

NEW PRODUCTS

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

CAD/CAE workstation features floating point/array processing

A 32-bit virtual memory workstation with an integrated floating point and array processor has been introduced by Masscomp for real-time numerical analysis in CAD, CAE, and other scientific and engineering applications. The Workstation 500 executes a multi-user/multitasking Unix operating system, with Masscomp's software for real-time operation. The system supports two 19-inch raster displays, either a 1024×800-resolution monochrome or an 832×600-resolution color unit, each with a dedicated graphics processor.

The 500 features an 8M-bps memory interconnect bus, which couples dual 32-bit, 10-MHz MC68010 and MC68000 VLSI processors with a 4K-byte cache; a 1024-element translation buffer; and a 1024-entry I/O map, with up to 6M bytes of error-correcting memory supporting a 16M byte virtual address space.

Within this system CPU, volume users, and OEMs can add an integrated, independent floating point processor or a combined floating point/array processor. The independent floating point processor performs single-precision, 32-bit add or multiply in 1.6 ds and provides double-precision, 64-bit IEEE standard arithmetic. The floating point/array processor performs a 1024-point add or multiply in 413 ds, supports single- or double-precision, floating point, and vector math, and stores 16K 40-bit elements locally.

The 500's independent graphics processors free the CPU to run applications programs. Each IGP contains an 8MHz MC68000 with its own 128K-byte program store and can have up to 1.2M bytes of raster memory in dual-frame buffers up to 10 planes deep. One IGP drives a 19-inch monochrome display with a single-memory plane or a 19-inch color display with either six or 10 memory planes.

A typical Workstation 500 consists of a CPU; 1M byte of error-correcting memory; a 51M-byte Winchester disk; 1/4-inch cartridge; eight-slot backplane; six-plane, 19-inch color display; floating point processor and array processor; and real-time Unix operating system with C, and sells for \$29,585 in quantities of 100.

Reader Service Number 45

CAE workstation incorporates HP-9000 processor

Avera Corporation's EDS-2100 is a computer-aided engineering design workstation that uses the Hewlett-Packard 9000 32-bit processor for custom and semicustom, integrated circuit, hybrid, and PC board design. The system runs the company's enhanced schematics and layout design software in addition to complementary analysis software and interfaces with the HP-9000 processor and the Tektronix 4115B color display terminal.

Small and compact enough to fit in a desk configuration, the EDS-2100 has 0.75 to 2.25 MIPS of processing power, the equivalent of a VAX 11-750/780. The system's Tektronix 19-inch display terminal has 1024×1280-pixel graphics, a 60-Hz noninterlaced refresh rate, and auto-convergence features. The workstation can be integrated with the Avera 1000

series terminals, as a stand-alone structure or as a supplementary design workstation with the 2100.

The schematics designer software permits entry of schematic information using familiar circuit elements and automatic generation of network interconnection data for analysis programs. Layout designer software provides the design elements and layout aids necessary for custom design of complex microelectronic circuits. Both packages support a hierarchical design methodology and are written in C to run in a Unix environment.

The EDS-2100 retails for \$100,000.

Reader Service Number 46



The Masscomp Workstation 500 (desktop model shown) can be connected to a local area network by adding an Ethernet interface with TCP/IP protocol. Information can be moved between systems at 10M bits/second. Task-to-task communication, remote file transfer, virtual terminals, network print spooler, and network mail services are now available.

Reader Service Number 47

CAD/CAM workstation network is IBM-compatible

CGX Corporation's Graphics Display System 2001 is an IBM-compatible network of interactive workstations designed to perform mainframe-based CAD/CAM tasks. The 2001 permits users to mix up to 16 raster and monochrome vector terminals on a single-cable network up to two miles long as a result of its multiprocessor-based one-on-one architecture, which incorporates a dedicated graphics processor in each workstation.

