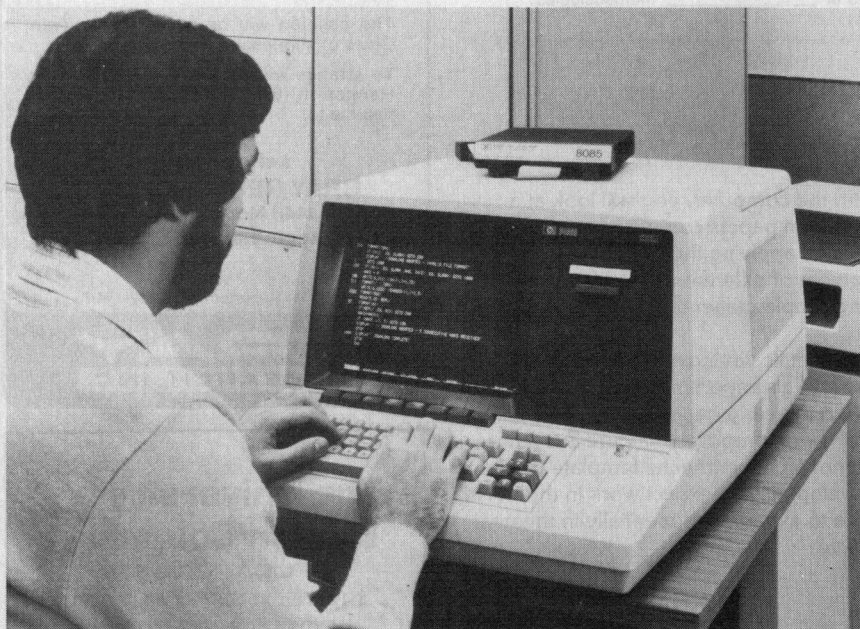


# NEW PRODUCTS

New Products Editor:  
Prof. Demetrios A. Michalopoulos  
California State University, Fullerton



The basic Hewlett-Packard Model 64005S emulation terminal system includes a development station with a cartridge tape drive and emulation hardware/software for the selected microprocessor. Directed syntax through eight soft keys works to eliminate syntax errors.

## HP 64000 emulation available for mainframe users

Hewlett-Packard's Model 64005S emulation terminal system lets mainframe users augment existing microprocessor product development tools for their computers with the real-time, transparent emulation of the HP 64000 logic development system. With RS-232C (V.24) or current loop interfaces for serial data links to the computer, the HP 64100A development station can be used as an ASCII terminal or as a stand-alone emulation station. Logic analysis is optionally available.

Microprocessor product developers can evaluate hardware and software performance at any stage of development. The data link transfers Intel or Tektronix hexadecimal file formats in either direction; the emulation station accepts HP 64000 absolute file format.

The HP 64005S can be added to an existing computer network. When the terminal is not required for emulation functions, it serves as

an additional terminal.

Each emulation terminal contains a host processor with 64K bytes of host memory, I/O control, and display control. The host and emulation systems have separate buses and memories, avoiding contention problems. Each terminal can be configured for particular application needs by adding the optional 200-ns memory and real-time transparent analysis capability. Memory-mapping between internal emulation and the user's memory is software-selectable. Program files can be loaded and stored using the station tape drive or the terminal mode via the serial data link.

The emulation terminal system is priced within the US at between \$14,400 and \$22,600. Additional software costs \$550. Deliveries are in 12 to 16 weeks.

## Eclipse MV/8000 computer gains floating-point processor

Data General has announced a single-board floating-point processor option for the company's Eclipse MV/8000 32-bit virtual-memory computer.

By using a data path that is 64 bits wide, the Model 8704 floating-point processor gives a double-precision Whetstone value of 875K, according to Data General. The single-precision Whetstone value is 1150K. The FPP option significantly increases the speed of the MV/8000's double-precision calculations for engineering and scientific users.

