PRINTOUT

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PRODUCTS

Used Computers

A DEC PDP-8/I DECTAPE system with 4K memory, TC01 controller/2 TU55 DECTAPES, ASR33 Teletype, and dual bay cabinet are being sold for \$5,000. A programmable clock, originally priced at \$740, costs \$445. Reconditioned ASR33 Teletypes are \$850, with a \$75 discount for cash with purchase order. The Teletypes have a 90-day warranty and are fully reconditioned. A NOVA 1200 with 8K, 8108 auto-program load, 8106 program monitor, and automatic restart is available used for \$2,800; new, the system is \$3,100. A NOVA 1200 with 32K words of memory is listed at \$6,950. A Mohawk Data 4320 printer, 200 lines/min, with a PDP-8 interface, is priced at \$1,250.

Newman Computer Exchange
1250 North Main St.
Ann Arbor, MI 48104

A DEC PDP-8/E is priced at \$4,750. An 8/I with 8K is priced at \$2,500. A Data General NOVA 2/10 with 32K memory is advertised at \$7,500. A PDP-11/20 with 4K memory costs \$3,050.

American Used Computer Corp.
P. O. Box 68
Kenmore Station
Boston, MA 02215

Primates Available

Litton Bionetics breeds and maintains a variety of species of primates for commercial sale. Production is currently 200 annually. Embryos, fetal, newborn, and juveniles are available in the following species: rhesus, cynomolgus, and African green. Litton can provide timed pregnant females and/or progeny to ± 48 h of gestation. Utilizing laparoscopy and artificial insemination, timed pregnancies to ± 12 h of gestation can be supplied.

Litton Bionetics
Veterinary Sciences Division
5516 Nicholson Ln.
Kensington, MD 30795

Coulbourn Instruments

The Coulbourn Instruments "Users Guide to Autoclinic 2001" and the new 1977 edition of the "Applications" manual for the solid state module system are now available. The Autoclinic 2001 is a portable bio-feedback instrument. In one package bio-potentials of EMG, three bands of EEG, and GSR are available for feedback measurement and recording.

Coulbourn Instruments
Box 2551
Lehigh Valley, PA 18001

Altair and Imsai Compatible 8K SRAM

The 8K SRAM kit sells for \$239 (\$335 assembled). The memory operates at the maximum speed of the 8080 MPU with no wait states required. The Fairchild memory chips have a maximum access time of 450 nanosec. The DIP switch is located on the upper edge of the board so that you may change the board address for programs that run in high memory without having to remove the board from your computer. Voltage supply is +5 V to +10 V.

Vector Graphic Inc.
P. O. Box 4784
Thousand Oaks, CA 91359

Logic Probe

Probit is a logic probe for TTL-DTL and C-MOS. The probe detects steady logic states, trains or logic pulses, abnormal conditions, and is protected against over-voltage inputs. It includes a seven-segment LED display and has high input resistance. The unit costs \$49.95.

Control and Information Systems, Inc.
10 Spring Valley Village
Richardson, TX 75080

Low-Power Memory Kit

The 8K LST has a capacity of 8,192 8-bit words and an access/cycle time of 520 nanosec maximum. The 8K memory kit is priced at \$285, including sockets; the 4K kit, which is expandable to 8K, is \$159.

Dutronics
P. O. Box 9160
Stockton, CA 95208

ADD-ON memories

Data Ram offers a 16K x 12 DR-118 single-board system for both the PDP-8 and PDP-8/A minicomputers. The system plugs into the appropriate slot. The 16K x 12 DR-118 and DR-118/A are \$1,840 in single quantities. Data Ram also has a wide range of ADD-ON/ADD-IN systems for other minicomputers. The company also has bulk core that can be used for fixed-head disk applications. The 256K-byte single-assembly system provides peripheral storage with an access time improvement of almost 10,000:1 over FHD. A single chassis can hold up to 20 million bits.

Data Ram Corp.
Princeton-Hightstown Road
Cranbury, NJ 08512

EMG Scope

The EMG has a memory/storage feature that allows you to freeze the wave pattern on the screen. Multiple cascades or single sweeps can be displayed.

Medical Instrument Co.
9200 Glenoaks Blvd.
Sun Valley, CA 91352

Hand Dynamometer

The Ergo-Rehab is advertised as a general muscle rehabilitator that counts the number of hand squeezes from 0 to 250. It requires the subject to complete a full flexion force before the dial counts; this force is gradually increased until a click is heard. When the click occurs, a counter located on the right side of the scale advances one step. Three models are offered at 5, 10, and 20 lbs.

