

# New Products

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*Send announcements of new microcomputer and microprocessor products, and products for review, to Managing Editor, IEEE Micro, 10662 Los Vaqueros Circle, Los Alamitos, CA 90720-2578.*

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## Faraday announces two-chip PC/AT

Faraday Electronics has introduced the FE3010 CPU and peripheral controller IC to meet the needs of OEMs building AT bus-based systems. According to the company, the VLSI design replaces 21 discrete and peripheral components on an AT-compatible single-board computer. When used with the FE3000 CPU controller IC, the chip set

lowers the chip count for control functions to a pair of gate arrays implemented in 2-micrometer HCMOS.

The FE3010 is supported by the company's PROM-based BIOS. It supports 16-bit and 32-bit peripherals and 6-, 8-, and 10-MHz clock speeds with zero, one, or two wait states. The device incorporates 15 interrupt channels, three timer

channels, seven DMA channels, and page-register and refresh-address logic. It can accommodate 256K-bit and 1M-bit DRAMs.

The 84-pin, J-leaded, surface-mount PCC device from Faraday Electronics is priced at \$55 each in lots of 100. The AT BIOS is available for \$35 each in 100-piece quantities.

**Reader Service Number 30**

## PC accelerator enhanced

An enhanced version of Microspeed's Fast88 accelerator for IBM PCs and XTs, Compaq Portables, Leading Edge Model Ds, ITT Xtras, and compatibles is available. The new version is FCC Class B certified and includes software speed switching, software device drivers, and option settings.

This version of Fast88 increases the performance of standard computers by replacing its CPU with an 8088-2 or op-

tional NEC V-20 CPU and by replacing the 4.77-MHz system clock with a frequency clock generator having frequencies of 6.1, 6.7, and 7.4 MHz. The lower speed options allow users to achieve some speed enhancement without a major system overhaul.

Fast88 installs inside the PC cabinet (without using a card slot) and is compatible with Lotus 1-2-3, Symphony, AutoCAD, dBase III, Wordstar, Super-

Calc 4, Framework, and other software packages.

Microspeed's Fast88 has a suggested retail price of \$129 without the external control module and \$149 with this module. The suggested installation price at authorized dealers is \$60. Upgrades are available for a \$50 exchange price and include a new board, software, and user manual.

**Reader Service Number 31**

## Software develops 3D finite element models

Enterprise Software Products has announced Femap, Version 1.0, a finite element modeling package for the IBM PC, XT, AT, and compatibles. Femap permits analysts to develop and verify 2D and 3D finite element models, invoke the MSC/PAL solution routines, and read and write to MSC/PAL and MSC/Nastran.

The software supports the Color Graphics Adapter and the Enhanced

Graphics Adapter with 3D color-shaded, hidden-line and wireframe plotting. A menu-driven interface permits users to develop simple models on a PC and obtain results from MSC/PAL.

The element library contains 14 element types, including beams, quadrilateral and triangular plates, plane stress and strain membranes, shear panels, parabolic axisymmetric triangles, scalar springs and dampers, masses and linear

tetra, and wedge and brick solid elements. In addition, multilevel user-defined coordinate systems are available to assist in creating complex geometry. An on-line calculator and a program file interface allow users to customize Femap and develop their own modeling routines.

The Femap system is not copy protected. Contact ESP for pricing.

