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## NEW PRODUCTS



NCR 499 data processing system is a low cost, general-purpose computer designed for first-time computer users in the retailing, financial, industrial, commercial, educational, government and medical industries. The system was recently announced as a successor to the NCR 399 mini. Basic features are a 12K processor, 75-cpm bidirectional matrix printer, magnetic tape cassette transport, and forms handler. Magnetic tape cassette can be used to enter data and application software. Optional features include expanded memory, up to four magnetic tape cassette transports, and continuous forms feeder. The system can also accommodate peripheral units such as line printers, card reader and disk unit. Purchase price is \$17,900. Reader Service Number 476

### Dicom's "Naked" Floppy Disk Controller for OEM's

The Model 121 "Naked" Floppy Disk Controller is a multipurpose, multi-drive floppy disk memory device aimed at both microprocessor and minicomputer applications. According to the manufacturer, the unit is compatible with DMA channels as well as programmed I/O channels, interfaces with most minicomputers and microprocessors, and can be made software-compatible with existing disk systems.

Since it contains all formatter and controller logic, the Model 121 frees the minicomputer or microprocessor from performing the tasks of issuing track stepping commands to the floppy, generat-

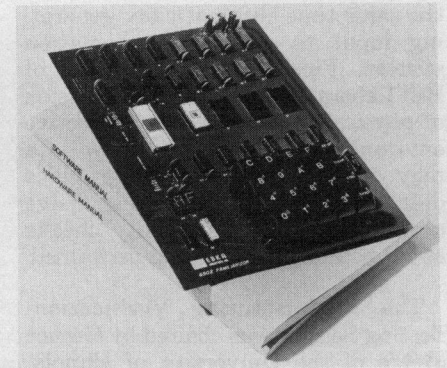
ing and checking CRC codes on the data, or keeping track of sector and track positioning on each connected floppy.

Fixed-length sectors are used to maximize storage capacity and reduce complex hardware. The unit is expandable to control up to four floppy disks with over 1M bytes of data on-line.

Options include a paddleboard assembly, states panel, expansion box interface card, card cage assembly, and power module to support four drives.

Price & delivery: \$772 in OEM quantities, stock to 90 days ARO.

Reader Service Number 479



### EBKA "Familiarizer" Microcomputer

EBKA Industries has introduced the "Familiarizer," a complete microcomputer system for use in learning microprocessing theory and operation. The system comes with its own hexadecimal keyboard and display built into a single PC board. No teletype or other terminal is required. With the addition of a power supply, it becomes a complete, simple-to-operate microcomputer.

The total package, including self-teaching hardware and programming manuals containing step-by-step instructions, offers a practical, low-cost introduction to microprocessing combined with "hands-on" experience.

The Familiarizer uses an 8-bit MOS Technology 6502 Microprocessor, which can address up to 65K bytes of memory. On-board memory consists of 1K bytes of RAM for user programs and two 8-bit I/O ports. A 256-byte monitor program, supplied in one 1702A erasable PROM, and an on-board terminal replaces more complex lights and switches to permit simple loading, examination, running, debugging, and modification of programs.

The Familiarizer is available in both kit form, containing all parts, manuals, and documentation, for \$229, or completely assembled for \$285. Optional power supply is available at \$58.

Reader Service Number 478

## Memory Tester for LSI Chips and $\mu$ P's

TestMaster Division of Technology Marketing Incorporated has announced a new semiconductor memory tester that it claims is the first to offer 100-nano-second cycle time for all test patterns. Designated the TestMaster Series 5000, the new unit is designed for high-speed automatic testing of memory systems or devices, as well as other large scale integration (LSI) chips and microprocessors. The tester features specialized processors with either read only memory (ROM) or optional random access memory (RAM) for program storage. The RAM option provides maximum flexibility to alter test programs for users with changing device test and system test requirements.

The tester, which operates at 10 MHz even while executing complex test patterns, is ideal for use in production test facilities, as well as engineering departments, according to the manufacturer. Up to 65K of random access memory and microprocessor control can be provided for routine background operations.

