New Products

S/370 Compatible Products

ITEL Corporation has announced two new product capabilities which place it in the forefront of independent companies serving the IBM System 370 marketplace. The company is ready to make available 370 compatible add-on memory and disk drives. These products go beyond those the company already markets to System 360 users.

ITEL's product in the memory area is Monolithic Main Memory, manufactured to its specifications by Advanced Memory Systems, Inc. of Sunnyvale, California. The AMS product uses the new generation of mainframe memory and utilizes semiconductor chips to replace ferrite core as its basic memory equipment. This technological advancement offers lower cost, interchangeability of modules, better performance, higher reliability and ease of installation and maintenance.

ITEL's disk drive is a 7330, designed and manufactured by its own Information Storage Systems Division. This product offers a number of advantages over its IBM counterpart and other disk storage units including improved price/performance, higher capacity, greater flexibility and compact design. It's plug-to-plug compatible with IBM System/370 and has an average access time of just 27 milliseconds. ISS is a proven manufacturer in the plug-to-plug marketplace with over 3000 drives installed and operational today.

Both new products will be marketed through ITEL's Computer Products Division sales force, which has already marketed over $20 million worth of IBM equivalent AMS memory to 360 users at significant savings. The Computer Products
Division was formed to market peripheral products and data handling equipment, made both by ITEI and others, directly to the end-user.

Data and assistance in system enhancement is available from Itel Corporation, One Embarcadero Center, San Francisco, California 94111, (415) 989-4220.

New Minicomputer

Cincinnati Milacron, has just announced their new CIP/2200 Minicomputer. The CIP/2200 is a general-purpose minicomputer that is readily adaptable to business data processing in addition to all the other minicomputer applications.

The CIP/2200 uses microprogramming techniques which allow implementation of more powerful instructions and greatly expand the applications and functions accommodated by the minicomputer. Hardware features implemented by the microprogramming are: the Serial I/O Controller (TTY interface), a bootstrap loader, and a high speed Direct Memory Channel block I/O feature. Custom microprogrammed extensions may also be added.

Decimal arithmetic is accomplished easily on the new, more powerful CIP/2200. Decimal numbers appear in memory as byte strings up to 16 digits in length. Decimal numbers may be manipulated as input, eliminating packing and code conversion. You get the same decimal capability for handling business data that the big computers offer with all the advantages of the mini.

Variable length operations offer more efficient use of memory. Microprogramming permits a wide range of instruction types to be implemented economically. Bidirectional string moves allow up to 256 bytes of data to be moved by one instruction. In memory-to-memory operations the registers are not altered.

The CIP/2200 I/O structure consists of a microprogrammed serial I/O interface, a byte I/O facility, firmware support for direct memory channel concurrent transfers, and the capability of attaching up to two independent direct memory access (DMA) processors.

Software also includes an RPG compiler, an on-line Dynamic Debugging System, a two-pass relocating assembler and linking loader, plus library facilities. The CIP/2200 interfaces with a wide range of peripherals, too.

Write for complete details to: MINICOMPUTERS, Process Controls Division, Cincinnati Milacron, Lebanon, Ohio 45036.

Lockheed Minicomputer

Micro-modularity is the design concept of the latest computer developed by the Data Products Division of Lockheed Electronics Company, Inc. The 'System User Engineered' minicomputer -- hence the name SUE -- permits selection of required system functions by the user engineer. The SUE minicomputer is configured from a series of independently operating system modules each on a pluggable circuit card.

A synchronous communication between modules on the buss board is monitored by a buss controller at 200-nanosecond intervals giving the capability of direct memory transfers up to five mega-words per second. Extension of the buss to additional chassis is accomplished by extender modules. Direct memory access allows I/O independent of instruction execution. Mixed and interleaved memory operations are standard features.

A SUE computer with processor, 4K memory, control panel, power supply and chassis sells for $4,295 with discount to $2,577 in 100 quantities. An 8K version of the same system sells for $5,895, quantity 100 discount at $3,537; 16K version is $9,795 and $5,877 in quantity 100. Deliveries will begin in February.

