## Burroughs B 1900 Series

services include coordination of communication between tasks being executed at various hosts; control of the creation, updating, and transfer of data from host to host; and handling of communication with logical points within the network. Network services perform message routing, linking hosts using the Burroughs Data Link Control (BDLC) bit-oriented protocol. Network services also permit connection of Burroughs processors to packet-switching services using X. 25 procedures. Links can also be established to non-Burroughs machines using currently available software such as NDL and MCS.

BURROUGHS DATA LINK CONTROL: Until the adoption of BDLC, a bit-oriented line control procedure for synchronous transmissions, Burroughs' protocol was Basic Mode, a character-oriented line control procedure. In the Basic Mode protocol system, the user data was "enveloped" or bracketed by line control characters before transmission.

In BDLC, the data is bracketed with a lesser number of characters because bits, rather than whole characters, are used to represent the control codes. This reduction in noninformation control data transmitted with user data is significant despite the addition of transmission error detecting control bits.

BDLC is based on High-Level Data Line Control Procedures (HDLC), the protocol standard developed by the International Standards Organization (ISO) and the European Computer Manufacturers Association (ECMA), and Advanced Data Communications Control Procedures (ADCCP), the protocol standard developed by the American National Standards Institute (ANSI). It is Burroughs' intention to maintain BDLC compatible with the bit-oriented protocols of selected competitors (such as IBM's SDLC).

In networks using BDLC, one device, a processor, operates as a Primary Station. All other devices, whether processors or terminals, function as Secondary Stations. (This arrangement is referred to as the Unbalanced Configuration.) Any line can be full- or half-duplex, switched or non-switched, analog or digital. In the point-to-point arrangement, the Primary Station is at one end of a communications line, and a Secondary Station is at the other end. In the multipoint arrangement, the Primary Station is at one end of the line and two or more Secondary Stations are connected to the line. A device can function as a Secondary Station on one line and as a Primary Station on another line. Such an arrangement can occur when a given Secondary Station has one line to a Primary Station and another line to devices that are not connected to that Primary ${ }^{\text {Station. }}$

The Primary Station controls the establishment of links for data transfer, controls the actual data transfer, and controls error recovery operations. The Secondary Stations can operate in the Normal Response Mode (NRM) or in the Asynchronous Response Mode (ARM). In the Normal Response Mode, the Secondary Station cannot initiate transmissions. Specific permission to transmit and/or respond to a command must be given to the Secondary Station by the Primary Station. Once given permission, a Secondary Station can transmit up to seven frames (messages) without requiring additional permission. In an optional version of BDLC, up to 127 frames can be transmitted without requiring additional permission.

In the Asynchronous Response Mode, the Secondary Stations can initiate transmission without permission from the Primary Station. In this mode, Secondary Stations on a multi-point line must contend with each other to obtain a link for transmission. In the NRM, the Primary Station polls each station and thereby assures each station equal opportunity for link establishment.

ON-LINE DATA ENTRY SYSTEM (ODESY): A sophisticated data entry and validation system using multiple on-line visual display units, ODESY provides a generalized and generative "front end" for the existing $B 1900$ application packages. It enables future packages to be designed to use its extensive editing facilities and thus reduce development effort by virtually eliminating conventional input control programs. Because of these editing facilities, ODESY is able to produce batches of essentially error-free data for input to application programs.

UTILITY ROUTINES: A disk sort program sorts records into ascending or descending sequence in accordance with specification cards that describe the input and output files, the key field or fields, and various options. The sort function can also be invoked from within a COBOL or RPG source program. The user can specify either of two sorting techniques; vector replacement (the one most commonly used) or in-place (which minimizes the amount of disk storage space required).

The systems SORT provides for both sorting or merging utilizing tape or disk. The program requires 3 K bytes of memory for the sort generator, 8 K bytes for the tape, disk, or inplace sort, and 8 K bytes for the merge. User options in using the sort utility include sorting technique, memory allocation, and percentage of byte in order.

Other B 1900 Series utility routines include System Loading Procedures, Disk File Copy, Memory Dump, Memory Dump Analyzer, File/Loader, File/Puncher, and DMPALL. The last-named routine is a flexible listing and reproducing program for printing the contents of files and transcribing data from one medium to another.

