System 220

WICATsystems

WICAT System 220

WICAT Systems, Inc., introduces the System 220, a powerful and versatile 68000-based microcomputer designed to meet the broad range of business and scientific computing needs.

WICAT's proprietary bus structure and intelligent I/O controller provide rapid response and access to memory for up to 64 users. A high-density disk controller supports up to 474 Mbytes per disk, four drives per system, and multiple backup subsystems. The System 220 also contains a 20-slot chassis, which allows RAM expansion up to 16 Mbyte.

With state-of-the-art design, the System 220 provides features usually found only on larger mainframe systems and has made the system available at a surprisingly affordable price.

PROCESSOR

- MC68000L8, 8MHz (approx. 1 million instructions per second)
- 16-bit process or (32-bit data operations)
- Memory management
- 7 vectored interrupt levels
- 20-slot chassis (proprietary bus)

MEMORY

- 1–14 Mbyte dynamic parity RAM (ECC Optional)

COMMUNICATIONS

- Bisync 3270
- Bisync 2780/3780

PERIPHERALS

- 84/168/474 Mbyte SMD Disk Subsystems
- Tape Subsystems:
  —Cipher Tape (9-track, 1600/3200 BPI, 25 ips)
  —DEI Cartridge Tape
- Interfaces:
  —8/32 async. intelligent ports
  —4/8 sync. intelligent ports
  —Master control ports
- Hardware floating point (optional)

SYSTEM SOFTWARE

- Multi-user Control System (MCS): A realtime, multi-user, multi-tasking operating system
- Operating System Options: UNIX*, CP/M* Emulator
- Language Support: APL, Assembler, BASIC, C, COBOL, FORTRAN77, and Pascal
- Major Applications: Office Information System (word processing), UltraCalc, WISE (courseware development system), and Sequitur (relational DBMS)

P.O. Box 539 1875 South State Orem, UT 84057 (801) 224-6400
441 Lexington Avenue, Suite 608 New York, NY 10017 (212) 697-4740
20 North Wacker Drive, Suite 1642 Chicago, IL 60606 (312) 630-0010
180 Grand Avenue, Suite 1055 Oakland, CA 94612 (415) 834-6723
Edgbaston House 3 Duchess Place Edgbaston, Birmingham, England B16 8NH 21 454 7782

System 220 Hardware Specifications

ENVIRONMENTAL

Safety
Designed to meet UL 478 (EDP) and 114 (office equipment), and CSA 154 (EDP) and 143 (office equipment) requirements.

RFI/EMI
Complies with FCC Rules and Regulations, Part 15, Subpart J, Class A.

Temperature

Operating	50 to 95° F 10 to 35° C
Idle	−40 to 140° F. −40 to 60° C

Operating Altitude	10,000 ft.
Operating Humidity	3,000 m.
(non-condensing)	20 to 80%

RACK MOUNT

Size	**Quarter Bay**	**Half Bay**
Height	31 in.	43 in.
Width	21 in.	21 in.
Depth	33 in.	33 in.
Weight	120 lb.	170 lb.

CPU DRAWER

Size	
Height	10 in.
Width	19 in.
Depth	26 in.
Weight	50 lb.
Electrical	
Frequency	50–60 Hz
Voltage	110/220
Watts	300
Timing	
CPU	8 MHz
Bus	Proprietary
Serial Ports (RS-232)	50–19.2 Kbaud
Parallel	1 Mybte/sec.

84 Mbyte SMD DISK SUBSYSTEM

Size	
Height	8.7 in.
Width	19 in.
Depth	26 in.
Weight	40 lb.
Electrical (input power)	
Frequency	50–60 Hz
Voltage	110/220
Watts	300
Specifications	
Winchester size	8 in.
Capacity	
Unformatted	84 Mbyte
Formatted	76 Mbyte
Access Time	
Track to Track	5 ms.
Average	20 ms.
Maximum	40 ms.
Transfer Rate	1.229 Mbyte/sec.
Rotational Speed	3600 rpm
MTBF	10,000 hours

168 Mbyte SMD DISK SUBSYSTEM

Size	
Height	10.4 in.
Width	17.5 in.
Depth	29.8 in.
Weight	128 lb.
Electrical (input power)	
Frequency	50–60 Hz
Voltage	110/220
Watts	400
Specifications	
Winchester size	14 in.
Capacity	
Unformatted	168 Mbyte
Formatted	151.7 Mbyte
Access Time	
Track to Track	10 ms.
Average	30 ms.
Maximum	55 ms.
Transfer Rate	1.209 Mbyte/sec.
Rotational Speed	3600 rpm
MTBF	9000 hours

474 Mbyte SMD DISK SUBSYSTEM

Size	
Height	10.5 in.
Width	19 in.
Depth	26 in.
Weight	140 lb.
Electrical (input power)	
Frequency	50–60 Hz
Voltage	110/220
Watts	600
Specifications	
Winchester size	10½ in.
Capacity	
Unformatted	474 Mbyte
Formatted	421 Mbyte
Access Time	
Track to Track	5 ms.
Average	18 ms.
Maximum	35 ms.
Transfer Rate	1.859 Mbyte/sec.
Rotational Speed	3961 rpm
MTBF	10,000 hours

