Minicomputer Communications Systems

Honeywell Inc. has introduced a family of functional minicomputer systems known as System 700. The eight-member System 700 family is designed to expand a user's data processing system into a communications-oriented information processing network.

Minicomputer technology is being used in System 700 to solve communications and control problems in data processing, particularly in computer-to-computer communications. Honeywell said it will emphasize the use of minicomputers as key elements in a complete functional system rather than as small "bare bones" central processors.

The System 700 family comprises eight functional systems — six that use the new Model 716 central processor, new OS/700 operating system, Host Resident Software System and improved communications capabilities, and two that use the customer-proved Model 316 central processor, OP 16 operating system and BOS batch operating system.

The 716 central processor, with a cycle time of 775 nanoseconds for a 16-bit word, operates at more than twice the speed of the Model 316. Main memory of the 716, which is program and peripheral compatible with Series 16 central processors, ranges from 8,192 words to 32,768 words.

Models in System 700 include a terminal control system, a peripheral control system, a multi-purpose system, a batch processing system, two sensor-based systems, a remote line concentrator and a remote message concentrator.

Minimum systems begin at about $1,000 per month on a rental contract or can be purchased for about $30,000, depending on the system and optional equipment selected. Deliveries will begin in July. Contact any Honeywell office for further information.

NEW COMPUTER SYSTEMS

Varian Data Machines has announced the first computer of a new family, the VARIAN 73, a radically new minicomputer system featuring ultra-fast, flexible, extendable performance. The VARIAN 73 is a 16-bit, asynchronous machine combining user-accessible microinstructions, multiple bussing, and data transfer rates over 3 million words per second on each bus.

The VARIAN 73 is a microprogrammed machine, with flexible data pathing controlled by hundreds of microinstructions stored in a Read-Only control memory. Execution time per microinstruction: 165 nanoseconds. The standard VARIAN 73
can process all previous Varian 620 series programs and offers the 620 instruction set as a standard feature. By adding a writable control store option, this microprogramming can be extended by the user to create special-purpose instructions and macro-algorithms. Additionally, the user can create plug-in control store emulators of other machines.

Programming efficiency is increased by a wide (64-bit) control word and 16 general purpose registers at the micro level. A single control word provides fields for specifying diverse machine functions. Register reference instructions are completed in 330 nanoseconds; memory reference instruction in 660 nanoseconds. In addition, the many registers save main memory space and time.

The basic VARIAN 73 offers three high performance memories, with cycle times of 190 ns, 330 ns, and 660 ns. The Writable Control Store has a cycle time of 190 ns. For main memory, the user may select MOS semiconductor for speed (330 ns), core for economy (660 ns), or any combination of the two. Memories of both types may be mixed in any configuration (and still be contiguous) up to the maximum. Main memory may be expanded up to 262K. Cores are available in 4K and 8K modules; MOS in 1K, 2K, 4K and 8K modules.

All memories are dual port for fast interleaving of I/O and processor functions. Multiple processors may also share in common memory. In multiple-memory systems, one memory may be communicating with a processor while another is exchanging data with an I/O device or another processor. Direct I/O to memory data transfers can take place at rates up to 3.03 million words per second on a single bus.

The price of the standard VARIAN 73 system ranges from $15,000 to $100,000. Deliveries are planned to begin in September. Contact the local VDM representative for further information. Letter requests should be addressed to Varian Data Machines, 2722 Michelson Drive, Irvine, California 92664.

Microcomputer Prototyping Systems

Intel Corporation has introduced three low-cost PC boards which enable users to program Intel's 2048-bit electrically-programmed PROMs and to assemble prototypes of complete microcomputer systems built with the 

MP7-02 programmer board: $400
Set of three program-control ROMs: $303
Delivery is immediate from stock.

For further information, contact Intel Corporation, 3065 Bowers Avenue, Santa Clara, California 95051.

202C-Type Modem

A pair of integral modems which provide fully Bell 202C compatible operation at speeds up to 1200 baud over dial-up telephone lines have been introduced here by Intertel, Inc.

Constructs on a single 4.5" x 9.0" (Model 2020) or 6.25" x 9.0" (Model 2021) printed circuit card, Models 2020 and 2021 incorporate linear and digital integrated circuits and silicon devices. Advanced design techniques include patented narrow band active filters which utilize mid-band signal energy only, differential delay detection rather than conventional zero-crossing detection or frequency discrimination, a constant amplitude phase coherent FSK oscillator, and a carrier detect circuit which analyzes signal energy to differentiate between noise and valid data.