APPLICATION PROGRAMS: Burroughs offers a number of application programs for the B 1900 Series, including the following:

Burroughs Inventory Planning Analysis and Simulation System (BIPASS)
Business Planning System (BPS)
Distribution Information System (DIS)
General Business Management System
Hospital Management System
Infostats (forecasting and statistics)
Item Processing System
Manufacturing Management System
Production Control System III
SCHOLASTIC Education Programs
Screen Oriented Program Editor (SCOPE)
Tax Assessment and Collection System (TACS)
Text Management and Communications System
Thrift On-Line System
Total Banking System
Utility Billing System

## PRICING

CONTRACT TERMS: The B 1900 systems are available for purchase or for lease under a 1-year, 3-year, or 5 -year lease agreement. The standard lease agreement entitles the customer to unlimited use of the equipment and includes fulltime equipment maintenance coverage ( 24 hours/day, 7 days/week). The standard maintenance agreement for purchased systems covers maintenance of the equipment for eight consecutive hours per day on Monday through Friday only; extended maintenance coverage is available at higher rates. The central system (CPU, memory, channels, etc.) is warranted for one year; the peripheral equipment, for 90 days.

All maintenance charges listed in this report are for "metro 1" (city) districts. Super city rates (e.g., New York or Chicago)

## Burroughs B 1900 Series

are four percent higher. Rates outside a metro area ( 10 miles from city) are $\mathbf{2 0}$ percent higher.

All lease plans may include purchase options that allow 50 percent of the rental paid during the first 36 months to be applied toward the purchase price at any time during the lease period.

SOFTWARE: All software is unbundled. Program Products for the B 1900 systems are offered under either an UnlimitedTime License Plan, for a one-time charge followed by an annual maintenance fee, or a Limited-Time License Plan, with monthly payments.

TECHNICAL SUPPORT: Users can purchase Burroughs technical support in several ways: under a Systems Analyst

Assistance Agreement, on a per-diem basis, or on an hourly charge basis.

EDUCATION: Users can obtain the necessary training by paying for individual courses. The currently available courses range from 1 to 10 days in length, cost $\$ 125$ to $\$ 1,250$ for each attendee, and fall into the following broad categories: Systems Support, Operations, Languages, Environmental (data base and data communications), and Applications.

EQUIPMENT: The components and prices of the packaged B 1900 Series Systems are listed in the "Equipment Prices" section, which follows. Downgrading or substitution of items with lower list prices is not allowed. Substitution of similar items with higher prices may be made by adding the current price differentials to the basic package price.

