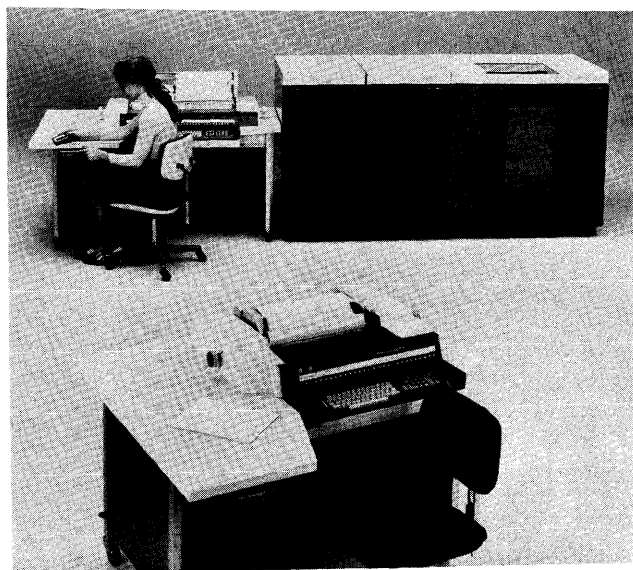


Burroughs B 700



Burroughs' new AE 301 Audit Entry Computer (foreground) can be used as an off-line data entry station to prepare cassette tape for entry into the B 700 computer system shown in the background. From left to right are the B 700 console with cassette tape subsystem, processor, dual disk cartridge drive, and line printer.

MANAGEMENT SUMMARY

The B 700 systems, released by Burroughs on March 1, 1973, fit snugly into the gap between the company's lower-priced, keyboard-oriented L 8000 Series accounting computers, announced five months earlier, and the more expensive, batch-oriented B 1700 systems announced in June 1972. First customer shipments of the B 700 are scheduled for May 1973. With typical system rentals ranging from about \$950 to \$2,600 per month, the B 700 family generally follows the B 1700's "fourth generation" concept of dynamically alterable micro-programming and employs some of its other notable architectural features, but stops short of employing the latest hardware technology; specifically, magnetic cores instead of semiconductors are used for main storage in the B 700.

As a complete system, however, the B 700 represents an excellent design compromise between the existing L 8000 and B 1700 systems. It combines the keyboard and forms handler so familiar to approximately 60,000 current users of the Burroughs L and TC Series systems with many of the general-purpose processor characteristics and the wide variety of peripheral devices found in the B 1700 and other larger Burroughs systems. In this capacity, the B 700 forms an effective "bridge" system between the two previous members of Burroughs' small-scale business computer line-up. ➤

By bridging the gap between the smaller, keyboard-oriented L 8000 and the larger, batch-oriented B 1700, the B 700 forms a logical and effective addition to Burroughs' small-scale computer lineup. It represents a happy combination of the keyboard and forms-handling features of the L and TC Series systems with many of the processor and peripheral aspects of the B 1700 systems.

CHARACTERISTICS

MANUFACTURER: Burroughs Corporation, Burroughs Place, Detroit, Michigan 48232. Telephone (313) 972-7000.

MODELS: B 706, B 707, B 708, B 716, B 717, and B 718 Data Processing Systems, all built around the B 705 and B 711 Processors.

MAIN STORAGE

STORAGE TYPE: Magnetic core.

CAPACITY: B 706, B 707, B 708—32,768 or 40,960 eight-bit bytes; B 716, B 717, B 718—32,768, 40,960, or 49,152 bytes.

CYCLE TIME: See table.

CENTRAL PROCESSORS

The B 700 processors feature dynamically variable micro-programmed logic, in which the processor has a minimal predefined structure. Basic machine functions and fundamental portions of a systems control program reside in a high-speed bipolar read-only-memory (ROM) called the "nanomemory." A second "shared" main memory is provided for use by both the applications program being executed and a microprogram system called the "Interpreter," as well as the rest of the systems control program. The Interpreter consists of the detailed logic required to convert or interpret the object-language version of an application program into the basic, Boolean-type manipulations or I/O operations that are directly executable by the B 700 processor.

The amount of shared memory used by the Interpreter is variable, with only those specific portions of the Interpreter present in the system during program execution that are required by a given program. This capability is referred to variously as run-time, load-time, or simply late "binding"; it results in a dynamic boundary line in the shared memory between the Interpreter and the application program that permits reduction of system software memory overhead to a minimum. Each object program has a directory or catalog appended to it that enumerates the specific instruction types, buffer requirements, and I/O devices used by that program. When the application program is loaded into the system, the directory or catalog is matched against the complete repertoire of functions supported by the full Interpreter, and unused functions are deleted.

The Interpreter itself is designed to facilitate execution of an "S Language" or machine-level language for a virtual ➤

Burroughs B 700

▷ In fact, a major design criterion of the B 700 was full upward compatibility for the Burroughs library of Business Management Systems (BMS) applications programs among all three small-scale systems. Burroughs currently offers B 700 Business Management Systems designed for the manufacturing, wholesaling, and distribution industries.

