A number of interface options make the Model 693 digital TV image processor from Hughes Aircraft compatible with a variety of host computers.

Digital image processor can be computer controlled

A digital TV image processor that provides a wide range of image processing functions—either automatically under computer control or selectively through front panel controls—has been introduced by Hughes Aircraft Company's industrial products division. Designated the Model 693, the unit, according to the company, is designed as the most versatile of Hughes' Anaram 90 series of solid state picture processors. These processors provide real-time processing for use with raster scanning video systems.

The Model 693 accepts analog video signals from standard raster scanning equipment such as television cameras or videotape recorders, converts them to digital signals, and stores them in digital memory. In addition to selective display of these stored images, the unit produces comparisons between stored and live images or between successive live images. Up to 81 image processing functions are available, including frozen display and various calculations involving stored or subsequent images. In addition, user-originated functions—such as multiedisplay format, zoom, overlay memory, alphanumeric display, and image reversal—can be specified through combinations of basic function commands. Image enhancement includes individually selectable gray-scale and width values.

The model 693 measures 10.2×17×21 inches and weighs 66 pounds. It is priced under $30,000, and delivery is 120 days ARO.

Reader Service Number 30

Color hard-copy device makes copies in under one minute

The D-Scan 5201 color hard-copy output device from Seiko Instruments USA is a high-resolution display copier that produces single pages of full-color hard copy on standard paper in under one minute. The device achieves 150 dot-per-inch resolution at a per-copy cost of less than 25 cents.

The D-Scan 5201 measures 26.0×12.8×17.5 inches and weighs 130 pounds. It uses standard roll paper and readily available ink sheet rolls, and requires no other regular resupply of toners or inks of any kind.

With the D-Scan 5201, color copies are formed over a line-type thermal head that transfers singular dots of pigment coating from a wax-coated, "clean-hands," three-color banded ink sheet. Final copies are cut automatically to standard 8.5×11-inch letter size.

Seiko Instruments' specially developed ink sheet comes in a segmented roll, with 300 11×25.5-inch sheets. Each of these sheets contains consecutive page-size bands of cyan, magenta, and yellow sections. With images transformed onto plain paper, these three colors together or overlapping can generate eight saturated colors that also include black, white, red, green, and blue. From this color array, D-Scan 5201 will print images from virtually any multicolored CRT display screen used in scientific and CAD/CAM applications.

To enhance the interaction between the displays and the hard-copy output device, D-Scan 5201 has incorporated local video memory to store images prior to generating actual output on paper. With D-Scan 5201, images are loaded into memory approximately a half second after the hard-copy button is depressed, thus freeing a CRT or CAD/CAM station for continued use.

The base unit, to be shipped in single quantities at the end of the first quarter of 1983, is priced at $13,000; OEM discounts are available.

Reader Service Number 31
Convergent Technologies IWS-110 and IWS-120 graphics workstations feature a “seamless” interface to the company’s Multiplan financial planning and modeling package. Financial spreadsheet data generated by Multiplan can be directly plotted into a variety of graphs and charts. The IWS-110, shown here, integrates the processor and memory with video display in a desktop unit.

The use of a liquid-coupled and cooled parallel lens enables the high-definition Aquastar IIIB color video projector from Electronic Systems Products to project images from four to 25 feet wide, front or rear screen, flat or curved. Priced under $11,000, the Aquastar accepts signals from sources such as video cassette recorders, video disk players, tuners, satellite earth stations, and TV cameras. Its light output is 400 lumens. A mode switch allows the unit to display either video or RGB output for computer graphics displays.

Reader Service Number 32

Raster display system offers speech and sound effects

Exidy has entered the graphics display market with the introduction of the Spectar III, a $2000 graphics display system that includes a range of 512 colors, speech and sound effects, and 256 x 256-pixel color raster display capability. The unit also has an eight-bit interface to any 8-, 16-, or 32-bit processor.

In addition, the Spectar III itself uses a Z-80A processor that features two independent foreground and background systems, hardware display scrolling, and high-speed hardware vector generation with unlimited hardware moving objects.

An optional color monitor may be purchased for $495. Spectar III has complete printed circuit assembly and is available in quantity—up to 25 systems per day—for OEMs.

Reader Service Number 33

Workstation is supported by three levels of software

Convergent Technologies has introduced two new dual-processor graphics workstations with multiple levels of software support. The IWS-110 and IWS-120 have three levels of available graphics software: graphics primitives, graphics subroutines, and a business graphics package.

The device-independent graphics primitives allow OEM system designers to create graphs and pictures that can be run on any Convergent graphics workstation, according to the company. The graphics subroutines are language independent, thus the graphics capabilities of the workstations can be accessed from programs written in Cobol, Fortran, Basic, or Pascal. And the business package, which includes an interactive graphics editor, can be used either as a stand-alone graphics package or as part of an OEM’s complete application.