**Reader Service Number 32**

### PC accelerator contains 2M-byte EEMS or EMS memory

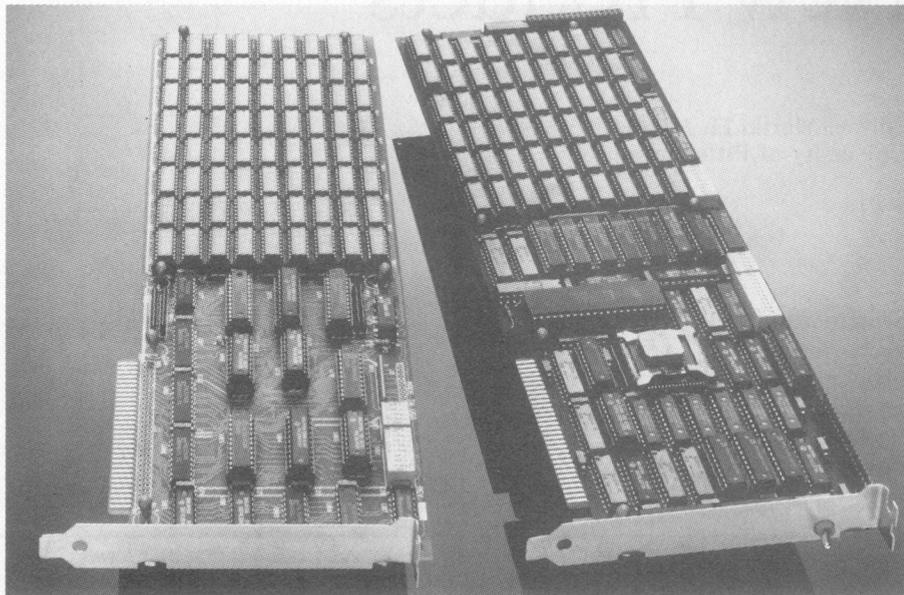
PC Technologies has introduced the 286 Ramracer single-slot, 8-MHz 80286 accelerator. With up to 2M bytes of EEMS or EMS memory, users can upgrade processor speed and expand memory beyond the DOS 640K memory.

Rampartner is a 2M-byte EMS or EEMS memory board also designed for use in IBM PC, XT, or compatible microcomputers. This board can be used in conjunction with the 286 Ramracer to provide up to 4M bytes of memory or independently by users not needing the extra processing speed of the Ramracer.

Ramracer and Rampartner include Express Pak software, a RAM disk and printer spooler developed to work with the 286 accelerator and boost performance.

The suggested retail price of the 286 Ramracer is \$745 with zero kilobytes of RAM and \$1225 with 1.5M bytes of RAM. The daughterboard is \$150 with 512K RAM. Rampartner sells for \$360 with zero kilobytes and \$960 with two megabytes.

**Reader Service Number 33**



PC Technologies's Ramracer combines an accelerator with cache memory and expanded memory. To obtain a total of 4M bytes of memory, users can combine the Rampartner with the 286 board. Both boards can be teamed with Intel or AST expanded memory products.

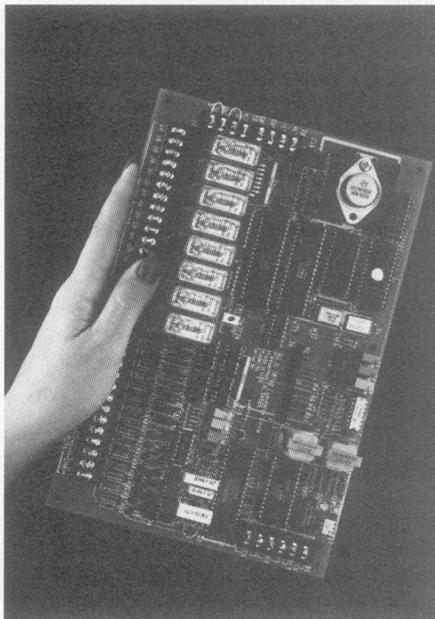
### RTU emulates SCADA systems

The Advanced Logical Solutions IRTU 500 is contained on a 7 × 10-inch circuit board. The intelligent remote terminal unit is designed for monitoring and controlling alternative generation, distribution automation, and energy conservation projects. The CMOS unit can be used as a stand-alone controller or as an intelligent data acquisition node linked to a compatible personal computer. A modular design concept permits the RTU to be configured to various applications.

IRTU 500 contains the Intel 8085 microprocessor with 8K bytes of EPROM and 8K bytes of static RAM, the proprietary SCADA protocol Commlink, a modem, and power supply. With a plug-in communications scheme, the RTU can be programmed to emulate most existing SCADA protocols. An on-board address selection switch allows up to 255 unique addresses.

Available with four analog inputs, eight status inputs, and eight control outputs, the ALS IRTU 500 sells for under \$1000 in quantities of 10.

**Reader Service Number 34**



The IRTU 500 from Advanced Logical Solutions includes a watch dog timer with fail-safe operation. Upon detection of a failure, the circuit resets the RTU and reports the problem to the central computer.

### C compiler processes 7000 lines of code/minute

The single-pass Turbo C compiler has, according to its manufacturer, Borland International, a raw compile time exceeding 7000 lines per minute on a 6-MHz IBM PC AT. End users can choose either an integrated environment with built-in editor, compiler, and linker or a conventional-style command line interface.