Along with the B 700 systems, Burroughs announced the AE 301 Audit Entry computer—a stand-alone, key-to-cassette data entry device intended for off-line data collection. The AE 301 prepares a line-by-line journal listing of all input transactions for audit trail purposes and provides limited user storage for edit criteria and data validity checking. The stand-alone AE 301 records input transactions on a standard tape cassette for data transfer to the main B 700 console via a built-in cassette handler. Thus, it provides a welcome off-line data preparation/audit entry capability for Burroughs' small-scale computer families, but it does so at a considerably higher per-station cost than either conventional key-punches or the newer key-to-tape and key-to-disk systems. The AE 301, however, can carry the data entry function considerably further than many of these alternative systems by performing a significant amount of editing in addition to the important tasks of audit trail preparation.

The B 700 product line currently consists of two central processors—the B 705 (500,000 cycles per second) and B 711 (1,000,000 cycles per second)—and an unusually wide array of peripheral equipment for systems of this class, including both 96-column and 80-column card equipment, paper tape, cassette tape, low-cost disk cartridge drives, and four different speeds of line printers as well as industry-compatible 9-track magnetic tape. Software support centers around the basic System Control Program (SCP) and an Interpreter for the COBOL and RPG languages.

As of the date of announcement, one notable absence from the functional capabilities of the B 700 systems was any form of data communications capability. Although some such capability was promised for delivery with B 700 systems before the end of 1974, no specific characteristics are available now. Since both the L 8000 and B 1700 offer a data communications capability for remote-site operation at transmission speeds up to 9600 bits/second, it seems likely that the middle member of the triumvirate formed by these systems should also offer at least a similar communications capability when the details are finally released.

The only indication of processor performance that Burroughs has released to date is a statement that the B 700 systems will offer 2 to 4 times the internal processing speed of the L 8000. These speeds would indicate an attractive price/performance ratio—but these ▷

▶ machine best suited to a particular high-level language. For the B 700 systems, COBOL and RPG are both supported by the same Interpreter. Because the logical structure of the B 700 systems, including instruction repertoire, I/O configuration, and buffer requirements, is "bound" at run time, the B 700 system looks as if it were custom-developed to execute a specific program. No multiprogramming is possible in the B 700.

This restriction has led to the development of an "interrupt/resume" or checkpoint/restart function that rolls out the present status of the machine and its processing onto disk, allowing a high-priority job to be loaded into the system. Following completion of the high-priority run, the first program is restored so that its processing can continue.

INPUT/OUTPUT CONTROL

I/O CHANNELS: Each type of peripheral device or subsystem except the console and the first disk drive can use any available I/O control, and each I/O control, in turn, requires an appropriate "slot" in the central processor. The maximum number of I/O controls is 8 in all of the B 700 Series systems. Two of these controls are dedicated to the console and a disk drive. All I/O controls are buffered to permit overlapped read/write/compute operations.

CONFIGURATION RULES: Every B 700 Series system must include a 15.5-inch or 26-inch console printer, a disk subsystem, and at least 32 KB of main memory. In addition to the "packaged" systems described below, a wide range of tailored configurations can be prepared.

The B 706 Audit Entry System consists of a 0.5 Mhz Processor with 32 KB or 40 KB of memory, a console, and a 4.6 MB disk unit.

The B 716 Audit Entry System consists of a 1.0 Mhz Processor with 32KB to 48KB of memory, a console, and a 4.6 MB or 9.2 MB disk unit.

The B 707 Audit Entry System consists of a 0.5 Mhz processor with 32 KB or 40 KB of memory, a console, a 4.6 MB disk unit, a 90 or 164 lpm line printer, one to four magnetic tape cassette drives, and an off-line 301 Audit Entry data recording station.

The B 717 Audit Entry System consists of a 1.0 Mhz Processor with 32 KB to 48 KB of memory, a console, a 4.6 MB or 9.2 MB disk unit, a 90 to 400 lpm line printer, one to four magnetic tape cassette drives, and an off-line 301 Audit Entry data recording station.

The B 708 Card System consists of a 0.5 Mhz Processor with 32 KB or 40 KB of memory, a console, a 4.6 MB disk unit, a 90 or 164 lpm line printer, a 96-column card reader/punch/printer, and an off-line 96-column Card Data Recorder.

The B 718 Card System consists of a 1.0 Mhz Processor with 32 KB to 48 KB of memory, a console, a 4.6 MB or 9.2 MB disk unit, a 90 to 400 lpm line printer, a 96-column card reader/punch/printer, and an off-line 96-column Card Data Recorder.

