Now . . . from Burroughs Corporation

full COBOL···operating system control···multiprograming

B 500

electronic data processing system

B 500

The B 500 is an evolutionary system based on the well-proven B 100, B 200 and B 300 computers and utilizes their systems and applicational software. The simplicity and processing power that made these earlier systems so popular is now complemented by new peripheral units, advanced data communications, operating system control, and multiprograming in the B 500. Systems Memory provides a new, low-cost entry into high-speed disk file processing and full COBOL. This disk file permits faster sorting and reporting operations, holds user program libraries, provides storage for systems software, acts as an extension of main memory for segmented programs, and generally speeds and improves system operations. Systems software for the B 500 includes the following:

Operating System—simplifies system programing, operation and management control. Permits multiprograming for greater throughput and system utilization.

Disk File COBOL—provides large system COBOL capabilities at low cost. COBOL provides upward compatibility with all Burroughs 500 Systems.

Assembler Programing System—offers three levels of symbolic programing capability to meet configurations and application requirements. Each of these Assembler systems is highly flexible and well suited to business problem programing.

Generative Software—generates efficient sort and report programs from quickly and easily prepared parameter cards outlining the user's requirements.

Utility Programs—carry out all standard data conversion operations, include special disk file routines, and assist in program debugging. These routines may be stored in the program library and called into operation by the operator or a user program.

OPERATING SYSTEM

The Burroughs B 500 Operating System is a software package designed to automate many tedious and repetitious tasks normally associated with programing and computer operation, and to monitor multiprograming operations. This operating system requires a very small portion of core and disk file memory. Its main function is to control:

Multiprograming
Job Loading and Initiation
Automatic Overlay
Program Library Maintenance

Multiprograming

One of the major advantages of operating system control is the ability to process several programs together. The B 500 operating system directs up to three programs through the system, automatically allocating memory areas for each, and assigning peripheral equipment to meet I/O demands. As soon as one program terminates, the operating system brings the next job into memory to refill the system.

PRINTER BACK-UP

In a multiprograming environment, it is possible for several programs to require printer output simultaneously. The B 500 operating system handles this situation by diverting printer output to a scratch tape while the printer is busy. This tape is printed when the printer becomes available. This allows processing to continue on programs which would otherwise be suspended awaiting printer availability and improves printer utilization.

SCHEDULING FLEXIBILITY

Multiprograming increases the data processing manager's ability to respond to sudden demands. When faced with a "rush job," he can enter it with other work and multiprocess the whole mix without seriously disrupting scheduled operations.

Program Loading and Initiation

The operating system eliminates much repetitious programing by automatically handling the job of program loading. At compilation or assembly time, the operating system loads the new program into the user's library on tape or disk file. When the program subsequently is requested, the operating system locates it in the library and loads it into main memory for processing. This often allows job set-up time to be overlapped with another job's processing time in either batch or multiprograming mode, and eliminates delays between jobs.

