Display system offers 896 characters

ASEA Industrial Systems, Inc., will show its Tessellator computer-generated color display system, which is designed for optimum readability and offers a choice of 896 characters, 64 colors, four size options, and two blink frequencies. Its character generator lets the user define symbols and characters in a variety of sizes, and provides a symbol-oriented, multicolor display contour that, according to the company, is ideal for process control applications.

Other features include interfaces for two to four computers, keyboards, and other interactive devices, an editing function that includes tabulating and windowing, and presentation capabilities for up to 16 trends with a resolution of more than 0.5 percent.

Booth Number 2828
Reader Service Number 25

Board converts VT-100 into graphics terminal

The Matrox GT-600 is a plug-in graphics board that upgrades the DEC VT-100 (VT-103) alphanumeric terminal to a graphics terminal. It features an on-board Z-80A CPU, resident firmware, and high-speed vector generation.

The commands include a subset emulation of the Tektronix 4010 series of graphic terminals. Existing Plot-10-based software is transportable to the upgraded terminal without change. In addition to executing all 4010 series commands, the GT-600 can generate arcs and ellipses and has a 96-ASCII-character set with inclined character baseline, software selection of pen size, pen aspect ratio, or dashed line format, and high-speed, whole-screen or selective-area erase. Hardware functions include pan and scroll on a per pixel basis, independent X, Y zoom (from 1 to 8), and hardware erase. Four possible display configurations are software-selectable.

Booth Number 2124
Reader Service Number 26

Surface graphics and picture library are machine-independent

The DI-3000 integrated system of user-callable subroutines from Precision Visuals, Inc., is the basic building block for a family of software tools, including Grafmaker, a package generating bar and line graphs and pie charts for data presentation. The Contouring package creates surface graphics and detailed contour maps with major and minor contours, curve smoothing, and annotation. The Metafile system, a "picture library," stores pictures and graphics and can merge several images from different metafiles.

The DI-3000 offers color, 3-D, and graphics-data-structure capabilities. All PVI software is device- and machine-independent. Prices range from $8000 to $12,000 for DI-3000; Grafmaker is $6000, and the Contouring and Metatile systems are $3000 each.

Booth Number 1135
Reader Service Number 27
Flat, 5.3-square-foot display totals two million pixels

Photonics Technology, Inc., has produced a display panel with an active area of over 5.3 square feet, said by the company to be the world's largest nonprojected display. The flat AC gas-discharge (plasma) panel has a resolution of over 30 pixels per linear inch and a total of about 2,000,000 pixels. The electronics are mounted in a window-frame cabinet (five inches wide by five inches deep) around the perimeter of the panel.

The electronic display has high internal memory and does not emit radiation, the company says. It includes RS-232 interface, interactive touch panel, back-lighting, brightness control, and parallel address of up to 80 megabits per second.

The plasma panel costs less than $200,000.

Booth Number 2837
Reader Service Number 28

3-D system has 256K-byte mass memory

The PS300 3-D graphics system from Evans & Sutherland can be equipped with as many as four 19-inch black-and-white CRT's with 8192 x 8192 addressable screen locations.

The control unit's functions include clipping, viewport mapping, perspective, rotation, translation, and scaling. A built-in controller receives the command input from the host computer, and a Motorola MC68000 microprocessor employs a mass memory of 256K bytes or 1M byte and is expandable to 4M bytes.

Options include an ASCII keyboard with numeric and special control keypads and 12 function keys; a dial input device that allows the user to control size, position, and orientation of displayed objects or other functions under program control; a data tablet; and a lighted function unit consisting of 32 programmable push buttons.

The price of the standard configuration of the PS300 is $69,500.

Booth Number 1136
Reader Service Number 29

Terminal offers 24 programmable functions

The Colorgraphics MV1 100 color CRT terminal displays a 7 x 9 character within an 8 x 10 dot matrix, and 80 columns by 20 lines on a 13-inch screen. Foreground and background colors are red, green, blue, yellow, white, pink, and turquoise. The display can rotate or tilt.

A detachable 87-key keyboard has 24 programmable function keys and auto repeat.

The basic price of the MV-100 is $2750.

Booth Number 2518
Reader Service Number 30

Touch digitizer matches screen curvature

Peritec Corporation has added a new accessory to its line of video graphic interfaces and systems, the TSD-Q/15 touch screen digitizer. This 15-inch, multi-use digitizer accesses stored data or inputs graphic data by direct interaction with the CRT.