Turbo C generates intermediate data structures in memory, instead of temporary disk files. Special features include a pull-down menu environment; support for an automatic Make/Project Facility designed for managing program development; and two tiled, zoomable windows for editing and warning or error messages.

The compiler implements the forthcoming ANSI C standard and supports Kernighan and Ritchie C. Special extensions for the PC environment include six memory models and mixed-language, mixed-model programming. Software interrupt functions and in-line assembler support are implemented in Turbo C.

The suggested retail price of Borland's Turbo C is \$99.95.

**Reader Service Number 35**

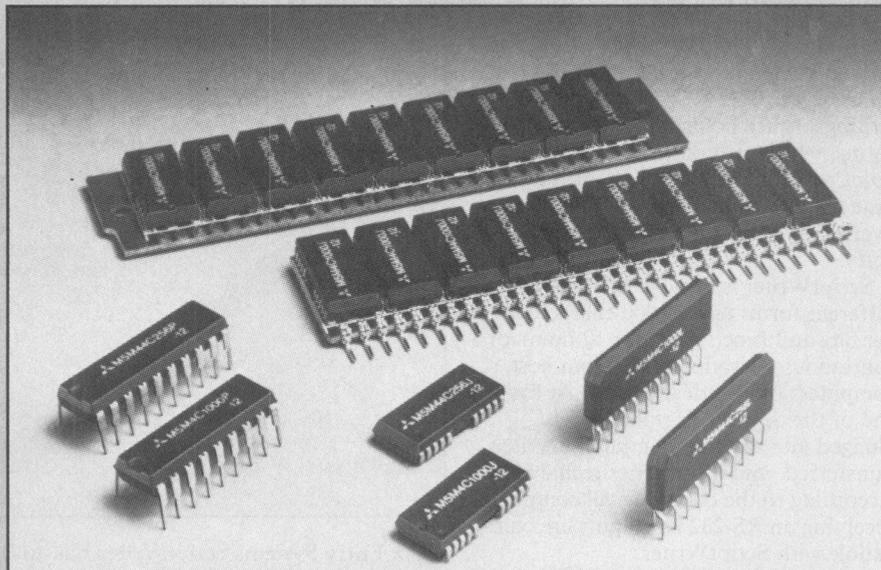
## One-megabit DRAMs offered in ZIP packages

The Semiconductor Division of Mitsubishi Electronics America is marketing 1M-bit CMOS DRAMs in three package types: DIP, high-density ZIP, and surface-mountable SOJ. In full production since the end of 1986, these devices are available in  $1\text{M} \times 1$ -bit configurations for large-capacity memory systems, and  $256\text{K} \times 4$ -bit configurations for smaller memory systems or graphics systems.

The company uses a double-layer polysilicon CMOS process combined with silicide technology and a single-transistor dynamic storage cell to produce the devices. Each offers normal read, write and read-modify write operations and are available in 100-, 120-, and 150-ns speeds.

In addition to the nibble mode, fast page and static column modes of operation are offered. Fast page is essentially a latched static column, allowing the pipelining of data transfers. According to the company, both fast page and static column have CAS access times one half those of a traditional page mode DRAM, for example, 30 ns for a 120-ns device versus 60 ns.

In 100-piece quantities, Mitsubishi's



Mitsubishi Electronics offers 1M-bit DRAMs in plastic DIP, ZIP, and SOJ packages. The SOJ package can be mounted directly on one or both sides of a printed circuit board.

1M-bit devices sell for \$45 to \$57; all package types and modes are available

immediately.

**Reader Service Number 36**

## Hitachi announces 1M-bit SRAM

A 1-megabit ( $128\text{K}$ -bit word  $\times$  8-bit) static RAM module with four times the density of monolithic devices is available in sample quantities from Hitachi America's Semiconductor and IC Division.

The HM66204 features two 256K-bit SRAMs surface mounted on each side of a standard 600-mil-wide, 32-pin dual in-line package. The module also features a built-in decoder to simplify address decoding with memory accessed on a single 128K-bit boundary. The DIP design offers JEDEC pin- and signal-compatibility with forthcoming monolithic 1M-bit devices. Available in 120- and 150-ns versions, the module features static operation with no clock or timing strobe inputs required.

Sample quantities of Hitachi's SRAM are available now; preproduction quantities are expected to be available eight weeks ARO. The 150-ns version is priced at \$90 each in quantities over 100.

