

Burroughs Small
Computer Systems

Burroughs B 80-31/131 System



The B80 is a small but fully featured general purpose computer system. It combines the most advanced concepts of both hardware and system software into one system. Some outstanding features of the B80 are:

- A highly efficient main processor.
- SELF-SCAN® System Display.
- A 60-character-per-second matrix printer.
- Burroughs Super Mini-Disk.
- Full data communications capability.

These features combined with Burroughs Computer Management System (CMS)—a unique concept of totally integrated software—provide a cost-effective approach to data processing requirements — today and in the future.

Processor

The entire processor is contained on nine chips and includes nano memory, micro stack, I/O logic, and system registers. Major processor characteristics include:

- Clock speed of 1 MHz.
- Memory access time of 500 nanoseconds per 1 byte.
- "Look Ahead" and "Overlap" of the fetch and execute of microinstructions. These allow more than one function to occur during a processor cycle. The processor operates under control of microinstructions stored in memory. Portions of processor logic continuously fetch and decode microinstructions into control signals which cause processor functions. Buffers in the decode logic enable an overlapping of these functions. These allow more than one function in a single processor cycle and contribute significantly to enhanced throughput.

- One microinstruction can have the capability of multiple character transfers. Data movement and processor efficiency are greatly enhanced by this feature.
- Through Hardware I/O interrupt, the processor only takes the time to service an I/O port when it is actually needed. This capability reduces processor overhead because scanning of the I/O ports is not needed.
- The processor has up to eleven I/O channels, each with its own unique address.
- Data movement occurs along an 8-bit wide data path.
- Main memory is Metallic Oxide Semiconductor (MOS) with a cycle time of one microsecond for one byte. The system has 4KB Read Only Memory (ROM) which contains:
 - Routines for loading interpreters from cassette or disk.
 - Basic customer confidence routines. Thirty-two KB of Read/Write memory is basic and is expandable to 60KB.

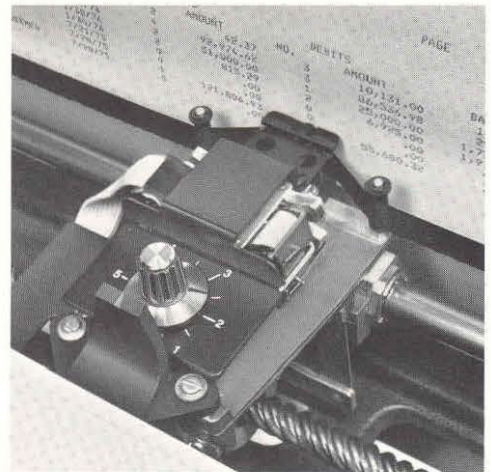
On-board diagnostics

- On-board diagnostics are designed to contribute to optimum performance of B80 systems. This series of Maintenance Test Routines (MTR) assists in analyzing faults in the system and detecting degraded performance of a component before a fault occurs. They perform tests on the entire system, including peripherals, with the results printed in simple, easy-to-read statements on a journal. These on-board diagnostics facilitate faster repairs, help eliminate additional service calls, and allow repair or replacement of components before a fault occurs.

Keyboard

The keyboard provides a proven concept in design for ease of use and productivity. The following keyboard features are standard:

- Keyboard buffering permits keyboard entry at an operator's pace even when the printer and processor are in use.
- Standard alphanumeric typewriter.
- Ten-key numeric data input keyboard.
- Four operation control keys duplicated on both the alphanumeric and ten-key keyboard for operator convenience.
- Programmatic indicator lights for operator guidance.
- Twenty-four Program Select keys to simplify operator use of the system.



Printer and Forms Handler

The printer and forms handler are designed for flexibility and throughput. Characteristics include:

- 60-character-per-second serial matrix printer.
- Printer positioning at 160 characters-per-second.
- 15-inch forms handler.

Disk Storage Drives

- Two 1.0 million byte Burroughs Super Mini-Disk drives with 266 milliseconds (ms.) average access time are standard and inbuilt into the processor cabinet.

- A choice of three dual-cartridge disk drives is available. These include:
 - 4.6 million bytes/145ms. average access.
 - 4.6 million bytes/80ms. average access.
 - 9.2 million bytes/100ms. average access.
- Burroughs Super Mini-Disk Dual Free-Standing drive of 1.0 million bytes per single disk drive is optional.
- A maximum of three dual disk drives per system is available including the industry compatible Mini-Disk drive. Each dual disk drive has its own control.