In addition to the above devices, any B 700 processor can also control up to two 80-column card devices, up to two paper tape readers and two paper tape punches, one 9-track industry-compatible magnetic tape drive, and up to four magnetic tape cassette drives. ▶

Burroughs B 700

CHARACTERISTICS OF THE PACKAGED B 700 SYSTEMS

	B 706	B 707	B 708	B 716	B 717	B 718
CENTRAL PROCESSORS						
Model	705	705	705	711	711	711
Processor cycle time, microseconds	2.0	2.0	2.0	1.0	1.0	1.0
Logic technology	T ² L	T ² L	T ² L	T ² L	T ² L	T ² L
Maximum number of I/O controls	8	8	8	8	8	8
Language support	COBOL, RPG	COBOL, RPG	COBOL, RPG	COBOL, RPG	COBOL, RPG	COBOL, RPG
Basic system rental	\$1,061	\$1,820	\$1,745	\$1,241	\$2,000	\$1,925
MAIN MEMORY						
Storage type	Core	Core	Core	Core	Core	Core
Minimum capacity, bytes	32K	32K	32K	32K	32K	32K
Maximum capacity, bytes	40K	40K	40K	48K	48K	48K
Storage increment, bytes	8K	8K	8K	8K	8K	8K
Read cycle time, microseconds	0.46	0.46	0.46	0.46	0.46	0.46
Write cycle time, microseconds	1.0	1.0	1.0	1.0	1.0	1.0
Bits fetched per cycle	16	16	16	16	16	16
CONTROL NANOMEMORY						
Storage type	Bipolar Semicond.	Bipolar Semicond.	Bipolar Semicond.	Bipolar Semicond.	Bipolar Semicond.	Bipolar Semicond.
Capacity, 56-bit words	512	512	512	512	512	512
Read cycle time, nanoseconds	80	80	80	80	80	80
Bits fetched per cycle	56	56	56	56	56	56
STANDARD CONFIGURATION						
Off-line 96-column data recorder	—	—	Yes	—	—	Yes
96-column card read/punch/print	—	—	Yes	—	—	Yes
Printing (standard character sets)	—	90 lpm	90 lpm	—	90 lpm	90 lpm
Magnetic tape I/O	—	Cassette	—	—	Cassette	—
Paper tape reading	—	—	—	—	—	—
Paper tape punching	—	—	—	—	—	—
Disk storage capacity	4.6 MB	4.6 MB	4.6 MB	4.6 MB	4.6 MB	4.6 MB
Audit Entry 301	—	Yes	—	—	Yes	—

➤ performance claims can neither be verified nor disputed because, at this writing, Burroughs has chosen not to reveal any detailed information about the B 700 architecture or instruction timings.

The six packaged models of B 700 systems offer a modest discount over the combined prices of the individual components, thus giving users some incentive to install so-called "recognized" configurations of equipment. Any desired modifications can be made to these configurations, but the price breaks are reduced in that event. Each packaged configuration is fully able to support either a keyboard audit-entry environment or a card-oriented environment, depending upon the system's model number.

The B 706 and B 716 Audit Entry Systems use the main B 700 console keyboard as a primary input transaction station; audit functions are performed by the SCP, and a journal roll record lists each transaction. The B 707 and B 717 Audit Entry Systems include an off-line AE 301 Audit Entry Computer so that cassettes containing input transactions can be prepared off-line, using a limited amount of validation logic, for subse-

➤ **MASS STORAGE**

A 9480/9481 DISK CARTRIDGE MEMORY SUBSYSTEMS: Provide low-cost random-access data storage on removable single-disk cartridges. Two models are available:

A 9480-12: dual drives, stores 4,667,120 bytes total
A 9481-12: dual drives, stores 9,354,240 bytes total

Each drive accommodates one disk cartridge and has two read/write heads, one serving each recording surface. The disk cartridge is 15 inches in diameter, 1.5 inches high, and weighs 5 pounds. The two drives are "stacked" so that the unit occupies less than 5 square feet of floor space. In both models data is recorded in 180-byte segments, average head position time is 60 milliseconds, average rotational delay is 20 milliseconds, and data transfer rate is 193,000 bytes/second.

The A 9480-12 Disk Cartridge Memory Subsystem can be used with all B 700 Series processor models. The A 9481-12 can be used with Models 716, 717, and 718 only. A disk subsystem consists of a B 0489 or B 0489-1 control and one A 9480-12 or A 9481-12 dual-drive unit, providing 2 spindles and storing 4.6 or 9.2 million bytes on-line, respectively.

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➤quent entry to the B 700 system. This mode of operation results in a much more "batch-like" environment, with throughput generally limited by the I/O speed of the cassette handler and/or by the B 700 processor rather than by the manual speed of the keyboard operator. The B 708 and B 718 card-oriented systems provide standard 96-column card handling facilities for batch-oriented, card-based processing requirements. In all cases, the "hundred-type" (706, 707, and 708) systems use the slower, 2-microsecond (0.5 Mhz) B 705 processor, while the "teen-type" (716, 717, and 718) systems are built around the 1-microsecond (1-Mhz) B 711 processor and otherwise correspond identically with their "hundred-type" counterparts.