**Reader Service Number 37**

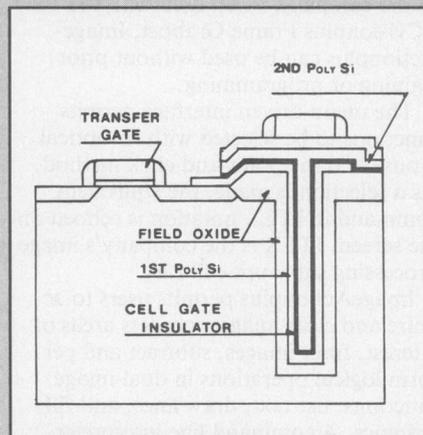
## One-megabit DRAM replaces four 256-K chips

A family of 1M-bit dynamic RAM devices, including one that can replace four 256K DRAMs, has been introduced by Oki Semiconductor. The devices are intended for high-speed, high-performance applications including mainframe memory, buffer memory, peripheral storage, and environments where low power dissipation and compact layout are required.

The DRAM family makes use of the company's proprietary Buried Stacked Capacitor Cell technology. BSCC combines triple polysilicon and trench capacitor technology for more planarized structure and higher soft error immunity than are found in conventional cells.

The basic chip design provides a bonding option that permits one die to be selected so one of three types of DRAMs can be produced:  $1\text{M} \times 1$ -bit page mode,  $1\text{M} \times 1$ -bit nibble mode, or  $256\text{K} \times 4$ -bit page mode.

All three DRAMs are available in standard 18-pin DIPs and a 20/26 small-



A cross-sectional view of the Oki Semiconductor BSCC technology used in its 1M-bit DRAM family.

outline, J-lead package. The prices of the Oki devices begin at \$50 each in quantities of 100.

**Reader Service Number 38**

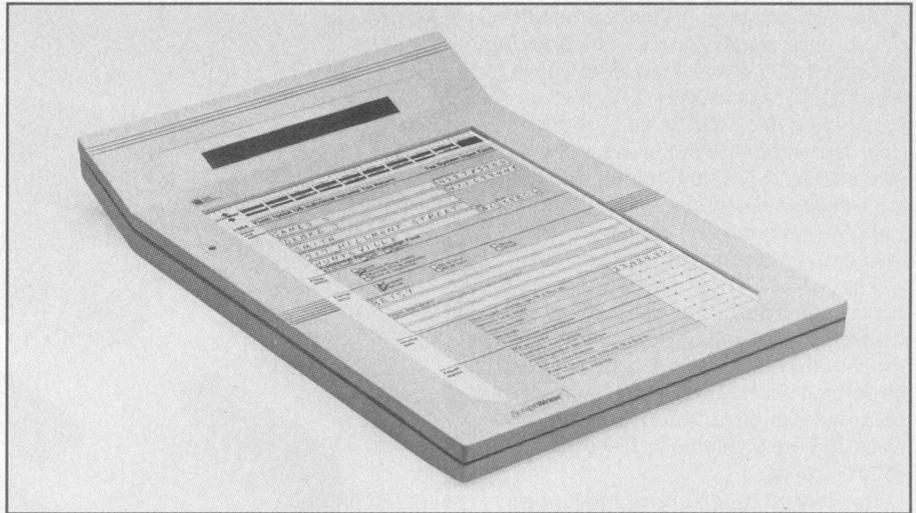
## Battery-operated unit enters handwriting

Portable ScriptWriter from Data Entry Systems accepts handwritten data on paper and enters it into memory in ASCII code. The 3½-pound unit's writing surface holds standard paper forms, which are completed with a ball-point pen, and an LCD provides real-time readout of data entered. Printing over an erroneous character corrects an entry.

ScriptWriter is capable of storing 10 different forms and 50,000 characters per day and functioning for 12 hours of continuous operation away from host computers or electrical outlets. At the end of the day, the portable unit is plugged into the host computer, its data transferred, and its batteries recharged. According to the company, all computers accepting an RS-232 serial port are compatible with ScriptWriter.

The retail price of Data Entry Systems ScriptWriter is \$1295.

**Reader Service Number 39**



Data Entry Systems ScriptWriter has an 8½ × 11-inch writing surface, an LCD display of two rows of 40 characters each, programmable control functions, and cursor control for pointing and mouse capabilities. The unit recognizes printed uppercase letters, numbers from zero to nine, punctuation, and special characters.