The ability of the TestMaster unit to test chips and systems at relatively low cost means that manufacturers can easily add incoming inspection of chips, if they have not done so before, according to TMI general manager Jan Bosboom.

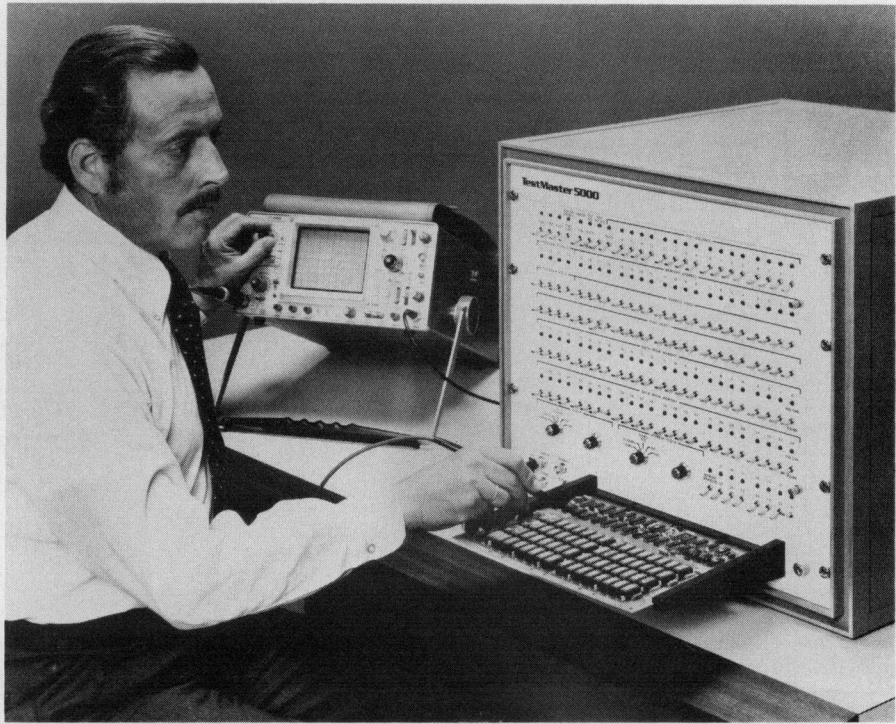
"A manufacturer with modest production volume may not have found it economical before to purchase equipment for chip testing," Bosboom says. "With the TestMaster 5000, the manufacturer can test complex boards at a rate of 100 to 150 per day. This may mean that he can complete testing of a week's production in less than two days. The tester is then available to do incoming inspection of chips. Savings in scrapped boards and rework time achieved by locating bad chips in receiving inspection can go a long way toward quick recovery of the tester cost."

For functional testing of other LSI devices, such as microprocessors, the Series 5000 incorporates a programming language for the user to generate original test programs. In addition, further custom programs can be generated using the software library of the computer that is part of the tester.

