NEW PRODUCTS
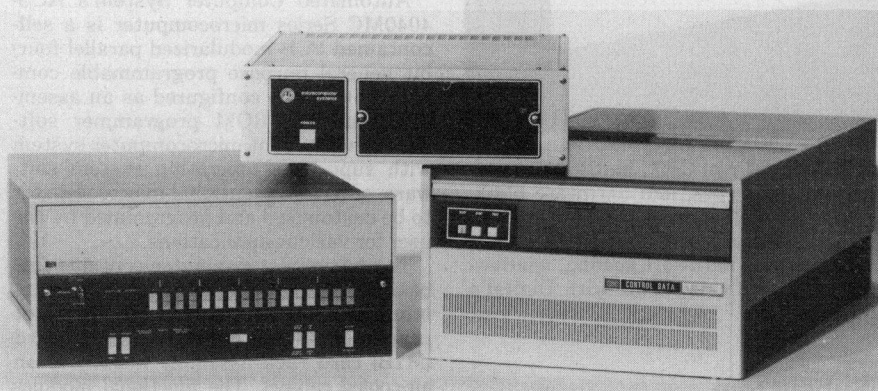
edited by
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New high-density disk storage system interfaces with a number of disk drives and is plug compatible with well-known minicomputers, according to the manufacturer, Microcomputer Systems Corp.

iCOM's floppy disk controller, housed on two 7 x 15 inch printed circuit boards, accommodates from one to four drives.

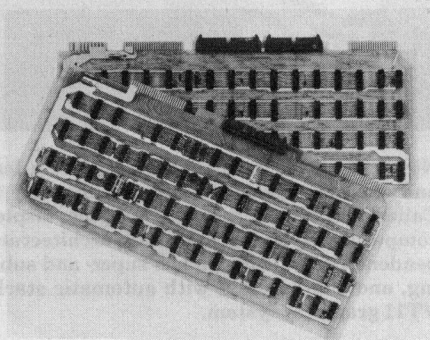## New Disk System for Minis Delivers More Storage

Microcomputer Systems' new MSM-10X high-density disk storage system features 225 million bytes of storage and a 1.2 megabyte/second transfer rate. The system is aimed at the $15,000 to $25,000 market now covered only by 15 to 20 MByte disk systems, the firm states. The MSM-10X supports up to four disk drives in its standard configuration and can be expanded to handle up to 15 drives for a total capacity per controller of 15 to 4500 MBytes.

The system's microprogrammed controller is totally integrated with the host computer's operating system. This 12'' x 15'' PCB controller offers automatic self-test of both controller and disk, high reliability due to low parts count (only 160 IC's), plus a built-in maintenance panel and controller resident diagnostic.

The controller interfaces with a number of disk drives such as those of Ampex, CDC, Calcomp, and Caelus, and is plug compatible with minis such as Hewlett-Packard, Digital Equipment Corp., Data General, Microdata, and Interdata.

Additional standard and optional features of the MSM-10X include programmable data transfer rate, soft sectoring, defective track flagging and sensing, overlap seek, multiple sector transfer, and error detection and correction.

Maximal speed of the DT-105S puncher for 5- or 8-channel tape can be set to 75, 110, or 150 rows/second. Produced by Mera-Elzab, a Polish firm, the output device features an exchangeable interface board for IBM and ICL standards.
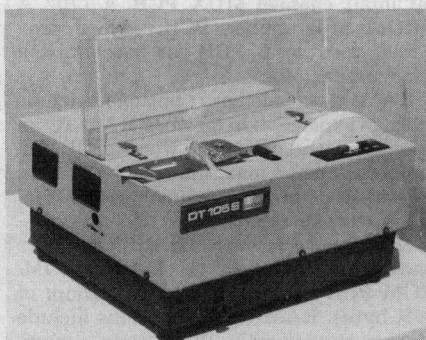
Floppy Disk Controller Introduced by iCOM

iCOM, Inc., has announced a new floppy disk controller, Model CF360, which can accommodate from one to four floppy disk drives and includes a general purpose interface compatible with most microprocessors and minicomputers.