## Image processor offers 100 functions

ImageActionplus from Imaging Technology enables first-time users and professionals to perform complex image processing applications on IBM personal computers and compatibles. According to the company, when used with the PCvisionplus Frame Grabber, ImageActionplus can be used without prior training or programming.

The menu-driven interface permits functions to be selected with an optical mouse and the point-and-click method. As a selection is made, the equivalent command in ITEX notation is echoed on the screen. ITEX is the company's image processing subroutine library.

ImageActionplus permits users to acquire and clear images, process areas of interest, filter images, subtract and perform logical operations in dual-image functions, use text, draw lines, and fill graphics. A command line interpreter permits experienced users to enter image processing commands on the keyboard. A scripting capability enables the software to memorize a sequence of events the user has chosen with the mouse.

ImageActionplus software is available from Imaging Technology for \$995. It is distributed on two double-density DOS-compatible diskettes.

**Reader Service Number 40**

## Enhancement speeds Macintosh to 16 MHz

Levco's Prodigy 4 enhances Apple Macintosh performance by adding an internal clip-on board containing a 68020 CPU, 68881 math coprocessor, 4M bytes of memory, and SCSI hard-disk interface. The Prodigy 4 runs at 16-MHz clock speed and uses a 32-bit data path.

Prodigy 4 with Macintosh interface and software base is priced at \$7000.

**Reader Service Number 41**

## High-density disks announced

A 3.5-inch, 2M-byte, high-density diskette has been developed by Kao Corporation for use in computers with high-density disk drives. The surface of the MF2HD is coated with media measuring under one millimicron in thickness to help eliminate failed disk sectors.

Kao Corporation's MF2HD costs \$6 to \$7, depending on quantity.

**Reader Service Number 42**

## Software links PCs, mainframes

Software called Blast Host from Communications Research Group links mainframes, minicomputers, and personal computers, without hardware or add-on boards. The software runs with IBM VM/CMS and MVS/TSO operating systems, using asynchronous pathways typically found in the mainframe environment.

Blast operates as an application program to connect PCs or minis to a remote host and transfer files back and forth between multiple systems. It offers an advanced protocol and provides standard throughput over phone lines, satellite links, PBXs, and switches. Multiple sites with unlimited PCs or minis can be tied into host systems under Blast's net-

work licensing plan.

Blast OEMs and system integrators use a special license that allows resellers to build the Blast file transfer code into their application software, providing transparent communications within the PC application. According to the company, PC software products containing Blast can transfer data to any computer or operating system running Blast.

Prices for the Communications Research Group's Blast Host are: \$5500 for IBM mainframes, \$495 to \$1295 for minicomputers, and \$250 for PCs and Macintoshes. OEM and reseller volume discounts are available.

**Reader Service Number 43**

## Epson buffer stores 65 pages of text



The Black Box NLQ Print Buffer receives standard data from the computer software and converts the data (via self-contained software) into a series of graphic instructions.

The Black Box NLQ Print Buffer allows EPSON FX or RX printers with a Centronics interface to produce near-letter-quality type in Courier, Prestige, Elan, Italics, or Roman typefaces. The buffer, positioned between the personal computer and printer, accepts standard data from the computer software and

converts it into graphic instructions. Print Buffer stores up to 65 pages of text and can be made transparent to perform word processing functions.

The Black Box NLQ Printer Buffer costs \$269.

**Reader Service Number 44**

## Vision system supports robots

Microbot has introduced the Teach-Vision System for use with either its Alpha II industrial robot or its Teach-Mover training robot. The system senses visible information from parts and translates the data into computer memory images. The software included with the system provides tools for measuring, recognizing, or locating the part relative to an *X, Y* grid.

Motion of the robot arms can be programmed to act in response to shapes and locations of parts presented to the TeachVision system. According to the company, parts randomly dropped onto a lighted bench area can be picked up by robot arms, measured, and sorted as desired.

The combination hardware/software system includes a camera head, controller unit, computer interface card, camera stand with lights, cables, soft-

ware, and manuals. Behind the lens is housed a small solid-state image sensor, which digitizes the desired image. Either an Apple or an IBM PC can accept the digitized visual information.

The software allows the user to recognize, measure, determine location and orientation, or compare the image with a stored pattern. All or part of the image can be processed and manipulated in size, zoomed in or out, noise filtered, or analyzed as an exposure histogram. Programmable calipers can be superimposed on the image for measurement, which is possible to a resolution of  $256 \times 128$  picture elements. Application source code comes with the package so users can modify the package or write their own vision and robotics programs.