## EQUIPMENT PRICES

|  |  | Purchase | Monthly Maint.* | $\begin{aligned} & \text { 1-Year } \\ & \text { Lease** } \end{aligned}$ | $\begin{aligned} & 5-\text { Year } \\ & \text { Lease** } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| PACKAGED SYSTEMS |  |  |  |  |  |
| B 1905 | Basic System; includes 4-MHz CPU with 128 K bytes of main memory, buitt-in Universal Disk Controller, B 9348-52 Display Console, B 1348-52 Console Control, B 1486-1 Disk Control, B 9484-2 Dual Disk Pack Drive (65 megabytes), B 1249 Printer Control, B 9246-3 320-Ipm Line Printer, and B 1351-2 Universal Single-Line Control | \$59,500 | \$310.00 | \$2,100 | \$1,650 |
| B 1910 | Basic system; includes $6-\mathrm{MHz}$ CPU with 512 K bytes of main memory, built-in Universal Disk Controller, B 9348-52 Display Console, B 1348-52 Console Control, B 1486-1 Disk Control, B 9484-2 Disk Pack Drive (65 megabytes), B 1249 Printer Control, B 9246-6 650-lpm Printer, two B 1306 1/O Expansion Features, B 1059 Expansion Cabinet, B 1051 6-MHz Clock, and B 1351-2 Universal Single-Line Control | 87,000 | 500.00 | 3,000 | 2,500 |
| B 1955 | Basic system; includes $6-\mathrm{MHz}$ CPU with 512 K bytes of main memory, built-in Universal Disk Controller, B 9348-52 Display Console, B 1348-52 Console Control, B 1486-1 Disk Control, B 9484-2 Dual Disk Pack Drive ( 65 megabytes), B 1249 Printer Control, B 9246-6 650-Ipm Line Printer, and B 1352 8-Line Multi-Line Control | 104,000 | 540.00 | 3.531 | 3.025 |
| B 1955-1 | Same as B 1955 basic system except that the 8 9484-2 Dual Disk Pack Drive, B 9246-6 Line Printer, and B 1249 Printer Control are omitted | 87,450 | 335.00 | 2,770 | 2,373 |
| B 1985 | Basic system; includes two $6-\mathrm{MHz}$ CPUs, 512 K bytes of main memory, built-in Universal Disk Controller, B 9348-52 Display Console, B 1348-52 Console Control, B 1486-1 Disk Control, B 9484-51 Dual Disk Pack Drive ( 130 megabytes), B 1249 Printer Control, B 9246-6 650-Ipm Line Printer, B 1352 8-Line Multi-Line Control, and B 1058 Expansion Cabinet | 148,960 | 648.00 | 4,824 | 4,133 |
| B 1985-1 | Same as B 1985 basic system except that the B 9484-51 Dual Disk Pack Drive, B 9246-6 Line Printer, and B 1249 Printer Control are omitted | 125,840 | 430.00 | 3,969 | 3,400 |
| SYSTEM OPTIONS |  |  |  |  |  |
| B 1051 | 6-MHz Clock Kit for B 1905 | 5.000 | 11.00 | 160 | 130 |
| B 1052 | 1.OMB Memory Base for B 1905 or B 1910 | 1,000 | 11.00 | 30 | 25 |
| B 1059 | Expansion Cabinet for B 1905 | 10,000 | 38.50 | 315 | 265 |
| B 1057 | Power Booster for B 1955 | 5,925 | 20.60 | 185 | 155 |
| $\text { В } 1058$ | Expansion Cabinet for B 1955 | $16,223$ | 82.30 | 524 | 453 |
| B 1985-Kit | Dual Processor Kit; includes one B 1985 processor | 38,390 | 105.00 | 1,199 | 1,027 |
| ADD-ON MAIN MEMORY |  |  |  |  |  |
| B 1005-131 | 128K-byte increment for B 1905 or B 1910 | 3,450 | 18.20 | 110 | 95 |
| B 1155-262 | 256K-byte increment for all B 1900 models | 5,750 | 27.80 | 185 | 155 |