The system is capable of running either from the IBM series 360/370, 30XX, and 43XX family or the IBM plug-compatible host mainframe computers. The basic system includes a 2010 channel unit, a 2020 vector display station, and a 2030 color-raster display station, all of which have built-in self-diagnostics for off-line testing.

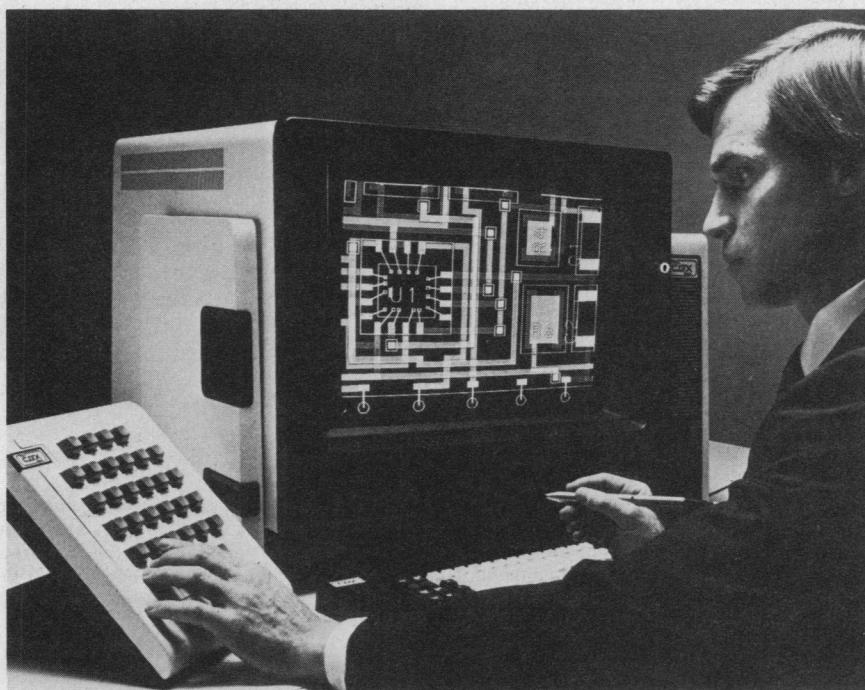
The channel unit controls the interface between the graphics application software program and the display stations, passing host-supplied data and control information at speeds up to 1M bps to each workstation along the coaxial cable.

The vector display station and the color-raster display station emulate the IBM 3250 graphics display terminal and are each designed to provide the interactive response speeds required by other IBM-compatible CAD/CAM graphics software. Each station includes a light pen, an adjustable 32-key programmable function keyboard, and an alphanumeric keyboard. Both displays can draw solid, dotted, dashed, and dot-dashed lines and contain 96-character EBCDIC sets with nine special engineering symbols to emulate IBM 3250 small, medium, basic, and large character sizes.

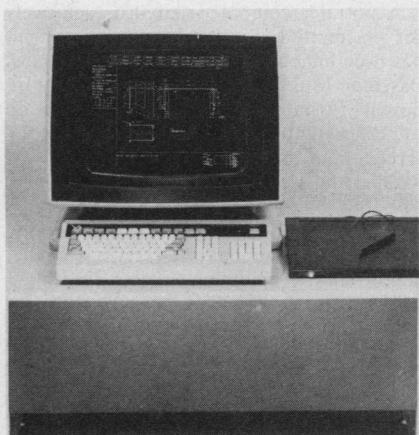
A typical Graphics Display System 2001 configuration consisting of four 2020 vector display stations, four 2030 color-raster display stations, and a 2010 channel unit is priced at \$299,000. Individual component prices are \$23,000 apiece for the channel

units, \$27,000 for each vector display; and \$42,000 for each color-raster display. Both OEM and end-user quantity discounts are available; delivery is 120 days ARO.

Reader Service Number 50



The IBM-compatible Graphic Display System 2001 from CGX Corporation is a CAD/CAM display network that features a color raster display with an adjustable programmable-function keyboard and a light pen for input and manipulation of high-resolution color images for mechanical, printed circuit, and architectural engineering design.