Detailed data is available from Lockheed Electronics Company, Inc., Data Products Division, 6201 East Randolph Street, Los Angeles, California 90040, (213) 722-6810.

COMPUTER/MARCH/APRIL 1972/57
Data Com Minicomputers

Interdata, Inc. has announced two more minicomputers in its New Series, both targeted for data communications applications. These latest data communications processors are designated Model 50 and Model 55.

With 8K bytes of core memory, the New Series Model 50 has a single unit price of $6,800. The New Series Model 55, a dual-processor communications system, with 16K bytes of core memory, carries a single unit price of $15,900. Quantity and OEM discounts are available on request.

The Model 50 features a solid state Read-Only-Memory (ROM) that cycles in 80 nanoseconds; micro-instruction time is 250 nanoseconds. Main memory, directly addressable to 65K bytes, is built around 3 D 3-wire ferrite core modules, with an access time of 300 nanoseconds and cycle time of 1.0 microseconds.

The Model 50 data communications instruction set is specially designed to accommodate communications I/O as well as service 255 priority interrupts, with automatic vectoring, chaining and queuing. Interrupt response time is 10.5 microseconds; average interrupt latency time is 4 microseconds.

The New Series Model 55 is a dual-processor communications system. Both processors in the Model 55 are 16-bit, solid state machines which utilize solid state technology and advanced Interdata architecture. Used in parallel, the dual processors offer a 500 nanosecond instruction execution time. The data communications processor in the Model 55 includes a data communications instruction set; 16 hardware general registers, 15 of which can be used for indexing; and solid state-LSI Read-Only-Memory.

The New Series Models 50 and 55 are expected to find wide acceptance among end users and OEMs in the following areas: terminal controller, remote data concentrator, programmable front end processor, message switcher, stand-alone applications. The Model 55, with its dual processing capability, is particularly attractive for applications where extensive I/O, critical real-time response and high throughput requirements are coupled with heavy computation loads. Additionally, the Model 55 will replace the Model 18 communications system in Interdata's popular 270X, which front-ends IBM 360/370 computer systems.

For further information contact the local Interdata representative or write to Interdata, Inc., 2 Crescent Place, Oceanport, New Jersey 07757.

Data Transmitter and Receiver

Due to a rapidly expanding communication-oriented peripheral market, a need has developed for a versatile input/output data transfer for communications data terminals. The MC2257L terminal transmitter provides this by converting parallel binary input data to serial output form. At the same time, the MC2257L internally provides timing and control functions, and odd or an even parity bit, one character of buffer storage, and error detection. Asynchronous and synchronous modes of operation are possible with this terminal transmitter. In the asynchronous mode Stop and Start bits are generated automatically. Words ranging from 5 to 8 bits in length can be selected for entry into a buffer storage register. Information is entered in parallel and stored until transmitted in serial form. Both input and output are TTL compatible.

Used together with a companion MC2259L terminal receiver, the MC2257L transmitter completes a two part, communication-oriented, input/output data interface. Some other typical MC2257L transmitter applications include input/output functions for CRT terminals, keyboards, and minicomputers. Many terminal receivers with asynchronous inputs can be bussed into one MC2259L transmitter to provide a multiplexed synchronous output. In these applications the MC2257L performs the function equivalent to 30 TTL ICs.

For further information, contact the Technical Information Center, Motorola Inc., Semiconductor Products Division, P.O. Box 20924, Phoenix, Arizona 85036.

Schottky TTL Brochure

A new brochure available from Texas Instruments describes the company's line of Series 54S/74S Schottky-clamped TTL ICs. Bulletin
Flexible Disc File

Memorex Corporation has announced their new 650 Flexible Disc File, a compact, direct access unit which enables OEM's to greatly simplify the storage and handling of digital information with much greater reliability and higher performance than possible with cassettes or any other comparably priced file on the market today.

Key to the new unit is the FD/III Flexible Disc Cartridge, which is composed of a 7.5 inch Mylar® disc coated with magnetic oxide and encased in a flexible plastic envelope for protection during handling, operation and storage.