## Burroughs B 1900 Series

## EQUIPMENT PRICES

|  |  | Purchase | Monthly Maint. * | $\begin{aligned} & \text { 1-Year } \\ & \text { Lease }^{* *} \end{aligned}$ | 5-Year Lease** |
| :---: | :---: | :---: | :---: | :---: | :---: |
| MASS STORAGE |  |  |  |  |  |
| B 1486-1 | Disk Pack Drive Control | 6,365 | 71.10 | 207 | 170 |
| B 9484-51 | Dual Disk Pack Drive; 130.4 megabytes | 20,000 | 96.00 | 739 | 601 |
| B 9494-41 | Dual Fixed-Disk Drive; 402 megabytes | 24,000 | 78.10 | 733 | 555 |
| B 9494-42 | Dual Fixed-Disk Data Bank; includes two B 9494-41 drives; 804 megabytes | 40,000 | 157.00 | 1.374 | 1.023 |
| B 9494-43 | Dual Fixed-Disk Data Bank; includes three B 9494-41 drives; 1206 megabytes | 57,000 | 235.00 | 1.934 | 1.599 |
| B 9494-44 | Dual Fixed-Disk Data Bank; includes four B 9494-41 drives; 1608 megabytes | 75,000 | 315.00 | 2,394 | 1.952 |
| B 9489-17 | Industry-Compatible Mini-Disk drive; 243K bytes | 2,000 | 28.25 | 100 | 80 |
| B 9489-16 | Industry-Compatible Mini-Disk Drive; 486K bytes | 6,530 | 29.50 | 221 | 180 |
| B 1489 | Mini-Disk Control for the B 9489-17 and B 9489-16 | 4,244 | 16.00 | 128 | 106 |
| MAGNETIC TAPE UNITS |  |  |  |  |  |
| B 9490-25 | Cassette Tape Station; 10 ips | 1,689 | 11.70 | 66 | 53 |
| B 1490-25 | Control for B 9490-25 | 2,334 | 60.80 | 106 | 79 |
| B 9491-4 | Magnetic Tape Unit; 9-track, 40KBS, PE | 12,600 | 76.90 | 465 | 375 |
| B 9491-5 | Add-On Magnetic Tape Unit | 10,000 | 71.68 | 360 | 295 |
| B 1491-4 | Control for B 9194-4 or -5 | 1,800 | 5.50 | 60 | 50 |
| B 9495-35M | Magnetic Tape Unit with Formatter/Controller; 470/120KBS, GCR/PE (for B 1955 or B 1985 only) | 47,864 | 187.00 | 1,786 | 1,425 |
| B 9495-32 | Add-On Magnetic Tape Unit for B 9495-35M | 20,700 | 133.00 | 750 | 591 |
| B 9495-8 | Magnetic Tape Unit; 9-track, 40/80KBS, NRZI/PE | 10,500 | 118.00 | 386 | 314 |
| B 9495-82 | Magnetic Tape Unit; 9-track, 60/120KBS, NRZI/PE | 16,720 | 114.00 | 581 | 451 |
| B 9495-45 | Magnetic Tape Subsystem; 1x4 B 9499-33 Master Electronics Exchange and B 9495-8 drive | 15,500 | 123.00 | 495 | 408 |
| B 9495-46 | Magnetic Tape Subsystem; same as B 9495-45, but with two drives | 25,500 | 215.00 | 863 | 704 |
| B 9499-33 | 1×4 Master Electronics Exchange; PE; for B 9495-8 | 10,400 | 33.60 | 340 | 260 |
| B 9499-34 | 1x8 Master Electronics Exchange; PE; for B 9495-8 | 11,200 | 33.60 | 365 | 285 |
| B 9499-35 | 2x8 Master Electronics Exchange; PE; for B 9495-8 | 13,120 | 73.60 | 430 | 330 |
| B 9499-50 | 1×4 Master Electronics Exchange; PE; for B 9495-82 | 17,325 | 143.00 | 631 | 481 |
| B 9499-51 | 1x8 Master Electronics Exchange; PE; for B 9495-82 | 19,110 | 143.00 | 666 | 509 |
| B 9499-52 | 2x8 Master Electronics Exchange; PE; for B 9495-82 | 46,478 | 299.00 | 1,808 | 1,048 |
| B 9999-4 | PE/NRZI Switchable Feature; allows B 9495-8 or -82 to operate in NRZI mode | 750 | 5.50 | 25 | 20 |
| B 9999-5 | NRZI Option; for use with B 9499-50, -51, or -52 | 2,600 | 32.60 | 80 | 65 |
| B 1495-32 | PE Control; for use with B 9495 tape units | 3,600 | 22.10 | 95 | 86 |
| B 1491-30 | NRZI Control; for use with B 9495 tape units | 6,000 | 65.00 | 175 | 159 |
| B 1495-35 | PE/NRZI Control; for use with B 9495 tape units | 10,200 | 87.10 | 270 | 245 |
| LINE PRINTERS |  |  |  |  |  |
| B 9246-3 | Band Printer; $320 \mathrm{lpm}, 132$ positions | 11,500 | 138.00 | 399 | 326 |
| B 9246-6 | Band Printer; $650 \mathrm{lpm}, 132$ positions | 14,000 | 165.00 | 499 | 383 |
| B 1249 | Printer Control for B 9246 printers | 1,379 | 14.30 | 54 | 54 |
| B 9247-14 | Train Printer; $1100 \mathrm{lpm}, 132$ positions | 33,000 | 413.00 | 1,334 | 1,062 |
| B 9247-15 | Train Printer; $1500 \mathrm{lpm}, 132$ positions | 44,000 | 473.00 | 1,810 | 1,455 |
| B 1247-4 | Printer Control for B 9247-14 | 5,729 | 40.70 | 160 | 128 |
| B 1247-5 | Printer Control for B 9247-15 | 7,957 | 38.20 | 260 | 217 |
| B 9942-10 | Additional Train Module for B 9247 printers | 3,245 | 36.40 | 124 | 101 |
| B 9246-20 | Train Printer; $2000 \mathrm{lpm}, 132$ positions | 69,293 | 545.00 | 2,322 | 1,824 |
| B 1240 | Printer Control for B 9246-20 | 9,000 | 40.00 | 300 | 249 |
| PUNCHED CARD EQUIPMENT |  |  |  |  |  |
| B 9115 | Card Reader; $300 \mathrm{cpm}, 80$-column | 8,198 | 56.00 | 280 | 211 |
| B 9116 | Card Reader; 600 cpm , 80-column | 10,830 | 78.50 | 374 | 282 |
| B 9117 | Card Reader; $800 \mathrm{cpm}, 80$-column | 12,335 | 96.30 | 423 | 326 |
| B 1115 | Card Reader Control for B 9115/16/17 | 2,292 | 16.20 | 59 | 47 |
| B 9915 | 51-column Read Feature for B 9115/16/17 | 803 | 0.00 | 22 | 18 |

* For 5-day, 8-hour service.
** Includes 7-day, 24-hour maintenance coverage.