The CF360 is fully IBM 3740 and 3540 compatible with all formatting and deformatting accomplished automatically within the controller. The controller also performs track seek/verify, and CRC (cyclic redundancy check) generation and verification automatically.
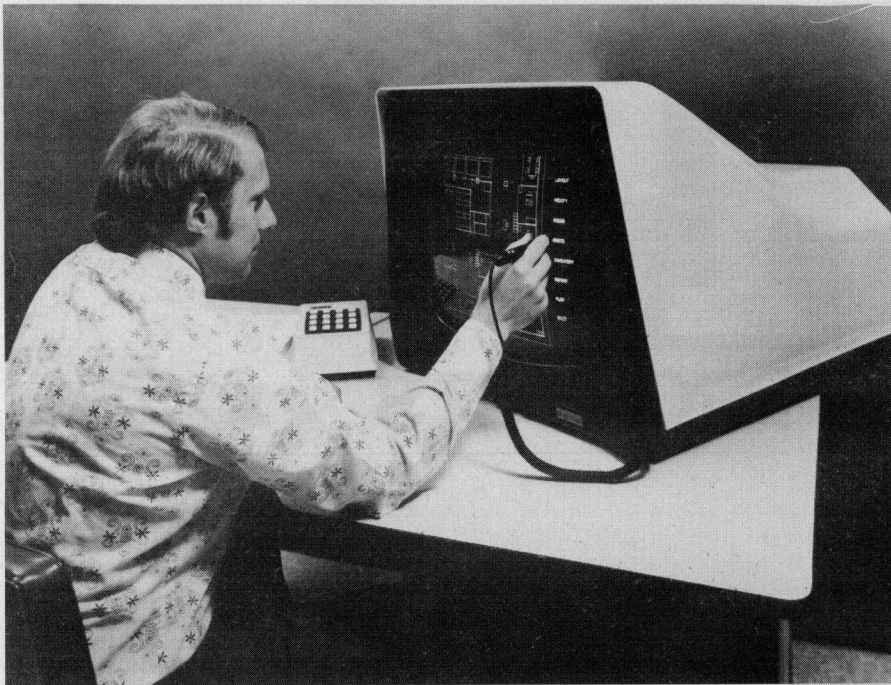
Independent 128 byte (full-sector) input and output buffers offer the possibility for DMA or programmed I/O operation. The ability to write-protect individual drives also is provided by the controller.

Interface signals to the CPU/MPU are TTL compatible and consist of independent input and output parallel data lines and an 8-bit parallel control port. Upon command, controller status data is presented to the CPU via the input data lines.

The CF360 is housed on two 7 x 15 inch (18 x 38 cm) printed circuit boards. Single unit price is $850; delivery time is two to four weeks.

New interactive graphic display system features 21-inch (53 cm) CRT, hardware vector and character generators, eight intensity levels, four line types, and hardware blink. Called the VS60, the new graphic display peripheral will connect to any PDP-11 computer employing a Unibus architecture. The unit is capable of driving two independent CRTs, and also has super- and subscript characters, hardware scaling, windowing, and subroutining with automatic stacking. It is upward compatible with Digital's VT11 graphical system.

New microcomputer by Automated Computer Systems can be customized and programmed for various applications or used as a software development system.

DEC Introduces Graphics Display Subsystem, Complete Hardware Configuration

A new, high-performance interactive graphics display subsystem, which is the base of a new graphics hardware configuration, has been announced by Digital Equipment Corporation. Called the VS60, the graphical display subsystem is designed as an add-on for any PDP-11 computer from the small PDP-11/04 minicomputer to the medium-scale PDP-11/70. The VS60, a high-speed analog stroke system, has a 21-inch (53 cm) CRT screen, light pen, and a sophisticated graphic processor, the display processing unit. As a graphical peripheral, it provides users with hardware necessary to develop powerful design and display systems, DEC states.