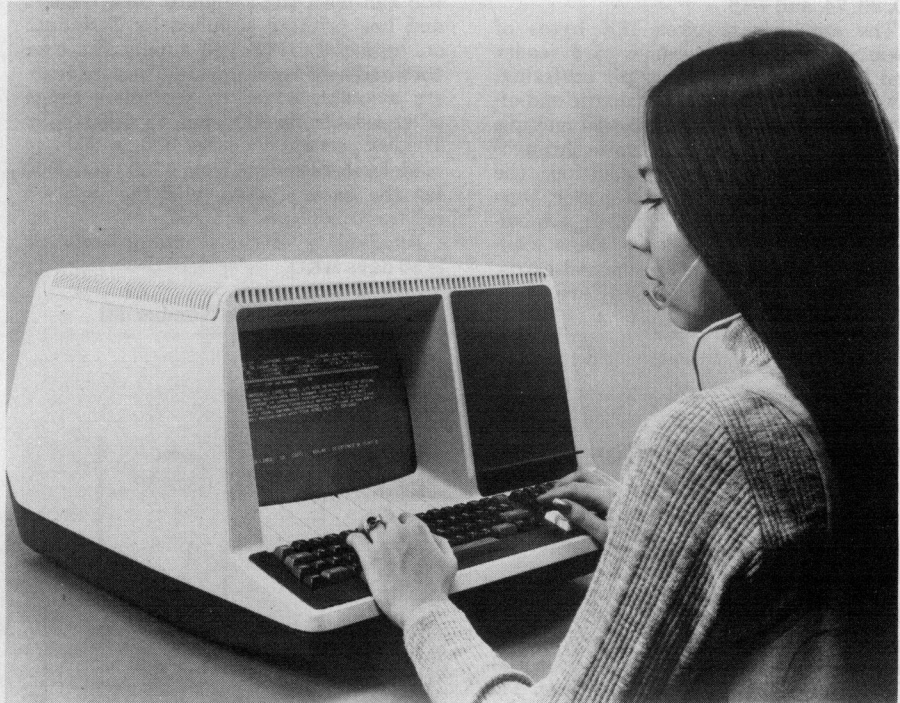
The TestMaster 5000 Automatic Memory and LSI Test System is available in seven standard configurations for various system choices, such as 24 or 48-bit word length, ROM or RAM storage, expanded memory capacity, and selected device interface modules for testing popular RAM devices. Packaging allows for modular expansion in a standard 19-inch rack.

Prices start at about \$17,000. Delivery is about 12 weeks ARO.

Reader Service Number 489

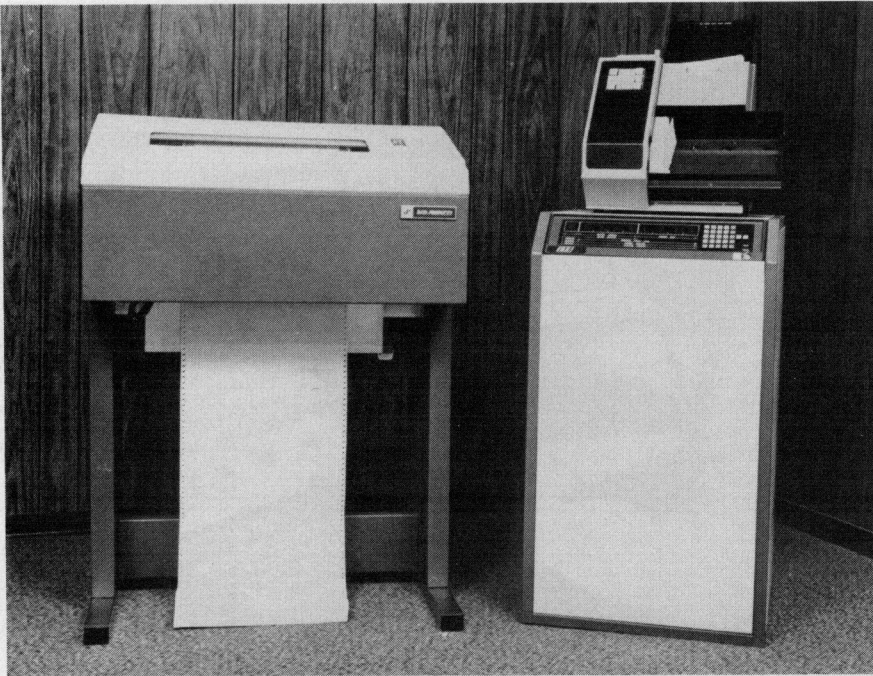


Semiconductor memory and LSI tester from Technology Marketing Incorporated offers 100 ns cycle time for all test patterns. The TestMaster 5000 features specialized processors with optional ROM or RAM memory for program storage.



A new alphanumeric video display terminal, the VT61/t, is available from the Typeset Group of Digital Equipment Corporation. Priced at \$2950, the VT61/t is specifically intended for data input. Its fixed forms and block mode capabilities permit the user to format a wide range of material including classified ads, box scores, billing information, and editorial text. Basic editing functions can be executed on the 1920-character screen using the standard typewriter keyboard and special 19-key function control pad. Various character display colors are available. The new terminal is compatible with Digital's line of typesetting systems.