System elements include two Intel 8086 16-bit CPUs. One operates as the main processor, and the other is dedicated to graphics processing. The bit-mapped display uses a noninterlaced flicker-free 15-inch CRT with 660 x 512-bit resolution. The graphics processor board is Multibus-compatible and comes with an 8-MHz 8086 processor that incorporates 128K bytes of RAM to provide a 1024 x 1024-bit display memory. Other elements are a programmable keyboard and up to one million bytes of main memory.

The workstations operate in either vector mode, with a drawing rate of approximately 2503 (50-pixel) vectors per second, or raster mode, which has a copy rate of 940,000 pixels per second. The graphics display is organized as a combined graphic and alphanumeric subsystem.

The IWS-110 integrates the processor and memory with the video display in a desktop unit that contains a single Multibus slot. The IWS-120 incorporates processor, memory, and graphics board in a floor-standing enclosure with four Multibus slots, with only the video display unit and keyboard on the desktop.

IWS graphics workstations can stand alone, or they can be connected with other Convergent workstations to form a local cluster, using a high-speed data link, sharing peripherals and databases. The hardware and software are compatible with all Convergent products. They can communicate to larger host computers via Convergent’s communications protocols, including X.25, IBM 3270, and IBM 2780/3780.

Existing IWS installations can be upgraded to graphics workstations, by OEM suppliers. Pricing for the graphics workstation, in single unit quantities, ranges from $8350 to $12,350, depending on model and options. OEMs can also add the graphics option to existing IWS workstations at a cost of $1850, which includes the graphics software primitives and language-independent graphics subroutines. The business graphics package has a full support price of $1000; a “use only” license is also available for $200.

Reader Service Number 34

IEEE CG&A
Stand-alone VLSI design system uses Unix

The L750 single-user VLSI development system from Metheus Corporation is a stand-alone computer system that offers the user a complete set of VLSI design tools, high-performance color graphics capability, and the Berkeley Unix operating system. With Unix, the L750 provides a superior design and software development environment, as well as virtual memory operation and Ethernet communication, according to the company.

The L750 includes a set of CAD software tools that support the designer from expression of design intent and logic design and analysis to mask design and verification. The physical design tools in the L750 offer full and semicustom as well as standard cell and TTL replacement design styles. The logical design tools support all design styles and can also be used as a design capture and analysis system for gate array and printed circuit design.

Multiprocessor architecture is optimized for single-user workstation requirements including color graphics. The CPU section consists of two 12-MHz MC68000 processors, which are configured as a main Unix processor and a real-time processor for handling memory management and disk I/O. Four card slots are provided, which allow expansion to 4M bytes (16M bytes with 256K RAMs); the system is shipped with one megabyte standard.

A 30M-byte 5¼-inch Winchester disk drive and 1M-byte, 5¼-inch floppy drive are standard. Expansion capability is provided for a second 30M-byte Winchester drive as an option.

Six RS-232C serial interfaces are provided for peripheral devices, interconnections to other computers, or alphanumeric terminals.

In addition, two RS-449 high-speed serial interfaces and an IEEE 488/GPIB parallel interface are provided for future peripheral products.

The L750 has a 13-slot Multibus backplane; standard boards are 12 × 12 inches.

Plotter's firmware frees host time, improves line quality

A new low-inertia plotter from Numonics offers a variety of software features to enhance its performance and free its host computer's time. Users can download at a baud rate of 300 to 19.2K, and the 3.9K memory for data buffering is equivalent to over 13 pages of ASCII characters. The plotter has a built-in 96 ASCII character font and is capable of creating up to 36 special markers.

By means of an exclusive resident program for plotting nonpolygonal arcs, motor speeds for both x and y axes are continuously changed as the arcs are plotted, producing smoothly uniform nonpolygonal arcs with improved line quality, the company says.

The Numonics plotter works with an 11 × 17-inch format. Its single-unit price is $1295.

Gate array design system is fabricator independent

Via Systems, Inc., and Master Logic, Inc., have jointly announced the development of a complete, user-controlled gate array technology engineering support system called Gates. According to Via, the system is designed to provide the company's customers with a fabricator-independent, and therefore user-controlled, system for gate array design and fabrication.

In conjunction with Master Logic, Via Systems has also developed a set of "super" cells that wire basic gates together in complex functions. An initial library of super cells will be available with the Gates system, and a super cell "data book" will be part of the system's support package.

With Gates, Via users can map a logic diagram onto the chosen gate array, using both basic and super cells. Manual interconnection techniques, which exploit Via's online design rules checking and color coding of interconnections, provide "correct-by-configuration" wiring. When the layout is completed and checked, Via users can send a database tape to one of the company's two technology centers for conversion to a pattern generator format, or they can utilize Via's pattern generation software that is incorporated into the Via Model 130 CAD/CAM system.