In addition to such standard features as hardware vector and character generators, hardware blink, eight intensity levels, and four line types, the VS60 features super- and subscript characters, hardware scaling, windowing, subroutining with automatic stacking, and the ability to drive two independent CRTs. It will be supported under both the RT-11 and RSX-11 operating systems with a FORTRAN graphics subroutine package.

The first configuration incorporating the VS60 is designed as an intelligent graphics terminal. Called the GT62, the configuration includes the VS60, a PDP-11/10 minicomputer, a free-standing ASCII keyboard, and provisions for communication links. The GT62 is housed in a short-bay cabinet.

The VS60 display subsystem is priced at $38,800; the GT62, at $47,500.

Reader Service Number 191

K/Tronic Goes Floppy

K/Tronic, Inc. of Santa Clara, California, is introducing K/Disks, a line of floppy disks for use in both computer applications and word processing systems.

K/Disks are IBM compatible, certified, initialized, and surface treated to insure a long life of error-free performance. Each package designed for storage in standard file cabinets, contains five disks, standard size 1/3rd cut file folders, stick-on labels for the file folder tabs, and program ID cards. Spare labels, ID cards, and file folders are available separately.

According to K/Tronic, the separate ID card allows the user to log program material separately from the disk jacket, avoiding the danger of damaging the recording surface of the disk by writing on the jacket or by attaching and removing numerous stick-on labels. The dust-free package was designed to provide safe storage, crucial in maintaining the reliability.

In quanitities of 100, the floppy disks are priced at $7 each.

Reader Service Number 183

User Configured Microcomputer Offered

Automated Computer System's ACS-4040MC Series microcomputer is a self-contained PCB modularized parallel four-bit general purpose programmable computer. It can be configured as an assembler/simulator-PROM programmer software development microcomputer system with supporting operating system software, or as a conventional microcomputer to be customized and programmed by the user for various applications.

The basic microcomputer contains five basic functional plug-in modules that are interconnected through a 15 PCB slot printed circuit mother interconnect board (MIB) card rack assembly housed in an air-cooled cabinet. The functional modules include a 4040 CPU PCB, a combination 2K byte PROM/1280 word data RAM/16 buffer output port PCB, an 8 port tri-state universal input/output PCB with hand-shaking capabilities, a plug-in switching regulated power supply module, and a full computer control/HEX display panel PCB. The MIB provides spare PCB connectors for user custom expansion using either additional basic functional modules or standard module options.

Standard module options include a 4K byte RWPM (read write program memory) PCB, a combination ASR-33 TTY and RS232C modem interface PCB, a 64 x 4 bit input channel MUX PCB, a 1702 A PROM programmer PCB, and a Universal wire wrap PCB for mechanizing user custom logic.

RAM data memory options include storage expansion in 80 word RAM IC increments and/or 1280 word PCB increments up to a maximum of 2560 words. PROM/ROM program memory options include storage expansion in 256 byte preprogrammed PROM/ROM IC increments and/or 2K bytes or 4K bytes PROM/ROM PCB increments to a maximum of 16K bytes. RAM RWPM options include storage expansion in 4K bytes to a maximum of 16K bytes. I/O options allow up to 32 I/O ports configured by the user either as 32 unidirectional input or output ports in any combination or as 32 bidirectional time share input/output ports.

Prices in quantities fewer than ten, begin at $2,115 with availability in 45 days.

Reader Service Number 181

COMPUTER

Interactive Computer System Introduced for Smaller Hospitals

An interactive computer system with multiprogramming capability for small hospitals and clinics has been announced by NCR Corporation.

Called the NCR Interactive Health Care Information System (IHIS), the system offers six integrated application programs providing for patient processing and general accounting and is built around an NCR Century 8200 minicomputer.

According to the company, the IHIS system is the first in its price range to provide on-line patient processing and hospital financial management for hospitals in the 50 to 200-bed range. The system addresses such health care needs as utilization review and third-party proration and provides a combination of data base, interactive, and multiprogramming techniques in a turnkey system for the smaller health-care facility.