Attached directly to the front of the CRT, it measures the voltage distribution across two transparent conductive sheets separated by an insulating spacer at each edge. When touched, the conductive sheets come into contact, yielding an output voltage proportional to the touch position. This voltage is converted to a binary number, combined with data from the ASCII characters, and transmitted as a serial RS-232C message or made available as two eight-bit binary words for parallel interfacing.

The TSD-Q/15 offers 256 x 256-pixel resolution and matches the CRT curvature to eliminate parallax errors.

The TSD/Q/15 is priced at $1525.

Booth Number 2122
Reader Service Number 31

Printer uses three serially-linked color ribbons

Trilog Inc.'s C-100 Color Plot printer can produce full-color graphics hard copy on plain computer paper. A three-color ribbon with serially-linked colors makes three passes over the page, first in yellow, then red, then blue. Hard copy may also be produced by copying color terminal screens, or by driving the printer directly from the CPU.

The price of the C-100 is $12,800.

Booth Number 1636
Reader Service Number 32
**GRAPHICUS-80 offers a Simplified Approach to Refresh Graphics with a 21" Screen Display**

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Reader Service Number 7

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**SIGGRAPH '82 preview**

**Software creates slides, photos, overhead transparencies, and paper plots**

ISSCO Graphics will show its Disspla and Tell-A-Graf software packages for the creation of charts for publication and presentation. The software runs on a variety of computers and outputs to devices that can produce slides, photos, overhead transparencies, and color and black-and-white paper plots.

The price of the Disspla license is $49,400-$53,000. The Tell-A-Graf license is $42,800.

Booth Number 1022
Reader Service Number 33

**CAD/CAM software generates solid models**

The Euclid solid geometry modeling and CAD/CAM software system from Matra Datavision lets the engineer work directly on the computerized model of a true solid object, not merely two-dimensional drawings or wire-frame representations. Application modules available, in addition to the basic modeling and interactive graphics capabilities, include drawing production, numerical control program output, finite element mesh generation, architectural design, schematics, kinematics, and bill of materials processing.

The Euclid system is offered as a software package installed on a user's own DEC VAX computer or as a complete turnkey system. The price, depending on configuration, is from $100,000 to $150,000.

Booth Number 1528
Reader Service Number 34

**Digitizer has active area of 18 x 24 inches**

Manufactured by Science Accessories Corporation, the GP-7 Grafbar digitizer has an area of 18 x 24 inches and can digitize on almost any surface. The system's resolution is 0.01 inches per centimeter and its digitizing rate is 100 points per second, slant range. Origin offset, stream, and English/metric modes are selectable by menu. The price of the GP-7 Grafbar is $865.

Booth Number 2504
Reader Service Number 35
Terminal gives choice of viewable resolutions

Modgraph's G-100 graphics terminal has a choice of viewable resolutions: 768 x 585 pixels with two pages of graphics memory, or 512 x 480 pixels with up to four pages of graphics memory. A separate alphanumeric plane with an additional three pages of scrollable memory can be overlaid on the graphics plane to facilitate data handling.

The Modgraph G-100 graphics terminal is list priced at $2895.

Booth Number 2017
Reader Service Number 36

System has hidden-surface algorithm

GTI Corporation's advanced graphics system has a polygon-based real-time display and is based on a multiple bit-slice architecture. The system implements a proprietary scan-line hidden-surface algorithm, allowing realistic pictures of complex 3-D objects to be displayed on a standard RGB monitor, according to the company. The 30-frames-per-second, interlaced display allows the user to interact with the displayed data base. Other features include 16-bit homogeneous coordinate representation; full perspective transformations using concatenated 4 x 4 matrices; X, Y, and Z plane clipping; display of over 2000 polygons with up to 512 edge intersects per scan line; 640 x 480 pixel display with over 16 million available colors; automatic intensity shading of polygons based on a movable light source; and Fortran-compatible software routines to support a hierarchical graphic data structure.

Booth Number 2836
Reader Service Number 37

Graphics system functions in real time

Comtal's Vision One/20 system is a dual-user, modularized, digital image and graphics processing system. It operates as a stand-alone or host-interfaced system and functions in real time (1/30 of a second). Standard features include real-time roam and zoom, pseudocolor processing, and contrast stretching.