Floating-point instruction formats are identical to previous Eclipse MV/8000 microcode formats. Users with installed Eclipse MV/8000 systems can upgrade their configurations to include an FPP. No reprogramming is necessary.

In the event of a problem, the microcode instructions for the non-FPP instruction set can be booted into the system so that operations can continue in a slower mode without downtime. With each Eclipse MV/8000 system purchased with the optional FPP board, two copies of the system microcode instructions are included: one for the microcode-implemented floating-point operations, and one for the hardware accelerator.

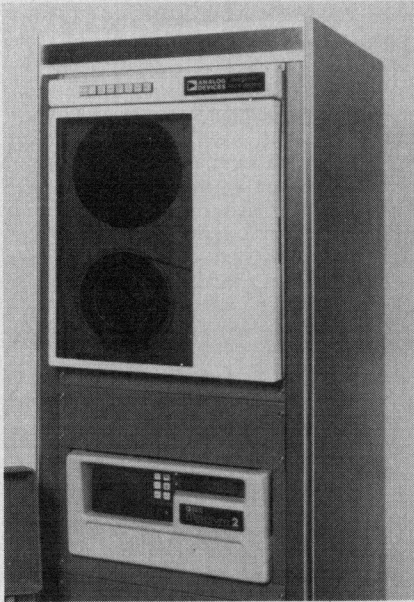
Both single- and double-precision arithmetic are performed by the FPP. Single-precision (32-bit) gives six to seven significant decimal digits, while double-precision (64-bit) gives 14 to 15 significant digits. Both precision calculations can use one or two guard digits. During the truncation or unbiased rounding operations, these digits maintain maximum calculation accuracy. Calculations over a decimal range of  $5.4 \times 10^{-79}$  to  $7.2 \times 10^{75}$  are supported.

The floating-point word format follows industry-standard hexadecimal representation. It allocates the sign to bit zero and the exponent to bits one through seven. The mantissa is contained in bits eight to 31 (single-precision) or bits eight to 63 (double-precision).

The Eclipse MV/8000 floating-point processor is priced at \$8800, with delivery 120 days after receipt of order.

Reader Service Number 41

Reader Service Number 42



Analog Devices' Mac02-28 nine-track magnetic tape drive unit, compatible with the company's Macsym 2 minicomputer-based measurement and control system, stores 4M bytes of information per 1000 feet of magnetic tape. Storage density is a user-selectable 800 or 1600 bpi at 18.75 ips. A typical application yields a throughput of 400 floating-point samples per second. Macsym 2 units can be upgraded to include the Mac02-28. Power consumption is specified at 985 watts, including the host Macsym 2 and CRT terminal. Power supplies are available for 115 V at 50 or 60 Hz, or 230 V at 50 Hz. The complete system—including the tape drive, a Macsym 2, a 6' rack enclosure, mounting hardware and cables, system software, documentation, and on-site installation supervision—is priced at \$29,328, with delivery 90 days after receipt of order.