Along with the availability of the Business Management Systems, a high degree of user program compatibility across the Burroughs small-scale family is available through COBOL compilers. The B 700 COBOL language at the present time is a limited subset of the American National Standard COBOL language, but one which is nearly identical with the L 8000 COBOL language. Furthermore, B 700 COBOL will be a relatively easy language for first-time computer users to learn and will greatly simplify future conversions to larger computer systems. Unfortunately, programs written in B 700 COBOL cannot be compiled on the B 700 itself; a medium-scale Burroughs B 3500, B 3700, or B 4700 computer, usually located at a Burroughs data center, is required for the compilation process. Burroughs is preparing a COBOL compiler that will run on the B 700 itself, but the availability date for that promised capability has not been released as yet.

The RPG (Report Program Generator) language for the B 700 offers nearly complete source-language compatibility with RPG I or II programs written for other vendors' computer systems, including the IBM System/3 and System/360 Model 20. Programs written in RPG can be compiled directly on the B 700.

The competitive position of the B 700 systems is a strong one. Even though several aspects of the system are not as strong as they should be (COBOL needs host B 3500/4700 support, the AE 301 is a comparatively expensive off-line data entry subsystem, and there exists a current—albeit temporary—lack of data communications), the B 700 adds significant strength to Burroughs' already strong offerings in the small business computer market.

One of the most important roles filled by the B 700 is that of strengthening the position of the L 8000 versus its primary competition—the NCR 399—by demonstrating a viable growth path with excellent upward compatibility for applications programs. On another front, Burroughs points to the B 700's Business Management Systems ➤

➤ INPUT/OUTPUT UNITS

A 9490 CASSETTE TAPE SUBSYSTEM: Permits the use of magnetic tape cassettes for data and/or program storage. Consists of a B 0392 Cassette Control and an A 9490-25 Cassette Tape Station. Up to four A 9490 subsystems can be attached to any B 700 system, with fully buffered simultaneous I/O operations performed by each.

Each Phillips-style cassette holds 280 feet of Burroughs "computer certified" tape. Data is recorded in a dual-track format, using NRZI encoding at 800 bits/inch. One track is used for data and the other is used exclusively for clocking. Eight-bit ASCII characters are recorded in bit-serial form, yielding an effective density of 100 characters/inch. Records are of variable length, up to a maximum of 256 data characters, and the inter-record gap is a nominal 1.3 inches in length.

The Cassette Tape Stations read or write at a speed of 10 inches/second (1000 characters/second), search tape at 30 inches/second, and rewind at 60 inches/second. Tape can be searched to a file mark in either the forward or reverse direction. The tape is driven by a spindle-controlled, multispeed reel drive mechanism that eliminates the need for pinch rollers. Tape speed is photoelectrically controlled. A dual-gap read/write head permits automatic read-after-write checking of recording accuracy. Each Cassette Tape Station is only 5.4 inches high, 5.4 inches wide, and 9 inches deep.

A 9491-2 MAGNETIC TAPE DRIVE: Reads and records data on ½-inch tape in the IBM-compatible 9-track NRZI mode at 800 bpi. Tape speed is 12.5 inches/second, data transfer rate is 10,000 bytes/second, and rewind speed is 50 inches/second. Standard vertical and horizontal parity checking are performed. The compact, table-top units accommodate 7-inch reels which hold 600 feet of tape. An optional stand/cabinet supports the tape drive and provides storage space for tape reels underneath. One A 9491-2 tape subsystem, usable with all of the B 700 Series processor models, consists of a B 0391 Magnetic Tape Control and one A 9491-2 drive.

A 9114-1 CARD READER: Reads standard 80-column cards photoelectrically at a maximum rate of 200 cpm. Includes a 1000-card input hopper and one 1000-card stacker. This serial reader fits on a tabletop, where it occupies less than 3 square feet of space and connects to any B 700 Series processor through a B 0111 Controller.

A 9119-1 CARD READER: Reads 96-column cards at a maximum speed of 300 cpm. Reading is checked through multiple sensing of each card column. Includes a 600-card input hopper and one 600-card stacker. Fits on a tabletop, where it occupies less than 1.5 square feet of space. Connects to any B 700 Series processor via a B 0311 96-Column Card Controller. Only one 96-Column Card Controller can be attached to a B 700.