Psytech, Inc.
Canton at Railroad Ave.
St. Michaels, MD 21663

Pediatric Monitoring

The Model IM-50 neonatal/pediatric modular monitoring system provides capabilities for monitoring ECG, respiration, and blood pressure. Optional features include chart recorder outputs and a choice of a four-channel bouncing-ball scope display or a two-channel nonfade scope display.

Cavitron/KDC Medical Sales
1528 West Embassy St.
Anaheim, CA 92802

Infant Heart Rate Monitor

The HP-78213A measures ECG signals from infants to the tune of 20-250 beats/min. The unit can detect the often steeply rising, low-amplitude QRS complexes of premature babies. If the infant's heartbeat exceeds acceptable levels for more than 8 sec, audible and visual alarms provide an alert. Price: \$1,150.

Hewlett-Packard
Medical Electronics Division
175 Wyman St.
Waltham, MA 02150

Recorder Multiplexer

The Channelyser is a recorder multiplexer that can record 2, 3, or 4 variables and contains a single pen strip chart recorder. Each channel can be separately calibrated and can be allotted any desired proportion of total chart width. Any channel can be range expanded up to 10 times. Each channel can also be attenuated up to 10 times. The Channelyser accepts signals from up to four transducers, samples them consecutively, and feeds them to the recorder, where a dot appears on the chart each time a transducer is sampled. The instrument puts in series with the transducer signal a dc voltage that can be varied both positively and negatively, so as to position the pen base line to any desired place on the chart. Price: \$450 battery operated; \$495 ac and battery.

Bailey Instruments Co., Inc.
515 Victor St.
Saddlebrook, NJ 07662

Epoxy Putty

The AB-123 epoxy putty mixes like clay and hardens like steel, according to the developer. The putty can be sanded, drilled, machined, sawed, and painted. There is no waiting for epoxy to set up and become viscous for patching large holes and cracks. The clay-thick consistency is hand moldable and succeeds in repairs, according to the advertising, where watery, less viscous epoxy fails. It adheres to damp surfaces and even cures underwater. It will not shrink. Price: \$24.50 for 6 lbs. Money-back guarantee..

Abbeon Cal Inc.
123-53 F Gray Ave.
Santa Barbara, CA 93101

Wireless/Radio Remote Control System

This transmitter/receiver system is all solid state, crystal controlled, and tone encoded to prevent false operation. This remote controlled relay system will operate any electronic or electrical device that can be turned on or off by means of a contact closure. The system operates on 27.145 MHz. Both the transmitter and the receiver are crystal controlled. Control range is approximately 50-100 ft, depending on the terrain. Contacts on the control relay can operate contactors, ratchet, or interlocking relays to initiate various actions. The output of the receiver's control transistor can directly control solid state relays. The control system is certified to comply with FCC rules and regulations. The transmitter unit is priced at \$20 (Catalog No. TM20K916). The remote control system is available with different tone encoding to permit operation of two

independent systems at one location, each not interfering with the other (Catalog No. TM20K921, at \$20). Approximately 2 h are required to assemble the kit. If you do not have the time, the company will do the assembling for an additional \$20. TM20K916/A is completely assembled at \$57.50.

Herbach and Rademan, Inc.
401 East Erie Ave.
Philadelphia, PA 19134

Desk-Top Microcomputer System

PACER is a microcomputer system with the following features: It will examine or modify the contents of any computer register or memory location, will set up to 10 break points to halt execution, has decimal to hexadecimal conversion, has a hexadecimal calculator, has MPU register or memory word scan, and has full alphanumeric display. Options include PROM programmer, extended memory boards, CRT interface, and others. PACER retails for \$1,195.

Project Support Engineering
750 North Mary Ave.
Sunnyvale, CA 94086

Printer Kit

A new 44-column dot matrix printer designed for use with the IMSAI 8080 computer, as well as other computers, offers hard-copy output at an affordable price. The printer is priced at \$399 in kit form and \$549 assembled.

IMS Associates, Inc.
14860 Wicks Blvd.
San Leandro, CA 94577

Running-Time Meter

Item 2188 is a running-time meter that can record the number of operating hours of electrical devices. It records total hours, tenths, and hundredths to 9,999.99 h. With 115 V and 60 Hz, the unit is approximately 4¼ x 3 x 2½ in. Price: \$4.39.