Master Logic then takes the pattern generation tape and secures the IC masks, chip fabrication, packaging, and testing at a certified Gates fabricator. Or, alternately, Via users can order gate array wafers from Master Logic's inventory and secure their own fabrication services independently.

With support materials, Gates software is priced at $25,000; a complete basic design system can be purchased for $110,000.

Reader Service Number 37

Reader Service Number 36

January / February 1983
Optical zoom, in software, rather than in hardware, ensures the best quality of vector-type terminals, but with all of the features and functions traditionally provided with a raster scan technology. Both terminals are 19-inch screen models that use a viewable resolution of 1024 X 780 pixels to maintain a 4:3 aspect ratio. Direct addressability extending to 4096 X 4096 points, located within a coordinate space of 32K X 32K, allows for zooming, scaling, and manipulation of large databases.

Both terminals use dual-processor architecture. A 16-bit Z-8002—offloaded by a Z-80A dedicated to I/O tasks—facilitates the operation of included primitives, 2-D transformations, and a variety of other functions. Both terminals come standard with a 128K buffer memory, allowing the creation of and access to a local library of pixels; a 768K buffer memory upgrade is also available. Included with the terminals is a software support package written in ANSI-standard Fortran IV.

Both the GR-2412 and the GR-2212 can be operated in a nonintelligent mode, in which case they are Tektronix 4014 compatible. Because such operation places heavy demands on the terminal-to-host communications link, the GR-series’ dedicated I/O processor allows the addition of an optional current-loop communication line running at up to 300K baud. In addition to a full roster of primitives—including, among others, arc, vector, polygon, and circle generation—are such functions as pattern fill, with a choice of hatching, checking, or full fill. In the interactive graphics mode, 2-D transformations range from rubber-banding and zoom/pan to dragging and scaling.

The terminals also make use of a world coordinate system, which lets the user position a viewing window anywhere within a 32K X 32K-coordinate space. For viewing, data is easily converted to screen coordinates via window/viewport transformations.

For character generation, the full 128 ASCII character set is available; characters can be displayed in two different sizes, specified either at the keyboard or by programmed commands. The keyboard also includes a full set of cursor positioning keys for the crosshair cursor. Normal or block mode, protected fields, and other popular features are all available.

The GR-2412 color graphics terminal is priced at $21,850, and the GR-2212 monochrome graphics terminal is $17,850.

Reader Service Number 38

Golden Graphics is currently marketing its three-dimensional computer animation services for video, motion picture, television, industrial, and training applications. In the animation process used by the company, the images to be animated are taken from the storyboards and manipulated by computer software, rather than by the more expensive optical and computer hardware normally used in other types of animation; production costs are therefore based on complexity of shapes and movement, rather than on total screen time.

Furthermore, complicated camera angles are not a problem, as the computer can boom, zoom, dolly, arc, truck, and pan to provide a full view of the image from any angle, according to the company. Animation can be produced for video, 16mm or 35mm film, or slides.

The process can also be used to produce images that are traced onto cells, and then are inked, painted, and photographed for hand cell animation by a combination computer technology and traditional hand cell animation methods.

Golden Graphics’ production rates for silent animation include a three-dimensional logo with two to three moves for $1150; technical system and product illustrations from $3000 per minute; and a 30-second animated television commercial from $11,500.

Reader Service Number 39

Two display oriented products have recently been introduced by Aydin controls. One is an advanced version of the Model 5215 color graphics display generator, a device specifically designed for the utility and process control industries. This version of the 5215 incorporates all new hardware designs yet features full compatibility with existing software. The new boards are interchangeable with those of the original 5215 system, which the new system is intended to ultimately replace.

Also from Aydin is the Aycon/16 Series display computer. With a wide selection of firmware and software for stand-alone or host-driven applications in either single or dual 8086-based processor configurations, this computer supports 3-D structural analysis and fill with hidden surface removal.

The advanced Model 5215 graphic display generator sells for under $12,000. List price for the Aycon/16 is $15,000.

Reader Service Number 40

The RM-9460 display system from Ramtek is a 16-bit-based system utilizing the MC68000 CPU and 64K-RAM technology. Use of multiple memory processors allows the RM-9460 to perform independent graphics operations, such as local pan and zoom, on multiple workstations. Other features include context switching, image enhancement, entity detection, graphics functions, display list processing, decluttering, coordinate transformation, and split screen/clipping. Interactive device options include general-purpose keyboards with up to 40 function keys, joysticks, trackballs, light pens, digitizing tablets, and digital mice.