Vector Automation's Cadmax-M entry-level 2-D CAD/CAM system can be mixed in a network with other company products and software, allowing each operator to share data and output devices. The Cadmax-M includes a single minicomputer; workstation with separate display, keyboard, and tablet assemblies; a vector refresh display, a 10M byte disk; and a floppy disk for archival storage. It retails for \$39,500.

Reader Service Number 48

Hard-disk portable is IBM PC-XT compatible

Eagle Computer has introduced a 10M-byte hard-disk portable computer, called the Eagle Spirit XL, that features IBM PC-XT compatibility. The unit incorporates color and black-and-white graphics capabilities; two operating systems; Microsoft's MS DOS plus Digital Research's CP/M-86 and Microsoft's GW Basic (Basica); and an enhanced standard IBM PC keyboard.

The basic system has a nine-inch, nonglare integral monochrome monitor; a 16-bit Intel 8088 microprocessor and 8087 coprocessor option, with 128K RAM expandable to 640K on the main system board; an integrated 10M-byte Winchester hard disk drive; and a 5½-inch floppy disk drive with 360K storage capacity. As a standard feature, the Spirit XL includes a combined monochrome and color-graphics display card with composite and RGB output capable of simultaneous 640×200 operation. There are two serial ports and one parallel port on the main CPU board, with four IBM PC-compatible hardware slots. Weighing less than 33 pounds, the Eagle Spirit XL retails for \$4795.

Office publishing system produces illustrated documents

Interleaf has introduced a computer-aided publishing system for producing illustrated documents with up to 1200 pages. The OPS-2000 integrates advanced multiple-font word processing, business graphics, diagramming, and high-speed laser printing, enabling a user at a stand-alone workstation to create, edit, compose, and produce copies of illustrated documents containing both text and graphics.

The system is compatible with IBM personal computers, IBM-compatible microcomputers, and Wang Laboratories' word processors. The interactive, real-time system has a bit-mapped screen that displays black on white to replicate the final page exactly. The OPS-2000 offers automatic pagination, and a structured document editor that enables users to change the format of a document with simple commands. The system includes a high-speed laser printer with graphics controller and a 68010 microprocessor-based workstation with CRT. The OPS-2000 is priced at \$60,000, and delivery is 30 to 60 days ARO.

Reader Service Number 49

Reader Service Number 51

Vax/Unix systems develop and manage software

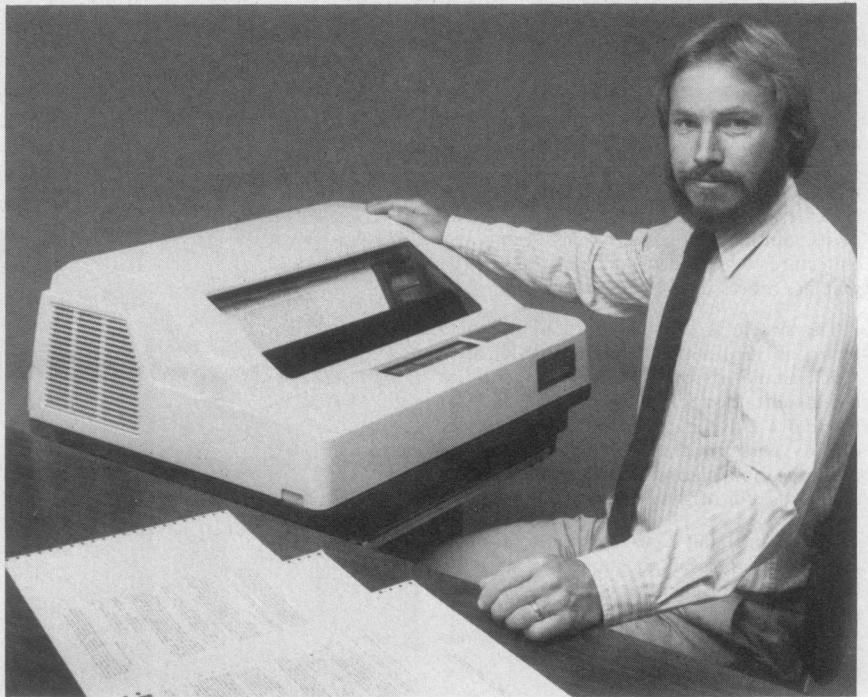
SMDS, Inc., has announced the availability of its Aide-de-Camp software engineering environment. The ADC system manages software and information about software in a database and provides on-line, interactive information about software to development engineers.