Surplus Center
Department PE-126
Lincoln, NE 68501

Electronic Music Synthesizers

The System 300 electronic music synthesizer kit is solid state and is priced at \$395.

Aries Inc.
119 Foster St.
Peabody, MA 01960

Books on Assembly Language or BASIC

Introductory texts that are fairly easy reading, covering assembly language or BASIC, may be obtained from

the following:

Adam Osborne and Associates
2950 7th St.
Berkeley, CA 94710

Scelbi Computer Consulting Inc.
1322 Rear Boston Post Rd.
Milford, CT 06460

John Wiley & Sons
1 Wiley Dr.
Somerset, NJ 08873

Houghton Mifflin
Wayside Rd.
Burlington, MA 01803

BRIEFS

Intel Microprocessor Family

Intel is sampling a new microprocessor family, the MCS-48 series, capable of operating off of a single 5-V power supply. The new line includes the 8784, a microcomputer which incorporates a 1K x 8UV-erasable PROM for use in prototyping work, and the 8048, an identical device but possessing an on-board ROM instead of a PROM. Over 70% of the instructions can be implemented in one 2.5-microsec cycle time. The ROM version will probably sell for under \$10 in production quantities.

DEC

Digital Equipment Corporation (DEC) is introducing two of the most powerful computers it has ever offered. The DEC System 1090 and the 2050 are both 36-bit computers. The 1090 is also available in a dual processor called the DEC System 1099.

Data General

Data General Corporation has announced two compact video terminals featuring 1,920-character displays and detached keyboards for operator convenience. The DG video terminal 6053 offers direct cursor addressing and sensing for high-speed cursor positioning and control with minimum processor overhead. The keyboard contains an 11-key numeric pad, separate keys for editing and cursor positioning, and 11 user-defined function keys, in addition to a typewriter-format keyboard. The character set is available with optional fonts for France, Germany, Sweden, and the United Kingdom. The 6053 sells for \$2,290. A hard-copy printer interface is \$400.

Data General Corporation
Southboro, MA 01772

Data General-DCC

Data General announced that it has acquired Digital

Computer Controls. For those who are unfamiliar with Digital Computer Controls, the company has been turning out computers that are similar to the DEC and Data General products. The DCC machines were compatible with the equipment supplied by both companies, and DCC has been involved in occasional legal battles with both.

Computer Graphic System

An advanced computer graphics system has demonstrated the capability to produce either vectored or shaded real-time images of dynamic three-dimensional environments. A graphics extended ALGOL compiler implemented on the system at Case Western Reserve University allows the user to deal with the system at a high level. Imagery can easily be produced, turned in any direction and colored, and then recorded on film. Conceiving of all drawings in basic units of polygons, the system creates shaded images. Animated sequences of images, having up to 1,000 polygon edges, can be produced in real time; more complex images with up to 4,000 polygon edges are produced at slower rates. Most of the graphic's work is produced on hardware designed by Evans and Sutherland, Salt Lake City, Utah. A PDP-11/40 is the controlling processor, handling input/output for itself and the channel control processor. User interaction is provided through a terminal consisting of keyboard and alphanumeric display and a large dual-pen data tablet. Storage for system's software, user programs, and data files is provided by a 10M-byte disk. A communications link allows the graphic system to communicate with a PDP-11/45 and with a text-editing file storage system, which provide services, such as magnetic tape drives and mass storage, not available on the graphics system.

An Apparatus for Varying Self-Awareness While Presenting Visual Stimuli (Submitted by Paul G. Neumann and Charles S. Carver, University of Miami, Miami, Florida, and Michael F. Scheier, Carnegie-Mellon University, Pittsburgh, Pennsylvania)

A recent theory of self-awareness (Duval & Wicklund, 1972) suggests a dichotomy in conscious attention, i.e., attention can be directed outward toward the environment or inward toward the self (self-awareness). Self-awareness, which is increased by stimuli that tend to remind one of oneself (e.g., a mirror), has been found to cause alterations in ongoing physical behavior (cf. Carver, 1974) and may lead to greater awareness of one's dominant affective state (Scheier, in press). One way to test the latter notion is to present a subject with affect-evoking stimuli (e.g., slides of nudes; Valins, 1966) while varying self-focus. Such a study requires that self-focus be increased among half the subjects, but that subjects in the low and high self-awareness conditions devote equivalent attention to the affect-evoking stimuli. Ideally, the self-awareness-heightening stimulus should

not be present to divert a subject's attention during presentation of the emotional stimuli, but should be present at all other times. Its introduction should be unobtrusive, yet its effects should be immediate and assured. We have designed an apparatus which meets all of these criteria.