The RM-9460 offers a resolution of 1280 X 1024 pixels and up to 32 refresh memory planes. Vector writing speeds are in excess of 16K vectors per second, based on an average vector length of 50 pixels. The system can display up to 1.3 million colors simultaneously from a palette of 16 million.

Current users of Ramtek’s Z80-based RM-9400 display generator can upgrade their systems to 9460-level capability by adding an MC68000 CPU card developed by the company; the card is priced at $7250. In addition, a Z80-based version of the RM-9460 is being offered for RM-9400 users to protect their investment in customized software.

The RM-9460 starts at an end-user price in the mid-$20,000 range, for a 1280 X 1024 X 8-plane system.

Reader Service Number 41

The 125-color ink-jet printer designed to deliver full-page prints in less than 40 seconds is being offered to the OEM market by PrintaColor. The printer is Spectrum 2000, a complete printing module for color graphics and text hard copy.

Spectrum 2000’s drop-on-demand color ink-jet technology can be incorporated into color copying or color printing devices through an interface procedure in which 12 TTL-compatible signals are sent over a 26-pin ribbon cable; a power supply is also necessary.

Spectrum 2000 requires only simple color input data and recognizes 24 commands, simplifying the task of utilizing the module in color hard-copy applications, the company states. Commands are used to establish operating modes, control paper movements, and transmit color information; they also provide built-in self-test, signature analysis, and alignment capabilities.

With head movements of up to 108 raster-inches per second, Spectrum 2000 provides horizontal dot densities of up to 150 dots per inch. Maximum horizontal image size is 12 inches, with over 1800 controllable pixels. A vertical density of 85 dots per inch is standard. A self-contained, field-replaceable unit, Spectrum 2000 is priced at $1995.

Reader Service Number 42

IEEE CG&A
High-resolution terminal has multiple memory planes

Transiac Corporation's first entry in a new family of multiple plane graphics systems is the TR1024 high-resolution multilayer graphics terminal. The terminal features 1024 x 780-pixel raster scan display, a drawing speed of one pixel per microsecond, integer zoom, smooth scrolling, and a 16-bit microprocessor with extensive firmware for interfacing directly to existing software packages.

Multiple memory planes in the TR1024 allow users to overlay multiple images, buffer menus and graphs, or separate alphanumericics and graphics. The terminal supports both advanced graphics and the ANSI X3.64 protocol. The display screen architecture is based upon a proprietary use of multiple NEC 7220 graphics display controllers. Both electrostatic printer/plotters and dot matrix graphic printers are supported as well as digitizer pads and other peripherals.

The TR1024 is aimed at scientific research, CAD/CAM, and data acquisition applications and can be used as a direct replacement for the Tektronix 4010 series of terminals running under Plot-10, ISSCO, or Precision Visuals software.

The TR1024 is priced at $4500. A color version is expected to be released in January 1983.

Reader Service Number 43

Computer can accommodate up to four integrated workstations

Designed for use by electrical, mechanical, and civil engineers to perform tasks in complex modeling, simulation, design, and project management, the Ridge Thirty Two computer contains a 32-bit processor with up to eight megabytes of main memory. The system also has a separate, 28K-byte frame buffer for each display, a 32M-byte Winchester disk drive, and a double-sided, double-density floppy disk drive.

The Ridge Thirty Two combines high-speed processing, paged virtual memory that operates at full memory speed of 10.7M-bytes per second, and a file system, floating point hardware, and high-resolution dot matrix graphics.

Up to four individual desktop graphics terminals can be connected to a single processor. Each terminal includes an 8 x 10-inch monochromatic display and an interchangeable keyboard. Integrated into the Ridge Thirty Two is the Ridge operating system, Pascal and Fortran compilers, a text editor, and utility software.

The Ridge Thirty Two is available as a stand-alone processor at $52,000 and can also be purchased as a system containing up to four workstations for approximately $105,000. OEM prices are also available.

The Ridge Thirty Two system is packaged to operate in an office or laboratory environment and does not require special electrical power or air conditioning.

Reader Service Numbers 44

Graphics recorders produce color slides, prints, film

Two color graphics recorders—the desktop Model 3000 and the stand-alone Model 4007—have been introduced by Matrix Instruments.

The Model 3000 is a compact, rack-mountable, mobile camera system that records photographic hard copy in full color from raster scan terminals. The system features battery backup of memory, separate digital calibration of red, green, blue, brightness, contrast, and exposure, with storage of eight separate calibration settings for each parameter, and an RS-232C interface for host control. It uses interchangeable camera backs to produce 35mm slides, 8 x 10-inch, 4 x 5-inch, or SX-70 instant color prints, 8 x 10-inch transparencies, or 16mm or 35mm motion picture film. All key functions of the Model 3000 are monitored by the microprocessor. When a failure occurs, the location of the faulty module is indicated by an external LED accompanied by a warning tone.

