill Requirements Determination.

C. Vendor Participation.

D. Task Scheduling.

E. Time Estimation.

F. Monitoring and Controlling Project Expenses.

G. Project Progress Reviews. (Deliverable, Acceptance, Signoff)

H. Secondary Resources.

Application development may be done via traditional design and coding methods or by using Burroughs new application generator, LINC.

Application Software Modification Service

Under this service, we will provide analysis and programming resources to modify any licensed Burroughs Application Program Product to meet the specified requirements.

Customer Training Service

After attending formal training on a program product, we will provide additional experience in working with the new programs. The purpose of this hands-on experience is to expand the understanding of the product, to set up new files, or to help make the conversion from a prior system.

On-site Retainer Service

This service is provided for those customers whose own technical staff is lacking in one or more areas of expertise and who is seeking outside assistance to provide these skills. The plan provides on-site support for a prescribed number of days per month, for a period of one year at specially reduced rates.

Data Communication Technical Service (DCTS)

Offers customers a comprehensive source for networking-related professional services. Such services include:

- Analyzing present networks and recommending ways to improve their efficiency.
- Custom programming to meet programming needs.
- Network consulting services to help customers investigate and plan for the connection of Burroughs equipment to that of other manufacturers.
- Evaluating the kinds of network equipment that can be integrated into a customer's system.
- Servicing and supporting Burroughs CP9500 and CP3680 communications processors.
- Designing and implementing Burroughs based networks.

System Performance Consulting Service

When a customer has completed the migration to the target system and implemented their application systems, this service will measure the performance of all or any portion of the data processing system, provide documented results, and make recommendations for improvements or enhancements.

Education Services

Burroughs

WORLDWIDE MARKETING

SOFTWARE EDUCATION SERVICES PLAN
B1000 TO B5/6/7000 OR "A" SERIES

Proper education is a fundamental element in a successful installation and a B 1000 user contemplating migrating to the B 5/6/7000 or "A" Series is no exception. To assist our B 1000 users in accomplishing this task with the least amount of impact on their current operations, a series of educational seminars for both management and operational personnel have been developed to cover all phases of the migration. Not only will these seminars help the users understand the steps required for the migration but will also allow the users to become self supporting much sooner.

These seminars are designed to complement the software services migration plan and will be ready for customer presentations around mid June.

These seminars were developed assuming a fully trained B 1000 person with the following objectives.

- Provide training for the data processing management in the job skills needed to accomplish a migration.
- Provide training for the data processing management in product information necessary to manage their personnel during the migration.
- Train the programmers and support personnel in the differences between their current system and the new system requirements.
- Provide courses at customer education centers and/or customer's site.
- Allow customers to select training required based upon:
  - Skill level of present personnel.
  - Scope and type of migration dictated by their particular environment and volumes.

COURSE:

MIGRATION SOFTWARE OVERVIEW

WHO SHOULD ATTEND:

MANAGEMENT

LENGTH:

1 DAY

OBJECTIVE: TO PROVIDE SKILLS NECESSARY TO ASSESS THE CAPABILITIES OF THE SOFTWARE PRODUCTS.

TOPICS:

1. Overview of Software Aids..
2. On-line Translation Controller.
3. Data Base Transfer.
4. Languages.
5. File Transfer Utilities.
6. Conversion Guide.

COURSE:

MIGRATION SOFTWARE USAGE

WHO SHOULD ATTEND:

PROGRAMMERS AND SUPPORT PERSONNEL

LENGTH:

LECTURE — 3 DAYS; WORKSHOP — 4 DAYS;
COURSE IS TAILORED TO THE CUSTOMER'S NEEDS.

OBJECTIVE: TO PROVIDE SKILLS NECESSARY TO MIGRATE EXISTING B1000 SOFTWARE TO B5000/B6000/B7000/A9 COMPATIBLE SOFTWARE.

TOPICS:

1. Overview of Software Aids..
2. On-line Translation Controller.
3. Data Base Transfer.
4. Languages.
5. File Transfer Utilities.
6. Conversion Guide.
7. Languages: COBOL 68 to 74, COBOL 74 to 74, RPG to RPG, GEMCOS.
8. File Transfer Utilities: B1000 Copy, B6000 Copy
9. CANDE.
10. Additional Migration Software Techniques.

COURSE:

B 1000 TO B 5/6/7000 "A" SERIES SOFTWARE EXTENSIONS

WHO SHOULD ATTEND:

PROGRAMMERS AND SUPPORT PERSONNEL

LENGTH:

EACH TOPIC IS 1 OR 2 DAYS LONG. CUSTOMER'S SELECT THE TOPICS APPLICABLE TO THEIR SITE.