A primary use for the 650 is the distribution and loading of micro-code or diagnostic programs into computers or controllers. Other typical applications for the file include auxiliary storage, remote terminal data acquisition, data logging, key-entry recording, point-of-sale recording, accounting machine storage and programmable calculator storage.

The unit has a capacity of 1.5 megabits, track to track access time of less than 50 milliseconds and a data rate of 200 kilobits per second. The new 650 will be available in production quantities July 1972. Evaluation units will be available in limited quantity in April, 1972.

Write to Memorex Corporation, San Tomas at Central Expressway, Santa Clara, California 95052 for detailed technical information and prices.

Optical Data Sets

Computer Transmission Corp. has announced the availability of two new Optran Models with switchable data rate selection, 1811 and 1831 Models.

Designed for applications involving changing data rate requirements or online testing applications, the new switchable “data sets without wires” offer synchronous data rates of 2400, 4800 and 9600 bits per second, and a fourth switch position accommodating any asynchronous rate up to 1800 bps.

Both Optran Models are comprised of two units. The optical unit is located on the roof or side of a building in direct line-of-sight with its companion unit at the opposite end of the data link. This optical head is identical in both the 1811 and 1831 Models.

The 1811 and 1815 Models are priced at $2950 per end; 1816 Model is $3300 and 1817 Model is $3700. The 1831 and 1835 Models are priced at $2400; 1836 Model is $2650 and 1837 Model is $3050. The Data Set Master 900 is $1300. Delivery on all these products is 30 days ARO. For further information contact Computer Transmission Corp., 1508 Cotner Avenue, Los Angeles, California 90025. Telephone (213) 477-5020.

Transient Protection

Electrical circuits, regardless of whether they are operated on A-C or D-C voltages, are often plagued by transient voltages that are either generated within the individual circuits or transmitted into the circuits from external sources. GE-MOV varistors offer significant advantages in voltage clamping, current handling, and system economics over existing voltage suppression products.

Early industrial applications of GE-MOV varistors will include protection of solid-state components in controls, instrumentation, clocks and timing circuitry, and solid-state relays. The varistors also will be used to protect switching contacts.

In the home, applications will include color television sets, stereo systems, and solid-state controlled appliances, such as dishwashers, ranges, blenders, and washing machines – protecting expensive components and minimizing service calls. GE-MOV varistors also will become an integral part of future home wiring systems.

There are many potential applications for the new varistor in the automotive industry. Through its unique shapability, it will serve many systems as both an electrical and mechanical device. For example, it may be used to protect audio equipment and sophisticated controls for headlight high-beam regulators and anti-skid units. In cars of the future, GE-MOV varistors will play a role in electronically controlled transmissions, alternators, and fuel injection systems, as well as in range finders and automatic braking systems.

All models are available through General Electric authorized semiconductor distributors. For additional information, write to General Electric Company, Semiconductor Products Department, Building 7, Mail Drop 49, Electronics Park, Syracuse, New York, 13201.
Mini power supplies – RO Associates have available two new printed circuit board power supplies. RO's Models PC5-1 and PCD15-250 are the smallest 5 and 7.5 watt output devices built to date. Output for the model PC5-1 is 5 volt at 1 amp, for the Model PCD15-250 it's plus and minus 12 to 15 volts at 0.25 amp on each side.

For more information on these and other models contact Bob Okada, (415) 322-5321.

Cassette recorder – Mobark Instruments Corporation has designed its Model 400TE specifically for the paper tape replacement and remote data communication terminal applications. The 400TE combines true incremental, serial-by-bit, by character recording and reproduction control with a transport drive system that maintains equalized tension on the tape from two DC reel motors with tension controlledturntables while a stepper motor moves tape in precise increments ONLY when data is present.

The Model 400TE features compatibility with EIA RS-232C and teletypewriter current loop interfaces at rates of 110, 150, 300, 600 and 1200 baud. The recorder also has file search capability.

The Model 400TE sells for $1,870.00 and the digital file search option adds $200.00 to the base price. Availability is from stock to 45 days ARO. For further information, contact the manufacturer at 1080 East Duane Avenue, Suite D, Sunnyvale, California 94086, (408) 736-8540.