The apparatus described here consists of a free-standing rear-projection frame into which one of two rear-projection screens may be inserted. The first screen, used for control subjects, is standard rear-projection material.

The second screen consists of a 50%-transmission/50%-reflection mirror, backed with a single sheet of white tracing paper. When slides are projected onto the back, the front/rear lighting ratio is such that only the projected stimulus is seen from the front. When the projector shutter is closed (or the projector is advanced to a solid 2 x 2 in. cardboard square placed between slides in the tray), the lighting ratio reverses and the subject sees a reflection of himself in the mirror. The white paper backing not only serves as the projection screen, but also serves to increase the amount of reflected light from the front during nonprojection intervals. The lighting ratio also can be optimized through "hooding" the back of the projection screen and manipulation of lighting in the laboratory.

REFERENCES

- CARVER, C. S. Facilitation of physical aggression through objective self-awareness. *Journal of Experimental Social Psychology*, 1974, 10, 365-370.
- DUVAL, S. & WICKLUND, R. A. *A theory of objective self-awareness*. New York: Academic Press, 1972.
- SCHEIER, M. F. Self-awareness, self-confidence, and angry aggression. *Journal of Personality*, in press.
- VALINS, S. Cognitive effects of false heart rate feedback. *Journal of Personality and Social Psychology*, 1966, 4, 400-408.

Printer/Plotter

Gould Inc. is marketing a new electrostatic printer/plotter using writing techniques that produce high-contrast images of computer-generated graphics and alphanumerics on 11-in.-wide paper. The high-speed Model 5005 prints 1,600 lines/min (132 characters/line) with a 64-character set and plots graphics at a maximum speed of 3.25 in./sec. Gould is also marketing a 2000 series direct writing recorder. It is modular and has the best features of previous recorders, plus a number of innovations. Users can select the exact configurations needed: one to six channels, channel width of 100 or 50 mm, a wide range of plug-ins or external preamplifiers, input power options, and portable case or rack mounting.

Microprocessor

Pro-log Corporation has a prewired 8080A microprocessor system that allows system expansion without further wiring. All you do is plug additional cards into

their cage. The minimum configuration is a four-card 8-bit microprocessor system. This system includes 1,024 bits of RAM and sockets for 2,048 words of ROM.

Microcomputer

Intel has a System 80/10 completely packaged microcomputer with resident memory programmable I/O, system monitor, power supply, and front panel at low cost. This system is for process control, communications systems, on-line data processing, word processing, smart terminals, and customized computer peripherals. Single unit price is \$1,495.

C-V Transformer

A C-V transformer differs from a conventional transformer in two major ways: First, the primary and secondary windings are mounted on the same core, but physically separated with a fixed-reluctance magnetic shunt between them; second, there is an additional secondary winding which has a capacitor connected across it to form a parallel tuned circuit. The magnetic shunt allows the primary and secondary windings to run with different levels of magnetic flux in their part of the core. Under normal operation, the secondary core is saturated and this causes the tuned secondary to behave in a nonlinear manner. This nonlinear tuned circuit induces a correction voltage into all of the secondary windings. The induced voltage changes its phase and amplitude as the input voltage changes. Thus,

at a low input voltage, the correction voltage is in phase with the output and adds to the output, while at a high output voltage, the correction voltage is out of phase and subtracts from the output. This regulating action keeps the output constant over a wide range of input voltages. A C-V transformer has a few more useful features: It protects itself from overloads, and when overloaded, the secondary core saturates harder and the current is limited to approximately twice the rated value. Also, the saturated secondary core produces an output with flattened peaks, which provides improved load regulation and less ripple. Finally, the loose coupling between the windings attenuates spikes and other line noise.

Digital Heart Rate Monitor

Lafayette Instrument Company is marketing the Digital Heart Monitor, Model 77055, which is lightweight and battery operated. The digital beat-to-beat readout is instant and provides the experimenter with an exact beat-to-beat recording of the subject's heart rate. Transducers may be placed on almost any finger and are secured with Velcro wrap. Heart rate appears on a digital readout panel when the activate button is pressed. Price is \$295.

Lafayette Instrument Co.
P. O. Box 1279
Lafayette, IN 47902