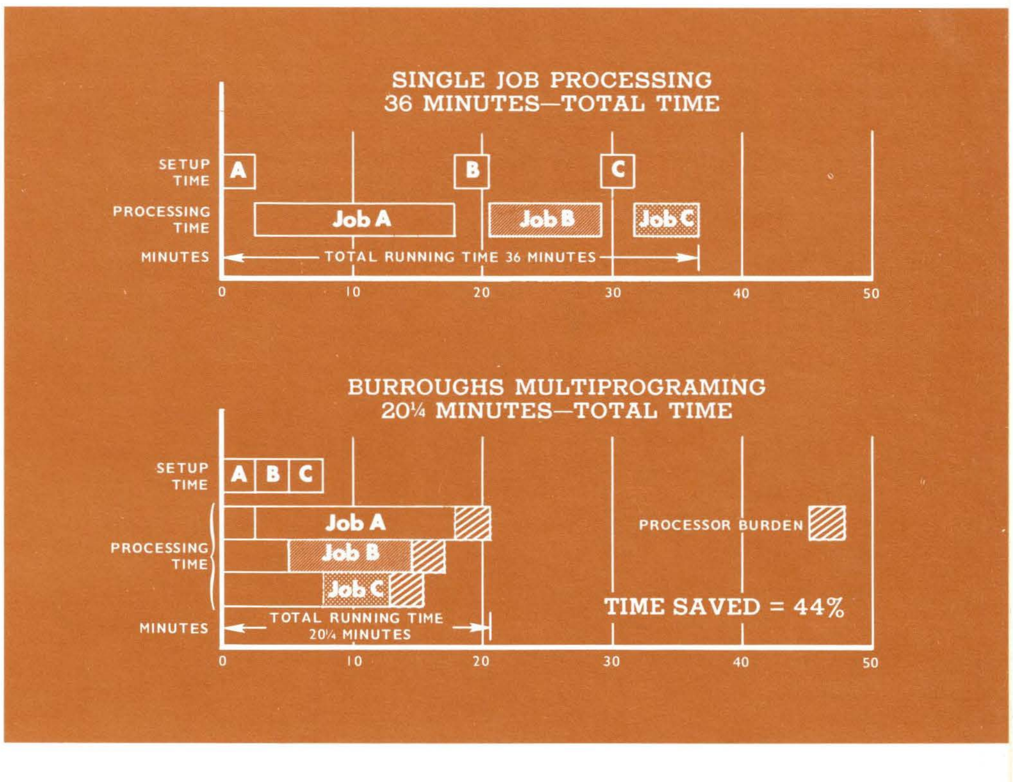
Automatic Overlay

B 500 programs may be segmented to allow most of the program to remain in disk storage during execution until needed in core memory. The operating system automatically shuttles segments from disk to core memory as required. This technique allows extremely large programs to be run on a system with modest core memory, reduces core storage requirements for multiprograming, and lowers overall system cost without sacrificing performance.

Library Maintenance

The B 500 operating system provides complete program library maintenance. The user may add, delete, or change programs in the library through a few simple instructions. Once in the library, programs are indexed, located when requested, and loaded automatically by the operating system.

MULTIPROGRAMING ECONOMY



GENERATIVE PROGRAMING SYSTEMS

Sort Program Generator

Sorting, which typically consumes 30 to 50 percent of all run time, can be completed significantly faster with B 500 disk file sort programs. Generative programing packages provided with the B 500 accept simple parametric input and rapidly produce efficient tape or disk file sort programs tailored to the user's applications.

PROGRAMING SIMPLICITY

Input to these generative programs consists of a few specification cards defining the sort requirements and the equipment complement to be used. Special routines may be inserted into generated programs to meet unique requirements. An optional symbolic output provides a well documented listing of the generated program and facilitates additional coding.

EFFICIENT RESPONSE

Generated programs are in symbolic language and may be punched into cards or paper tape, or written on magnetic tape or disk file. The user may have the generated program assembled and assigned to the program library on magnetic tape or in disk file. Then, one call card or one entry on the console will bring the program into memory where it may immediately be used in processing.

TYPES OF PROGRAMS

The user has the option of generating full record or tag sort programs for disk file sorting. The tag sort method used on disk file configurations greatly reduces run time by moving and manipulating only a small portion of each record. The entire record is placed in the disk file. The key or identification portion of the record essential to sorting is combined with the record's disk file address, and forms a "miniature record" for core sorting. All sort operations are performed on this "miniature file." When it is properly sequenced, the miniature file is used to access the complete records in the disk file in the desired order. Use of the miniature file reduces the amount of data which must be read, moved, and otherwise manipulated. It thus diminishes core memory requirements and run time.

Report Program Generator

The Report Program Generator provided with the B 500 system allows the user to produce many report programs of the simpler variety in minimum time and at optimum efficiency. The Report Program Generator furnishes relatively complex symbolic programs from a brief, simplified, problem-oriented language. Program generation is fast, and resulting programs usually run at the rated speed of the peripheral equipment used.

Flow Chart Generator

The Flow Chart Generator produces fully documented logic flow charts of programs coded in Assembler Language. It is a helpful tool for program testing, periodic program modification, and final documentation. Flow charts are printed horizontally in a manner consistent with standard flow charting symbols. Mnemonic operation code and user remarks are printed within each symbol.

UTILITY PROGRAMS

In addition to standard data conversion and programing debugging routines, B 500 users are provided with a variety of other utility programs. All utility routines may be called from the program library by the operator or by a user program.

Special programs available with the B 500 include:

Print Memory—prints the contents of core memory between specified addresses.

Print Disk—prints the contents of disk file between specified addresses.

Clear Disk—sets the area between specified addresses in the disk file to a specified character.

Disk-to-Disk—transfers the contents of a specified area of disk file to another designated area of disk file. Similar functions include: disk-to-tape; tape-to-disk; disk-to-card; card-to-disk; and binary tape-to-tape.

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