Reader Service Number 43

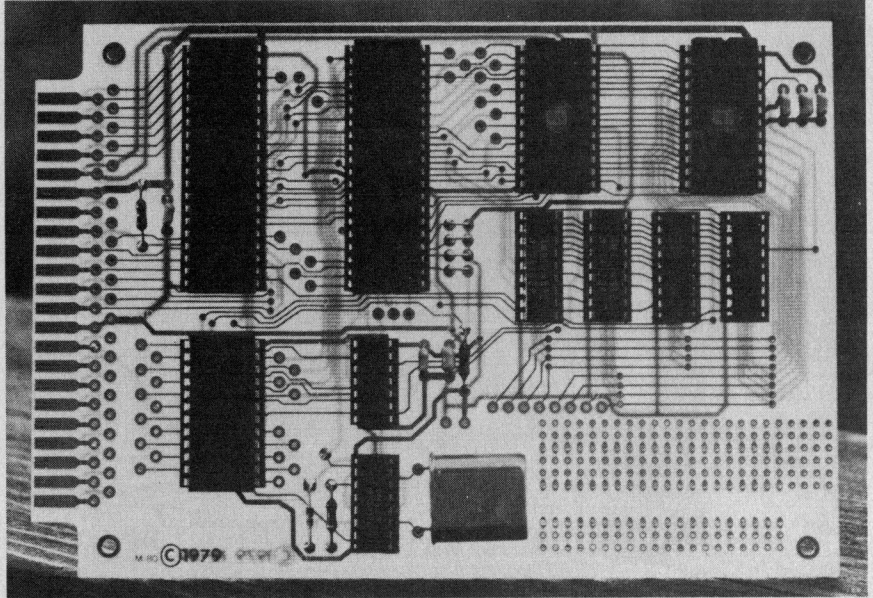
### Expansion chassis accommodates four- and nine-slot DEC units

The WP909 general-purpose expansion chassis introduced by Wesperline, a division of Wespercorp, is a 5¼" rackmount product that accommodates one or two DEC four-slot backplanes or one nine-slot unit. It is designed specifically for users who have run out of backplane room in their computers or who prefer to have specific controllers or interfaces in a separate container.

The expansion chassis comes standard with 5 V at 15 A, and ±15 V at 2 A. Optional 25 A supplies are also available. A snap-off front cover provides access to all PCBs for removal, insertion, or testing without dismounting the chassis. All WP909s come equipped with rack slides, cooling fans, and mounting hardware.

Prices start at \$750 in single quantity, with OEM discounts available. Delivery is 30 days after receipt of order.

Reader Service Number 44



Miller Technology's M-80 single-board microcomputer has a Z80 CPU, sockets for 2K/4K of PROM, 2.1K of RAM, 16 highly flexible I/O lines, and a system clock. The board also provides a breadboard area and 12 decoded address strobes. Designed for test equipment, smart peripheral controllers, and dedicated control and processing applications, the 4.5"×6.5" board can be mounted in a card cage or by standoffs. Two software packages, Wang's Tiny Basic and Miller Technology's M-80 system monitor, are optionally available. Unit prices start at \$28.50 for the bare board, \$69 for a kit, and \$185 for a fully assembled and tested board. The assembled board has a one-year guarantee.

Reader Service Number 45

### Advanced word processing available for IBM System/34

WordPower II, the latest stand-alone software product from Professional Computer Resources, Inc., brings advanced word-processing capabilities to the IBM System/34 computer. It features self-documented text entry/edit keys and a forms application.

Instructional command keys simplify text entry and editing functions, such as centering and margin justification. Memorization of a command structure is not necessary for operation. The electronic forms application allows a user to create, fill out, store, print, and revise forms. It also permits creation of data processing files.

The software features power typing and an automatic carriage return. Several printer options, including a Xerox daisy wheel printer, are available.

WordPower II enhances the capabilities of the firm's basic WordPower system, introduced three years ago. Either system can be installed on any System/34 and operates concurrently with any software system already in place. Both systems allow creation of a variety of documents, including correspondence, proposals, estimates, reports, mailings, and labels, and can be used to merge existing data files into brochures, catalogs, and mailing pieces.

Reader Service Number 46

### Dual-protocol terminal accesses two mainframes

ECS Microsystems' Series 4000 dual-protocol information terminals directly access two mainframes and can be configured into concatenated local networks. Currently available dual-protocol capabilities include Burroughs TD 830, NCR 796-501, Honeywell VIP 7700 and 7801 emulations, as well as VT 52-compatible TTY. Protocols can be selected in any combination, and kits are available for upgrading ECS 4000s in the field.

The ECS terminal provides all the services normally associated with each mainframe terminal type being emulated. Multiple 4000s can be concatenated from each line or modem for local network use.