The six on-line applications are inpatient processing, outpatient processing, accounts receivable, accounts payable, payroll, and general ledger. Available as an option is an inpatient processing extension providing a professional standards review organization application, utilization review, and insurance proration.

The basic 8200 configuration required for the system includes a 40K processor, one matrix printer, one visual display terminal, and a 4.9-million-byte disk unit.

Memory can be added in increments of 8K up to 128K. As many as seven visual display units and two printers can be added to the basic configuration.

An entry-level hardware configuration sells for $35,420 and rents for $860 a month under five-year contract. Application modules are separately priced, with monthly license fees of $10 to $30 a month. The modules also carry an initial one-time installation fee of from $250 to $500.

All six application modules, including the inpatient processing extension, rent for $110 a month.

Customer deliveries will begin in the second quarter of this year.

Reader Service Number 185

New Remex Flexible Disk Drive Gives OEM Total Capability

Remex, a division of Ex-Cell-O Corporation, has introduced the RFD 7400E, a flexible disk drive that increases the total capability of flexible disk technology while reducing the logic requirement in the host system. According to REMEX, its standard features make it possible for the user to expand from basic IBM compatibility to enhanced performance without changing drives.

The drive will accept IBM formated soft sectored diskettes and 32-hole hard sectored disks in the same unit. The addition of a sector generator option, Remex states, allows the user to create his own hard sectored format using IBM compatible diskettes. Consequently, the unit offers data storage capacity from 1.9M bits to 3.2M bits.

The 7400E includes its own unit select decoding circuitry, allowing four drives to be attached to a single interface cable and permitting four drives to be controlled by one set of drivers and receivers in the host system. Any of the drives can be addressed by a two digit binary number.

Also standard on the drive is a multi-drive seek capability. A status connector provides continuous monitoring of the index, sector, and ready signals. Therefore, in the multi-drive configuration, up to four drives can seek new tracks simultaneously while the CPU is free to perform other functions. When seek is complete, each drive returns an interrupt signal to the host.

A DC/DC convertor on the PC board provides self contained negative voltage eliminating the need for a negative voltage power supply in the host system. The convertor provides noise immunity, eliminating ground loops and decoupling problems common in multi-source power systems.

Other features cited by Remex are a "foolproof" mechanical write enable switch, clock/data separator, low current standby operation of the stepper motor, automatic erase data control, automatic mechanical interlock for media protection, an error flag circuit which signals if writing on the diskette is attempted in a
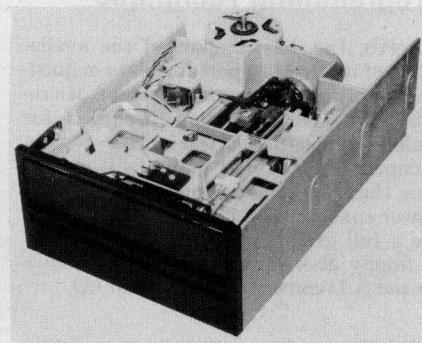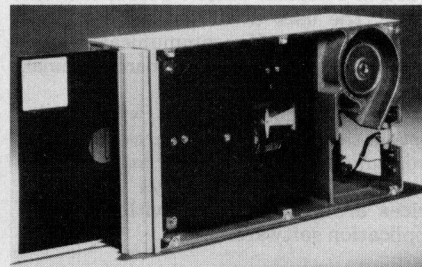

New REMEX RFD 7400E Flexible Disk Drive features media versatility, unit select, multi-drive seek, and self-contained negative voltage.

file unsafe condition, plus an auxiliary DC power connector.

The new drive maintains the characteristics of the company's basic IBM compatible drive: 6ms track to track access, 176ms random average seek, cast mainframe, and triple bearing supported lead screw with head positioning reliability of 12 years or 3.2×10^9 steps.

The drive is priced at $650 in single unit quantities with 60-day delivery; OEM discounts are available.

Reader Service Number 187

Double-density floppy disk drive records up to 802K bytes of unformatted data per diskette.