Booth Number 2318
Reader Service Number 38

Superior Interactive Design 3-D Graphics Workstation

If you need high-performance calligraphic design capability with 4K x 4K resolution and true high speed stroke graphics, your best choice is the new IMI-500 Intelligent Graphics Design Workstation. In fact, the cost-effective and user-friendly IMI-500 is priced about 30% below well-known competitive systems which offer much less performance.

If the IMI-500 sounds like it could benefit your graphics design projects, we'd welcome the chance to show you why the IMI-500 is perfect for stand-alone or large system applications. Why not call or write for complete details, today!

* See us at SIGGRAPH '82 Booth 1142.

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Reader Service Number 8

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Reader Service Number 9
Camera records projection-quality pictures

The Model 3010 camera recorder from Long Systems, Inc., makes projection-quality photographs of images generated on color raster terminals or personal computers. Modules permit it to be connected to auxiliary output or in parallel with the monitor used by the operator.

Contained in a single case, the system comprises a monochrome monitor, color filters, control circuitry, and a camera.

Input is accepted in formats including RGB RS-170, NTSC, TTL RGB, and Apple.

Booth Number 2421
Reader Service Number 39

Controllers draw one million pixels per second

The new Methues Q400 display controllers and graphics subsystem feature vector drawing speeds of one million pixels per second at 1024 x 768-resolution (33 Hz interlaced), or 736 x 552 (60 Hz noninterlaced). They also have single-board construction, self-test diagnostics, Axia graphics package Core software, poly- and seed-fill, and hardware instructions such as Flash-fill and PIXBLT. They are offered in eight-plane versions, for display of up to 256 colors from a look-up table of over 16 million.

Base price of the Q420 display controller with 4-bit plane is $12,900. The Q420 graphics subsystem, including a high-resolution monitor, starts at $18,100.

Booth Number 2024
Reader Service Number 40

Digitizing station gives vocal feedback

Design Aids, Inc., will exhibit its new Interactive Digitizing Station, made up of the IBM personal computer, digitizer, stand, and vocal output unit. The station supports Drafting System 1 software, which allows non-gridded input of electronic schematic diagrams. The digitizing station lets the user capture data off-line to the IBM personal computer. The IBM vocal output unit teaches new operators and indicates errors as free-hand sketches are input to the digitizer. DS1 provides interfaces to routers such as Redac, Scicards, ASI-Prance, and Automate and is operational on 11 CPUs and operating systems.

Design Aids' Interactive Digitizing Station prices are from $74,500 to $97,500.

Booth Number 1741
Reader Service Number 41

Workstation features two 32K-byte refresh memories

Lundy Electronics & Systems, Inc., will exhibit its UltraGraph, an interactive graphics design workstation with vector refresh display. Performing complex functions without mainframe interventions, the unit's 21-inch display features 4K x 4K viewable resolution and a 32K x 32K x 32K true 3-D data base. Two 32K-byte refresh memories provide dual buffering for continuous flicker-free rotation of images.

Booth Number 2708
Reader Service Number 42

Packages support business and scientific applications

Uniras, from European Software Contractors, is a family of low- and high-level graphics software packages for the solution of problems in such applications as business, seismology, remote sensing, geology, and cartography. They are designed to operate with a wide range of raster devices.

The complete Uniras family is priced at $35,000. Each package can be purchased separately.

Booth Number 2628
Reader Service Number 43

New display systems offer fast local processing

Raster Technologies will exhibit several new members of its Model One family of compatible graphics display systems. The Model One offers high-performance local workstation processing, and, according to the company, its multiple-processor pipelined architecture and hardware vector generator provide fast response times. The Model One supports up to 24 image memory planes for full-color applications and offers hardware-based, dual-mode anti-aliasing. Dual mode allows high-resolution 1024 x 1024 images to be displayed on 500-line video monitors.

Raster will also demonstrate many of its graphics and imaging-application development tools. Prices range from $10,500 to $17,500 with volume discounts available.

Booth Number 2618
Reader Service Number 44

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Reader Service Number 12
See us at the Design Automation Conference, Booth 110, June 14-16
Plotters communicate with Regis

Two Hiplot/Regis plotters—the DMP-4R and DMP-7R—are designed to communicate exclusively with the Digital Equipment Corporation graphics language, Regis. Manufactured by the Instruments & Systems Division of Bausch & Lomb (Houston Instrument), both plotters feature color capabilities and manual X, Y positioning.