An auxiliary serial or parallel printer can be supported with all original protocol printer functions. Each terminal is supplied with dual-legend keys for protocol-unique functions.

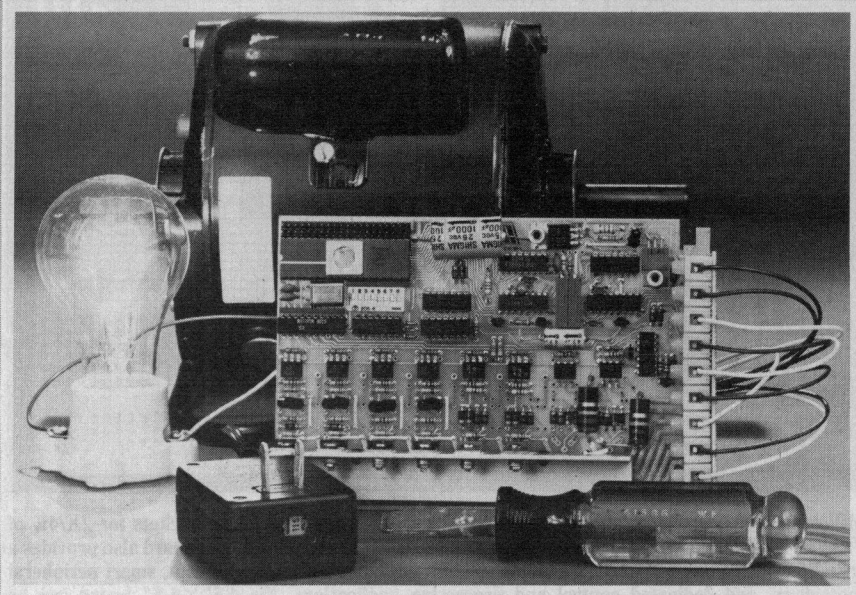
The dual-protocol capability is achieved with the company's universal protocol cards, which also contain firmware and I/O facilities. Instant keyboard protocol selection is achieved with an executive PROM.

The Series 4000 terminal is priced at \$4300 in single units, with volume discounts available. Included in the price are the ECS 4000 information station, two universal protocol cards, interface cards, and the executive PROM.

Reader Service Number 47



## NCC New Products...



Wintek Corporation has introduced a single-board computer with analog, serial, and power control I/O. The 4½" × 6½" module features a 6801 or 68701 microprocessor with 2K bytes of ROM, 128 bytes of RAM, an internal timer, and an external watchdog timer. The 12-bit analog-to-digital converter can be configured for eight single-ended or four differential inputs. The 8-bit digital-to-analog converter can be configured to output either 4-20 mA or 1-5 volts. The eight digital I/O lines can be configured for any mix of AC or DC inputs or outputs. Inputs sense the activity of AC or DC circuits. AC and DC outputs are triacs and solid-state relays capable of switching 3 amps. The serial I/O allows a half-duplex 20 mA current loop communication channel to a host computer at software-selectable baud rates. The price ranges from \$88 to \$295, depending on options and quantity.

NCC Booth 1280  
Reader Service Number 48

### Receive-only data terminal includes polling feature

Computer Devices, Inc., has added the Miniterm Model 1201 receive-only data terminal as a replacement for the company's current Model 1201. The terminal has been redesigned to include new standard features and options.

Designed for on-line system applications requiring hard-copy or for use as a remote or stand-alone printer terminal, the terminal now offers as standard a 2K buffer, polling, self-test, a serial interface, and selectable 50-60Hz international power supply. New options include high-resolution plotting, answerback, a 4K buffer, 20-mA current loop, and 9600 baud communications. Like the earlier model, the upgraded unit offers standard 80/132-column switch-selectable printing, print speeds up to 50 cps, adjustable print darkness, 96-character upper- and lowercase ASCII code with underscore, remote terminal reset, and user controls for paperfeed, on-line/off-line, reset, and self-test.