Reader Service Number 485



## Software Emulator for Interdata Users

Intelligent Terminal Systems has announced the availability of an IBM 2780 Model 1 emulator for the Interdata Models 70, 80, 74, and 7/16.

The emulator requires 16K bytes of memory, the display panel, card reader and line printer. It uses triple buffering, automatic turn-around, automatic end-of-message (EM), horizontal tab, and multiple record transmission to maximize throughput on the system. In addition, the emulator requires either a paper tape device to enter the program or a modified storage loader unit to allow loading of the emulator from punched cards. The modifications to the SLU are available from ITS for \$500.

The ITS 2780-1 emulator is available to current users of Interdata equipment for a license fee of \$1750. The package will run with the standard card readers and line printers supplied by Interdata or, optionally, ITS will supply the user with necessary peripherals. The card readers available cover the complete range of speeds from 300 cpm to 1000 cpm. The line printers are either 300- or 600-lpm models. Prices range from \$3000 to \$9000 for the card readers, and the printers sell for \$10,500 and \$15,250.

Availability of the emulator software is 30 days ARO.

Reader Service Number 481

## New Table Top Plotter

CalComp has announced a new drum plotter, the CalComp 836, to replace the CalComp 563 drum plotter.

The new plotter has plug compatibility for on-line operation with any minicomputer or computer having an asynchronous EIA RS-232-C connection or a CalComp standard 500 series interface. The 836 is designed for producing engineering design drawings, subdivision maps, PERT charts, and a wide range of computer graphic applications.

The 836 has a drawing speed of 1.97 in./sec. (5 cm./sec.) and an increment size of 0.004 in. (0.1 mm.) to ensure high-resolution drawings. It produces drawings up to a maximum of 34 in. (86 cm.) by 120 ft. (36 m.). Either ballpoint or the new "Plastip" pens are standard; liquid ink pens are optional.



Delivery is 30-60 days ARO. Unit purchase price is approximately \$8700, which includes one year's service. Lease prices available on request.

Reader Service Number 482



## Macro Printer for Honeywell 200/2000 Users

Macro Products Corporation has announced a 1200-lpm on-line printer system that is plug-compatible with Honeywell 200/2000 main frames.

Designated the M470H, the new printer features a controller design that overcomes the necessity of using Honeywell's PA4A peripheral adaptor, according to the manufacturer.

The unit printer includes 132 print positions, static eliminator, quietized cabinet, standard Honeywell 64-character print drum, and the Dataproducts-designed Mark IV Print Hammer.

Price is \$38,200 complete, including installation. Multi-year contract leases are available at less than \$800 a month. Standard maintenance contract is \$315 a month. Delivery is 90 to 120 days ARO.

Reader Service Number 486

## New Computer Fits Card Cage

Designed around the Intel 4040  $\mu$ P, the International Microsystems 4041 is a single-card unit that fits a standard  $4\frac{1}{2} \times 9$ " Cambion bin. The unit includes the  $\mu$ P, a crystal clock,  $1K \times 8$  of RAM, an  $80 \times 4$  RAM, and provision for  $1K \times 8$  of PROM. The user's program can be executed from RAM or PROM. The module provides separate input and output data busses as well as 3 latched DCL lines, and the entire I/O structure is TTL compatible. Also included is a test PROM which tests all system I/O, and a software monitor for use in program development.

A terminal control board, front-panel monitor, and a wired bin with power supplies are also available. Power requirements are +5 and -12 Vdc. Delivery is 15 days ARO. Cost is \$295 (unit level).

Reader Service Number 483

## New Medium-Sized Computer System

Digital Systems Corporation has announced the introduction of its new GALAXY/5 family of computers. Designed primarily as a medium-sized multiprocessor system for use in teleprocessing, timesharing, data base management, and similar interactive applications, the GALAXY/5 is available with from one to four central processing elements. Each processing element is a completely independent CPU with its own registers and arithmetic units. All processing elements, however, share the main memory and the input/output equipment.

