NEW PRODUCTS

Products and services for the computer systems design professional

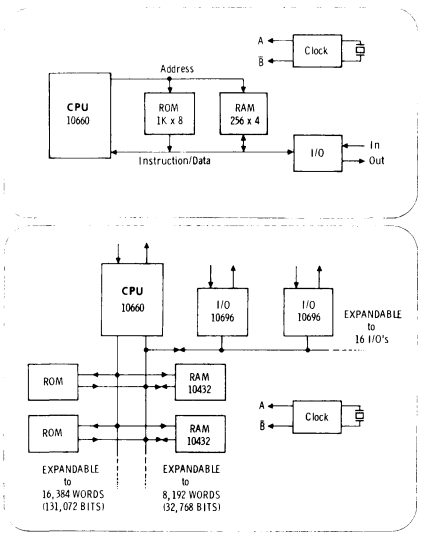
edited by Milton G. Bienhoff

FEATURE PRODUCT

Rockwell Microelectronics announces advanced MOS/LSI parallel processing system

A MOS/LSI parallel processing system (PPS) has been introduced by the Microelectronics Division of Rockwell International.

The new system is said to be about twice as fast as existing similar systems.



Rockwell's PPS performs the arithmetic and logic functions of a four-bit parallel microprocessor. It is based on a powerful one-chip MOS/LSI central processing unit (CPU) implementing 50 basic instructions and possessing its own input/output capabilities in a 42-pin plastic package. A wide variety of computing systems can be configured from the CPU and a line of compatible MOS/LSI circuits – ROM/RAM, ROM, RAM, I/O and a crystal-controlled clock generator circuit. All circuits operate from a single 17 vdc power supply.

From a two-circuit system with programs of up to 704 eight-bit instructions and read/write storage for 76 four-bit words, the PPS can be expanded into a 30-circuit system without need for additional buffering or drive circuitry. Up to 16 ROMs, providing as much as 16,384 program steps, can be utilized by a single CPU. Read/write storage capacity is 8192 four-bit words.

Innovative parallel bus design (dual 8-bit data bus; expandable 12-bit address bus), time-shared multiplexing and Rockwell's unique four-phase techniques achieve a PPS cycle time of 5 μs. Add/subtract time is 240 microseconds, multiply time is 15 milliseconds for 8-digit BCD arithmetic.

Equipment designers can verify their ROM programs in machine prototypes before committing to production by interfacing a PPS "evaluation board" with a ROM emulator or computer.

The PPS evaluation board (Part No. 20102) is a plug-in circuit board on which are mounted a CPU, two RAMs, two general purpose I/Os and a crystal-controlled clock circuit. The combination provides 60 I/O lines.

Rockwell has developed FORTRAN assembler and simulator programs to assist the designer in preparing PPS microprograms. These programs also provide the inputs for generating masks for MOS/LSI ROMs.

The PPS evaluation board and associated software including system data sheet, schematics for interfacing the board with ROM emulator, and a PPS Programmer's Manual – but not the assembler and simulator programs – are priced at $500 in the U.S. Outside the U.S., the price is $550, including export paperwork.

For more information contact: Scotty Maxwell, (714) 632-2321.

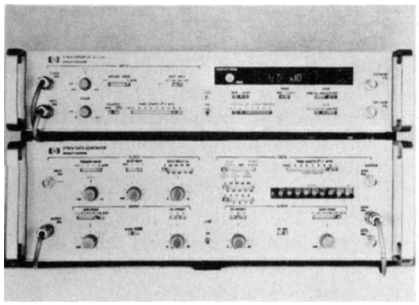
Rockwell's compatible MOS/LSI PPS circuit set includes:

Designation	Part Number	Description
CPU	10660	4-Bit Parallel Central Process Unit
RAM	10432	256 x 4 Random Access Memory
ROM	A05...	1024 x 8 Read Only Memory
ROM/RAM	A08...	Combination 704 x 8 ROM and 76 x 4 RAM
I/O	10696	Input/Output Buffer
Clock	10706	Multiphase Clock Generator

150-Megabit Test Set for Digital Communications Systems

A new bit error rate measuring system evaluates the performance of high-rate digital systems. Because it can generate data and detect errors at rates up to 150 megabits/second, the Hewlett-Packard 3760A/3761A system is particularly suited to test equipment and systems using pulse-code-modulation (PCM). The test set's performance range and flexibility also make it suitable to test such items as computer memories, disc storage, digital recorders and high-speed logic circuits.