9 TRACK TAPE DRIVE

Size	
Height	8.7 in.
Width	19 in.
Depth	25 in.
Weight	80 lb.
Electrical	
Frequency	50–60 Hz
Voltage	110/220
Watts	300
Recording density	1600/3200 bpi
Tape speed	25/100 ips
Transfer rate	160 Kbytes/sec.
Capacity	
½-inch mag. tape	(2,400 foot tape)
Unformatted	46 Mbyte
Formatted	37 Mbyte (4 Kbytes/block)
MTBF	5500 hours

CARTRIDGE TAPE DRIVE

Recording density	6400 bpi
Tape speed	30/90 ips
Transfer rate	192 Kbits/sec.
Capacity	
¼-inch cartridge tape	
Unformatted	17 Mbyte
Formatted	(4 Kbyte/block)

System Software

OPERATING SYSTEMS

The Multi-user Control System (MCS)

Users have simultaneous access to the system (multi-user), and each user can run several processes simultaneously (multi-tasking).

Background processing.

Command files and parameter files that contain lists of commands (script) or parameters can be executed as though the operator were typing them.

Logical Input/Output.

Input/Output redirection.

Named pipes.

75 standard utilities including a screen-oriented text editor, SORT/MERGE, incremental system backup.

Subdirectories (hierarchical) to any level.

File versions.

Logical names.

A variety of user interface programs. The standard interface is expandable and includes command line editing, prompted parameter entry, on-line helps, and parameter files.

Keyed Sequential Access Method (KSAM).

Memory management also allows the following:

- Processes can share pages of memory.
- Pages of logically addressed memory can be write-protected.
- All user processes share a uniform context.
- Noncontiguous physical memory pages appear as contiguous logical memory pages.
- User processes are isolated from each other as well as from the MCS.

The text, or code, segment of a process being used simultaneously by several users is write-protected and shared automatically.

WICAT UniPlus+

WICAT's UniPlus+ system derives from the UNIX* operating system and combines a complete set of basic utilities with a set of powerful mechanisms that allow the user to create new commands. The UNIX system is self-contained and therefore adaptable to numerous new processors and hardware systems.

WICAT has source licenses with AT&T for UNIX Version 7 and UNIX System III. The kernel and utilities for WICAT's UniPlus+ are essentially those of UNIX Version 7 from Bell Laboratories. In addition to enhancements made by WICAT Systems, UniPlus+ includes the enhancements of UNIX System III, and the 4.1 Berkeley Standard Distribution.

Utilities and subsystems include:

C Shell	(command processing language)
vi	(visual display editor)
SCCS	(Source Code Control System)
curses	(screen management library)
nroff, tbl	(document preparation)
yacc, lex	(language development)
uucp, cu	(UNIX networking)
badblk	(handling bad blocks)
mt	(Berkeley mag tape)

APPLICATIONS

Office Information System (OIS) Word Processing

This flexible word processing system, with editing and formatting capabilities, includes pagination, search and replace, automatic page numbering, cut and paste, right justification, a spelling dictionary, and other essential functions.

UltraCalc

UltraCalc, a versatile electronic worksheet, allows you to manipulate and analyze tabular data using graphs, automatic recalculations, 15-digit arithmetic, and advanced math functions. These features simplify economic forecasting, trend analysis, and other computations.

WISE

WISE is a courseware development system that allows the nonprogrammer to use text and graphics editors as well as instructional design features to create sophisticated instructional programs. WISE eliminates the need for an intermediary programmer to develop computer-operated lessons on any subject.

SEQUITUR

This relational database management and word processing system is totally screen-oriented and offers fully integrated editing and relational data manipulation. Sequitur also provides unprecedented versatility for entering data; generating reports, forms, and mailing lists; and using word processing to manage documents.

LANGUAGES

RM/COBOL

RM/COBOL is an implementation of the ANSI 74 COBOL standard, designed for the efficient development and execution of COBOL business applications. RM/COBOL has the features commonly required by minicomputer and mainframe applications.

SMC BASIC

SMC BASIC is a Business Basic that retains the simplicity of the original Dartmouth BASIC, yet includes enhancements that make the language particularly simple and easy to use for business applications.

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 the operating system and hardware, as well as to FORTRAN and Assembler.

FORTRAN77

FORTRAN77 is a GSA-validated, full implementation of the ISO standard. FORTRAN77 has an enhanced I/O and program structure and still supports the FORTRAN 66 standard.

APL.68000*

APL.68000 is the first APL interpreter for the MC68000 microprocessor. It supports a powerful file system, formatter, and IEEE floating point arithmetic.

CIS 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.

Coherent BASIC*

Coherent BASIC is an extended dialect of BASIC that can be used interactively like an interpreter. Coherent BASIC also produces code like a compiler and then executes the code.

Assembler

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

*Multibus is a trademark of INTEL Corporation.
*UNIX is a trademark of Bell Labs.
*CP/M is a trademark of Digital Research.
*UniPlus+ is a product of Unisoft.
*APL.68000 is provided by The Computer Company.
*Sequitur is a trademark of the Pacific Software Manufacturing Co.
*Coherent BASIC is a product of Mark Williams Co.