The main memory is constructed from 16,384 byte modules, with 1,048,576 bytes of main memory constituting the maximum configuration. Interweaving on the low order address positions (up to four way) helps to minimize accessing conflicts. All memory modules are constructed with self-correcting bit codes.

Input/output is handled by up to four direct memory access (DMA) controllers. Input/output devices are connected to DMA's via a standard interface. All DMA's operate on a priority time multiplexing scheme to increase device overlap. Device end is normally signaled by an interrupt. Each DMA can support up to 15 devices. Programmed I/O is also available.

Peripheral devices include the Model 9000 series disk drives with from 32 to 240 megabytes of storage per drive; the Model 8000 series line printers with speeds of from 100 to 400 lines per minute; and CRT display terminals with CPU attachments. Users may also purchase CPU attachments for connection of their own I/O equipment and modems.

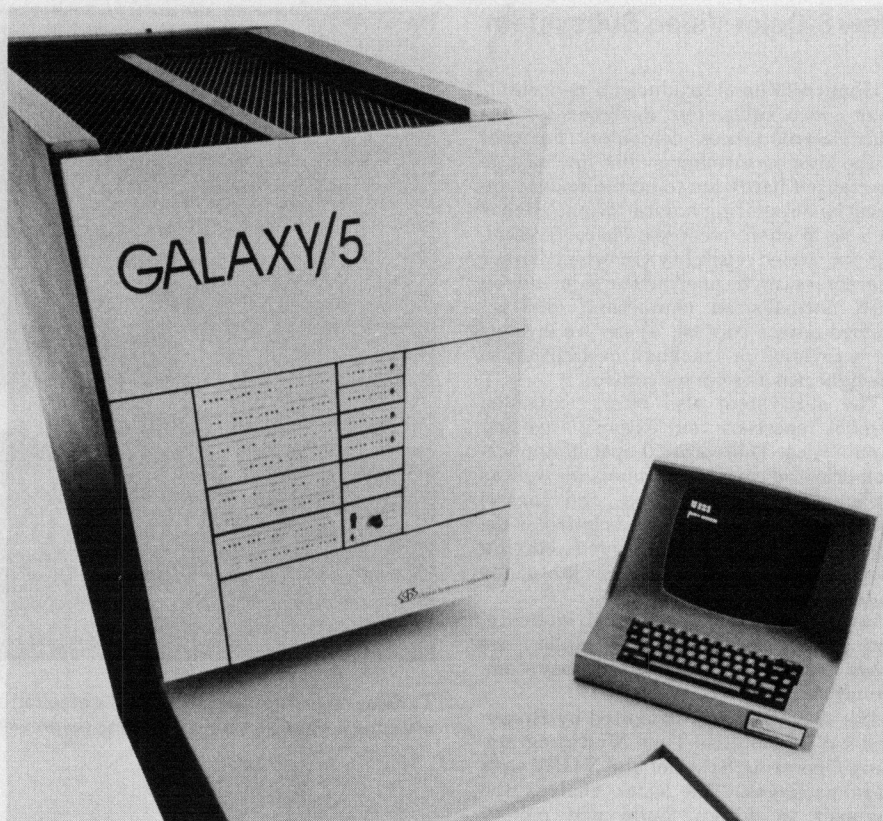
The GALAXY/5 incorporates a programmable communication interface which is capable of asynchronous speeds up to 9600 baud and synchronous speeds up to 56,000 baud. A variety of both asynchronous and synchronous communication disciplines are available.

Standard software includes the GALAXY/5 operating system, the Assembler Language compiler, and various utility programs. High-level language compilers, such as RPG II, Fortran and Cobol, are planned but are not yet available.

The system is available in six different models from the Model 120 and 32K positions of main memory and a single central processing element to the Model 170 with one million positions of main memory and four central processing elements.

A minimum configuration of the GALAXY/5 would consist of a Model 120 CPU (with 32K), a 32 megabyte disk drive and controller, a 100 line per minute printer and a single CRT display terminal. This configuration is priced at approximately \$42,150.

A medium-sized version, the Model 140, would consist of 128K positions of main memory, two central processing elements,



two 120-megabyte disk drives, two 400-lpm printers, and 10 communication ports for attachment of user's I/O equipment. Such a system is priced at approximately \$137,750.