The test system, consisting of the 3760A Data Generator and 3761A Error Detector, uses Pseudo Random Binary Sequences (PRBS) with bit-by-bit comparison to measure Bit Error Rate (BER) and Total Error Count (COUNT) at rates from 1.5 to 150 Mb/s. The instrument's comparison technique detects every error, random or systematic. Among the features that attest to the system's wide usefulness are: Variable PRBS length; Auto-ranged BER display; Printer output of BER or COUNT (permits unattended operation); One-pulse-per-error output (permits statistical analyses); Data delay and phasing controls (for equalizing effects of cable lengths, etc.); System "self-check" through deliberate error introduction.



The Data Generator's output formats and the Error Detector's input characteristics, as well as system synchronization and gating, are variable in many ways. For example, the Generator provides normal or complemented CLOCK output, and normal and complemented DATA outputs (in either RZ or NRZ format) with variable amplitude and offset. Data input to the Error Detector can be inverted in case there's inversion in the test item. The DATA and CLOCK input/output impedances are 50 ohms standard, or 75 ohms optionally. An internal 1.5 to 150 MHz variable-frequency clock is optional in the Data Generator.

The 3760A Data Generator has applications beyond its use in the Error Rate Measuring System. Besides PRBS output, it is also a WORD generator, with word length variable from 3 to 10 bits and front panel selection of word content. Zeroes can be added between words (or PRBS's) to test clock extraction circuits. The 3760A's CLOCK and DATA outputs have rise and fall times faster than 1 ns, and the non-interactive amplitude and offset controls provide level settings that are fully compatible with TTL and ECL circuits.

The generator measures 5-1/2" x 17" W by 19" D; it weighs 30 lbs.; the Detector is 3-3/4" H x 17" W x 19" D, 23 lbs.

Price of the HP 3760A/3761A Bit Error Rate System in the USA is approximately $8100. The 3760A Data Generator alone costs $4295 (add $170 for the internal clock). Customer deliveries will begin in April. Contact Hewlett Packard, 1501 Page Mill Road, Palo Alto, CA 94304 (415) 493-1501.

Xerox unveils low-priced general purpose computer

Xerox Corporation has announced the Xerox 530, a new, low-priced general purpose computer system for users of small computers.

The computer is designed for both scientific and commercial applications. A minimum configuration may be leased for $760 per month on a one-year lease, and purchased for $21,700. Deliveries will begin in the third quarter of 1973.

Features include special business data processing software; independent, external processors to handle I/O operations with a minimum of CPU intervention; an advanced priority interrupt structure with up to 40 interrupt levels; and a capability for hardware and software trouble-shooting via long-distance telephone lines.

Other key features are programmed read-only control memory, extended arithmetic capabilities such as hardware multiply and divide; optional floating-point arithmetic hardware; and optional field addressing instructions. Technology incorporated in the new computer's design includes large-scale integration (LSI), medium-scale integration (MSI) and microprogramming techniques.

A special communications link, built into each 530 system, allows the user to dial in to a Xerox regional assist center and receive on-line diagnostic help from a maintenance specialist. In addition, the computer equipment itself has hardware and software features that provide for fault detection, error logging, fault diagnosis and system recovery.

Available with the Xerox 530 will be a cartridge disk storage system designed to provide economical random-access storage for the small-system user.

Software for the Xerox 530 is compatible with that used on the 16-bit Xerox Sigma 3 computer. Operating under the Real-Time Batch Monitor (RBM) operating system, the Xerox 530 can handle multiple real-time jobs in the foreground while concurrently running general-purpose batch jobs in the background.

Industry-compatible processors and utilities offered under the RBM operating system include ANS FORTRAN IV, Extended SYMBOL, Report Program Generator (RPG), SORT, DEBUG and a Scientific Subroutines package.