With the polling feature, multiple units can be accessed directly by, and connected in a network to, a main computer system. In this way, the nonimpact dot-matrix printer can be used in a remote network communication

configuration. The unit automatically prints the status of the RAM buffer, ROM, microprocessor, and switches. The unit's printhead can be user-activated to perform a thorough test in the self-test mode by scrolling through the character ROMs.

Maximum communications capacity can be increased optionally to 9600 baud. Fifteen switch-selectable standard baud rates are now available from 50 to 9600 baud. Plotting capability features a density of 60 dots per inch horizontally and vertically (3240 dots per square inch) which achieves a .017 resolution with an extremely high  $\pm 0.008$  accuracy factor.

For additional security, any signal-parity, out-of-paper, or buffer-full error conditions automatically inhibits the answerback transmission signal.

Available 60 days after receipt of order, the standard Model 1201 is priced at \$1385 in end-user quantity-one and at \$1094 in OEM volumes of 100.

NCC Booth 1232  
Reader Service Number 49

### Multiprocessor computer system features modular architecture

Microdata's Sovereign is a multifunction, multiprocessor computer system for business and government organizations with many remotely located accounting and administrative units. Featuring modular architecture, the system offers high-speed data entry, transaction data entry, local user-programmed batch and transaction processing, data-base inquiry, and batch and interactive communications.

All programmable computing elements are interconnected by the DataWay, which provides high-speed data access and data transport between the system's computers, operating software, and data base stored on disk.

System software includes a file management and control system, Basic II and Cobol programming languages, and an English command language for the nontechnical user.

A typical small Sovereign system consists of 120K bytes of processing power; seven 520-character CRTs for data entry and file inquiry; a 2000-character intelligent processing terminal for supervisory control, local processing, and communications; 10M bytes of on-line disk storage; a 45-ips, 9-track, 800-bpi tape drive; and a 150-lpm printer. This configuration costs \$74,210 and can be leased for \$1426 per month on a 60-month contract.

The medium system configuration consists of 248K bytes of processing power; fifteen 520-character CRTs; three 2000-character intelligent processing terminals; 20M bytes of on-line disk storage; a 45-ips, 9-track, 800-bpi tape drive; a 165-cps printer; and a 300-lpm printer. With a purchase price of \$124,150, this configuration can be leased for \$2440 per month on a 60-month contract.

A large system consists of 424K bytes of processing power; thirty 520-character CRTs; five 2000-character intelligent processing terminals; 30M bytes of disk storage; a 45-ips, 9-track, 1600-bpi, phase-encoded tape drive; a 165-cps printer; and two 300-lpm printers. This configuration sells for \$194,760 and can be leased for \$3825 per month on a 60-month contract.

NCC Booth 852  
Reader Service Number 50

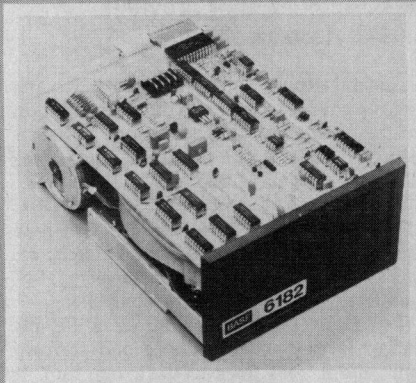
### 158M-, 70M-byte drives offered

Priam Corporation has added a 158M-byte drive, using 14" disks, and a 70M-byte 8" drive to its line of Winchester-technology products.

The 158M-byte drive measures only 7" × 17" × 20" and weighs 57 pounds, including the built-in power supply. Track density is 960 tpi. Average head positioning time is 40 ms. The OEM price is \$3100.

The 70M-byte drive offers 960-track-per-inch density and an average head positioning time of 40 ms. In OEM quantities, the drive is priced at \$2900.

