
WICAT SYSTEMS: SYSTEM 100 Software

WICAT's Multi-user Control System (MCS™) is one of the most powerful operating systems available on a microcomputer today. It contains many features rarely found even on larger systems. MCS was designed to strike a careful balance between the needs of systems programmers and general users without compromising either.

The systems programmer can use the dynamic memory management feature that uses hardware mapping registers to isolate users from each other, while protecting the MCS. Each 4K page of physical memory can be mapped anywhere into a 2MB address space and can both be read and write protected.

The hierarchical file structure maintains multiple

OPERATING SYSTEM

- Real Time
- Multi-user, Multi-tasking
- Double Precision Floating Point
- Dynamic Memory Management
- Process Control Including: Hibernate, Wake, Wait, Set Time Slice, Exit Handler, Fork, Spawn, etc.
- Background Processing
- Interprocess Communication with Page Sharing and Time Synchronization
- Program Instruction Space is Shared Among Users and Tasks
- Access to System Clocks

CIP

- Command Line Editing
- Identical Syntax for Command File and Keyboard Input
- Parameters May Be Entered Positionally or by Prompting
- User Modifiable and Extendable Help Facility
- Wildcarding (file name pattern matching)
- Comprehensive Set of Utilities (User Modifiable)
- I/O Redirection

versions of the same file and time stamps each version.

Perhaps the most important design philosophy of MCS was to make the system user-friendly. Therefore, many user-oriented features are supported such as two alternate methods of entering commands. One method is to enter all commands and parameters positionally on the command line. The other method is to enter the name of the command and let the system prompt for any required parameters.

A simple easy-to-use help facility provides instant access to descriptions of any command.

WICAT has succeeded in producing a micro-computer system that is appreciated by both sophisticated implementors and general users.

FILE SYSTEM

- Hierarchical Directory with Automatic Cataloging
- Retains Multiple Versions of the Same File
- Completely Device Independent
- Automatic File Size Extension When Needed
- Keyed Sequential Access Method
- File Protection and Dating

EDITOR

- Screen Oriented
- Terminal Independent
- Two Levels of Editing Functions
- Comprehensive Function Set (global search and replace, decide and switch, cut and paste, etc.)
- Virtual Edit Buffering

LANGUAGES

- Pascal
- C
- FORTRAN 77
- APL.68000*
- COBOL
- BASIC
- Assembler

SOFTWARE OPTIONS

- UNIX System III*
- CP/M Emulator*

*APL.68000 is a product of The Computer Company.
UNIX and UNIX System III are registered trademarks of Bell Laboratories.
CP/M is a registered trademark of Digital Research.

OS

Real Time Multi-User Multitasking

WICAT System's MCS Operating System is a real time multitasking operating system allowing several users to run on the system simultaneously while sharing the powerful resources of the WICAT System 100 Processor.

Dynamic Memory Management

For maximum efficiency in the allocation of resources in this multiuser environment, dynamic memory management is used to allocate memory and to insulate users from each other.

Interprocess Communication

Such features as event flags and page sharing allow several processes that are executing concurrently to communicate with each other and synchronize their use of computer resources in an efficient manner.

Program Instruction Space Shared Among Users and Tasks

If the same program is being executed as two or more different processes at the same time, the executable code portion of the program is automatically shared.

FILE SYSTEM

Hierarchical Directory Structure

The inherent hierarchical nature of the directory structure allows the efficient maintenance of large volumes of data in separate files.

Retains Multiple Versions of the Same File

This very useful feature allows the user to modify a file and save the modifications as a new version of the file while retaining the old version. This feature can save hours of looking for old printouts for a reference or if a mistake is made.

Device Independent I/O

Programming of I/O is device independent because all devices use the same system calls.

Dynamically Mounted Device Drivers

The user can dynamically add a driver to the operating system to communicate with devices.

Automatic File Extension

Files are automatically given more disk space when needed rather than pre-allocating more storage than is actually required.

Multiple Key File Access

The keyed file access feature gives the user random access to files. One file may have several access keys which saves time in sorting files with different types of fields.

File Protection

The file system consists of either private files viewable only by the file's creator or public files that can be viewed by any user or group of users. Files may be accessed by more than one user at the same time.

VIRTUAL EDIT WINDOW

Screen Oriented

The editor is easy to use because all editing results are immediately displayed on the screen.

Terminal Independent

A set-up file facilitates the use of most any terminal.

Comprehensive Set of Functions Such As: Global Search and Replace, Cut and Paste, Global Delete and Replace

These are just a few of the powerful editing commands that permit modification of large portions of files.

Virtual Edit Buffering

The virtual edit buffer allows the editing of arbitrarily long files without worrying about memory space allocation.

CIP

Command Line Editing

Using command line editing a user can recall and modify the last few commands without retyping them.

Identical Syntax for Command Line and Keyboard Input

The syntax for commands is identical for both command files and keyboard typed commands.

Modifiable and Extendable Help Facility

The CIP comes with a standard set of help facilities for each of the commands used in the system. These may be changed by the user.

Wild Carding (File Name Pattern Matching)

When files in a directory have common endings or other commonalities in their names, they can all be supplied to a command line by using wild card characters. For example, all Pascal programs in a directory can be deleted by typing "DEL *.PAS".

I/O Redirection

Many programs take their input from the keyboard and send their output to the terminal screen. Both of these may be independently redirected to other files, terminals or devices.

LANGUAGES

Pascal

WICAT's Pascal compiler produces an optimized native 68000 code. Extensions to the ISO standard include random file access, UCSD-compatible strings, and liberal set capability.

C

The WICAT C compiler derives from the standard UNIX* C compiler and comes with full standard I/O and math libraries. This low-level language allows easy access to a machine's operating system and hardware, as well as to FORTRAN and Assembler.

FORTRAN 77

FORTRAN 77 is a GSA-validated, full implementation of the ISO standard. FORTRAN 77 has an enhanced I/O and program structure and yet supports the FORTRAN 66 standard.

APL 68000

APL68000 is the first APL interpreter for the MC68000 microprocessor. It supports a powerful file system, formatter, and IEEE floating point arithmetic.

COBOL

WICAT offers the GSA-approved CIS COBOL with special screen handling features and extensions for interactive debugging. The compiler exceeds the ANSI Level 1 COBOL requirements and handles sequential, relative, and indexed sequential files. RM COBOL is also available.

BASIC

WICAT's extended dialect of BASIC not only functions as an interactive interpreter, but also produces and executes code like a compiler. BASIC can generate assembly files that can be linked with other files to form an executable image independent of the interpreter.

Assembler

The WICAT 68000 Assembler processes files at 2000 lines per minute and includes two macro preprocessors. The 68000 Assembler supports the standard mnemonics and pseudo-instructions in Motorola's portable cross assembler to transport applications quickly and effectively.