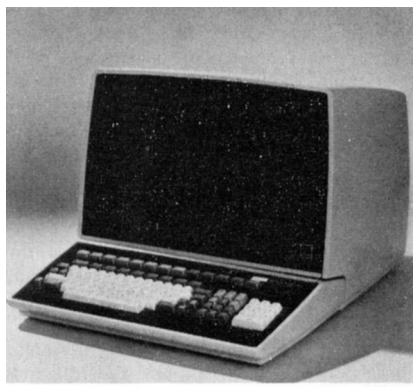
The Xerox 530 has a word size of 16 bits. Memory is high-speed core, cycle time 800 nsec, and is offered in modules of 8192 words; maximum is 65,536 words. Three independent paths communicate with memory: one is used by the CPU, a second is used by the I/O processor, and the third is available for a second I/O processor in applications which require it. Standard CPU features include 6 general purpose registers, with hardware multiply/divides. Two real time clocks with selectable frequencies and memory protection features are also standard.

Peripherals available with the 530 include 7- and 9-track tape, removable disc storage, 80-column card equipment, paper tape, line printers, plotters, and data communications.

Contact: Bob Eklund, El Segundo, California (213) 679-4511, x1973.

"Super Bee" introduced by Beehive Medical Electronics

"Super Bee", a low cost "intelligent" operator controlled computer terminal with its own built-in processor, detachable keyboard and a variety of options, has been introduced by Beehive Medical Electronics, Inc.



The Super Bee's microprogrammed processor uses read-only memory. Volume users can change the program ROM to communicate using almost any code structure or polling sequence.

Among the standard Super Bee features are (1) protected field formatting, (2) conversational or block mode, (3) typewriter type tab philosophy and back-tab, (4) single key enter function, (5) data compression technique, (6) transmission rate to 9600 BAUD, (7) program entry mode, (8) three-level video, (9) addressable cursor, upper and lower case character generation (lighted mode indicators), (10) printer off/on line mode,

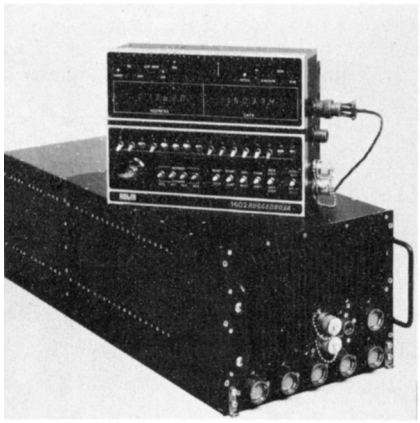
(11) 25 lines of 80 characters (2048 character display), (12) parity selection, (13) 10 key numeric pad, and (14) ANSII configured keyboard (95 keys).

The Super Bee has a list price of $2495. The first units will be available for shipment in April. Contact: Robert D. DeForest (801) 487-0741.

Rolm Corporation introduces new Ruggednova computer

A new, faster, more powerful generation of Ruggednova minicomputers has been unveiled by Rolm Corporation with the introduction of the 1602 Ruggednova.

The new 16-bit, general purpose, severe environment machine features a core memory cycle time of 1 microsecond. Overall program execution speed with core memory averages up to six times faster than the mini's predecessor, the 1601 Ruggednova, and is comparable to the Nova 800 and Super Nova.



The 1602 Ruggednova is upward compatible with both Rolm's 1601 (AN/UYK-12) and the Data General Corporation Nova series computers.

Computational speed and flexibility are provided by an MSI/LSI microprocessor in the 1602 Ruggednova which executes 32-bit microinstructions at a 5 MHZ rate. 25 full-length registers are available at the microprogram level. Only 1/8 of the microprogram capacity of 4K words is used to create the machine's extended instruction set. Rolm intends to use this additional capability to introduce new firmware packages in the near future.

For the 1602, Rolm designers implemented a number of different instructions beyond the standard Data General set. A push-down stack for storing of temporary information has been devised and an n-bit shift instruction can shift from 0 to 15 bits in the processor's accumulators. Other instructions include double precision instructions and a powerful new file search instruction.

