CIP-2200
features brochure

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CINCINNATI MILACRON
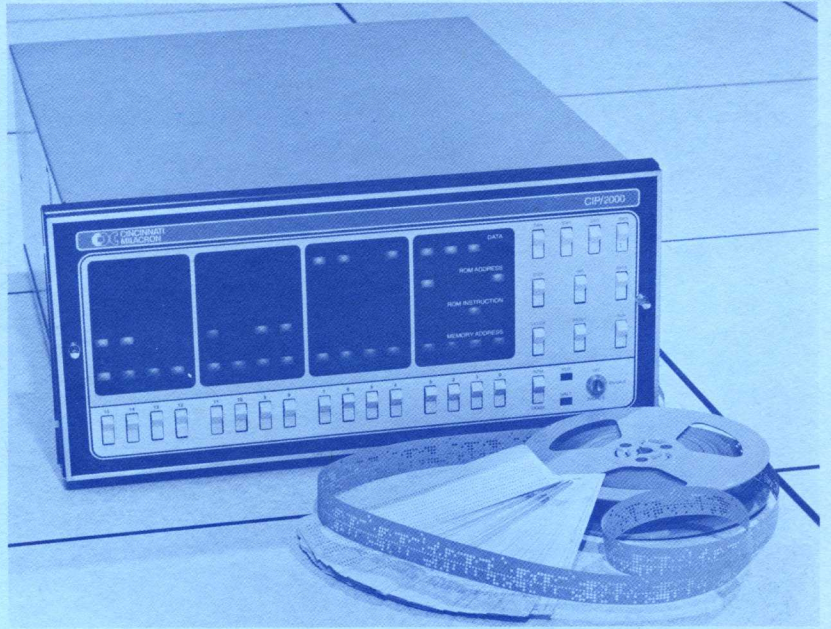
CIP/2200 MULTI-PURPOSE SYSTEM

The CIP/2200 Multipurpose System was designed for effective cost/performance in the following areas:

- Data Processing—The logical manipulation of data primarily for bookkeeping and accounting applications, sorting, retrieval, selection and update. Examples are business transaction processing data base management and computer-aided instruction using the BASIC language.

- Intelligent Terminal—Used to gather data, format and transmit that data to a large central computer over communication lines for processing, and in turn receive the result of that processing and prepare it for the user.

- Distributed Processing—Used to gather, format, process and transmit data to another CIP/2200 Multipurpose System. Ideal in multi-office business applications for transmission of daily transaction files, sales summaries, work orders, distribution center activities, etc. between branch offices and the home office.

SOFTWARE

CiMOS-22 Disk Operating System

The primary software support available for the CIP/2200 Multipurpose System is the Cincinnati Milacron Operating System (CiMOS-22).

CiMOS-22 is a control program and a set of programming aids and services that are designed to simplify the job of processing data on the CIP/2200 Multipurpose System. It fulfills the needs of a variety of users because each user can tailor the system to his needs.

The CiMOS-22 Operating System processes one job at a time. (A job is a major unit of work performed by the system.) Each job consists of one or more related steps that are defined by the user and arranged in the order in which they are to be performed. Communication between the user and the system is accomplished via a simple interactive language entered through a system console. Disk storage is used to hold programs and application data. Card readers, printers and other peripheral devices are also supported by the Operating System.

The processing programs and utilities provided as part of the Operating System are: (1) Relocating Assembler, (2) Linkage Editor, (3) RPG II, (4) RJE, (5) SORT, (6) Text Editor, (7) Library Editor, (8) Disk Utilities, including initialization, reoganization, contents listing, and file copy.

Data management is a major function of the CiMOS-22 Operating System. It involves organizing, cataloging, storing, retrieving and maintaining data files. From a system console, the user can create, delete, and modify the characteristics of disk-based sequential files. The CiMOS-22 Operating System provides a high level of input/output support for assembly language and RPG programs including file open and close, read, write, update and delete. Input/output can be overlapped with regular instruction processing.

The CiMOS-22 Operating System is distributed on a disk pack as a starter system. The starter system is used to generate the completed operating system through a system generation procedure. With this procedure, the user can tailor CiMOS-22 to best suit his installation requirements by selecting resident access methods, number of system buffers, etc.

Communication Processors for the CIP/2200

The CIP/2200 Communication processors provide the communication protocols required to communicate with other computers at high data rates. These processors provide handshaking, error checking, and data compression techniques to reduce transmission times and assure low error rate.