![Image of modem](image_url)

The Model 2020 is priced at $330 in small quantities, the Model 2021 at $440. Configurations in rack or single modem desk top enclosures are also available, as well as customized configurations for particular customer requirements. Volume deliveries are now being made. Write to Intertel, 6 Vinebrook Park, Burlington, Massachusetts 01803.

JULY/AUGUST 1972
Tri-State Register

A new MSI storage register has been added to the Texas Instruments Series 54/74 TTL family. Designated the SN54/74173, the MSI circuit will accept typical input clock rates of 35 megahertz and incorporates a three-state output configuration. The 173 consists of four D-type flip-flops and is a plug-in replacement for the DM8551/7551.

Designed specifically for use in bus-oriented systems, the three-state output permits the 173 to be connected directly and to drive the system bus. This three-state output combines the high-fan out, low-impedance totem-pole characteristics found in most standard 54/74 circuits with additional circuitry which turns both the upper and lower output transistors off.

Contact the local TI representative for further information.

Microprocessor

Intel Corporation has introduced a second computer on a chip, an 8-bit central processor designed to handle large volumes of data. Type 8008 CPU combines with Intel RAMs, ROMs and shift registers to create MCSTM-8 computer systems capable of directly addressing and retrieving as many as 16,000 8-bit bytes stored in the memory devices.

The CPU is a P-channel silicon-gate MOS circuit containing an 8-bit parallel adder, six 8-bit data registers, an 8-bit accumulator, two 8-bit temporary registers, four flag bits and eight 14-bit address registers. It operates under a powerful set of 45 instructions, has interrupt capability, operates asynchronously or synchronously, and can perform as many as seven nesting subroutines.

The CPU is packaged in an 18-pin ceramic DIP. All inputs, including clocks, are TTL compatible. All outputs are low-power TTL signals. Using standard TTL packages, the CPU may be interfaced with Intel 2048-bit ROMs (Types 1301, 1601 and 1701), with Intel 256-bit and 1024-bit RAMs (Types 1101 and 1103) and with Intel single and dual 1024-bit SRs (Types 1402, 1403, 1404, 2401 and 2405). A complete functioning computer system may be built with one CPU, one ROM and 20 standard TTL devices.

For further information, contact Intel Corporation, 3065 Bowers Avenue, Santa Clara, Ca. 95051.

Mini Mag Tape System

A new magnetic tape system for expanding the capabilities of most popular minicomputers has just been announced by Tri-Data Corporation. This cartridge-loaded unit, the CartriFile 40, particularly enhances system power in small-sized accounting, computer-based test, and process control/monitoring applications. With FOUR independently controllable tape drives to log, compare, sort, collate, and merge data, the CartriFile 40 can add a whole new dimension to a mini system's range of operation.

The new unit was designed for reliable operation at low initial cost. Typical prices are $4950 with interface, $3015 in small OEM quantities (without interface).

The CartriFile 40 can read or write up to 18,000 bits per second on any of its four tapes -- and can simultaneously loadpoint-search the others. Since each drive is independently controlled, the unit will operate with a tape cartridge loaded in a single drive, or in any combination of the four. The CartriFile 40 comes complete with read, write, and controller electronics -- plus integral power supply, interconnecting cables, basic software, and a selection of interfaces. It uses Tri-Data 1000 Series endless-loop, single-tape cartridges. These are available in 10-, 25-, 50-, and 150-foot tape lengths. With four 150-foot cartridges, the system can store nearly 13 million bits of data.

For more information on the CartriFile 40, contact Lee McGrew, Marketing Manager, Tri-Data Corporation, 800 Maude Avenue, Mountain View, California 94040.

HEX Display with Logic

A new hexadecimal display complete with logic in a single 14-pin dual-in-line package has been added to Texas Instruments line of solid-state displays. Designated the TIL311, the display with 0.270-inch characters has the capability of forming the full hexadecimal character set, the numerals 0 through 9 and the letters A through F. It contains a TTL/MSI integrated circuit with a four-bit latch, decoder, and driver.

Production quantities of the TIL311 are available from TI stock four weeks after receipt of order. In 100-piece quantities, this hexadecimal display is offered at $12.50 each. Contact the local TI office for detailed information.

Disc Cartridge Drive

XLO Computer Products, a unit of Ex-Cell-O Corporation, has announced the availability of a 150 million bit, 3600 RPM, Disc Cartridge Drive system at a cost of less than 0.00354 per bit. The system utilizes concepts originally developed for the 3330 system, thus offering a breakthrough in price performance to the small systems designers.

Designated the XLO 3322, the unit is offered in two model configurations. The Model 3322-1 contains a removable disc cartridge and provides a storage capacity of 75 million bits. The Model 3322-2 adds an additional 75 million bits on a non-removable disc.