Environmental specifications of the 1602 Ruggednova are the same as the earlier 1601. It is built with the same rugged construction techniques which qualified the Ruggednova to MIL-E-16400 shipboard environment, MIL-E-5400 airborne environment, MIL-Std-461A electromagnetic interference specifications and MIL-S-901 shock test among others.

The 1602 comes in two chassis sizes. One is described as an ATR short package containing the CPU and 8K of memory It measures 7-5/8" x 10-1/8" x 12-1/2". The second configuration is a standard ATR package 7-5/8" x 10-1/8" x 15-1/2" and containing five I/O slots. Additional memory can be added to either package by plugging memory modules onto the computer chassis.

Price of the 1602 Ruggednova, the CPU and 8K of core memory, is $18,500. Typical I/O cards range from $1,000 – $1,600. Full Rolm documentation and software packages are available with the machine. Contact: Dave Leonard (415) 326-4864.

Monolithic announces the industry's fastest 256-bit RAMS

Monolithic Memories has announced several new bipolar 256-bit random access memories. Two of these are very high speed devices, organized 256 x 1, that are guaranteed across both temperature and V_{CC} range.

The fastest RAM in the series is the 6530/31, available with either open collector or tri-state outputs (OC/TS). It features guaranteed maximum access time of 55 ns. for 0^{o} to 75^{o}C case temperature and V_{CC} = 5.0V ± 5%. Price, in lots of 100, is $27. This device is pin compatible with the Intel 3107A/06A.

A second part is specified at 70 ns. access time, guaranteed across the full MIL range of -55^{o} to $+125^{o}$C at 5.0 V_{CC} ± 10%. Cost for that part, designated the 5530/31, (OC/TS) is $52 in lots of 100.

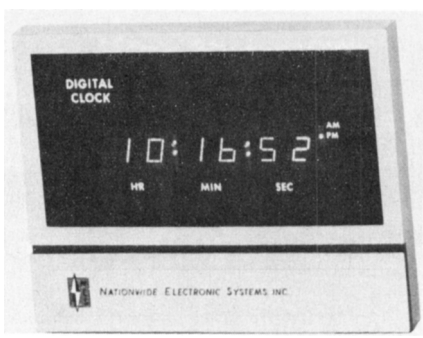
The company is based at 1165 East Arques Avenue, Sunnyvale, California 94086. Marketing Manager is Dale Williams, (408) 739-3535.

Digital Clock displays time and provides parallel BCD outputs

The Slimline Digital Clock from Nationwide Electronic Systems, Inc. (NES) incorporates a bright LED display and parallel 1248 BCD logic outputs (TTL/DTL compatible) for hookup to data systems. The clock, which is available in a number of time ranges, is remotely controllable, either manually or automatically, and can be used for elapsed and/or real time applications. The Slimline package is only 9/16" thick, and mounts *on* the panel; no behind-the-panel space is required.

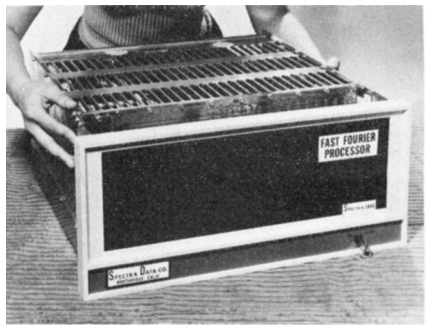
The clock references the 60Hz power line frequency for long-term accuracy; operation from 50Hz is available as a low-cost option.

The Slimline clock requires 5VDC and a 2 to 20VAC line sync signal, which is provided by an optional power supply. The clock draws 800mA and measures 4½" wide, 3½" high, and 9/16" thick. Connections are made via a 3M Scotchflex flat cable connector (or equivalent) or by wire wrapping. Contact: Nancy Pelletier (312) 773-0370.



Stand alone Fast Fourier transform processor

Spectra Data, Northridge, California, has introduced the Model 1040 Fast Fourier Transform Processor, a stand alone unit which operates asynchronously with external computers. It contains its own memory and arithmetic processor, and is designed to perform forward and reverse Fourier Transforms and Coordinate Conversions on data arrays stored in memory.