Written in C and currently available on Vax/Unix systems, the ADC can be used to develop software written in any language. It facilitates and enforces software documentation, automatically collects information about software being created, and produces printed reports. ADC maintains software sources and all changes to that software in a database. Software changes are treated as logical units, which can be added to or subtracted from a named base version. New versions can serve as base versions for future development. A single ADC database contains all versions of the software being maintained and all information about that software captured by the system or input by the development team.

The information management side of the ADC system captures and maintains information on named entities, codes, changes, versions, external documentation, and other data.

Single-site licenses are available for \$42,000. An annual support contract including updates and telephone hot-line support is also available.

Reader Service Number 52



Synergy Printer Systems' Multi-mode line printer performs data processing, letter quality, and graphics functions in a single system and is compatible with most DEC, HP, Burroughs, Data General, and IBM computers. In the data processing mode, Multi-mode operates at 300 or 600 lpm; in the near-letter quality mode, at 85 or 170 lpm; and in the graphics mode, at 1200-2400 or 2400-4800 dot lpm. Multi-mode costs \$6000; delivery is four weeks ARO.

Reader Service Number 53

SOFTWARE ENGINEERS

Join our winning team in
**ADVANCING THE
STATE OF THE ART**
in producing cost-effective, reusable
and reliable software

We offer exciting projects and an environment for growth. ESL is seeking talented individuals who can create and implement innovative concepts in advancing software technology. You should have a strong computer science background and experience in at least one of the following areas: expert systems, software development methodology, software tools, ADA and APSE. U.S. CITIZENSHIP IS REQUIRED.

As a subsidiary of TRW, ESL, a "Systems house" is responsible for programs of national significance in the defense and intelligence communities. ESL is an equal opportunity employer.

For immediate consideration, please call COLLECT, (408) 738-2888, Ext. 5372, or send resume to Dr. Steve Leung, ESL, A Subsidiary of TRW, 1345 Crossman Avenue, Sunnyvale, CA 94086, (408) 743-6300.

ESL

A Subsidiary of TRW
1345 Crossman Avenue
Sunnyvale, CA 94086
408 743 6300



Portable computer aimed at industrial applications

A portable computer designed exclusively for the multitasking industrial environment has been announced by Monolithic Systems. Based on Multibus architecture, the Indy Industrial PC integrates a 16-bit 8086 CPU, up to 512K bytes of parity RAM, nine-inch CRT screen, dual 3½-inch floppy disk drives, parallel and serial ports, and SCSI interface. The total package weighs approximately 35 pounds; includes a 100-watt power supply, cooling fans, and built-in carrying handle; and offers two operating systems, four high-level languages, and a variety of utility programs.

Either Intel's iRMX-86 or Digital Research Corporation's Concurrent CP/M-86 operating systems can be run on the PC. Fortran, Pascal, Basic, and C, Version 7 language compilers are available, as is Basic in interpretive form. Other software modules in the comprehensive package include a full-screen CRT editor, assembler/linker, formatter for both Winchester and floppy disk drives, hardware diagnostics, and a PROM programmer.

The Indy PC is available in a variety of configurations, starting as a portable terminal containing only the CRT controller board at a single-unit price of \$1975. Production quantities will be available in first quarter 1984.