NCC Booths 4704/4705  
Reader Service Number 51



BASF Systems' 6180 Series of 5 1/4" fixed disk drives will be introduced at the National Computer Conference. Model 6182 (pictured above) offers 6M bytes of unformatted capacity on two platters, while the Model 6183 features 10M bytes on three disks. Both models have a track-to-track access time of 2 ms, an average data access rate of 100 ms, and a transfer rate of 5M bps. Track density is 254 tpi, and bit density is 7690 bpi.

NCC Booth 952  
Reader Service Number 52

#### Four dot matrix units print 150 cps at 12 cpi

Westrex OEM Products' 800 Series of alphanumeric, bidirectional dot matrix printers includes four standard models of split-platen, flatbed slip/document, and 51-to-96-column journal printers.

The drive motor is rated at eight million print lines and the printer body at 15 million print lines (20 million line feeds). For all models, print speed is 150 cps at 12 cpi.

Model 820 is a split-platen journal/receipt printer. It does selective receipt printing at up to five lines per second. Logo printing, five-line document validation, and automatic receipt cutter are optional. Fastest transaction finalization is accomplished by 22-lps and 150-cps print speed. It is priced for OEMs at \$250 per unit.

Model 840 is a flatbed, slip/document printer with side or front form insertion, top and bottom form sensors, adjustable slip/document stop, and up to 40-column print on single or multi-ply forms. Its OEM price is \$227 per unit.

Model 850 is a journal printer with top paper insertion, document validation capability, a paper tear-off blade, manual and automatic paper advance, an integral paper supply holder, and optional paper rewind. Under user/software control, it can print up to 51 columns on single or two-ply paper. For OEMs, it is priced at \$250 per unit.

Model 880 is a 80-column journal printer which produces up to 96 characters (576 print dots) per line at 12 cpi. It accommodates three-ply, top-loaded paper up to 9.6" wide. Its quantity-one price for OEMs is \$290.

NCC Booths 110-112  
Reader Service Number 53



SSM Microcomputer Products' UEI is a 6802-based universal external interface unit that allows read-only video disks on DiscoVision's disk player to be controlled from a computer keyboard. Shown atop the Apple II in the photo above, the UEI is available in both RS-232 and IEEE 488 bus versions. The unit allows direct access to any one of 54,000 video frames stored on the disk surface. Access time to a frame is on the order of one second. A typical implementation includes the UEI, a microcomputer with keyboard and video terminal, the DiscoVision player, and a TV monitor. A video switching card currently being developed will eventually eliminate the need for the video terminal. SSM is manufacturing the interface exclusively for DiscoVision Associates, a joint venture of IBM and MCA.

NCC Booths 4021/4022  
Reader Service Number 54

#### Entry-level image system uses LSI 11/02 computer/controller

Comtal, a subsidiary of 3M Corporation, is introducing the Vision One/10, a stand-alone digital image processing system.

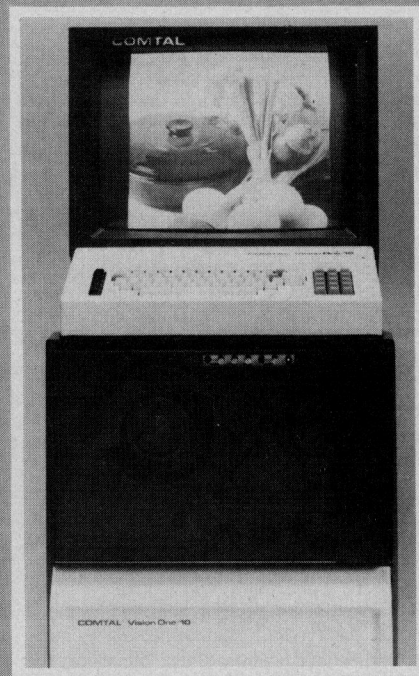
Designed as an interactive system operating in real-time 1/30 second, the Vision One/10 can also interface as a loosely coupled coprocessor image system with a host computer. Its memory holds four 512 x 512 8-bit images and four 512 x 512 1-bit graphic planes. An LSI 11/02 computer/controller with a PROM operating system is used. Additional RAM space is available for user code. An in-line, real-time pipeline processor provides brightness enhancement and color modification.