The manufacturer claims that the GALAXY/5 is the first large scale computer to use many micro computers to perform functions (such as in the disk controller and the communications controller) previously performed only by hardware logic.

The first GALAXY/5 computer has already been delivered to a service bureau in the Washington, D.C. area which is using the system for timesharing work. Delivery of the Model 120 and Model 130 is 120 days ARO. First deliveries of the Model 140 and Model 150 are scheduled for October 1, 1976; first deliveries of the Model 160 and Model 170 are scheduled for March 1, 1977.

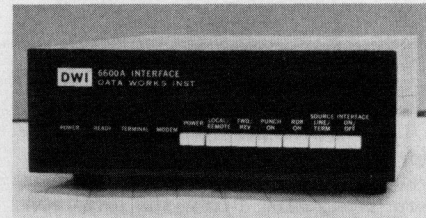
Reader Service No. 477

## Remote Controller for Paper Tape, Magnetic Tape, and Floppy Disk Units

Data Works Instrumentation has introduced the RS-232 Interface Model 6600A, a unit which provides a means of adding an RS-232 communications interface to existing paper tape equipment. It is a truly compatible controller for paper tape readers, magnetic tapes, and floppy disks.

The Model 6600A connects paper tape readers to an RS-232 transmission line. In so doing the controller accepts remote commands over the RS-232 line, provides control signals to the paper tape equipment, and transfers data to/from the paper tape unit.

For storing data on a floppy disk, the unit transfers data from the line and puts it onto the disk, and when required, reverses the process. Incremental



magnetic tape recorders are handled in the same manner as paper tape punches.

One of the principal features of the Model 6600A is that it accepts a two-character sequence for each remote command. The first character is fixed as the ASC11 escape character and the user may select the second character. They are stored in a plug-in PROM and can be changed at any time.

Delivery is 30 days; prices start at \$595.

Reader Service Number 487

## New 8-Color Video Subsystem

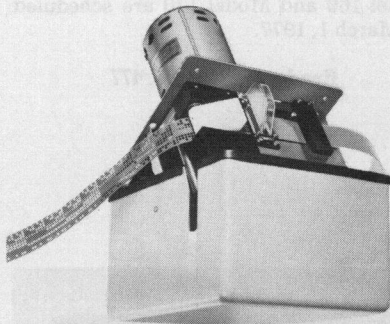
Honeywell has introduced a new eight-color video subsystem designed for use with HS4400 process computers. Features of the high-performance video line include specialized hardware to accommodate applications requiring a data format similar to a strip chart recorder; character scaling for added visibility, in which larger characters can be used on the same screen with normal-sized characters; and enhanced cursor control. There are options for a joystick or trackball in addition to the light pen as a cursor control.

The subsystem also offers expanded symbol repertoire and extensive editing capabilities. There are 60 special application-oriented graphic symbols as well as alphanumeric, punctuation, and control symbols. Microprogrammed control is designed to provide improved editing features while eliminating laborious character string scanning.

Reverse field, two levels of intensity, and greater configuration flexibility are other advantages of the subsystem, Honeywell said.