Reader Service Number 54

Single-unit computerized engraving system released

Dahlgren Engraving Systems' computerized Wizzard of Dahlgren is a self-contained, one-piece engraving system for use by jewelers, quick-printing shops, schools, hospitals, hotels, and other businesses and institutions with in-house engraving needs.

The Wizzard system includes an engraving machine, with integral 8×5-inch table; a custom full-function keyboard with 10-key pad; a 5-inch green CRT with external monitor outlet; and operating and tutorial software. The Wizzard uses a dual-CPU computer with graphics display and provides two type fonts stored in permanent memory, cutters, a tool kit, a printer port, and a starter kit of engraving materials. According to the company, many computer printers can be plugged in for printed, permanent records of jobs.

The keyboard has special function keys grouped together in a separate row; keys that perform similar functions are the same color in the five-color layout. A red emergency Stop key can be used to stop all operation, without losing a design in progress, and a Help key provides users with information as needed.

The Wizzard computerized engraving system is priced at \$3995.

Reader Service Number 55



Dahlgren Engraving Systems' Wizzard of Dahlgren permits businesses and institutions to engrave small awards, signs, and name badges in-house using unskilled labor with a two-hour training period, the company states. To help visualize each engraving, a graphic representation of the design is displayed on the CRT.

Accounts payable software runs on DEC VAX minis

Ross Systems has developed an integrated and interactive accounts payable package with cash management features, designed for use on DEC VAX minicomputers. The Maps/AP software handles payables processing, check writing, vendor information, cash management, inquiries, and reports. As a complement to the comprehensive general ledger/financial management package, Maps/GL, Maps/AP automatically updates payables to the general ledger and provides a GL distribution by multiple account structures.



Hilevel Technology's Model DS470 is a stand-alone workstation for microprogramming use. It is available either with a 68000 CPU and Unix or a Z80A CPU with the CP/M operating system. Base price of DS470 with 68000/Unix is \$19,900; with Z80A and CP/M, \$12,950. Delivery is 30 days ARO.

Reader Service Number 57

Wordstar conversion permits dot matrix printing

CMB3 Enterprises has announced publication of Ws-patch, a machine language program that automatically custom installs the Micropro Wordstar word processing program so that a dot matrix printer can be utilized, an option formerly unavailable with Wordstar packages. At installation, Ws-patch rewrites Wordstar's print menu to allow the control codes for the enhanced printer capabilities to be displayed by Wordstar, whenever control P (~ P) is pressed.

Ws-patch is available in versions for Epson, Gemini Star Micronics, CP-80, Mannesmann Tally, C-Itoh Prowriter, and Okidata Microline printers. The program comes in formats for the IBM PC and PC-XT, using DOS 1.1 or 2.0, and for CP/M-based machines, such as Apple, Osborne, Morrow Designs, Northstar, Kaypro, and Epson QX-10 micros.

Ws-patch lists for \$49.95.

Reader Service Number 58

IC design family features cross-compatible software

A family of turnkey systems that support semicustom integrated circuit design from architectural definition through cell layout has been announced by Silvar-Lisco. Designated the SL 2300/2400/2600 series, the systems are based on the Domain line of workstations from Apollo Computer and the SL 2000 integrated design system control software.

The software for the workstation family consists of six application-specific bundled software packages made available on the Apollo DN300, DN420, and DN600, 32-bit microcomputer-based workstations. These systems support architectural and logic-system-level design and simulation and automa-

tic layout for gate array and standard cell semicustom technology. Interfaces are provided to other design environments such as PC board layout. Standard interface translation programs are available that are compatible with Spice, Logcap, Ilogs, and Tegas simulators, the Scicards automatic PC-board router, and NCA's design rule checking software.

Standard cross-compatible software programs include SDS schematic-capture software with hierarchical design expansion capability; Swap for simulation of switch capacitor networks; Helix, a hierarchical system level design tool and simulator; and Bimos, a logic level simulator that includes a logic-analyzer for displaying waveforms. Software modules for IC-layout are the Gards gate-array placement and routing software and Cal/mp standard-cell design program.