The built-in, flat-faced monitor of the Model 3000 was specifically designed for video photography, and, according to Matrix, has high resolution (1400 lines), precise linearity, uniform light output, accurate interlacing, a special phosphor matched to the spectral response of radiographic films, and elimination of power line frequency/video frequency interference. Switch-selectable multiple interlace can be used to eliminate raster lines in the recorded image.

The Model 4007 stand-alone camera system records information from any raster scan color terminal. It can record single full-size images and a variety of multiple-image arrays on both 4 x 5-inch and 8 x 10-inch instant print film. In addition, it makes an 8 x 10-inch transparency, a 35mm slide, SX-70, and 16mm or 35mm animation formats are available. Other specialized film backs and film transport mechanisms can be interfac ed on request.

Recording in multiple-image formats has many advantages, according to Matrix. Film cost and handling per image are greatly reduced; film cassettes need not be changed or film processed as often. The results are convenience and an increased recording rate.

The system has a function that introduces interlaced into noninterlaced images, and additional interlaced into interlaced images. Thus, more lines can be incorporated into the recorded film image in selectable steps, until the appearance of the raster lines is virtually eliminated. This function results in a high degree of color saturation, improved visual resolution of small detail, and smoothing of jagged edges, the company says.

The Model 4007 consists of a built-in, high-resolution, flat-faced, monochrome video monitor, a red/green/blue color filter mechanism, an optical system, and microprocessor-based electronics. The system operates under pushbutton software control and produces up to 25 images on a single sheet of 8 x 10-inch film.

The basic price of the Model 3000 is $9000; the Model 4007 is $18,000.

Reader Service Number 45

Two new options for the Genisco G-1000 16-bit microprocessor-based raster graphics terminal include the G-150 software development system and a program memory expansion module. The G-150, priced at $5000, consists of a host-resident crossing assembler package and firmware debugger source code. The cross assembler, coded in Macro-11, supports Unix and all current DEC operating systems. The debugger allows downloading, testing, and execution of microprograms with G-1000 system memory. The program memory expansion is available with 32K PROM and a choice of 128K, 256K, or 512K bytes of RAM. The memory is housed on a single plug-in board and costs from $2270 to $5000 in unit quantity.

Reader Service Number 46
Device drivers are introduced for three makes of terminals

Users of Precision Visuals' DI-3000 graphics software package can now purchase four new device drivers from the company. Designed for Hewlett-Packard's HP 2700 line of color graphics terminals, the HP 2700 driver supports the Core system segmentation features built into the terminal hardware. It also supports the HP 2700's "vector list" capability, 16 concurrent colors selected from a palette of 4096 possible colors, and the dotted line styles, markers, and text capabilities available in the HP 2700's firmware.

Also available from Precision Visuals is a device driver for the Tektronix 4114 graphics terminal. This driver supports such 4114 capabilities as a segment data structure, picking, real-time segment drawing, and highlighting.

According to the company, the 4114 device driver, used with the DI-3000 software, is particularly suited for the menu applications common in CAD/CAM and scientific engineering.

The Ramtek 6211 and 6212 color raster terminals also have device drivers available from Precision Visuals. These drivers utilize both the Ramtek terminals' firmware algorithm for more rapid filling of complex polygons and their binary transmission of vector data over an RS-232 interface, the company states.

The Ramtek drivers also support eight concurrent colors chosen from a palette of 64, hardware line styles, marker symbols, and text capabilities. Additionally, the drivers can simulate selective erase by undrawing primitives in the background color.

A license for the HP 2700 driver costs $500; a Tektronix 4114 license costs $1000, and licenses for the Ramtek 6211 and 6212 device drivers are priced at $500 each.

Reader Service Number 47

Land survey software is offered for Summadraft CAD systems

Summagraphics Corporation is marketing a series of specialized software packages tailored specifically for use by professional engineering/land surveying firms to increase the efficiency of preparing finished working drawings.

Summagraphics reports that these engineering/surveying software packages in use with Summadraft CAD systems can provide at least a three-to-one reduction in the time required to prepare working drawings with accuracies to 0.01 foot, or one second of arc.

A basic engineering package allows user access to a low-cost software library containing hundreds of proven engineering programs that are now otherwise difficult to interface with.

An engineering/survey package consists of three subpackage components: a Sell's Cogo coordinate geometry program, a traverse balancing program, an interCogo program that allows users to transfer survey coordinate data back and forth between the CAD system and the Sell's program, and a mapping and staking report program that can produce plots for subdivision design and mapping. The staking report provides a document generated from Summadraft coordinates for use in the field when placing survey or building stakes.

The traverse balancing program provides the means for ensuring that closures in latitude and departures are adjusted, permitting use of the results in determining areas and coordinates. This program also allows data publication and computation of lines originating from traverse stations.