NOTE: AS NDL II IS A UNIQUE PRODUCT; A STANDARD COURSE SHOULD BE RECOMMENDED.

OBJECTIVE: TO PROVIDE THE SKILLS NECESSARY TO IMPLEMENT THE MIGRATED SOFTWARE FROM A B 1000 INSTALLATION TO A B 5000/B 6000/B 7000 OR A9 SYSTEM, IN THE MINIMUM TRAINING TIME POSSIBLE.

TOPICS:

1. Workflow Management.
2. CANDE.
3. DMS II.
4. Utilities.
5. LINC.
6. COBOL Extensions.

COURSE:

B 1000 TO B 5/6/7000 "A" SERIES OPERATIONS

WHO SHOULD ATTEND:

OPERATIONS

LENGTH:

LECTURE/WORKSHOP. 2 DAYS.

OBJECTIVE: TO PROVIDE SKILLS FOR FULLY TRAINED B 1000 OPERATOR TO OPERATE A B 5000/B 6000/B 7000 OR A9 SYSTEM.

TOPICS:

1. Operational Concepts.
2. Utilities.
3. Workflow.
4. Display Terminal Interface.
5. System Functions.

COURSE:

INTERPRO RELEASE

"InterPro" RELEASE

WHO SHOULD ATTEND:

DP MANAGEMENT AND SUPPORT PERSONNEL.

LENGTH:

LECTURE. 2 DAYS.

OBJECTIVE: TO PROVIDE SKILLS NECESSARY TO APPRECIATE NEW PRODUCTS AND FEATURES AVAILABLE IN MARK III 5.0 RELEASE.

TOPICS:

MARK III 5.0 Enhancements

New Features to Include:

1. Advanced Data Dictionary.
2. COMS. (Replacement for GEMCOS.)
3. Interactive Data Communications.
4. Screen Design Facility.
5. MARC.

EDP Plan

Burroughs

WORLDWIDE MARKETING

EDP PLAN

THE CHALLENGE

While technology is available to solve virtually every business information processing need, the path to system selection is a very difficult one. Hundreds of hardware and software vendors offer systems of all capabilities and sizes. Each promising that their system is "User Friendly" and satisfies all information processing requirements.

With so many conflicting alternatives, business executives are often confused and end up delegating the responsibility to the data processing department out of frustration. To get and keep senior management involved, a methodology to provide a systematic and business oriented approach for the development of a comprehensive, documented EDP plan is essential.

WHAT IS AN EDP PLAN?

Simply stated an EDP plan is the process of properly defining a prospects needs, identifying the right configuration, and controlling the implementation and installation of the solution.

EDP PLAN METHODOLOGY

The EDP plan systematically defines all of the key elements that constitutes a "total system solution" so that no important aspect is overlooked.

The EDP plan provides comprehensive documented output that allows business management and you to see the conclusions of the study and to recheck and validate their thinking. In addition, it prevents later disagreements with prospects over system evaluation criteria and the functions that the system is expected to provide, the schedule for implementation, staffing, and education requirements.

ANALYZING BUSINESS REQUIREMENTS

The goal of a successful marketing effort is to satisfy the user's business requirements better than any other vendor. Proper analysis and documentation of those requirements is vitally important. It is the foundation upon which we will build the solution.

GETTING STARTED

The analysis can best be carried out through a series of discrete steps. Prior to carrying out these steps, there are certain review and coordination procedures which you should establish.

Many of the problems associated with data processing arise from the lack of communication between the users of the services and the people responsible for the management of the data processing functions. It is important that you involve both parties in the study at the very beginning. You can do this by forming a study review team comprised of three representatives, one representing manufacturing, education, etc., one representing financial/business needs, and one from the data processing department, plus Burroughs personnel, who would meet two or three times during the study.

This approach is necessary to ensure that detailed knowledge of the organizations' needs and characteristics are taken into consideration while carrying out the analysis. You should also have one representative appointed as principal liaison with the study team to ensure continuity and to facilitate communication throughout the course of the study.

After establishing the study, review, and coordination procedures, you are ready to carry out the major steps to developing an EDP plan.

STEP I

DEVELOP A THOROUGH UNDERSTANDING OF THE ORGANIZATION/COMPANY AND ITS DATA PROCESSING DEPARTMENT

This step involves a brief but intensive orientation to familiarize yourself with the organization/company in general and the data processing department in particular.