The workstations, which run under the Aegis operating system, include from 1.5 to 2M bytes of main memory; a 34 or 158M byte disk, and 1.2M byte diskette drive. An Apollo mouse or a graphics tablet can be used for graphic input. The SL 2300 17-inch display and the 19-inch SL 2400 are available in black and white; the SL 2600 is a 19-inch color display terminal.

Maps/AP costs \$15,000 to \$20,000, depending on the VAX model.

Reader Service Number 56

Reader Service Number 59

Disk drive line includes battery-powered units

Epson America, Inc., has announced a line of disk drives that includes four low-power 3½-inch floppy drives designed for use in battery-powered micro-powered micro-based products. The four models, the SMD-100 series, feature storage capacities from 125K bytes for the SMD-150, single-sided, single-density drive up to 1M byte for the SMD-180, double-sided, double-density model.

Power consumption for the units is 1.3 W for standby and 5.9 W for read/write. The SMD-150 and SMD-160 have a 5-ms track-to-track access time and an 83-ms average access time; the SMD-170 and SMD-180 have a track-to-track access time of 3 ms; with 96 ms as the average access time.

Data transfer rate is 125K bytes per second for the single-density versions and 250K bytes

per second for the double-density versions. Track density for the new models is 67.5 for the SMD-150 and SMD-160, and 135 tpi for the SMD-170 and SMD-180.

All of the SMD-100 series models offer a choice between an industry-standard 5¼-inch interface and a Sony 3½-inch interface.

In addition to the SMD-100 series, the company has introduced the SD-300 and SD-500 series of drives.

The SD-300 series consists of one-third-height, 5¼-inch drivers with up to a 500K-byte capacity. This series features push-button loading in a double-sided, double-density drive. The SD-500 series of half-height, 5¼-inch drivers provide up to 1.6M bytes (unformatted) of floppy drive storage.

Reader Service Number 60

Three software programs offered for Lotus 1-2-3

Expert Systems has announced the release of Mindtools, application software designed to work with the Lotus 1-2-3 macro-command-language software.

The financial planning Mindtool program enables users to compute the business and financial calculations most often needed by home planners, professional analysts, and investors. The small business accounting program is an accounting system designed for small business owners, accountants who service small business clients, and business or accounting students. The home budget and check register Mindtool provides a sophisticated budgeting system for personal finances.

The Mindtools programs are priced from \$69.

Reader Service Number 61

New 1-2-3 release supports PC DOS Version 2

Lotus Development Corporation's Release 1A is a new version of the 1-2-3 program that is compatible with the IBM PC-XT. Release 1A supports PC DOS Version 2.0 and a number of computers and peripherals and can display the 1-2-3 worksheet in various colors on a color monitor. The minimum amount of RAM required to run Release 1A is 192K bytes.

Release 1A supports a number of devices, including the Okidata Microline series, the IBM graphics printer, the Epson FX-80, the Anadex 9620A Silent Scribe, NEC's 8023, the Strobo 100 and Sweet P plotters, the Epson MX-80 and MX-100, the IDS Prism printer, and the HP 7470A pen plotter. The program is available in several versions for models from Texas Instruments, Wang Laboratories, Vic-

tor Technologies, Zenith Data Systems, Digital Equipment Corp., the Dynalogic Division of Bytec, and Grid Systems. Release 1A of 1-2-3 has a suggested retail price of \$495; it is available for \$20 to registered owners of 1-2-3 who purchased the program before May 1 and at no charge to those who bought the program after May 1.

Reader Service Number 62



IF YOU HAVE TO:

- Implement the parser algorithm for databases,
- Define the grammar for a particular user interface language,
- Implement the semantic part of interpreters,
- Write the code for the front end manager for distributed systems,
- Develop the front end for compilers or systems.

AND IF YOU WANT TO:

- Increase the productivity of your Software department,
- Utilize the power of a general software tool, that matches the needs of our team of experts in the field of compiler design,
- Implement the new technology you want.