Diode array – Litronix, Inc. now has a high-brightness 5 by 7 light emitting diode array available for immediate delivery. Character height is 0.35 inch. Called the Data-Lit 57, the new array is a 35-LED alpha-numeric display with a decimal point. The Data-Lit 57 can display the complete 64 character set ASCII code. Applications include film annotation, computer peripheral displays and keyboard verifier.

The Data-Lit 57 sells for $11 each in quantities of 1,000. Delivery is from stock. Contact Litronix, Inc., 19000 Homestead Rd, Cupertino, Ca. 95014 for further information.

Mini-rack logic chassis – A new mini-rack with thirteen logic socket panels for subdividing logic and troubleshooting has been introduced by Augat, Inc. The chassis can package up to 312 DIPs in a rack size of 5.1” high x 19” long x 6” deep. The back panel may be easily removed for automatic wire wrapping. Tooling and computer programming for automatic wire wrapping have been completed by Augat, thus eliminating time and set-up charges. Logic panels are catalogued separately.

Literature on the mini-rack is available upon request from Augat, Inc., 33 Perry Avenue, Attleboro, Mass. 02703.

Bipolar compatible MOS shift registers – Two MOS (metal-oxide semiconductor) static shift registers -- one a dual 128-bit device and the other a dual 132-bit register -- are now available in quantity from Signetics for use in low-cost sequential access memories, static buffer memories, line storage for CRT (cathode ray tube) refresh memories, in line printers, and in cassette recorders.

Push-pull outputs are featured in these integrated circuits, and a recirculation path for logic is included on the chips of both ICs. Frequency of operation is relatively high; typical clock rate is 2 megahertz. The clock and signal inputs can be driven directly by standard TTL (transistor-transistor logic) and DTL (diode-transistor logic) bipolar integrated circuits or by other MOS devices. Supply voltages required for operation are +5 volts and -12 volts.

For specifications and prices, contact Signetics at 811 East Arques Avenue, Sunnyvale, California 94086, (408) 739-7700.

Flexible ribbon cable – Developed and manufactured by Tri-Tech Electronic Corp., Hyper-Flex is specially molded with silicone or urethane insulation. The Hyper-Flex process permits assemblies in almost unlimited varieties of wire gauge and pattern, including twisted pairs, triples, quads shielding and coaxial.

Technical Bulletin 101, describing HYPER-FLEX is available by writing P.O. Box 20495, Orlando, Florida 32814.

30 CPS terminal – Typograph Corporation is now in production on the DP-30 desk top terminal – a versatile impact printing I/O terminal for general computer and communications use. In addition to the 94 character alphanumeric keyboard, a standard 10 key layout is offered as a low cost option for applications requiring the entering of large masses of data. The DP-30 doesn't require special paper, nor is there a limitation to paper width. The unit has been designed to handle standard fanfold or roll sprocket-fed paper in widths from 4-inches to 15-inches and will print original and up to 5 clear carbon copies. 132 characters can be printed on a single line using 14-7/8 inch paper. Horizontal spacing is 10 characters per inch and vertical spacing 6 lines to the inch.

For further information, contact Typograph Corporation at 7547 Convoy Court, San Diego, California 92111, (714) 279-5690.

Micro 1600 reference manual – Microdata Corporation has made available an 88-page reference manual for the Micro 1600 minicomputer. The manual has seven chapters and an appendix with a microcommand reference table. The seven chapters contain Micro 1600 design features, system description, microcommand repertoire, control panel operation, micro assembler program, input/output information, physical characteristics and system power.

Contact Microdata Corporation at 644 East Young Street, Santa Ana, California 92705, (714) 540-6730 for a free copy of the reference manual.

D/A converter – Motorola has introduced a six bit digital-to-analog converter at less than half the cost of previously available units. The new MC1406 sells for $3.95 in hundred-up quantities. The MC1406 uses the popular R-2R resistor ladder network approach. The MC1406 features TTL or DTL compatible inputs and a relative accuracy of at least 0.7% over a range of 0 - 75°C. Output current drift is about 0.002%/°C and the output current is 2.0 mA maximum.