## Burroughs B 1900 Series

## EQUIPMENT PRICES



## SOFTWARE PRICES

|  | UN | ITED TIME |  | LIMITED |
| :---: | :---: | :---: | :---: | :---: |
|  | Initial Charge (Single Payment | Initial Charge (12 Monthly Payments) | Annual License Fee | Monthly License Fee |
| MCP-TCS III; for the B 1905 or B 1910; includes MCP II, NDL, ODESY, either Text Editor or CANDE, choice of one compiler, Sort, and Utilities | \$ 8,250 | - | \$1,568 | \$275 |
| MCP-TCS IV; for the B 1955 or B 1985; includes MCP II, NDL. ODESY, GEMCOS and UPL, either Text Editor or CANDE, choice of one compiler, Sort, Utilities, and either DMS-II and DMS-II Inquiry or Reporter II Basic and On-Line Reporter | 18,000 | - | 2.880 | 600 |
| BASIC | 3,300 | - | 627 | 110 |
| Interactive BASIC | 2,475 | - | 473 | 83 |
| COBOL 68 | 3,300 | - | 627 | 110 |
| COBOL 74 | 2,475 | - | 473 | 83 |
| FORTRAN '77 | 3,960 | - | 759 | 132 |
| RPG | 3,300 | - | 627 | 110 |
| MIL Compiler (Micro Implementation Language)** | 3,399 | 311 | 616 | - |
| SDL Compiler (Systems Definition Language)** | 3,399 | 311 | 616 | - |
| User Programming Language (UPL) | - | - | - | 226 |
| Network Definition Language (NDL) | - | -- | - | 52 |
| Burroughs Network Services | 6,600 | 605 | 1,254 | 220 |
| GEMCOS | 4,590 | 421 | 875 | 153 |
| GEMCOS and UPL | 6,120 | 561 | 1.165 | 204 |
| GEMCOS (Advanced) | 6,120 | 561 | 1.165 | 204 |
| GEMCOS (Advanced) and UPL | 7.650 | 702 | 1,455 | 255 |
| GEMCOS Total | 7.650 | 702 | 1,455 | 255 |
| GEMCOS Total with UPL | 9,180 | 842 | 1.745 | 306 |
| GEMCOS Format Generator | 3,500 | 335 | 580 | 125 |

**Available only to universities and colleges under a special Program Products License.

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## SOFTWARE PRICES

|  | UNLIMITED TIME PLAN |  |  | LIMITED |
| :---: | :---: | :---: | :---: | :---: |
|  | Initial <br> Charge <br> (Single Payment | Initial Charge (12 Monthly Payments) | Annual <br> License Fee | Monthly License Fee |
| Audit Reporter | 15,080 | 1,382 | 2,865 | 503 |
| Advanced Reporter II | 11,030 | 1.011 | 2,095 | 368 |
| Reporter II (Basic) | 7,000 | 642 | 1,330 | 234 |
| On-Line Reporter | 1.030 | 95 | 195 | 34 |
| Supervisory Message Control System (SMCS) | 1,545 | 142 | 295 | 52 |
| System Communication (SYCOM) | 3,030 | 283 | 575 | 103 |
| Test Data Generator | 7,000 | 642 | 1,330 | 234 |
| ODESY | 4,675 | 430 | 890 | 157 |
| Data Management System II | 13,925 | 1,277 | 2,645 | 465 |
| DMS II Inquiry | 1,500 | 138 | 285 | 50 |
| Text Editor | 1.815 | 167 | 345 | 61 |
| CANDE | 3,525 | 323 | 670 | 117 |
| Power RJE | 1,300 | 119 | 250 | 43 |
| HASP RJE | 1,300 | 119 | 250 | 43 |
| B 7000/B6000 Remote Job Entry Terminal Program | 1,235 | 113 | 155 | 41 |
| B 4000/B 3000/B 2000 Remote Job Entry Terminal Program | 1,235 | 113 | 155 | 41■ |