AND IF YOUR PRODUCT SHOULD BE:

- High quality software,
- Well documented software,
- Efficient implementation,
- Low cost software.

THEN YOU NEED LILA!!!!

A COMPILER WRITING SYSTEM

Workshop

International Workshop, Belgium

The software tool LILA, standing for Language Implementation Laboratory, and its underlying methodology promote the modular design and implementation of translators. The main characteristic which is responsible for this modularity, is related to the technique of syntax-directed compiler description and attribute handling.

One of the most valuable aspects of LILA is the production of compilers with powerful interactive error recovery. LILA and its methodology have been developed at the Computer Science Department of the University of Leuven, Belgium. The software tool LILA and its documentation are available for distribution. A workshop will be organised in order to provide hands-on experience with LILA.

Date : March 7-8-9, 1984

Place : University of Leuven
(± 15 miles from Brussels, Belgium)

Contact address: M. J. B. J. Goedertier
INNOVI Corp., Willystraat, 37-45 bus 3
B-2020 Antwerp - Belgium - Europe
Phone: +32 3 238 6160 - Telex: 72679 INNOV D

Advance registration form

Mail to: LILA WORKSHOP

c/o INNOVI CORPORATION
Willystraat 37-45 B3-B-2200 Antwerp - Belgium
Phone (3) 235.19.60

Deadline for advance registration:
February 24, 1983

Name:

Company:

Address:

City: State: Zip:

Phone: (please print)

I will attend, find check enclosed

I wish to attend to the workshop,
please send me further information

I will not attend the workshop, but I
want to receive the technical paper
about LILA

Fees: Advance registration: \$250

(Full documentation included)

Late registration: \$ 300

Make checks payable to:

INNOVI CORP. LILA WORKSHOP

Module correlates computer and video camera data

The Viccur from K-Systems, Inc., is a video timing product designed for military, law enforcement, and civilian applications. The printed circuit module combines the functions of a video inserter for alphanumeric time code and titling, IRIG-B reader, time-of-day clock, and cursor generator.

Viccur's on-board microcomputer reads IRIG-B modulated timing, using the extracted time to initialize a time-of-day clock. BCD time of day is constantly copied to a parallel BCD output port for connection to a computer and is inserted onto one line of alphanumeric video annotation. A second line of titling data is under control of an external computer or other parallel ASCII source, or may be turned off.

Because Viccur receives power only from the backplane and is not interfaced to the bus, it can be used as a stand-alone device and with many types of computers. The compact module is portable and provides logging (with a video recorder), annotation of video tapes, and correlation of computer and camera data. Viccur costs \$1500; quantity discounts are available.

Reader Service Number 63

Multiuser micro system runs eight- and 16-bit software

Compupro's four-user multiprocessor microcomputer system permits concurrent execution of both eight- and 16-bit industry-standard software, uses a dedicated central 8088 processor to handle system resources and overhead, and has four Z80B processors for individual tasks.

Standard features of the Compupro 10 include the 8MHz, 16-bit 8088 CPU with 768K bytes of main memory, seven serial ports including a modem port, a Centronics printer port, 384K bytes of solid-state disk memory, and dual 96-tpi, 5 1/4-inch floppy disks storing 2M bytes. In addition, there are four eight-bit Z80B user processors, each with 64K RAM, in the 7 x 17 x 21-inch unit.

According to the manufacturer, an enhanced version of Compupro's MP/M 8-16 CP/M-based operating system enables users to access more than 3000 business application programs. Compupro 10 also comes bundled with a selection of financial spreadsheet, word processing applications programs, and a database management system.

The system costs \$4995, excluding terminals priced at \$1800 each.