A 9419-2 CARD READER PUNCH/DATA RECORDER: Reads 96-column cards at 300 cpm, and punches and/or prints full cards at 60 cpm; higher punching speeds are possible if fewer columns are punched. The single card feed path includes: 600-card primary input hopper, 400-card secondary input hopper, read station, visible wait station, punch station, punch check station, print station, and two 400-card stackers. The print station permits printed interpretation of the punch data at 60 cpm, with three 32-character lines per card. Separate ➤

Burroughs B 700

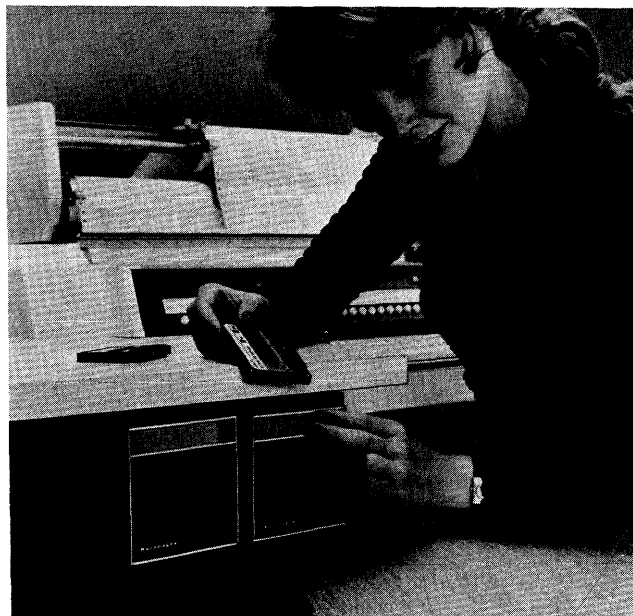
▷ applications programs, the convenient interrupt/resume (checkpoint/restart) function, and certain peripheral sub-systems such as paper tape, cassettes, and the Audit Entry Computer as advantages over IBM's enormously popular System/3 computers. A particular advantage of the B 700 over the System/3 Model 6 is the availability of much faster line printers and card I/O units for the Burroughs system.

In all, the B 700 shapes up as an important addition to the Burroughs family of small-scale computers, even though it brings no revolutionary new concepts and does not dramatically extend the Burroughs line-up of computer systems in either the upward or downward direction. In fact, much of Burroughs' "pioneering" approach to S-Language program representation is really a return to the use of a machine language—albeit for a virtual machine—and can be considered a refreshing return to basic principles (or plain common sense) in the face of the huge operating system overheads found elsewhere in the industry. The B 700 sensibly and appropriately fills out the company's small-scale computer line in the middle, where it counts. First-time computer users, as well as current computer users facing decentralized processing requirements, are well advised to give serious consideration to the B 700, particularly when Burroughs releases the communications capabilities and delivers the native B 700 COBOL compiler. □

► 96-column buffers are provided for reading, punching, and printing. A 64-character keyboard permits the unit to be used off-line as a 96-column keypunch or verifier; program storage is provided for four format-control programs. The unit connects to any B 700 Series processor via a B 0311 96-Column Card Controller. Only one 96-Column Card Controller can be attached to a B 700.

A 9419-6 MULTI-PURPOSE CARD UNIT: Provides the same 300-cpm reading, 60-cpm punching, and 60-cpm printing facilities and data recorder keyboard as the A 9419-2, described above, plus the ability to sort 96-column cards into any of six 400-card stackers under program control at 300 cpm. Can be used off-line for sorting, keypunching, or verifying. Numeric sorting requires 1.5 passes per card column, while alphanumeric sorting requires 2.5 passes per card column. The unit connects to any B 700 Series processor via a B 0311 96-Column Card Controller. Only one 96-Column Card Controller can be attached to a B 700.

A 9122-1 PAPER TAPE READER: Reads 5, 6, 7, or 8-channel codes from punched tape or edge-punched cards at up to 40 characters/second. Accommodates reeled, strip, or fanfold tape 11/16 inch or 1 inch in width, as well as individual, fanfold, and Mylar-reinforced edge-punched cards. Reading is performed photoelectrically, and parity is checked to ensure accuracy. Optional features include edge-punched card support (for cards up to 11 inches in width) and a tape supply cone and tape-up reel. The unit connects to any B 700 Series processor via a B 0121-1 control; up to two A 9122-1's can be attached to a B 700 system.



Up to four compact magnetic tape cassette drives, housed in the B 700 console, can be used for both program loading and data entry.

A 9222-1 PAPER TAPE PUNCH: Punches 5, 6, 7, or 8-channel codes into paper tape or edge-punched cards at up to 40 characters/second. Accommodates reeled, strip, or fanfold tape 11/16 or 1 inch in width, as well as individual, fanfold, and Mylar-reinforced cards. Punching accuracy is verified through echo checking. Optional features include a 5.5-inch or 7-inch takeup reel for punched tape and a supply and stacker tray for automatic feeding and punching of continuous card forms. The unit connects to any B 700 Series processor via a B 0221 control; up to two A 9222-1's can be attached to a B 700 system.

A 988 LINE PRINTER: Prints up to 164 lines/minute using the standard 48-character print chain. Has 120 print positions and connects to any B 700 Series system via a B 0245 control. Only one line printer can be attached to a B 700 system.