Microbot prices the TeachVision System at \$2195.

**Reader Service Number 45**

## Expert software shortens IC design time

VLSI Technology has introduced two silicon compilers, the state machine and datapath compilers, that let engineers specify integrated circuit designs in a high-level language or block diagram. A designer can enter a complex design and receive a netlist that can be implemented on a gate array so prototypes can be produced in two weeks. If production volumes warrant, the compilers can be implemented in combinations of standard cell and full-custom compiled layout.

The compilers can be used together, in several places if necessary, on the same chip. Circuits that contain a variety of repeated and interconnected logic elements can be constructed with the datapath compiler. The state machine compiler can be used for tasks requiring a block of decision logic.

VLSI's datapath compiler is priced at \$40,000 and the state machine compiler, at \$10,000. Each is expected to be available in June.

**Reader Service Number 46**

## VLSI performance plotted

Hilevel Technology's Meta-Shmoo program integrates into the Topaz series operating software so users can automatically plot the performance of VLSI devices. The program allows plotting of time versus voltage, time versus time, voltage versus time, or voltage versus voltages. This capability allows users to select the specific characteristics to be plotted.

Users can also select pins on which measurements are to be made, maximum and minimum values over which tests are to be made, and incremental values at which tests are to be conducted.

During operation, the Topaz system runs the vector set at each incremental point on the plot. The Meta-Shmoo program displays the worse-case pass/fail condition for each set of Shmoo parameters.

Available immediately, the Meta-Shmoo program from Hilevel Technology carries a price tag of \$2500.

**Reader Service Number 47**

IEEE 802.5 network router introduced

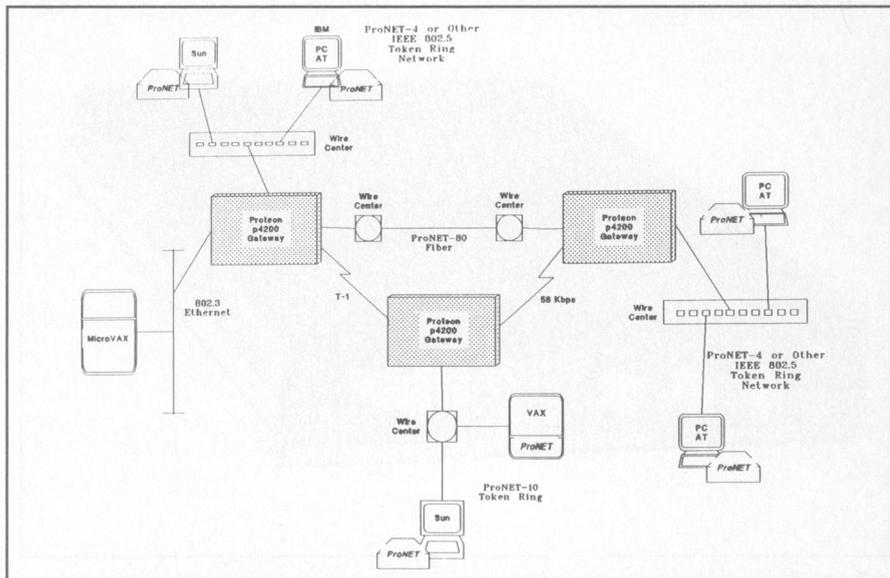
Proteon, Inc., has announced an IEEE 802.5-compliant network interface for its p4200 gateway. The p4210 router permits users to expand token-ring networking systems beyond personal computer environments to include other established networks.

By plugging into the p4200 Gateway, the interface allows the gateway to operate ProNET-4, -10, and -80 token-ring networks and Ethernet, Arpanet, T1, and 56 kilobits/s wide area networks simultaneously. At the same time, p4210 supports Transmission Control Protocol/Internet Protocol, Xerox Network Systems, and DECnet.

According to the company, the interface also supports most combinations of media, including fiber optics, infrared, microwave, coaxial and twisted-pair cables, and the IBM Cabling System.

Proteon's p4210 ProNET-4/IEEE 802.5 interface, the p4200 Gateway, is priced at \$3590; software is included.

Reader Service Number 48



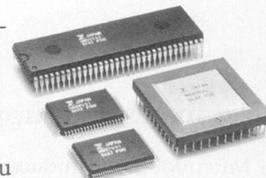
Proteon's p4210 network interface allows personal computer users to expand their networking system to provide access to mainframes, minicomputers, and microcomputers.