The Model 1040 FFT Processor performs the FFT function fast enough to allow real time spectral analysis in many applications. The unit converts time domain signals into frequency domain information in digital format.

The Model 1040 increases speed and performs 256 complex point transforms in 3 msec. Maximum array size is 4096 complex points; the transform of an array of this size takes 64 msec.

For complete information, contact Henry Williams, Director of Marketing, Spectra Data Co., 18758 6 Bryant Street, Northridge, California 91324. (213) 993-1622.

Low cost full graphics capability now available for minicomputers

A new, graphics display interface for minicomputers, priced at $1095, has been introduced by Megatek Corporation, Harbor City, California.

Designated the BP-721, the new interface converts any X-Y oscilloscope or larger X-Y display into a full graphics display terminal. The unit, with its internal semiconductor refresh memory, enables the minicomputer user to plot points, lines, alphanumerics, and life-like real-time, dynamic displays. Software is supplied for programming with simple BASIC language commands.

Interfaces for all Data General NOVA series minicomputers are available now. Installation, which requires no hardware modification, is accomplished in a few moments. The interface is simply inserted into a vacant card slot; connections are made at the X, Y, and Z inputs of the

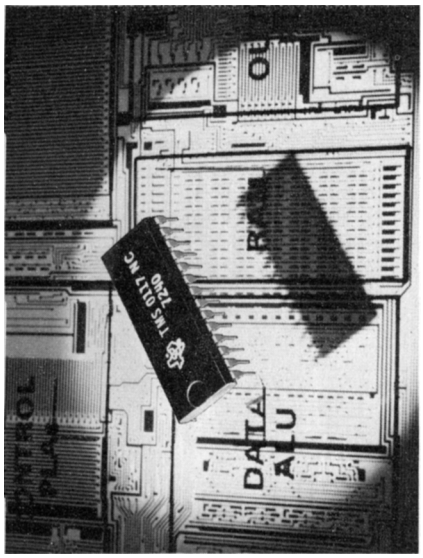
oscilloscope, and it's ready for operation.

Manufacturer: Megatek Corporation, 1526 West 240th Street, Harbor City, California 90710. Literature sent on request. Contact Mr. Walter Foley (213) 530-0654.

10-Digit BCD arithmetic processor announced by Texas Instruments

A new 10-digit binary-coded decimal arithmetic processor in a single integrated circuit has been announced by Texas Instruments. Designated the TMS0117, the IC is designed to process numerical data in serial BCD format. Numbers of up to 10 digits can be processed in under 100 milliseconds main operation time. The four basic operations – add, subtract, multiply, and divide – are provided; others include increment, decrement, shift left, shift right, exchange operands, add to overflow, and subtract to zero.

"Add to overflow" and "subtract to zero" are used to set up variable delays – for instance, to time an event. At nominal frequency, any delay between a few microseconds and 200 days can be obtained with digital accuracy.



The device requires a minimum of external control logic. Solution of complex problems may be obtained by using the TMS0117 as a central processor unit in conjunction with bipolar memories for microprogram storage.

The TMS0117 is offered in a 28-pin plastic dual-in-line package. Available immediately from TI stock, this MOS/LSI arithmetic processor IC is priced in 100-piece quantities at $32.11. Contact: Texas Instruments Incorporated, Inquiry Answering Service, P.O. Box 5012, M/S 308, Dallas, Texas 75222.

Solid state optical scanner designed for process control and pattern recognition applications

Dest Data Corporation, Sunnyvale, California, announces a new optical scanner and digitizer, designated the OSD270, which provides a means of optically scanning objects in space with direct input to a computer for the purpose of production or process control, counting, measuring, or pattern recognition.

The scanners, or cameras, can be mounted in virtually any position and operated with normal interior lighting. Lenses may be selected to provide the focal length, field, and aperture required for the particular application.

The output of the equipment is a digital, black/white bit stream representative of the field or object scanned.