The DMP-4R can reproduce an 8½ × 11-inch report in six colors. It has pushbutton controls, 0.005-inch resolution, a speed of 2.8 inches per second, and a dual-port RS-232C interface.

The DMP-7R plots 11 × 17-inch documents in eight colors and has push-button controls, 0.005-inch resolution, a speed of 2.5 inches per second, and a dual-port RS-232C interface.

The DMP-4R is priced at $2380; the DMP-7R is $3180.

Booth Number 1129
Reader Service Number 45

Tablets operate by electromagnetic induction

Hitachi's new Tiger tablet digitizers, in 11 × 11-inch and 12 × 12-inch sizes, operate by electromagnetic induction, and are unaffected by most external disturbances, according to the company.

Their switch-selectable operating modes include point, run, track, and incremental, and they may be remotely controlled through RS-232C serial ports or a parallel byte input port. The digitizer’s resolution is 0.001 inches, and its read-out accuracy is ±0.01 inches.

The 11 × 11-inch Tiger tablet is $998. The 12 × 12-inch model is $1098.

Booth Number 2118
Reader Service Number 46

Display terminal refreshes at 50/60 Hz

Lexidata Corporation's Model 2400, an intelligent, black-and-white terminal for the OEM, provides graphics at 1280 × 1024 resolution with a refresh rate of 50 to 60 Hz, noninterlaced.

It comprises an electronics bay including the 16/32-bit Motorola MC68000 (with 64K bytes of ROM and 32K or 128K bytes of RAM); five processor option slots; two RS-232 interface ports; a 19-inch black-and-white monitor; and a detachable, 85-key ASCII keyboard with 12 user-definable keys and a proportional-rate joystick. Prices for the 2400 graphics terminal, which is designed for future expansion, start at $11,000.

Booth Number 1122
Reader Service Number 47

Color copier makes 8½ × 11-inch prints in two minutes

The Act 1 color copier from Advanced Color Technology copies color images displayed on computer graphic terminals. The dot-addressable Act 1 uses ink-jet printing technology to produce 8½ × 11-inch color prints on paper in less than two minutes. Using the basic colors of cyan, magenta, and yellow, the Act 1 can produce 125 color shades while printing up to a width of 12½ inches on roll or fanfold paper. It can print up to 250 continuous copies per roll of paper.

The Act 1 copier is priced at $9000.

Booth Number 2437
Reader Service Number 48

Graphics system includes 40 × 72-inch laser photoplotter

Scitex America Corporation will exhibit its Response-250 graphics system, consisting of a 36 × 36-inch scanner, a color editing console, a 40 × 72-inch laser photoplotter, and supporting computer facilities. The system is capable of scanning monochrome and color engineer ing graphics, interactive and batch raster/vector editing, raster-to-vector conversion, vector-to-raster conversion, and high-speed laser photoplotting.

Booth Number 2117
Reader Service Number 49

Eight-pen plotter operates at 20 ips

Nicolet Zeta Corporation's table-top Zeta 8 plotter uses eight capped pens on one microcomputer-controlled carriage. It plots at a speed of 20 inches per second with two-g acceleration and features a new character set similar to Helvetica typefaces. The plotter has 0.001-inch resolution.

Both local and remote interface via RS-232 and IEEE-488, at eight data rates from 110 to 9600 baud asynchronous, by user-selectable. The Zeta 8 also features error detection and correction by automatic retransmission.

Zeta will also demonstrate its line of large, intelligent drum plotters. The Zeta 3610, 3620, and 5400 all feature DC servo-motor drive and linear pen actuation, and are microprocessor-controlled.

The price of the Zeta 8 is $5950. The 3610 is $25,900, the 3620 is $32,900, and the 5400 is $39,900.

Booth Number 1236
Reader Service Number 50

The Zeta 8 plotter supports a variety of media, including translucent paper, vellum, glossy bond, and clear acetate for viewgraph presentations. Pens can be nylon tip or liquid roller.
12-inch terminal displays 80 characters by 20 lines

The Model 801 graphics terminal from Integrated Terminals provides an 80-character by 24-line color display on a 12-inch in-line CRT. Eight colors are available for both foreground and background combinations of characters and symbols. Standard configurations include graphics capabilities for XY point plotting, XY bar graphics, and vector plotting. There is also a standard 96 upper-and lowercase ASCII character set, and the user may define an additional 128 symbols. A detached keyboard has 109 keys, including cursor positioning, edit keys, 16-key numeric pad, and 16 function keys.