# THE AGE OF SCSI HAS ARRIVED

## CMOS SCSI Protocol Controllers From Fujitsu



Fujitsu SCSI\* protocol controllers MB87030/31 and MB89351 are CMOS LSIs developed by Fujitsu



for I/O interfacing with small computer equipment. The SCSI Standards enable connection from up to eight computers or peripheral units to a single bus. They greatly increase the possibility of designing small computers and other systems, including hard disk drives, optical disk units, and high speed printers.

- Supporting SCSI ANSI\*\* X3T9.2
- Maximum transfer speed: 4M bytes/s
- Available both for target and initiator
- DMA transfer, program transfer, or manual transfer selectable
- 8-byte FIFO transfer buffer
- 24-bit transfer byte counter
- Applicable to Single-Ended option and Differential option.
- Parity check capability

\*SCSI: Small Computer System Interface  
 \*\*ANSI: American National Standard Institute

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**FUJITSU**

## DSP development tools available from TI

Texas Instruments has announced increased support for its TMS320C25 digital signal processor. Three development tools, an assembler/linker, a software simulator, and an in-circuit emulator, are designed to support the DSP's hardware and software.

The assembler/linker allows code for the TMS320C25 and TMS32020 processors to be developed. Two versions are available, one for the IBM PC and one for the DEC VAX. The software simulator allows users to debug and verify a program in non-real time. The simulator can associate files with I/O ports, allowing repetition of I/O values during test and debugging. It is also available in MS-DOS and VMS versions.

The TMS320C25 emulator is a self-contained extended development system for full-speed in-circuit emulation and real-time 100-ns instruction cycles. It sets real-time hardware breakpoints/trace to monitor register and memory content during code execution.

TI also supports its DSP with a bulletin board service reached by dialing (713) 879-2091, the *TMS320 DSP Applications Book* with application-specific source codes and common DSP routines, and a DSP question hotline staffed by TI engineers and reachable on (713) 879-2320.

The assembler/linker sells for \$500, the software simulator, for \$1500, and the emulator, for \$13,500.

**Reader Service Number 49**

## RS-232 network analyzer introduced

Datamon from Standard Logic is a communications analyzer, monitor, and patch panel designed for real-time testing of RS-232 networks.

Compatible with most data terminal equipment, the Datamon analyzer allows users to view a real-time data transfer in different formats and record data to its 32K-byte buffer memory. Datamon also provides breakout box capabilities, status LED monitoring, baud-rate conversion, and data-pattern triggering through its on-screen menu-driven firmware.

Single-quantity price of Standard Logic's Datamon with carrying case and accessory pack is \$795. Discounts are available.

**Reader Service Number 51**

## Data entry terminal announced



The base unit of Burr-Brown's TM8450 features a backlit LCD and a 23-key numeric keyboard. Eight keys can be programmed for 16 separate functions.

Burr-Brown has introduced a microterminal for numerical data entry. The TM8450 accepts data both manually and through automatic identification interfaces such as bar-code wands, laser scanners, and magnetic-strip readers.

The TM8450 can be used as a display, it can send and receive block mode data, it can be combined with other TM8450's in a multidropped system, or it can be used as a trouble-shooting and diagnostics communications monitor. Opera-

tional modes, baud rate, protocol, and other parameters are established interactively, using the function keys, at the time of initial setup. French, German, and English prompts help users make selections that can be stored in local memory.

Burr-Brown's TM8450 base unit is priced at \$795 and is available from stock.

**Reader Service Number 50**

## Floating-point coprocessor plugs into 80386

Weitek Corporation's 1167 floating-point math coprocessor plugs into the Intel 80386 microprocessor for personal computer and workstation math processing applications. The board, also compatible with the 80387 coprocessor, consists of floating-point math chips and a proprietary interface controller developed by the two companies.

The capability of the 80386 to run multiple operating systems allows the 1167 and the 80387 math coprocessor to run different applications concurrently. Software support for the 1167 includes high-level C, Fortran, and Pascal compilers; it is supported under the Unix V/386 operating system.

Weitek's 1167 coprocessor is available now for \$950 each or \$500 in quantities of 10,000.

**Reader Service Number 52**

## Reader Interest Survey

Indicate your interest in this department by circling the appropriate number on the Reader Interest Card.

High 180 Medium 181 Low 182