CiMOS-22 RJE

RJE is a CiMOS-22 system processing program to enable a CiMOS-22 system to simulate the functions of an IBM 2770 Data Communication System remotely connected to an IBM System 360/370 interfaced through HASP RTAM.

The data communication is over switched networks in EBCDIC code using standard binary synchronous communication (BSC) techniques.

The CiMOS-22 System in RJE mode, i.e., executing the RJE processing program, transmits OS job streams as a single message to the central computer system for processing and receives printed and punched output of processed OS jobs as separate messages.

In addition operator messages can be exchanged in an inquiry–response mode. RJE runs under the CiMOS-22 Operating System in interactive as well as in batch mode.

In addition to CiMOS RJE described above, two other communications processors are available that operate in conjunction with the CiMOS-22 Disk Operating System using the resource management facilities of the CiMOS-22 Input/Output Control System. This approach provides a great deal of flexibility when configuring a specific Intelligent Terminal or Distributed Processing Application.

Multileaving Remote Job Entry: MRJE/22

MRJE/22 allows the CIP/2200 Multipurpose System to replace an IBM 360/20 HASP work station.

The multileaving features permit concurrent, bidirectional transmission of files to and from an

IBM/HASP facility. Using the standard HASP protocols and line disciplines, MRJE/22 communicates with the standard HASP system at the central state.

By providing for transmission to and from card, printer and disk files, MRJE/22 provides great flexibility in the preparation of files for transmission and in formatting and editing results received from the remote computer. All of the facilities of CiMOS-22 are available for local processing.

The MRJE/22 Communications Processor will operate using leased or dial-up lines at speeds from 2000 to 9600 baud. MRJE/22 requires synchronous modems at each site.

Distributed Processing Communication Systems: DPCS/22

DPCS/22 allows several CIP/2200 Multipurpose Systems to communicate with each other. Through the use of DPCS/22, the distributed functions of a business can each be served by a CIP/2200. The results of the daily transactions, orders, summaries, etc., can be sent to other business functions via phone line communications. Local transaction processing such as order entry, bill of material explosion, customer record keeping, etc., are accomplished through the use of application programs run with CiMOS-22.

DPCS/22 uses the binary synchronous line discipline in conjunction with message compression and error checking to reduce transmission times and error rates. In addition, disk to disk transmission between the Multipurpose Systems running DPCS/22 assures that the slower unit record type devices do not tie up the communication lines for unnecessary periods of time.

By providing all the protocol handling, DPCS/22 is a complete CIP to CIP communication package for 2000 to 9600 baud line speeds.

CIP/2200 BASIC

The CIP/2200 BASIC system operates in a stand-alone, interactive, single terminal environment. The terminal, CRT or TTY, may be local or remote but must be cable connected. CIP/2200 BASIC can be loaded by paper tape or from disk. CIP/2200 BASIC requires a minimum configuration of a central processor with 16K bytes of memory and a TTY console. It enables the user programmer to prepare, edit and execute computational programs from a console/terminal.

CIP/2200 MULTI-PURPOSE SYSTEM COMPONENTS

CIP/2200 Processor

The CIP/2200 is a powerful general purpose byte oriented minicomputer designed for standalone processing, remote terminal, or dedicated system applications. It is designed to service a complete complement of peripheral devices with software support via CiMOS-22, a comprehensive disk oriented operating system.

The CIP/2200 with its TTL logic elements including MSI has achieved a cost/performance that allows many tasks previously assigned to large computer systems, or hard wired controllers to be achieved much more efficiently on a CIP/2200.

The main memory of the CIP/2200 consists of 8-bit/byte core memory with a 1.1 microsecond full cycle time. Main memory is expandable in 8K modules to a maximum memory size of 64K bytes, accessible using direct, relative, index, indirect, and literal addressing modes. The byte oriented operation, coupled with a complete set of arithmetic formats including binary, decimal, and multiprecision, allow maximum memory utilization and character manipulation. Programs can be written with much greater flexibility using the instruction repertoire of 119 basic commands.

Many features unavailable or available at extra cost on other computers are standard features of the CIP/2200. The I/O structure consists of a microprogrammed serial I/O interface, a byte I/O facility, and firmware supported DIRECT MEMORY ACCESS Processors which allow data transfers at up to 910,000 bytes per second. A priority interrupt systems allows 6 internal and up to 64 external interrupts. In addition, the CIP/2200 control stack facility provides a method of saving and restoring the computer state information which greatly increases programming ease and flexibility in an interrupt environment.