Adage Introduces New Computer Graphics Systems

Adage, Inc. of Boston, Massachusetts, has announced two new entries in the interactive refresh computer graphics marketplace.

The GP/400 independent graphics peripheral incorporates a 200 nanosecond microprogrammed graphics processor to implement in firmware a complete graphics language offered by Adage as software in earlier systems. Processing of all graphics commands and sampling of all console devices is handled internal to the graphics peripheral with no demands on the host computer.

The GS/300 interactive computer graphics system is a fully integrated

hardware/software system incorporating the same 200 nanosecond microprogrammed graphics processor as the GP/400 in addition to a general purpose digital computer. Graphics oriented system software—including a disk operating system, an extended FORTRAN IV with compile time image generation and manipulation, free format display text editor, report generator/editor, and utility routines—performs in the context of a wholly committed, stand-alone system. The GS/300 can also operate in a remote mode to a large scale host computer.

Reader Service Number 192

CalComp Announces Double-Density Floppy Disk Drive

California Computer Products, Inc. (CalComp) has announced a double-density floppy disk drive for customers requiring up to 802K bytes of storage per diskette.

The CalComp 142 incorporates a modified frequency modulation self-clocking recording code and a new ceramic recording head to increase head life and the life of the recording medium. Transfer rate is 500,000 bits per second, and access time is 6 milliseconds track-to-track.

The CalComp 142 is priced at $650 in single quantities.

Reader Service Number 182

Portable Data System Uses High-Level Interactive Programming Technique

Forth, Inc. has announced the availability of its PAC-10 portable data acquisition, analysis, and control system. Microcomputer controlled and designed for mobile applications, the entire system occupies less than 14 cubic feet, weighs less than 75 pounds, and features low power consumption (500 watts). Included are a full graphics terminal, 512K bytes of floppy disk storage, 16-channel multiplexed A/D converter, and digital I/O.

Standard software includes a graphics package with features like contour mapping and 3-D projection display. Fast Fourier transforms, with up to 65K points, can be handled with either main memory or disk resident data. Math routines operate on 16 and 32-bit integer and fraction arithmetic. The least-squares fitting package allows up to 8 variables and an unlimited number of equations. PAC-10, through its multiprogramming feature, controls multiple asynchronous and interrupt-driven tasks and can switch tasks in less than 24 microseconds.

Forth, Inc. also provides custom applications programming. PAC-10 is programmed in FORTH, an interactive, English-like, high-level technique developed especially for small computers. Software requires less memory than the equivalent assembly language programs and executes much faster than BASIC or FORTRAN coded programs, the company claims. Even real-time functions are coded in FORTH. Since FORTH is interactive, the user can alter his programs within seconds. He communicates with PAC-10 through a CRT/keyboard terminal.

PAC-10 comes complete with on-site installation, program source listings, programming, and operator manuals. Delivery is normally 60 days ARO and prices are from $28,500 with complete application software.

Reader Service Number 190

Single-Unit Transport Accepts Asynchronous Data to 250,000 CPS

A new asynchronous magnetic tape recorder uses dual random-access memories to record time-independent data with no loss of data during gap insertion, according to the manufacturer, Kennedy Co. With the Kennedy Series 9832 transports, data can be both written or read at any rate up to 250,000 characters per second. Buffers and format electronics are contained within the transport chassis, thereby eliminating interconnecting cables.

The 8.5-inch reel transport operates in conjunction with dual RAMs of 512, 1024, or 2048 bits. Input data is strobed into the first buffer asynchronously. When one buffer is filled, input data is transferred to the other buffer while the transport formats and records the data in the first. In this manner, the buffers are alternately filled and records written. To verify that data is being properly recorded, a read-after-write check is standard. When errors occur, the block is automatically rewritten until an error-free block is recorded.

Another feature is asynchronous operation in the read mode. Here the formatter reads the first two records from the tape into the buffers. As soon as this function is completed, data can be accessed at any rate up to 250K characters-per-second. This allows the readout to be slaved to the communications interface rate regardless of the transport speed. When a data transfer interrupt occurs, the record is held in the buffer until the transfer can resume. Errors detected during the read-from tape sequence automatically cause the formatter to re-read the bad block.