The system's pseudocolor processor has 8 bits in, to 24 bits out, with 8 red, 8 green, and 8 blue. A zoom feature based on pixel replication provides image enlargement by factors in 1x, 2x, and 4x. In addition, the system offers a software-operated histogram.

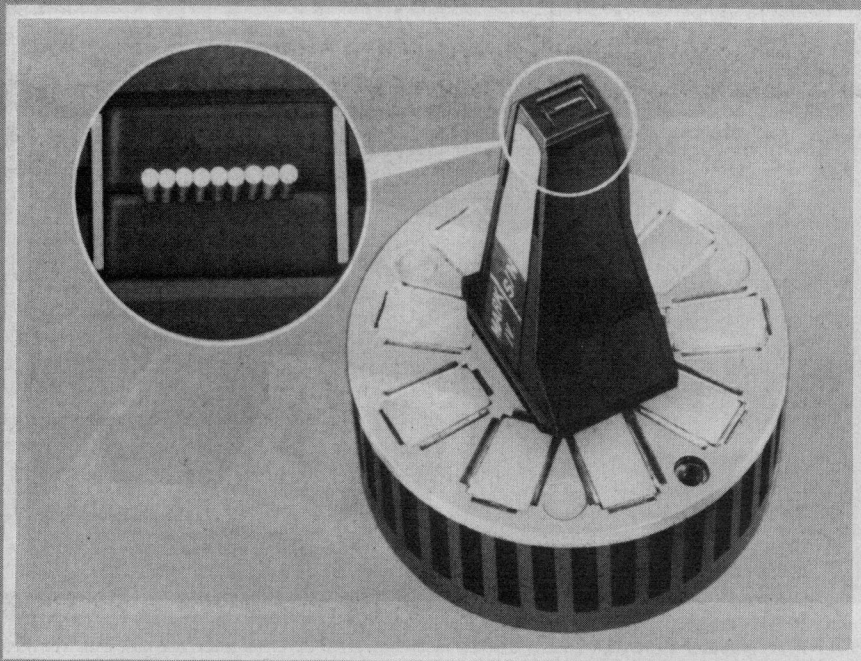
Options available include a monochrome high-resolution vidicon camera, a real-time (10 MHz) A to D converter, a small-area brightness/color control, and image-combination hardware to add, subtract, multiply, or divide two 512<sup>2</sup> images in real-time.

The Vision One/10 system is priced at less than \$55,000.

NCC Booth 2504  
Reader Service Number 55



A compact entry-level system, Comtal's Vision One/10 stand-alone digital image processing system has many of the state-of-the-art capabilities of the company's more powerful Vision One/20 system.



Universal MicroPrinters' Model Mark IV WP nine-needle matrix head produces standard matrix printing and fonts such as elite by ROM change. Needle flight time is closely controlled to  $\pm 10$  microseconds. Needle diameter is .012". According to the manufacturer, the unit is a true ballistic printhead with the needles flying free of the solenoids. Life is about 500,000,000 characters. With delivery one week after receipt of order, the Mark IV WP is priced at \$78.75 in lots of 2500.

NCC Booths 1505/1506  
Reader Service Number 56

### Disk drives have 165.9M- and 330.3M-byte capacities

Ampex Corporation has announced two models in its Capricorn line of 14" rack-mountable Winchester disk drives. The 165.9M-byte Model 165 and the 330.3M-byte Model 330 use enhanced IBM 3350-level technology with disks, heads, and linear actuators enclosed in environmentally sealed modules.

The drives are format- and interface-compatible with Ampex's DM900 and DM9000 removable media disk drives. An industry-standard SMD interface allows operation with existing SMD disk controllers.