Operator control is provided by a functional system control panel which is mounted on the front of the main-frame chassis. This panel may be used to display and modify registers and to control program executions.

Peripherals

The CIP/2200 minicomputer interfaces a complete line of peripheral devices to provide a complete data processing systems capability. In addition the CiMOS-22 disk operating system supports these peripherals via user oriented software routines.

The CIP/2200's input/output structure and priority interrupt capability allow optimum use of various peripheral transfer rates without seriously impeding system throughput. The microprogrammability of the CIP/2200 also will allow additional devices to be interfaced when needed.

Peripheral Devices Supported

- Disk Drives
- Character Printers
- Line Printers
- 80-Column Card Reader
- 96-Column Card Reader/Punch
- Magnetic Tape Drives
- CRT's
- TTY's
- Paper Tape Reader/Punch
- Asynchronous Communications Controllers
- Synchronous Communications Controllers

Advantages of using the CIP/2200 Multipurpose System

- Reduces the load on the central remote computer by preprocessing such as editing, formatting, sorting and error checking.
- Reduces the load on the communication lines by packing data for transmission to a remote central computer and by unpacking data before it is printed on the CIP/2200 Multipurpose System.
- Balances the line load by collecting data in batches and transmitting it on command; or by receiving data at arbitrary times and saving it for the user.
- Minimizes the effect of hardware failures by being able to operate independently of the main computer.
- Customizes for each user the input to and output from a standardized information system by providing a data reformatting capability.
- Provides a local data processing system for small to medium problems or data bases.
- Provides an economical, high performance off-line processor for large co-located systems.
- Effectively uses distributed computer power by reserving the large computer for the massive computation and data base update tasks while giving the user immediate access to all the output and allowing remote source data collection.

CIP/2200 TYPICAL STANDALONE CONFIGURATION

TYPICAL PRICING

DESCRIPTION	ITEM NO.	QTY	PURCHASE PRICE	MONTHLY LEASE CHARGES		
				1 YEAR LEASE	3 YEAR LEASE	5 YEAR LEASE
CIP/2200 CPU with Power Fail/Auto Restart, Real Time Clock, Internal/External Interrupt Feature, Direct Memory Access Channel, Disk IPL	2065	1	$5280.00	$176.00	$160.00	$147.00
Core Memory 8K Byte Modules (24K Bytes Total)	2214	3	5850.00	195.00	177.00	163.00
5 Million Byte Disk Drive and Control	3037	1	9350.00	312.00	283.00	260.00
Line Printer—125 LPM W/Control Cable & Stand	3015	1	7000.00	233.00	212.00	194.00
Card Reader—600 CPM 80 Column W/Control & Cable	3013	1	4900.00	163.00	148.00	136.00
Console ASR-33 Interface & Cable	3000	1	2160.00	72.00	65.00	60.00
TOTAL			$34,540.00	1151.00	1045.00	960.00

NOTE: Lease prices include Minimum Monthly Maintenance Charge (MMMC)
MMMC for purchased system $259.00/month

All prices F.O.B. Lebanon, Ohio and subject to change without notice.

CIP/2200 INTELLIGENT TERMINAL

TYPICAL PRICING

				MONTHLY LEASE CHARGES		
DESCRIPTION	ITEM NO.	QTY	PURCHASE PRICE	1 YEAR LEASE	3 YEAR LEASE	5 YEAR LEASE
CIP/2200 CPU with Power Fail/Auto Restart, Real Time Clock, Internal/External Interrupt Feature, Direct Memory	2065	1	$5280.00	$176.00	$160.00	$147.00
Core Memory 8K Byte Modules (24K Bytes Total)	2214	3	5850.00	195.00	177.00	163.00
5 Million Byte Disk Drive and Control	3037	1	9350.00	312.00	283.00	260.00
Line Printer—200 LPM W/Control & Cable	3030	1	10,300.00	343.00	312.00	286.00
Card Reader—600 CPM 80 Column W/Control & Cable	3013	1	4900.00	163.00	148.00	136.00
Console ASR-33 Interface & Cable	3000	1	2160.00	72.00	65.00	60.00
Synchronous Communication Controller & Cable	2801	1	760.00	25.00	23.00	21.00
TOTAL			$38,600.00	1286.00	1168.00	1073.00

NOTE: Lease prices include Minimum Monthly Maintenance Charge (MMMC)
MMMC for purchased system $290.00/month

All prices F.O.B. Lebanon, Ohio and subject to change without notice.