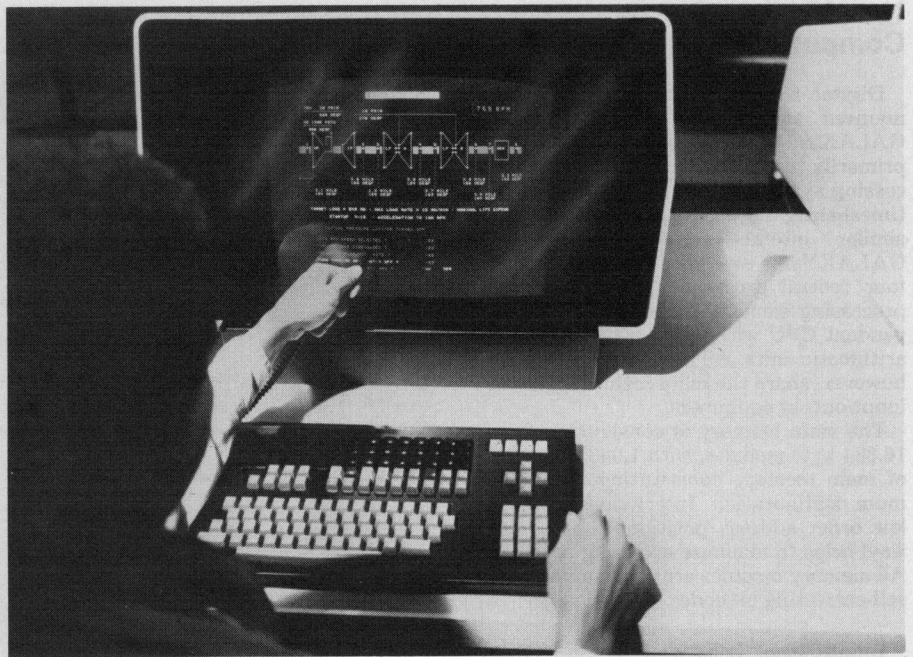
The video device is supported by Honeywell's RTMOS (Real-Time Multiprogramming Operating System) and VIEW software packages. The latter enables the engineer to design, build and modify process displays online. The displays then allow the process operator to monitor and control the process system.

Reader Service Number 488



A 120 character-per-second synchronous tape perforator for panel mounting is now available from Precision Mechanisms Corp. Designated P1201, the perforator is complete, ready to be mounted, and includes a sound absorbing cover for use in office environments. Designed for use in computer, numerical and process control, graphic arts, communications, and data collection and storage applications, the P1201 punches 5, 6, 7, or 8 level codes on all standard paper and mylar laminate tapes, roll or fan fold. Tape widths of 11/16, 7/8, or 1 inch may be used interchangeably. Advanced feed-hole punching is available. Price: \$740 in small quantities.

Reader Service Number 484



Turbine startup operation is controlled with a Honeywell high-performance video utilizing a light pen for a real-time response to a system variation.

## Billion-Byte Storage for Minis Available

System Industries' Series 9500 line of disk storage systems has been expanded to include two new models, the 9500-64 and 9500-66, either of which offer mini-computer users up to 1.2 billion bytes of storage at an average access time of 30 milliseconds.

To implement the billion-byte storage system, System Industries connects four CDC Storage Module Drives (Model 9766) to its proprietary controller, which handles software routines in hardware and automatically matches the performance of slow CPU's to the fast 1.2 megabyte transfer rate of the CDC drives.

The Series 9500 line, with the new additions, will offer minicomputer users a choice of the four latest Storage Module Drives developed by CDC; Models 9760 (40 megabytes), 9762 (80 megabytes), 9764 (150 megabytes), and 9766 (300 megabytes). Up to four of the CDC drives may be implemented with the System Industries controller.

Regardless of which combination of drives the minicomputer user chooses, the Series 9500 provides a dual CPU interface option, whereby two minicomputers can share access to all disk drives attached to the controller. This option also allows communication between the two minis via the controller.

In single-unit quantity, the 9500-66 system, complete with controller, power supply, and minicomputer interface, plus all necessary cables and rackmounting hardware, is priced under \$60,000. Delivery is 60 days.

Reader Service Number 475

## New 8080 Debugging Tool



Data Works Instrumentation has introduced the Model 640 Program Analyzer, a basic program debugging tool for 8080 Microprocessor Systems. Programs can be debugged and run in the actual hardware without the use of a computer simulator or other debugging equipment.

The unit provides a 4-digit HEX display which shows either the program address or data bus contents. Controls are provided for stepping the program from a selectable address, cycling through loops, and examining bus contents by instruction step or cycle.

The unit can be plugged into any Data Works Microprocessor Card System by inserting the attached buffered extender card into the microprocessor card slot. The analyzer can be adapted to other 8080 Systems by attaching the proper 8080 signals to its input circuits.

Delivery is 2-4 weeks, price is \$650.

Reader Service Number 480