LANGUAGE DATA SHEET

2200 COBOL

INTRODUCTION

Wang 2200 COBOL is an interactive version of the COBOL language that includes all nucleus language features of ANSI (X3.23-1974) Level 1 COBOL, as well as many features of Level 2 COBOL. Wang 2200 COBOL is highly compatible with Wang VS COBOL.

COBOL is a standardized programming language. It is extremely popular in business settings, because of the ease with which it handles complex hierarchical data structures for applications such as inventory, billing, and payroll. COBOL is ideal for tasks requiring large-file handling and output formatting with typical business calculations such as price extensions, discounting, and commissions. Because it was designed to be a self-documenting language, COBOL is widely understood. Wang 2200 COBOL, with its interactive extensions, provides special programming capabilities not available in most standard versions of the language.

INCREMENTAL COMPILATION

The 2200 language processors incrementally compile user programs. Incremental compilation distributes compilation time, making syntax error correction an easy task and decreasing the wait for program execution. When the COBOL program is entered, it is condensed into a form that optimizes execution and uses significantly less storage space than in its original form. At this time, syntax errors are immediately reported to the user with descriptive error messages. The original source text is automatically regenerated from its condensed form, eliminating the need for separate source and object files. When the program is run, it is resolved: space is set up for variables and program consistency is ensured.

- **Interactive COBOL Language**
- **Incremental Compilation**
- **Efficient Memory Utilization**
- **Print Spooling**
- **Descriptive Error Messages**

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COBOL ENVIRONMENT

Wang BASIC-3, an extensively enhanced version of BASIC, is provided as a companion utility language for COBOL. The enhanced version of the 2200 Series MVP/LVP CPU can process BASIC-3 and COBOL programs concurrently, since BASIC-3 is co-resident with COBOL. The flexibility and power of BASIC-3 eliminate the need to program functions not provided by COBOL in an assembly language.

A series of system commands allows each user to control system operations from the keyboard. Tasks such as initiating program execution, clearing system memory, and listing a program in memory are performed without using a separate system procedure language.

System memory is divided into control memory and user memory. The language processor and operating system, shared by all users, reside in the dedicated internal control memory. User memory is thus free for the storage of user programs and data. Consequently, the enhanced version of the 2200 Series MVP/LVP CPU is capable of running larger COBOL programs than are most other systems of comparable size.

PROGRAM ENTRY AND EDITING

The Wang 2200 Series offers a variety of editing features, that make COBOL program development simple and efficient. Source code line numbers are automatically generated when program text is entered. The editing capabilities enable the operator to recall and edit program lines and data values, insert and delete characters or program lines, list all or part of a program, concatenate two or more program lines, and set standard COBOL tabs.

When a COBOL line is entered, an immediate syntax check is performed. If an error is found, the line containing the error is displayed and an arrow points to the particular entry that caused the error. An error message, consisting of an error code and a description of the error, is displayed. Immediate syntax checking saves the programmer considerable time during program development.

Descriptive Error Message

PROGRAM DEBUGGING

The process of locating and identifying errors in a COBOL program involves careful analysis of the program's performance at critical stages of program execution. To aid the programmer in this task, the system provides powerful debugging tools that allow the programmer to: stop program execution at a critical point, in order to display and modify the values of variables; trace the value of variables through program execution; temporarily halt program execution and step through a program one statement at a time; and cross-reference data items, paragraph names, and text strings.

DISK FILE MANAGEMENT SYSTEM

The COBOL operating system contains a file management system that provides efficient volume management on the disk. A shared file management system frees users from the responsibility of disk operations and enhances interprogram communication, facilitating the language-independent sharing of data files created by BASIC-3 and COBOL. The file management system uses efficient buffer strategies to maximize performance. A large number of files may be open simultaneously.

Files are named using a node-based tree structure, enabling the creation of libraries and sub-libraries. The system automatically maps the location of each file, allowing it to be accessed by name without regard for the particular location on the disk. File space is dynamically allocated depending upon program need, within the limits set up by the user at configuration time. A user can move, rename, or delete files at any level in the tree; reuse the space occupied by deleted files; and expand or shorten existing files.

The file management system supports sequential, relative, and indexed files and random, sequential, and dynamic access. Both fixed-length and variable-length records are allowed.

Disk operations are controlled by file commands to create, open, close, or delete files. A query file command can be used to return all current details and facts about a file. An open-for-direct-control command is provided for absolute access.

The file management system integrates security and concurrency checks to ensure file protection. Passwords may be assigned to individual files for specific groups of privileges. When a file is opened, the file sharing mode is checked against password rights and for possible conflicts with other users having the same file open. Shared and exclusive are among the file sharing modes supported.

Recovery procedures ensure the integrity of the system at the file level. If damage is discovered, utilities are available to reconstruct the catalog and contents map.

PRINT SPOOLING

Print spooling optimizes printer usage by placing printer output in a disk file instead of sending it directly to a printer. The individual terminal or background program is thus freed from operating at printer speed, and the user can continue processing at the terminal without interruption. As a result, several users can create printer data simultaneously. Print spooling enables printers to be scheduled to handle total system requirements most efficiently.

INTERPROGRAM COMMUNICATION

The enhanced version of the 2200 Series MVP/LVP CPU now supports both the BASIC-3 and COBOL languages. Since each language provides singular features that make it particularly suitable for certain types of jobs, functional portions of a system may be implemented in the language best suited to the component problem. Programs written in COBOL may call subprograms written in either COBOL or BASIC-3.

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