A 9249-1 LINE PRINTER: Prints up to 90 lines/minute using the standard 48-character print chain. An optional print chain contains 64 characters. Has 132 print positions and a full-line, 132-character buffer. Handles continuous forms from 3 to 17 inches in width and up to 14 inches in length. Spacing is 10 characters/inch horizontally and 6 lines/inch vertically. Skipping speed is approximately 48 lines (or 8 inches) per second. Vertical spacing is controlled by the program through a 2-channel punched format tape; a 12-channel format tape is optional. The printer connects to any B 700 Series system via a B 0243 control. Only one line printer can be attached to a B 700 system.

A 9249-2 LINE PRINTER: Prints up to 180 lines/minute using the standard 48-character print chain. All other characteristics and capabilities are the same as those of the A 9249-1, described above. The unit connects to the B 711 Processor only via a B 0243 control. Only one line printer can be attached to a B 700 system. ►

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► A 9247 LINE PRINTER: Prints up to 400 lines/minute using the standard 48-character print train. Can also be equipped with other interchangeable train modules containing 16, 64, or 96 printable characters. The 96-character set contains both upper and lower-case alphabets. The standard print line is 120 characters wide, with 132 print positions optional. Accepts ASCII, EBCDIC, or BCD code. Vertical format control is handled through either the Burroughs Forms-Self-Align system, which uses codes preprinted on the forms, or an optional 12-channel carriage control tape. The 9247 connects to a B 711 Processor via a B 0244 control. Only one line printer can be attached to a B 700 System.

AE 301 AUDIT ENTRY COMPUTER: The AE 301 is an off-line data entry station intended for use as a keyboard-to-cassette source data recorder. With about 576 64-bit words of memory available for the user, the AE 301 can provide an audit-trail journal record of all transactions, as well as apply a limited amount of editing capability to check-digit-verify account numbers, provide hash totals of non-dollar fields, batch control totals of dollar fields, line or set proof of dollar fields on individual documents, enforce alpha or numeric entry modes, and handle field sizing, parameter testing, field sequencing, automatic skipping and/or duplication, and automatic insertion of constants.

The AE 301 console is nearly identical in appearance with that of the B 700 (and with thousands of Burroughs L and TC Series systems). It includes a 15-1/2" front-feed forms handler, 16 Program Select keys, a buffered alphanumeric and standard 10-key input keyboard, and associated operator communication lights. "Burroughs-certified" magnetic tape cassettes are used in a cassette handler that is a standard feature of the AE 301. The cassette station features a variable-speed spindle drive, eliminating the capstan-pinch roller mechanism usually found in such devices, and has a dual gap read-write head for immediate read-after write checking without backspacing of the tape.

User programs for the AE 301 are prepared via a Program Generator or the L/TC COBOL compiler, both of which must be used on a larger Burroughs B 3500, B 3700, or B 4700 support system. Up to 40 different formatting/editing programs can be stored on a magnetic tape program cassette for loading into the AE 301 main memory.

DATA COMMUNICATIONS

At this time no data communications capability has been announced for the B 700 Series systems. Such an announcement, however, has been promised, and first customer shipments of communications-oriented B 700 systems are expected to occur before the end of 1974.

SOFTWARE

INTERPRETER: The central component of Burroughs software support for the B 700 is the Interpreter, a highly modular microcoded system that implements all of the functions of the B 700 system. The Interpreter also contains the System Control Program (SCP) that manages and controls all operations of the system. An I/O manager and all of the "soft" controllers for B 700 I/O processes are contained in the SCP. These microprogrammed soft controllers handle most of the functions ordinarily performed by hardware controllers. As a result, the function of the B 700's controllers is principally limited to device code translation between the internal and external codes.

A self-contained audit entry function is also provided by the SCP. This function, which can be overridden in favor of a stand-alone, off-line AE 301 Audit Entry Computer, uses the B 700's split platen to produce a journal record on one side of the carriage that records all input transactions, following the satisfaction of user-specified input edit criteria. A Sort function is also included in the Interpreter, so that when a sort is required, the B 700 turns itself into a special-purpose sort machine.

The full size of the Interpreter is about 16,000 bytes, some 5000 of which form a nucleus that is always resident in main (shared) memory. Few programs, however, are likely to use nearly all of the 16,000 bytes; the Sort function, as an example, uses only about 5500 bytes.

COBOL: The B 700 COBOL language is a revised, upward-compatible version of Burroughs' L/TC COBOL. The language includes a limited subset of the American National Standard COBOL facilities, but direct compatibility with other ANS COBOL compilers can be precluded by numerous additional constructs that are oriented toward the operator-attended features and specific hardware characteristics of the B 700 Series computers.

Compilation of programs written in B 700 COBOL must be performed on a Burroughs B 3500, B 3700, or B 4700 computer with a least 90K bytes of main storage. The compiler produces "S-level" object programs that can be loaded into B 700 Series user memory and executed by the standard microprograms.

The B 700 COBOL language includes subsets of the facilities defined in the Nucleus, Sequential Access, and Table Handling modules of ANS COBOL. The Random Access, Sort, Report Writer, and Library modules of ANS COBOL are not implemented at all.