Available serial communication interfaces are RS-232C or 20-mA current loop, with selectable baud rates of up to 9600 bits per second. OEM pricing for the 801 begins at $3200.

Booth Number 1740
Reader Service Number 51

Nodes double performance of network

The DN 400 and DN 420, two new computational nodes for Apollo Computer Inc.'s Domain network, improve the performance of the Apollo computer system by 200 to 300 percent and support over three times as much memory, according to the company. The nodes provide floating-point hardware with single and double precision, a 4096-byte bipolar cache memory, and new operating system enhancements that include support for the IBM 3270 communications protocol. The DN 400 is equipped with a 15-inch, black-and-white, vertical display; the DN 420 comes with the new 19-inch, black-and-white, horizontal display. Both are 1024 x 800 pixel, bit-mapped displays.

An Apollo DN 400 node, including a 32-bit CPU, 1M byte of error-checking and correcting main memory, and the 15-inch display, is priced at $34,500. A DN 420, with a 32-bit CPU, 1M byte of error-checking and correcting memory, and the new 19-inch display, is priced at $37,000.

Booth Number 2621
Reader Service Number 52

Firmware change upgrades digitizer

The GTCO Corporation's Bit Pad emulation option (an EPROM firmware change) enables a GTCO 11 x 11, 11 x 17, or 20 x 20 Digi-Pad 5 digitizer to emulate all functions of the serial Bit Pad.

All Bit Pad functions, including remote control, are duplicated and some Digi-Pad 5 standard features are retained. These include a four-tone audible alarm for self-test; remote control and feedback; output rates up to 200 points per second; incremental output mode; electromagnetic scanning that eliminates the need for magnetic biasing; and the capacity to digitize through a one-inch thickness.

The company will also exhibit its original Digi-Pad 5 digitizers, including opaque, translucent, and rear-projected models.

Booth Number 1341
Reader Service Number 53

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Datacube
Reader Service Number 13
PCB CAD system has 20M-byte Winchester drive

The PC-800 Model 3 is the newest member of Gerber Scientific’s family of PCB CAD systems. Its design and production tools include color graphics, Winchester drive, design rules checking, on-screen design, and component insertion tapes.

According to the company, the Model 3 concentrates on the areas of PCB design and production that benefit most from computer assistance and that are used most often.

The system consists of a design console with a 19-inch color graphics display, 20M-byte Winchester drive, and on-screen design software. Depending on production needs, the Model 3 can be configured with one of four Gerber photoplotters, a 42 × 60-inch coordinate digitizer, and a variety of output devices.

On-screen design features include interactive connect routing, routing traces from level to level, moving a component and its trace points, inserting multiple trace points without changing the start and end points of an original connect, displaying variable grids, and multiple lines between pads.

In color graphics mode, the designer can display up to eight levels of data. Layers can be differentiated simultaneously or displayed separately to verify design decisions. The designer builds his design on the Winchester drive, then transfers it to floppy disk for archival purposes; thus he can create large, dense designs.

From a common data base, the Model 3 automatically generates artwork masters, solder masks, pad masters, silkscreen masters, component drawings, parts lists, bills of material, NC drill tapes, and NC tapes for automatic component insertion and sequencer machines.

The price of the PC-800 Model 3 is $45,000. Delivery is 90 days.

Reader Service Number 54

June 1982

Scanner/recorder plots 1000 lines per inch.

A new intelligent scanner-recorder—Optronics International’s 4040 Large-Format Drum System—can produce a full-frame 1:250,000 scale 30 × 30-inch satellite image in about two minutes, according to the company.

The intelligent microprocessor-controlled unit is intended for cartographic, Landsat, and aerial photography, computer graphics, and CAD/CAM applications.

As an input scanner, the 4040 will scan both continuous-tone images and line art at resolutions as high as 1000 25-micron-lines per inch. With special hardware the operator can select from a variety of blurred masking modes for automatic edge enhancement. An automatic data-compression feature allows the insertion into raster data bases of large quantities of data associated with circuit art work, line art, engineering drawings, and topographic and other maps. The scanner, using narrow-band interference filters and a uniform high-sensitivity detector system, has color separation capability.