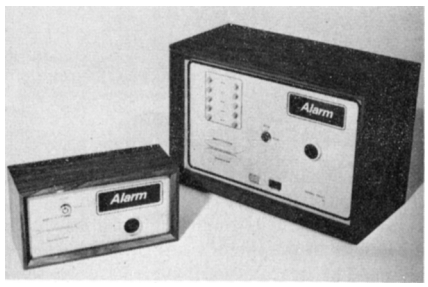
The basic unit consists of two 128 point scan heads and a control interface unit. However, options are available (most at no charge) providing varying spectral response characteristics, a wide range of sampling speeds, virtually any computer interface, single or multiple scanning heads, and various resolutions.

Contact: John P. Brown (408) 734-1225.

Elbas develops Magnetic Computer Security System

Elbas Industries, Inc., Canoga Park, Calif., has developed a Magnetic Field Detector for use in computer security systems.

The Model 7201T detector aids in preventing loss of information stored on magnetic media by sounding an alarm when a magnetic field passes the detector.



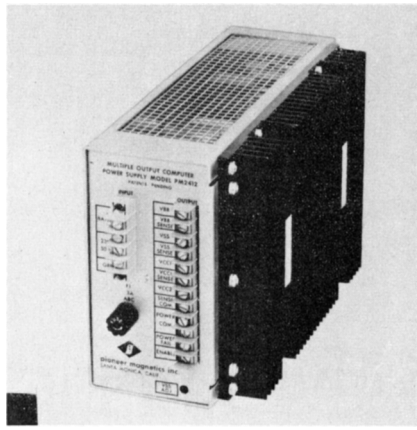
Magnets of any size – small as a screwdriver tip or large as a magnetized girder – sound the alarm.

The unit can be monitored at any point, has alarm on processor and remote units, and features modular construction.

Contact: Elbas Industries, 23106 Jonathan Street, Canoga Park, Ca. 91304 (213) 883-4938.

Pioneer adds uninterruptible power supply to line

Pioneer Magnetics, Inc., has announced an uninterruptible power supply for volatile semiconductor memory systems. Designated the Model PM 2412, the new 140 watt convection cooled converter can provide power for up to 32K x 18 or 65K x 9 MOS RAMS at worst case temperatures. Operating from a 115 VAC source, this unit furnishes no-break power over power outages of 20 msec or longer with automatic switchover to a backup battery in the event of total AC input power failure. A battery recharge circuit is included as part of the standard package.



Modular in construction, the converter is 7.0" high x 5.25" wide x 11.0" deep (not including battery) and weighs approximately nine pounds.

Inquiries concerning the PM 2412 Multiple Output Computer Power Supply should be directed to Pioneer Magnetics, Incorporated, 1745 Berkeley Street, Santa Monica, California 90404, (213) 829-3305.

Do-it-yourself PDP-11 interfacing kits from Digital

Digital Equipment Corporation has simplified custom interfacing of non-DEC equipment such as peripherals, production control units, and laboratory instruments to the PDP-11 minicomputer with the introduction of three new modular interfacing kits.

Available from Digital's Logic Products Group, the new series of "do-it-yourself" DECkit11 interfacing packages can be plugged directly into any PDP-11 via the UNIBUS. Each kit features a prewired backplane unit that accommodates from 6-18 standard logic modules which are configured by the user for his particular interfacing application. To interface a custom interprocessor buffer, production line equipment, laboratory data acquisition and control equipment, or a custom peripheral to the PDP-11, the user selects the modules necessary and wires the appropriate mating connector to a standard, 40-conductor cable.

The DECkit11-H package is capable of reading four 16-bit data words from a peripheral device into any PDP-11 processor, and writing four 16-bit words or eight 8-bit bytes from a PDP-11 to a peripheral device. It is priced from $1,165 (exclusive of cabling and UNIBUS connectors).

The DECkit11-F reads three 16-bit words while writing one word. It is priced beginning at $750 (exclusive of cabling and UNIBUS connectors).

The DECkit11-K is designed for reading eight 16-bit words from a peripheral with no words written. It is priced from $695 (exclusive of cabling and UNIBUS connectors).

Contact: Ralph Campbell (617) 897-5111, ext. 4036.