Segmentation of COBOL-coded object programs is provided by Burroughs' Dynamic Memory Overlay facility. The programmer simply divides his source program into "mainline" routines (which are to be kept in user memory throughout the execution of the program) and "exception" routines (which can be called in from disk when required).

The COBOL compiler is scheduled for availability with the first B 700 Series hardware deliveries in the second quarter of 1973. A COBOL compiler that permits compilation on the B 700 system itself is planned for future release.

RPG: The B 700 RPG language is generally compatible at the source-language level with IBM's System/3 RPG II or System/360 Model 20 RPG. The B 700 RPG compiler runs directly on the B 700, and is scheduled for availability with the first B 700 Series hardware deliveries in the second quarter of 1973.

APPLICATION PROGRAMS: Burroughs offers ready-made programs for specific commercial applications through its Business Management Systems (BMS), already available for both the smaller L 8000 and larger B 1700 systems. The BMS Library provides operational control capability through the production of comprehensive management reports for the following applications areas:

Wholesale Management System
Distributor Management System
Manufacturing Management System

Burroughs B 700

► Each of the above systems includes application programs for payroll, general ledger, accounts payable/receivable, invoicing, inventory control, and special management reports. Each Business Management System costs \$7,100 on a one-time basis, plus \$2,400 for training and initial set-up if desired.

PRICING

EQUIPMENT: The following systems are representative of the wide range of possible B 700 Series configurations. All necessary control units are included in the indicated prices. The quoted rental prices are for the basic one-year lease and include equipment maintenance.

MINIMUM AUDIT ENTRY SYSTEM: Consists of a 0.5 Mhz processor with 32 KB of memory, a 26"-carriage system console, and 4.6 MB of disk storage. Monthly rental and purchase prices are \$1,061 and \$43,350, respectively.

FULL-SCALE AUDIT ENTRY SYSTEM: Consists of a 1 Mhz processor with 48 KB of memory, a 26"-carriage system console, 9.2 MB of disk storage, a 180-lpm printer, 2 magnetic tape cassette subsystems, and an AE 301 Audit Entry Computer System. Monthly rental and purchase prices are approximately \$2,377 and \$90,340, respectively.

TYPICAL CARD SYSTEM: Consists of a 0.5 Mhz processor with 40 KB of memory, a 26"-carriage system console, 4.6 MB of disk storage, 164 lpm printer,

96-column card reader/punch/printer, and 96-column off-line card data recorder. Monthly rental and purchase prices are \$1,929 and \$77,090, respectively.

SOFTWARE: The Business Management Systems are offered at a one-time charge of \$7,100 or \$9,500 depending upon whether or not user training is included. Prices of individual BMS modules range from \$1,500 to \$4,000.

SUPPORT: Burroughs technical assistance is available to B 700 users at a price of \$150 per day, in half-day increments. Burroughs also offers fixed-price turnkey contracts under which it assumes responsibility for the programming and installation of a system.

EDUCATION: B 700 Series users can obtain appropriate training either as part of a Business Management System or by paying for the individual courses they need.

CONTRACT TERMS: The standard equipment lease agreement includes equipment maintenance and permits unlimited use of the equipment. For usage in excess of 8 hours per day, Burroughs may negotiate for extra-shift charges; however, this is not normally done unless the user wants extended maintenance coverage. The maximum additional charge is 15 percent of the basic monthly rental for full maintenance coverage on a 24 hours/day, 7 days/week basis.

In addition to the 1-year leases shown in the equipment price list, Burroughs offers 3-year and 5-year leases at discounts of approximately 5 and 10 percent, respectively, in the monthly charges. ■

EQUIPMENT PRICES

		Purchase Price	Monthly Maint.	Rental (1-year lease)*
PACKAGED B 700 SYSTEMS				
B 706	Audit Entry System; includes B 705 0.5 Mhz Processor with 32 KB Memory, 26" Systems Console Printer, 4.6 MB Dual Disk Cartridge Drive, and necessary I/O device controls.	43,350	177	1,061
B 716	Audit Entry System; includes B 711 1 Mhz Processor with 32 KB Memory, 26" Systems Console Printer, 4.6 MB Dual Disk Cartridge Drive, and necessary I/O device controls.	48,575	187	1,241
B 707	Audit Entry System; includes B 705 0.5 Mhz Processor with 32 KB Memory, 26" Systems Console Printer, 4.6 MB Dual Disk Cartridge Drive, 90 LPM Line Printer, one Magnetic Tape Cassette Subsystem, an Audit Entry Computer System, and necessary I/O device controls.	66,065	309	1,820
B 717	Audit Entry System; includes B 711 1 Mhz Processor with 32 KB Memory, 26" Systems Console Printer, 4.6 MB Dual Disk Cartridge Drive, 90 LPM Line Printer, One Magnetic Tape Cassette Subsystem, an Audit Entry Computer System, and necessary I/O device controls.	71,090	319	2,000
B 708	Card System includes 705 0.5 Mhz Processor with 32 KB Memory, 26" Systems Console Printer, 4.6 MB Dual Disk Cartridge Drive, 90 LPM Line Printer, 96-Column Card Reader/Punch/Printer, 96 Column Off-Line Data Recorder, and necessary I/O device controls.	70,865	360	1,745
B 718	Card System; includes B 705 0.5 Mhz Processor with 32 KB Memory, 26" Systems Console Printer, 4.6 MB MB Dual Disk Cartridge Drive, 90 LPM Line Printer, 96-Column Card Reader/Punch/Printer, 96-Column Off-Line Card Data Recorder, and necessary I/O device controls.	76,090	370	1,925