Input/Output Capabilities

- Industry-compatible Mini-Disk drive of 243 thousand bytes per single drive is optional.
- Magnetic Tape Cassette Drives.
 - One inbuilt drive is standard. The maximum number of inbuilt drives is four.
 - Non Return to Zero (NRZ) encoding is standard.
- SELF-SCAN® System Display.
- Line Printer (optional).
- Combination system printer and console line printer.
- Terminal systems (optional).

Data Communications Characteristics

- Data Communications Channels—up to four.
- Mode of Operation—half duplex.
- Interface—a choice of:
 - Asynchronous data set, 75 to 1800 BPS.
 - Synchronous data set, 2400 to 9600 BPS.
 - Burroughs Data Link Control, 2400 to 9600 BPS.

- Two-wire Direct Connect up to 1,000 feet, 1200 to 9600 BPS.
- Burroughs Direct Interface (BDI) up to 15,000 feet, 1200 to 9600 BPS.
- Switch Line
 - Auto Answer.
 - Auto Dial.
- Buffers
 - Transmit Buffer(s).
 - Receive Buffer(s).

Burroughs Computer Management System (CMS)

Burroughs Computer Management System (CMS) is a totally integrated software system designed to provide identical procedures and results for Burroughs advanced interpretive computers. CMS includes:

- Master Control Program (MCP).
- Data Control System (DCS).
- On-Board High-Level Language Compilers.
- Business Management Systems (BMS).
- Microprogrammed Interpreters.
- Utility Programs.

Master Control Program (MCP)

The B80 MCP is a comprehensive operating system designed to simplify operation and control of the system. It increases productivity by automatically directing many functions which would ordinarily be handled by an operator or a programmer. Principal MCP features include:

- Operator Communication—The MCP provides a two-way communication between the operator and the system. MCP messages are simple, easy-to-understand statements.

- Multiprogramming—More than one job may be processed at one time. The MCP controls automatic multiprogramming by assuring efficient use of the processor on one job while I/O is occurring for other jobs.
- Virtual Memory—The B80 MCP provides for a complete virtual memory system. This enables the B80 to run programs which are larger than the available memory size. This same concept enables the MCP to maximize memory utilization in a multiprogramming environment.
- Dynamic Resource Allocation—The MCP maintains an inventory of the resources available on the system and maximizes productivity by allocating these resources to meet job requirements. Among these resources are:
 - Programs that are running and the segments of each program.
 - Memory availability.
 - Peripheral assignments and additions.
 - Disk storage space.
 - Program priority.
 Any changes in resources are noted by the MCP so that optimum system efficiency and throughput can be achieved. This capability makes possible the utilization of additional resources without reprogramming.
- Input/Output Control—The MCP handles all physical I/O operations and also controls the operation of I/O hardware. These activities include:
 - Locating files.
 - Data transfer.
 - Buffer management.
 - Automatic label recognition.
 - Error monitoring.
 - Automatic retry on error detection.
 Because these functions are handled automatically by the MCP, they do not have to be included in user programs. Therefore, application programs are simpler to write.

Data Control System (DCS)

Burroughs Data Control System (DCS) provides data handling capabilities for:

- Basic reporting and inquiry.
- Ease of entering and auditing data input.
- Generalized file maintenance.
- Source entry.

High-Level Languages and Compilers

- Network Definition Language (NDL) compiler simplifies the implementation of data communications networks.
- Message Processing Language II (MPL II) compiler generates programs to process, edit, collect, verify, route and audit messages.
- On-board COBOL compiler.
- On-board Report Program Generator (RPG) compiler.

Business Management Systems (BMS)

Burroughs Library of Program Products includes Business Management Systems and specialized application program products. They permit newly installed systems to become productive almost immediately. Burroughs program products have been fully proven in thousands of customer installations. They offer substantial savings over developing and maintaining your own programs.

Microprogrammed Interpreters

Microprogrammed interpreters provide multiple virtual machines within a single host system. This open-end design concept means that other languages may be implemented efficiently on the B80 as new interpreters are developed. It also means that the user is protected against obsolescence because improvements in throughput can be realized without changing hardware.

Utility Programs

Sort, merge, file load, file dump and file copy are just a few of the many Burroughs Utility Programs that can assist the user in obtaining greater system flexibility at an effective cost-to-result ratio.

Physical Characteristics

Height: 30.00" — 76.2 cm
Weight: 550 pounds — 249.5 kg
Depth: 57.00" — 144.74 cm
Width: 46.69" — 118.6 cm

Electrical Specifications

115 volts — 20 amp or 220 volts — 30 amp.