The prices for the new packages are $6500 for the basic engineering package and $14,950 for the engineering/survey package.

Reader Service Number 48

Image processor accepts digitized and video inputs

Designed to meet real-time multispectral and multitemporal processing requirements, the Model 75 image processor from International Imaging Systems features high image storage capacity, can be integrated into consoles and workstations, and automatically interprets mixed data inputs.

The use of 64K dynamic RAMS makes available up to 16 channels of 512 x 512 x 8-bit refresh memory on only eight boards. Other features include simplified image analysis (split screen and roam function), region-of-interest generation and analysis (using graphic bit planes to select different transforms preloaded in the look-up table), and continuous-frame digitization and feedback capabilities for accelerated recursive processing functions.

The Model 75 accepts digitized input data from host computers, as well as RS-170-compatible video inputs, and interfaces an embedded LSI-11/23 computer plus a range of remote host CPUs.

The price for the Model 75 image processor runs from $30,000 to $75,000, depending on refresh memory configuration and other options selected.

Reader Service Number 50

Interactive video capability is added to training system

Intelligent Systems has announced the release of interactive video for its Cats 80 authoring system.

Cats 80 (Computer Augmented Training System for the Eighties) allows a trainer to present material to a student through the use of text, color graphic displays (both static and animated), and with interactive audio/video. According to the company, the option of using interactive video opens significant new markets for Cats 80 because of the large base of video materials that have already been developed for training applications. The authoring system has the ability to overlay text and/or graphics onto a video display.

The Cats 80 system is menu driven and includes an editor that is comparable to a word processor for text material. However, the editor allows the author to change the system design, the graphic displays assigned to a course, and their content.

The system operates on Intelligent Systems' 3650/9650 desktop computers. Standard features include a color graphics display and automated records management for student records and the validation of test material. In addition, the system allows the author to define a student's learning path (branching), depending upon the student's response, and implement up to five different testing modes.

The full Cats 80 authoring system is priced at $65,454, and the interactive video option for existing systems can be purchased for approximately $2000.

Reader Service Number 51

Color terminal emulates smart televisode display

The DataType, Inc., AutoGraph Color X5A is a 512 x 512 x 4-resolution, full bit map, color graphics terminal that displays up to 16 colors (chosen by the user from a palette of 511) on a 14-inch, noninterlaced monitor.

Like all Data Type terminals, the Color X5A graphics display terminal features two RS-232C serial ports for host and printer access, a detached keyboard, and a full range of communication and screen editing functions.

The Color X5A is fully compatible with software systems supporting Tektronix 4010, 4014, and 4027 terminals. It scales the Tektronix 1024 x 780 viewing image to a 512 x 390 view with an exact 1:2 scaling ratio, and as a result produces a more accurate reproduction of the Tektronix 4010/4014 image than higher resolution terminals can, the company says.

The terminal's graphics functions include circle, arc, and ellipse generation, area fill, integer zoom, precision pan, bidirectional scrolling, and multiple character sizes.

Features of a very smart data communications terminal are incorporated, and the Color X5A can be easily integrated into both remote and on-site graphics systems. It is downward-compatible with the TeleVideo 925 terminal, the AutoGraph XK1 high-resolution monochrome and the lower resolution AutoGraph 125 terminals by Data Type, and the Data Type line of QuickView host-dependent graphics workstations.

The AutoGraph Color X5A display terminal is available to end users for under $5000.

Reader Service Number 49

Reader Service Number 47

IEEE CG&A
Graphics system comes in desktop or console form

Available in two basic models, the Phoenix 1024 color graphics system from Phoenix Computer Graphics features a 1024 x 1024-pixel viewable matrix (with either four or eight pixel-addressable bit planes of memory), an 800 ns/pixel writing speed, and 16:1 zoom capability.

Both models utilize the Intel 8086/87 16-bit CPU and use CP/M-86 as their operating system. They provide 16M bytes of addressable memory and make use of 64K-RAM technology to offer 128K of system memory.

Basic, Fortran, and Pascal are all available as languages, and software user functions include pan, screen partition, character/vector/hardware zoom, graphics DMA, antialiasing mode, and interactive mode. Standard system software includes GSS-Core, a computer and graphics independent package from Graphics Software Systems, and Mega-tek's Template.

System input is through a standard keyboard and joystick; a light pen, trackball, data tablet, plotter, printer, and color video camera are all available as options. The Phoenix 1024-01 is a desktop terminal with four planes of 1024 elements x 1024 lines (interlaced). It provides 4096 colors (16 displayable) and includes a 19-inch color monitor; 1M-byte floppy disk; and RS-232C, host, keyboard, parallel printer, and joystick interfaces. Terminal software includes Phoenix Computer Graphic Language and Tektronix Plot-10 compatibility.