*Rental prices include equipment maintenance.

Burroughs B 700
EQUIPMENT PRICES (Cont'd)

		<u>Purchase Price</u>	<u>Monthly Maint.</u>	<u>Rental (1-year lease)*</u>
PROCESSOR AND MAIN STORAGE				
B 705	Processor with 16K bytes of core memory	15,425	70	420
Memory Options for B 705 Processor:				
B 0011-32	32K Bytes Total Memory	5,300	16	122
B 0011-40	40K Bytes Total Memory	9,000	24	180
B 711	Processor with 16K bytes of core memory	20,650	80	600
Memory Options for B 711 Processor:				
B 0011-32	32K Bytes Total Memory	5,300	16	122
B 0011-40	40K Bytes Total Memory	9,000	24	180
B 0011-48	48K Bytes Total Memory	10,600	32	205
A 1306	I/O Expansion feature for 8 devices total	1,000	4	25
B 9343-1	Console Printer (15½" carriage)	5,500	21	143
B 9343-2	Console Printer (26" carriage)	7,500	24	160
—	Upgrade B 705 to B 711 Processor	5,225	—	180
MASS STORAGE				
A 9480-12	Dual Cartridge Drive, 4.6 Million Bytes	15,450	53	365
A 9481-12	Dual Cartridge Drive, 9.2 Million Bytes	21,600	72	480
B 0489	Control for A 9480-12	675	14	19
B 0489-1	Control for A 9481-12	1,200	14	38
A 9985-2	Disk Cartridge for A 9480 Drives	170	—	—
A 9985-3	Disk Cartridge for A 9481 Drives	225	—	—
MAGNETIC TAPE EQUIPMENT				
A 9490-25	Magnetic Tape Cassette, 10 ips	1,800	6.41	51
A 9491-2	Magnetic Tape Unit, 9-track, 800 bpi, 10 KB	8,600	21	215
B 0391	Control for A 9491-2	1,250	30	30
B 0392	Control for A 9490-25	800	3	24
80-COLUMN CARD EQUIPMENT				
A 9114-1	Card Reader; 200 CPM	2,790	21.41	78
B 0111	Control for A 9114-1	750	5	22
96-COLUMN CARD EQUIPMENT				
A 9119-1	Card Reader; 300 cpm	3,500	25	85
A 9419-2	Card Reader/Punch/Data Recorder; 300 cpm reader, 60 cpm punch/print	9,490	71	240
A 9419-6	Card Reader/Punch/Data Recorder; 300 cpm reader, 60 cpm punch/print, 6-pocket sorting	11,390	85	285
B 0311	Control for A 9419-1, A 9419-2, or A 9419-6	850	2	25
PC 920	Printing Data Recorder (offline keypunch)	8,050	45	163
LINE PRINTERS				
A 9249-1	Printer; 90 lpm, 132 positions	8,500	60	240
A 988	Printer; 164 lpm, 120 positions	11,200	117.50	370
A 9249-2	Printer; 180 lpm, 132 positions	11,200	70	280
A 9247-2	Printer; 400 lpm, 120 Positions	19,500	100	460
B 0243	Control for A 9249-1	625	5	16
B 0245	Control for A 988	450	5	12
B 0243-1	Control for A 9249-2	1,600	5	36
B 0244	Control for A 9247-2	2,000	5	45
A 9949-2	12-Channel Format Tape Reader Option for A 9247-2	3,050	15	61
A 9942-2	Additional 12 Print Positions for A 9247-2	2,000	10	40
A 9942-9	Additional Train Module for A 9247-2	3,500	18	65
PAPER TAPE EQUIPMENT				
A 9122-1	Punched Paper Tape Reader; 40 cps	1,490	9.92	42
A 9222-1	Punched Paper Tape Punch; 40 cps	1,890	12.58	53
B 0121-1	Control for A 9122-1	750	2	22
B 0221	Control for A 9222-1	750	2	22
DATA ENTRY SUBSYSTEM				
AE 301	Audit Entry Computer (off-line); includes 15½" carriage and one A 9490-25 Cassette Tape Station	12,290	698	405

*Rental prices include equipment maintenance.