For data communications, the transport can interface with lines of different baud rates. The Kennedy 9832 is available in both seven-track (six-bit buffer) or nine-track (eight-bit buffer) configurations. The average asynchronous data rate is governed by the length of the

New asynchronous magnetic tape recorder, offered by Kennedy Co., writes or reads data at rates up to 250K characters-per-second and can interface with lines of different baud rates.

buffer. With a 512 character buffer the average data rate is 10,323 cps; with a 1024 character buffer it is 13,619 cps; with 2048 character buffer the average rate is 16,202 cps.

Data Density is 200 cpi, 556 cpi, or 800 cpi using NRZI or PE, IBM compatible, recording format. Tape speed is 25 ips. Instantaneous speed variation is ±3 percent; long-term speed variation is ±1 percent. Tape tension is 8 oz. ±0.5 oz.

The 19 in. (w) by 12.25 in. (h) by 14.25 in. (d) (48.26 cm by 31.18 cm by 36.19 cm) unit weighs 50 lbs. (22.68 kg).

The OEM price ranges from $5100 to $6600 depending on configuration and options. Delivery is 60 days ARO.

Reader Service Number 193

Portable Program Loader Has 8-Bit Parallel I/O

A new addition to Electronic Processors' line of cassette loaders provides high-speed parallel loading and unloading in either a portable or rackmount configuration.

The STR-210, which uses the company's patented speed tolerant recording technique, has parallel data input and output (up to 8 bits) at rates of 125 characters per second. Data capacity is 100,000 characters per track on a 300-foot cassette. Bit error rate is <1 soft error in 10^7 bits, and <1 hard errors in 10^8 bits.

Speed tolerant recording is a self-clocking technique that electronically compensates for tape speed changes. It allows

a relatively low-cost recorder and tape cassette to store and play back digital data with a high degree of reliability, the company states, providing an alternative to paper tape for program loading and storage.

Interfacing is similar to most paper-tape punches and readers now in use. All information and control signals pass through two 25-pin connectors mounted on the STR-210 panel. The I/O is DTL/TTL compatible and polarity is switch selectable.

Both portable and rackmount units are priced at $700 in single quantity and $670 in quantities of 2-9.

Electronic Processors' portable cassette loader, packaged in an attache case measuring 5 x 18 x 14", is also available in a 17 x 19 x 18" rackmount version with latch-type handles and chassis slides.

Reader Service Number 184

COMPUTER

Wintek Corporation's newest micro-processor software includes a cross assembler, simulator, and Wintek PL/M.

6800 µP Software Support System Offered

The Wintek 6800 software support system consists of a cross assembler, simulator, and Wintek PL/M for the 6800 microprocessor written in standard FORTRAN IV. Wintek PL/M is largely compatible with the Intel PL/M.

Both the assembler and the Wintek PL/M produce relocatable code which can be combined with previously assembled or compiled programs with the linking loader and can be fed to the simulator, read by a 6800 system, or used to program a ROM. The simulator includes ACIA and PIA simulation and, according to the company, has a wide range of debugging facilities including partial memory dumps, register dumps, break points, macro-definitions, and execution with substitutable parameters.

The cross assembler and simulator are $600 each, or both for $1,000. The Wintek PL/M is $1,000.