As an output plotter, the 4040 employs a powerful argon laser that exposes continuous-tone, line, and lithographic film. Continuous-tone imagery can be plotted at 100-lines-per-inch resolution or electronically screened. When the data are screened, the operator can adjust both frequency and angle. Line art can be plotted from either compressed data or a bit stream. The unit can operate at 1300 lines per minute with a data rate of 960,000 pixels per second.

The 4040 scanner/recorder will be exhibited at the 19th Design Automation Conference in Las Vegas, June 14–17, in booth number 118.

Reader Service Number 55

System designs gate arrays in ECL, CMOS, and 12L

Eda-Gards, from Silvar-Lisco, is an interactive design system for gate array layout. The system can handle two-layer gate arrays in ECL, CMOS, and 12L technologies. It has interactive and automated capabilities for macro placement and for interconnection routing. Artwork can be interfaced to conventional interactive graphics turnkey systems.

Software for VLSI design, including interactive schematics, netlist processing, hardware expansion, and a general-purpose engineering CAD data-base system, is also available from Silvar-Lisco as its structured design capture system. The SDS system can interface to existing systems for simulation and test generation, and layout and physical design. The EDA-Gards system can be seen at the 19th Design Automation Conference in Las Vegas, June 14–17, in booth number 110.

Reader Service Number 56

Reader Service Number 15

PRINTED AND INTEGRATED CIRCUIT CAD—1981

• This new comprehensive study, published December 1981, covers turnkey and software PC and IC CAD design systems. It compares and evaluates functional performance, configurations, hardware, software, features, and costs.

• More than 500 pages in length and thoroughly illustrated, the report also analyzes the status and trends of design automation, artwork, generation, and fine line lithography.

• An industry reference standard essential to cost reduction and productivity gains, the study contains current product and market data and trend information. Price: $1075. For descriptive folder, contact—

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**Character set increases display capabilities**

Aydin Controls has introduced Para-Plot, a coarse-resolution option that, says the company, increases the versatility of its S217 display generator and S217CT color terminal. The Para-Plot character set facilitates the generation of bar charts, graphs, or vectors of any angle.

The new option provides displays of 166 horizontal by 144 vertical addressable elements, twice the normal horizontal density and three times the vertical density. This improved resolution is accomplished by subdividing the 7 x 7 character cell into six areas. Each subdivision comprises a four-by-three pixel area, and each area may be arranged in all possible combinations with other areas within the character cell to form a Para-Plot character.

The Para-Plot set contains 64 graphic characters with video attributes such as color, blink, and intensity.

The Para-Plot character set costs $250.

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**Printer produces hard copy from video display**

The new EX855 video printer produces hard copy directly from almost any video input, including computer terminals, graphics terminals, and video monitors, says the manufacturer, Axiom Corporation. Displayed data, including graphics, text in any size or font, foreign symbols, or hieroglyphics, can be printed with a resolution of up to 650 dots per line. The printer operates on the composite video information being displayed on the screen and requires only a single connection to a standard video jack.

The electroerosive paper eliminates the need for inks, ribbons, toners, and chemicals, and requires no warm-up time. The patented printhead is self-adjusting and needs no maintenance, the company says.

The EX855 uses five-inch-wide paper. (A larger model, the EX1650 video printer, which uses 8½-inch-wide paper, is also available.)

The EX855 video printer single unit price is $1595. Quantity discounts are available.

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**Design system has 3-D and 2-D capabilities**

The DDD (dynamic design and drafting) system developed by Herman Miller Inc. is now available through timesharing or licensing.

The software package includes a three-dimensional modeling program which enables designers to "walk" through a simulated building and interactively analyze design solutions. It also includes a two-dimensional program for creating architectural and interior plans and elevations. These programs can be tied into the company's Facility Operations Support system, which associates the graphic data with alphanumeric data from which specification lists and pricing and inventory reports can be generated.

DDD operates on an Evans & Sutherland Multi-Picture system connected to a Digital Equipment Corporation PDP-11 or VAX minicomputer.

The cost of this system, including software, hardware, and peripherals, is between $225,000 and $400,000, depending on configuration.

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Reader Service Number 16

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IEEE CG&A