For further information, please contact Technical Information Center at Motorola Inc., Semiconductor Products Division, P.O. Box 20924, Phoenix, Arizona 85036.
**PDPI compatible ROM -** Datapac, Inc., has announced the introduction of a new 16,384 bit ROM system aimed at meeting the microprogramming requirements of the mini-processor market. The system is organized as 1,024 words of 16 bits each. Running from a single +5.0 volt power supply, system access times of 200 nsec and cycle times of 500 nsec are easily attainable.

For further information, contact Datapac Inc. at 18872 Redhill Avenue, Santa Ana, California 92707, (714) 546-7781.

**Discfile interface system -** Telefile Computer Products of Irvine, Calif. has just announced the immediate availability of their Model DC-16 Discfile System for interfacing IBM 2311 or single spindle 2314 compatible disc drives to non-IBM computers. Telefile provides interfaces for linking the discfile system to any of the following computers: Varian 620 Series, Nova 1290-800, EMR 5130, PDP-10-11, 15, CCI-7000, MAC-16, and MAC Jr., Interdata 3-4-5, Honeywell 316-516, Univac 418-II, Sigma 5-7, and SEL 810.

Delivery of the system is immediate. Price depends on quantity and options. For further information contact Telefile Computer Products, 17785 Sky Park Circle, Box AO, Irvine, Calif. 92664, (714) 549-3329.

**Add-on memory features -** Ferroxcube Corporation announces the availability of auxiliary (bump) storage and storage protect feature in their MARK 6000 line of IBM compatible Add-On Memories.

Ferroxcube’s MARK 6000 Core is available on immediate to ninety-day delivery depending upon computer model and upgrade capacity. Ferroxcube Corporation, a subsidiary of North American Philips Corporation, is headquartered at Mount Marion Road, Saugerties, New York.

**FET design brochure -** A new brochure on designing with field-effect transistors (FETs) is available from Texas Instruments. Titled “FET Design Ideas,” Bulletin CB-145, 17 pages, covers how to properly bias FETs, describes 26 different FET applications, and provides a listing of the most popular FETs in the industry.

The illustrated circuits are examples of FET usage in a wide range of different applications. They may be used as described in the booklet or tailored to specific requirements. Among those shown are amplifiers, oscillators, a MOS-to-TTL/DTL interface circuit, an FM tuner, and a chroma demodulator.

Contact the local Texas Instruments Office for further information.

**Small computer handbook -** A new 500-page handbook describing its PDP-8/e and PDP-8/m minicomputers and their varied applications is available without charge from Digital Equipment Corporation. The brochure details how the PDP-8 family computers are manufactured, designed, and used. Illustrated with photographs and diagrams, the handbook is an excellent reference tool for anyone interested in minicomputers.

For copies, contact the local DEC sales office or write Digital Equipment Corporation, 146 Main Street, Maynard, Massachusetts, 01754.

**Industrial control system -** A 17-page brochure detailing its new IDACS 11/07 industrial computer system is available free from Digital Equipment Corporation. The brochure discusses the IDACS 11/07 computer system, a unit designed for monitoring and control of industrial equipment. Particular emphasis is placed on the design of the system and its software.

For copies write Digital Equipment Corporation, 146 Main Street, Maynard, Massachusetts, 01754 or contact the local DEC sales office.

**1103 memory system -** Intel Corporation has introduced a TTL-compatible memory system, using Intel 1103 dynamic MOS RAMs, which stores 4K 9-bit words on one 7" x 10" PC board. All clock drivers, decoders, level shifters and other interfacing circuits are on the board, which is ready for connection to TTL logic.

Priced about 1¢ per bit in OEM quantity, System in-16 is the most economical 4K x 9 IC memory system to reach the market. It is designed as low-cost storage for data terminals, small computers and buffer memories.

For further information contact Memory Systems, Intel Corporation, 3065 Bowers Avenue, Santa Clara, Calif. 95051.