Reader Service Number 178

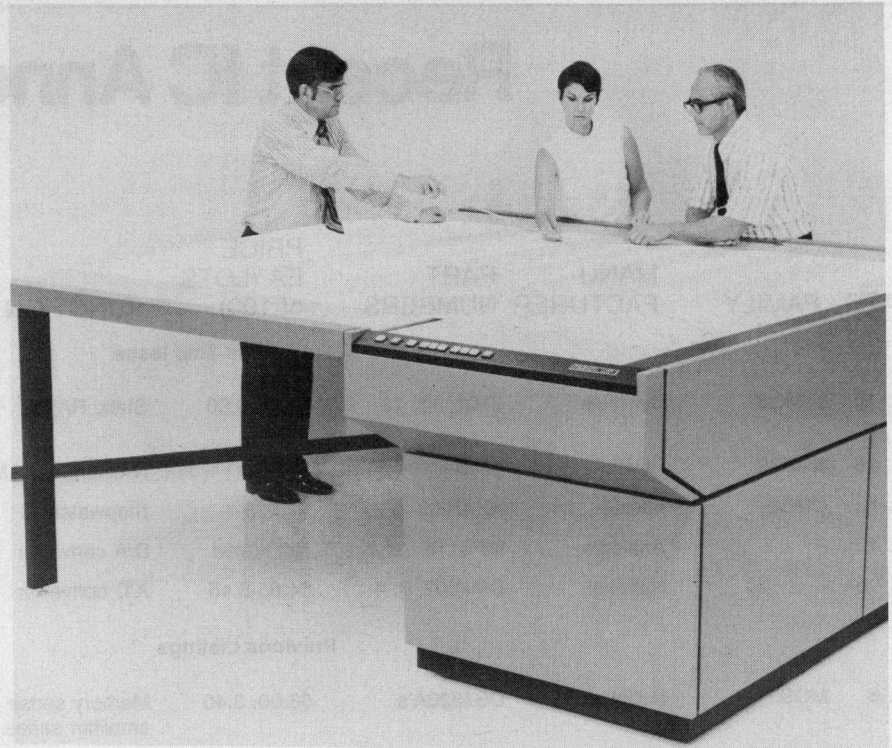## Votrax Announces Multi- Lingual Voice System

The Vocal Interface Division of Federal Screw Works has announced a multi-lingual voice system. The Votrax ML-I is a solid-state system which produces electronically synthesized speech with un-limited vocabulary in English as well as other languages.

The first foreign language available is German. Plans call for the development of several additional languages, such as Spanish, French, Italian, Japanese, and Parsi.

The ML-I is designed to convert the output of a computer or other digital devices into electronically synthesized human speech. It produces continuous speech output from 300 bps data rate. Input is is the form of standard ASCII characters. Inflection, speech rate, and volume are variable under software program control.

The conversion from digital information into synthesized human speech is accomplished through a patented electronic design which produces words and phrases

Votrax multi-lingual voice system offers German as the first foreign language available.

by using phonemes as "building blocks." Phonemes are the basic sounds which produce spoken language. The ML-I produces the phonemes and integrates them together with inflection to produce intelligible speech.

Reader Service Number 186

Versatec employees examine output from new unit that plots on paper widths up to 72 inches.

Versatec Builds World's Widest Electrostatic Plotter

The widest electrostatic plotter ever built is the basis for an OEM agreement between Camsco of Richardson, Texas, and Versatec of Santa Clara, California. Camsco, producer of computer-based manufacturing systems for the apparel and other sewn-products industries, has placed a multi-unit order for Versatec units that plot on paper widths up to 72 inches.

Camsco's Markamatic System has been accepted by the apparel industry as a means of conserving raw materials and increasing production through its patented method of automatic pattern grading and marker making.

Using 50", 68" or 72" wide paper, the Versatec plotter draws final markers, nested grades, and individual piece parts with accuracy to within 0.1% of plot length along X and Y axes. Resolution is 100 dots per inch using dual array density. There are no moving parts in the writing process. Plots produced on the 72-inch plotter are reproducible on ozalid-type reproduction equipment.

Average paper speed is half an inch per second plotting benchmark data at the full 72 inch width. Plotting at lesser widths is accomplished at speeds to one inch per second.

A thirty square foot platen is available for easy visualization of plotted information. Take-up roll handles paper lengths up to 1500 feet. Integral paper winder and cutter simplify paper handling.

Five gallon toner tank, 16 ounce concentrate tank, automatic concentrate control, and simple controls allow operation by untrained operators.

Data buffers and sort routines were developed by Camsco. Strip chart software and plotter driver package were supplied by Versatec.

Reader Service Number 194