The Model 1024-10 adds a 10M-byte Winchester drive to the basic configuration of the Model 1024-01 and comes as a console-type system.

The Phoenix 1024-01 starts at approximately $20,000, and prices for the Phoenix 1024-10 begin at $28,000.

Reader Service Number 52

Package reproduces whole or partial cataloged drawings

Available both as a stand-alone graphics system for computer-aided drafting and design and a module that can be integrated into an existing design and planning system, Palette from Structural Programming, Inc., is a software package with interactive two-dimensional, three-dimensional, and perspective capabilities.

According to the company, using Palette resembles the actual drawing process; users are not constrained by a menu command structure and can use all of Palette's features in any sequence. The company states that repetitive drawing tasks are minimized and the time for improving design is increased by using the software's capacity to reproduce cataloged drawings either in whole or in part.

The package is designed to operate on DEC PDP 11 or VAX operating systems and carries a starting price of $27,500.

Reader Service Number 53

Graphics enhancement upgrades TeleVideo terminals

Digital Engineering, Inc., has announced a graphics enhancement package that converts TeleVideo alphanumeric terminal models 910, 912, 920, 925, and 950 into fully-featured, bit map graphics terminals. Called Gen. II Retro-Graphics, the terminal upgrade provides users with both Tektronix 4027 and 4010 simulation on a 640 x 240 resolution display.

Additionally, through its local graphics intelligence, Gen. II enables faster graphics generation and minimizes data transfers between terminal and host.

The package utilizes English-like commands, and command features include arc and circle drawing, vector drawing, and point plotting. The operator can also draw combinations of solid, dotted, and dashed lines on a mode-independent basis.

A crosshair cursor is standard on all Gen. II Retro-Graphics-enhanced TeleVideo terminals. This interactive feature enables the user to enter plot points directly into the computer via a crosshair that sweeps across the screen in any direction.

Other interactive devices can be connected to the enhanced terminal via an optional I/O interface. These include impact and non-impact printers, light pens, digitizing tablets, and many of today's photographic copiers (through an RS-170 video connector).

The Gen. II enhancement for TeleVideo terminals consists of a universal graphics printed circuit board, Model RG1000, and a terminal-specific adapter board. Once installed, the graphics upgrade becomes the terminal controller, while the terminal acts as a peripheral device.

Digital Engineering's list price for the Gen. II Retro-Graphics enhancement package for TeleVideo terminals is $1095.

Reader Service Number 54

Color presentation graphics software is menu driven

With Version 3 of Xybion Corporation's Word and Chart Graphics graphics production system software, users can create high-quality, high-impact color output on 35mm slides or paper hard copy for electronic slide-show sequences, view-graph presentations, and other applications.

Basic package capabilities include the generation of lines, bars, pie charts, and text. Presentation formats use a three-section backdrop with individually specifyable heading, frame, and plot background parameters. A "Lines" command exhibits up to 10 curves that can be graphed on a single x or y axis, the two together, or as two distinct x, y plots. Up to 240 bars can be displayed in two or three dimensions, using adjacent, stacked, overlaid, or one-behind-the-other representations, in either horizontal or vertical orientation. Pie graphs exhibit data or percent values for up to 25 individual, integral, or exploded pie segments.

Numeric data is stored separately from presentation formats, and a data editor is included to facilitate data entry and modifications. All man-machine interfaces are menu driven with single-keystroke responses. Assistance information and the capability to view current chart development are available at all menu levels.

Impact-maximization features include multiple character fonts with special effects such as underline, boldface, accent, and drop-shadow; variable line and axis thickness; and logos or other special shapes.

The software is written in both UCSD Pascal and C. Versions are currently available for Chromatics 7900, Hewlett-Packard 9836, and Ramtek 6214 color graphics systems.

Version 3 of Word and Chart Graphics software is available for $10,000.

Reader Service Number 55

Program illustrates effective color use in computer graphics

Graphic Harmony, a demonstration videotape, is available from Polaroid Corporation to explain and illustrate the importance of color in effective computer graphics.

The 22-minute tape contains interviews with experts in human color perception and computer graphics, who explain the importance of applying principles of human color perception in the design of computer graphics and discuss color theory in relation to advanced computer graphics systems.

The program also features computer graphics stills and animated sequences produced by graphics leaders and experts at the Jet Propulsion Laboratory, the Lawrence Livermore National Laboratory, the New York Institute of Technology, MIT, and elsewhere.

Graphic Harmony can be obtained from Polaroid on ¾-inch videotape at a charge of $40 to cover duplicating, shipping, and handling. For conferences and seminars, it can also be ordered on a one-time-use basis on one-inch videotape or 16mm film.