The Capricorn drives offer an average ac-

cess time of 30 ms with a data transfer rate of 1.2M bps. Microprocessor-controlled electronics and comprehensive self-diagnostic capabilities reduce repair time and eliminate the need for external testers. Common and modular replaceable subassemblies are used. A dual port interface, rackmount slides, and a tabletop enclosure are optional.

In OEM quantities, Model 165 is priced at \$5900 and Model 330 costs \$7100. Initial shipments are scheduled for September.

NCC Booth 901  
Reader Service Number 57

### 1M-byte add-in for PDP-11/44 uses 16K RAMs

Dataram Corporation has expanded its DR-144S add-in from 256K to 1M bytes. Compatible with DEC's PDP-11/44, the DR-144S utilizes 16K dynamic RAMs.

The expanded capacity is achieved by use of vertical AMP pins interconnecting a maximum of three PCB assemblies. Since only the mother board of the three-board add-in interfaces to the PDP-11/44 Unibus, the product presents only one unit load. Power consumption is minimized, since adding additional array boards to the mother board adds low power MOS RAMs and not additional high-

power bipolar logic.

The 256K-byte add-in is still available on the single hex-size mother board. A 512K-byte version is available on a single assembly containing the mother board and one array board. The mother board with two array cards provides a full 1M bytes.

With delivery 60 days after receipt of order, the 1M-byte DR-144S costs \$14,200. The 256K-byte and 512K-byte versions are priced respectively at \$4500 and \$8200.

NCC Booth 722  
Reader Service Number 58

### Desktop computer provides 1.8M-byte disk storage

General Robotics Corporation's Scorpio desktop computer system is the latest addition to the company's Constellation series of microsystems. The system measures 15.5" x 6.75" x 15.5" and weighs 35 pounds.

The Scorpio is packaged with a DEC LSI-11/2 CPU, a GRC MSV11 64K-byte memory, a GRC DLV11 serial I/O interface, and two double-sided, double-density 5 1/4" mini floppy disk drives and a controller.

The mini floppy disk features a 177-ms average access time, a .25-second start-up time, and a 3-ms track-to-track step rate. It provides a disk storage capacity of 1.8M bytes.

Priced at \$7000 in single quantities, the Scorpio is priced for OEMs in the US at under \$4000 in large quantities.

NCC Booth 1665  
Reader Service Number 59

### Controller has extended memory addressing to 256K bytes

Dilog's Model DQ401 disk controller interfaces DEC LSI-11, 11/2, or 11/23 microcomputers with two Shugart SA4000s, Fujitsu 2301s or 2302s, Memorex 101s or 102s, or other hard disk drives having a Shugart SA4000-type interface.

The microprocessor-based controller emulates the DEC RKV-11/RK05 disk subsystem and is compatible with DEC RT-11 and RSX-11 software. Occupying one card slot of a DEC or DEC-compatible LSI-11 Q-Bus chassis, it interfaces to the drives via a jumper-selectable single or dual cable arrangement.

Features include a data buffer for eliminating data late errors on the Q-Bus, automatic media flaw compensation, data error-checking, an on-board bootstrap, extended memory addressing to 256K bytes, and an automatic self-test with indicator and data protect.

The model DQ401 is priced at \$1580, with delivery 30 days after receipt of order.

NCC Booths 5007-5009  
Reader Service Number 60

### Plotter has 35-ips axial speed

Nicolet Zeta Corporation's Zeta 3620 intelligent digital drum plotter offers 35-ips axial speed, 4G acceleration, 0.00049" resolution, and continuous feed paper for unattended multiple-plot operation.

The plotter's intelligence is provided by two 16-bit microprocessors which control the linear actuator pens and proprietary servomotor drive system. Other intelligent features include windowing, LCD plot time display, and built-in diagnostics.

NCC Booth 338  
Reader Service Number 61