- Develop an overall understanding of the organization/company in terms of its size, organization, operating policies and other characteristics such as growth, future planning, etc.
- Review the objectives and history of the data processing department with particular reference to the build-up of equipment and personnel, the applications currently being performed, and plans for future applications.
- Review current procedures in data processing for monitoring machine and manpower utilization and planning new applications.

This orientation is a vital first step for getting a "feel" for the current situation at the organization/company, and it will provide you with a sound foundation for carrying out your analysis.

STEP 2

DEVELOP A LIST OF POTENTIAL COMPUTER APPLICATIONS

The objective of this step is to develop a list of potential computer applications without regard to the equipment on which they might be run. In carrying out this step, you would review current non-mechanized systems with a view to determining which ones would lend themselves to computer processing. Particular attention would be paid to business applications (such as financial accounting, inventory control, student scheduling, and marketing data payroll, etc.). You would also analyze current computerized systems to determine if they could be expanded to include other related applications. As part of this step, you would plan to review applications that have been implemented successfully in other organizations.

STEP 3

IDENTIFY AN ARRAY OF LOGICAL COMPUTER CONFIGURATIONS

This step you would identify different computer and software configurations that potentially would meet the organization requirements and which would appear to be practical alternatives to potential applications.

The key to developing a meaningful list of possible configurations is to be practical and open minded. Within budget constraints, there will certainly be alternatives available.

There is no necessity to assume that all applications must be on one system. It is entirely possible that a combination of one or more systems and intelligent workstations may offer an optimum configuration from a cost/benefit viewpoint and still meet the special requirements of the organization/company.

STEP 4

DETERMINE RECOMMENDED CONFIGURATION

In this step the lists of possible applications and configurations, together with your knowledge of the organization/company's particular needs, will be used to determine the optimum configuration. The major work in this step will be to:

- Develop for each logical configuration a list of those potential applications that could be implemented and processed concurrently during normal business hours on single and/or multiple systems.
- Potential cost savings in departments other than data processing.
- Data processing staffing requirements.
- Probability of success of implementation.

You will compare each configuration and determine which is the most practical based on an evaluation of hardware, conversion and operating costs versus the usefulness of the application that could be implemented concurrently on each configuration.

Recommendation of the most practical system configuration could be made solely on economic grounds; however, this would be a mistake. The applications for which data processing equipment should be used, and hence the choice of that data processing equipment, will have to depend on a number of considerations which are essentially judgemental rather than quantitative in nature. For example, the value of applications such as budget planning and control, inventory management, etc., will require some subjective evaluation. Thus, during this important step, you should plan to work closely with your prospect's personnel to assure that the recommended configuration is fully compatible with the needs and characteristics of the organization/company.

STEP 5

DEVELOP STAFFING REQUIREMENTS AND RECOMMEND MANAGEMENT PROCEDURES FOR PLANNING AND CONTROLLING THE EDP ACTIVITY

The major work in this step will be to:

- Determine the data processing staff's needs for implementation and operation of the proposed configuration and application.
- Prepare key position descriptions showing basic responsibilities and working relationships.
- Recommend a training sequence.
- Recommend specific policies and procedures that should be followed by data processing management in controlling manpower and machine utilization, program documentation and for monitoring new applications before, during and after implementation.

STEP 6

DEVELOP GUIDELINES AND AN APPROXIMATE SCHEDULE FOR INSTALLATION OF THE NEW SYSTEM

The object of this step is to develop an overall plan for implementation of the recommended system. Specifically, this plan would outline each major step required to implement the system and indicate the approximate scheduling of manpower requirements related to programming and training of personnel.

In preparing this plan you would again work closely with your prospect's personnel to ensure understanding and agreement on time estimates and priorities.

STEP 7

PREPARE A FINAL REPORT

Concurrent with developing the staffing requirements and the action plan for the recommended configuration, you would start the preparation of a final report which would document all of your pertinent findings, conclusions and recommendations. Specifically, you would plan to include details of the recommended computer configuration, departmental staffing and applications, and also the recommended priorities and schedule for implementation. Additionally, you would set forth in your report the reasons underlying the selection of the recommended system.

You would plan to review and discuss your final report in draft form with the prospect's review team to ensure that your recommendations are clear and that underlying reasons for the recommendations and priorities are fully understood. Following this review, you would prepare your final report for presentations to senior management.

Capacity/ Performance

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CAPACITY/ PERFORMANCE

To Be Inserted Here When Released (2Q84)

Questions/ Answers

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QUESTIONS/ ANSWERS

To Be Inserted Here When Released (2Q84)