CIP/2200 MINICOMPUTER

The CIP/2200 is a powerful, general purpose, byte oriented minicomputer for standalone processing, remote terminal, or dedicated systems applications.

FEATURES

Core Memory	1.1 microsecond full cycle constructed in modules of 8,192 bytes (8-bit) up to a maximum of 65,536 bytes.
Read Only Memory	1536 16-bit words. Hardware features implemented by microprogramming include serial I/O controller, Disk IPL, and a high speed Direct Memory Channel block I/O feature. Customer microprogrammed extensions may also be added.
Arithmetic	Multiprecision, parallel, binary, fixed point, two's complement, and decimal.
Addressing	Eight modes including direct, relative, indirect, indexed, and literal.
Input/Output	8 bit parallel byte I/O bus for programmed and fully automatic concurrent transfers. Serial I/O interface for teletypes or similar devices. Direct Memory Access (DMA) channel allows a maximum transfer rate of 910,000 bytes per second.
Interrupts	A priority interrupt system allows internal interrupt on power failure, real time clock, console interrupt, or operational fault. External interrupts on the byte I/O device or another externally supplied signal. Up to 64 external interrupts are allowed.
Logic	TTL logic elements including MSI types, in DIP ceramic packages. DTL circuitry for I/O interfaces.
Registers	Five operational registers including A-Accumulator, B-Auxiliary Accumulator, X-index, program counter, and status registers.
Instructions	119 standard including decimal and binary arithmetic, memory to memory, and memory to register instructions. Variable length operands offer more efficient use of memory.
Panel	System control panel displays all registers, allows manual command execution, and includes control switches.

PERIPHERALS

The CIP/2200 interfaces a complete line of peripherals supported by the CiMOS-22 disk operating system.

Character Printers	60 & 125 LPM, 132 Columns, utilizing a 9 x 7 dot matrix.
Line Printers	200 LPM, 132 Columns, 10 in/sec slew 300/350 LPM, 132 Columns, 27.5 in/sec slew 600 LPM, 132 Columns, 27.5 in/sec slew
Card Reader (80 Column)	600 CPM, optical read
Card Reader/Punch (96 Column)	Dual input/output capability. Reads at 300 CPM, punches at 60-120 CPM.
Disk Units	5MB/Drive or 10MB/Drive, up to 4 drives each consisting of a removable and a fixed disk. Average access 95MS. 195,000 bytes per second transfer rate.
Magnetic Tape Units	Up to 4 transports, 20 KB at 800 BPI, 100 IPS rewind, 7"-10½" reels.
Paper Tape Reader/Punch	Reads at 300 characters/second. Punches at 240 characters/second.
Serial TTY	ASR-33 Teletype, 72 characters/line at 10 characters/second
CRT	Speeds of 110 BPS to 4800 BPS, 27 lines with 74 characters/line, 5 x 7 dot matrix, foreground and background intensities, 64 USASCII alpha numeric + 1 special character.
Asynchronous Communication	Controller interfaces up to 6 asynchronous devices with speeds up to 4800 Baud.
Synchronous Communication	Controller interfaces synchronous devices up to 9600 Baud.

SALES OFFICES

ATLANTA OFFICE
2200 Century Parkway, N.E.
Suite 40
Atlanta, Georgia 30345
(404) 634-6312

CHICAGO OFFICE
2635 South Clearbrook
Arlington Heights, Illinois 60005
(312) 439-5726

CINCINNATI OFFICE
4701 Marburg Ave.
Cincinnati, Ohio 45209
(513) 841-8621

DETROIT OFFICE
28500 Southfield Road
Lathrup Village, Michigan 48075
(313) 557-2700

HOUSTON OFFICE
5433 Westheimer Road
Houston, Texas 77027
(713) 622-4620

LOS ANGELES OFFICES
1300 Quail Street
Newport Beach, California 92660
(714) 833-3955

Suite 555
11222 La Cienega Boulevard
Inglewood, California 90304
(213) 641-6811

NEW YORK OFFICE
702 Rahway Avenue
Union, New Jersey 07083
(201) 687-4500

SAN FRANCISCO OFFICE
790 Lucerne Drive
Sunnyvale, California 94086
(408) 735-0571

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