Reader Service Number 56
Intelligent terminal produces graphics, processes text

The HP 2647F, a multifunction intelligent graphics terminal developed by Hewlett-Packard, can be used as an on-line intelligent terminal, an off-line graphics workstation, or both. Combined with any of the Hewlett-Packard color plotters, the HP 2647F functions as a stand-alone RMB-1000 refreshment terminal, that can be operated even by users who have no experience with computers, the company says.

With a printer and Word/47 software added, it becomes a multipurpose word processing workstation.

If used in conjunction with a host computer, the HP 2647F is a highly programmable intelligent terminal capable of serving as a distributed node to the computer system. Programmers have 64K bytes of program workspace and Basic program control of flexible disk mass storage, graphics and alphanumeric display, the terminal's programmable keyboard, and some data communications functions.

Featuring a local disk drive and a command-key-driven, English-language file system, the HP 2647F is both a raster graphics terminal with 720 x 360 addressable points and a fully functional alphanumeric terminal with 80 columns and 24 rows of characters. Each 5 1/4" flexible minidisk holds up to 270K bytes of data; a second disk drive is available as an option. Mathematics, large character and line-drawing character sets as well as blinking, inverse-video, half-bright, and underline enhancements are standard.

A wide variety of applications software makes the terminal suitable for a large number of business and technical applications. Without any programming or host-computer intervention required, the terminal's standard Autoplot/47 software enables even novice users to produce graphs, charts, and slides.

The HP 2647F lists for $9950. Basic and Autoplot/47 software are supplied with the terminal. The Word/47 text processing software is $295, and other optional software packages designed for use by nonprogramming professionals are $195.

OEM graphics board set has Multibus standard design

Matrox Electronic Systems’ GXB-1000 is a high-speed, high-resolution color graphics board set intended for OEM users.

In its minimal hardware configuration, the set consists of one VGM-1000 (virtual graphics machine) board, one RMB-1000 (refresh memory) board, and a set of interconnecting cables. Together they provide a 1024 x 1024 x 4-bit color or gray-scale, 60-Hz non-interlaced display.

The VGM board contains all of the onboard intelligence required to support up to four RMB boards. It features a 16-bit CPU with 64K-byte ROM-based graphics interpreter, a graphics display controller, a pixel processor, a video processor, a 24-bit Multibus interface (with multimaster arbitration), 4K bytes of scratchpad RAM, and high-speed video output drivers.

Each RMB board contains 512K bytes of video RAM (organized as 1024 x 1024 x 4) and a 256-color look-up table. Up to four RMB boards can be combined serially to provide a 1024 x 1024 x 16-bit read/write area; or the boards can be combined serially in parallel to provide up to 2048 x 2048 x 4 read/write area. Display resolutions of up to 1600 x 1200 pixels can be achieved using multiple RMB boards.

The VGM-1000’s on-board graphics interpreter recognizes over 256 graphics commands. These include vector, point, circle, polygon, and character drawing, as well as panning, scrolling, and area fill. An alphanumeric terminal mode and a multiple dialog mode are also supported for text overlay. Additional commands are provided for supporting an interactive interface to a digitizing tablet and light pen and for facilitating screen to hard copy transfers.

The GXB-1000 board set conforms to the IEEE-796 Multibus standard and requires only a single +5V power supply (3.5A/board). Options include user-defined display formats and resolutions.

Samples of the GXB-1000 can be obtained now, and production quantities will be available in February 1983. In quantities of 100, the two-board set sells for $3200.

Software kit provides new service for Apple users

Business & Professional Software, Inc., is now offering a printer/plotter installation kit called Pik that allows the Apple Business Graphics software package to support more than 20 printers and plotters, including the new Hewlett-Packard 7470 and the IDS Prism.

The Apple Business Graphics package lets the user create color graphic representations of data at the keyboard, display them on a video monitor, and/or transfer them to any of four hard-copy output devices. With Pik, dealers can modify Apple Business Graphics to also support letter-quality printers, single and multipen plotters, and both black-and-white and color dot-matrix printers.

Pik includes two identical floppy disks (one for backup), installation instructions, and an addendum to the Apple Business Graphics manual for each of the devices supported. With Pik, only three instructions are required to modify the Apple Business Graphics master diskette for any given output device.

Dealers who subscribe to Pik are provided with Apple Business Graphics Technical Notes, advance notice of additional device support, and periodic BPS product updates.

The Pik diskette can be used for an unlimited number of installations, and the supplemental documentation for Apple Business Graphics may be reproduced at will. For purchasers of multiple systems or users who want to substitute their own device support, the dealer may simply sell the Pik software and documentation.

As a subscription service, Pik is priced at $150, with margins up to 40 percent for multiple orders. BPS suggests dealers charge a $50 to $75 installation fee.