Reader Service Number 64

Interface sends/receives RTTY, ASCII, and CW signals

The MFJ-1224 computer interface unit from MFJ Enterprises, Inc., permits VIC-20, Apple, TRS-80C, Atari, TI-99, and Commodore 60 personal computers to be used as computerized RTTY/ASCII/CW stations for sending and receiving. The unit transmits and receives radio teletypewriter and continuous wave signals when used with a transceiver. During reception, the 1224 converts the CW or AFSK tones into computer-compatible TTL-level signals so the computer can translate and display the signals on a CRT screen. In the transmit mode, the computer generates the signals that are converted by the interface into AFSK tones from RTTY or into CW keying for CW transmission.

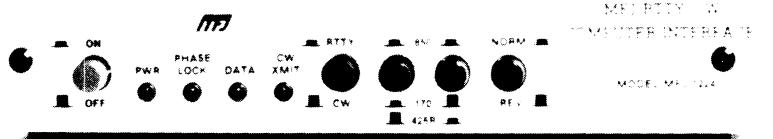
The unit copies on both mark and space and contains both an automatic noise limiter for suppression of static crashes and a demodulator for maintaining good copy on slightly drifting signals. An eight-pole active filter for 170 Hz shifts and allows good copy under

crowded, fading, and weak signal conditions, according to the company.

The MFJ-1224 uses Kantronics software, which features a split-screen display, a 1024-character type-ahead buffer, 10 message ports with 255 characters each, status display, CW-ID from keyboard, Centronic-type printer compatibility, CW send/receive at five to 99 wpm, RTTY send/receive at 60, 67, 75, and 100 wpm, and ASCII send/receive at 110 and 300 baud. In addition to the Kantronics-compatible socket, a general-purpose socket allows interfacing to nearly any PC with most software, the company states.

The unit is housed in a black aluminum cabinet with brushed aluminum front panel, measures 8 x 1 1/4 x 6 inches, and is available for \$99.95, plus \$4.00 for shipping and handling.

Reader Service Number 65



The MFJ-1224 RTTY/ASCII/CW personal computer interface from MFJ Enterprises, Inc., has a two-LED tuning indicator and a normal/reverse switch that eliminates retuning while stepping through various RTTY speeds and shifts.



Career kit. Multimedia instruction kit provides secondary school students with information on computer-related careers. *Careers in Computing* includes a filmstrip, teacher's guide, 30 student handbooks, and a wall chart. Amy Arutt, Publicity Dept., Radio Shack, 1800 One Tandy Center, Fort Worth, TX 76102; (817) 390-3300; \$130.

IEEE-CS publications. 1984 catalog of the IEEE Computer Society's publications lists all books available from the society. Order forms and a membership application are included. IEEE Computer Society, 1109 Spring St., Suite 300, Silver Spring, MD 20910; (301) 589-8142.

Money, money, money. *Computers for Profit* is a nontechnical guide to learning how to make cost-effective use of your computer so that your investment in equipment can pay for itself faster. It is designed for users in business environments. Reston Publishing Co., 11480 Sunset Hills Rd., Reston VA 22090; (703) 437-8900; \$14.95.

Software manual. The 96-page *CompuDex Beginning and Advanced dBase II Techniques* manual lists techniques for combining command and form files and for using this software package in place of the CP/M Pip function. CompuDex Corp., PO Box 147-S, Natick, MA 01760; (617) 235-5152; \$25.

Small systems. Ten-part database management systems overview is from the publishers of *Small Systems World* magazine. *The Small Systems World Guide to Database Management Systems*, Small Systems World Magazine, 950 Lee St., Des Plaines, IL 60016; (312) 296-0770; \$20; 56 pp.

ATM security. Manual addresses the internal and external security problems connected with automated teller machines. *ATM Security*, Bank Administration Institute, 60 Gould Center, Rolling Meadows, IL 60008; (312) 288-6200; \$45 for BAI members and \$65 for nonmembers; 183 pp.

Programming standard. Guide serves as a uniform standard for programming in the Fortran, Cobol, and Basic languages and provides methodology for producing structural and testable top-down programs. Associated Technology, Route 2, Box 448, Estill Springs, TN 37330; (205) 837-4718; \$25.