

The WHIZZARD 6200 family includes the original 6250, right, with a 13-inch color monitor, and the 6240/45/55 models, left, which offer a choice of B&W or color 19-inch monitors.

Three New 6200 Members Shown

SAN DIEGO, CA — Megatek has introduced three new members of its WHIZZARD 6200 graphics workstation family, which is intended expressly for computer-aided design and manufacturing applications, bringing to four the number of low cost, high performance workstation offerings from the company.

The four members of the 6200 family are:

- the WHIZZARD 6240, which has a 19-inch monochrome raster monitor with 512 x 512 resolution;
- the WHIZZARD 6245, which has a 19-inch monochrome raster monitor with 1024 x 1024 resolution;

- the WHIZZARD 6250, which has a 13-inch color raster monitor with 512 x 512 resolution;
- and the WHIZZARD 6255, which has a 19-inch color raster monitor with 1024 x 1024 resolution.

All of these terminals are designed to provide many of the same high technology features found in the larger WHIZZARD 7250 system, but in smaller configurations and at less than half the cost. Each of the workstations packages the monitor with a keyboard and control joystick in a desk style cabinet and options include a data tablet, additional display list memory and a hard copy output device. All models are interfaced to virtually any host computer via standard RS-232 interfacing and offer data transfer rates from 110 to 9600 baud.

All four of the 6200 family members incorporate the same graphics processor and high speed digital vector generator as the larger 7250 system. This power makes these workstations very "friendly" to the user, providing a wide range of

UTI, Megatek Sign Accord On Acquisition

KANSAS CITY, MO — The signing of an agreement in principal for the acquisition of Megatek Corporation by United Telecommunications, Inc. was announced jointly on April 30 by Paul H. Henson, Chairman of United Telecom, and Robert D. Smith, President of Megatek.

Megatek, headquartered in San Diego, CA, designs and assembles computer graphic display terminals and produces software utilized in linking graphic display terminals with remote computer systems.

The acquisition, in which United Telecom would exchange some 1.3 million shares of its common stock for approximately 1 million shares of Megatek common shares are subject to the execution of a definitive agreement and to approval of Megatek's shareholders, Henson said.

It is contemplated that Megatek would be operated as a part of United Telecom's Computer Group, Henson added. He described Megatek, which had sales of \$12.5 million in 1980, as a "good fit" with the computer group. He said Megatek's hardware and software products add essential elements to the company's remote computing strategies for developing "enhanced computer solution" products and services.

Megatek To Exhibit At SIGGRAPH'81

DALLAS — Megatek will exhibit its entire line of computer graphics hardware and software products in Booth #607 at the SIGGRAPH'81 Show to be held August 3-7 at the Dallas Convention Center.

The product display will include all members of the new WHIZZARD 6200 family of graphics

workstations, the WHIZZARD 7200
See SIGGRAPH, Page 2

New Plant Added

SAN DIEGO, CA — Megatek has announced that it will lease an additional 60,000 square feet of factory space this summer in a building adjacent to its current headquarters facility.

The additional space is required to accommodate the company's mushrooming growth, according to

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See 6200, Page 2

6200 Family Grows To Four

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capabilities for meeting diverse graphics needs. For example, a number of interactive devices may be used to provide flexibility in data input to the terminals. Fifteen programmable function keys are integrated in the alphanumeric keyboard so that multiple commands may be executed with a single keystroke. The standard joystick control and the optional data tablet permit random movement of the cursor for more high speed interaction with pictorial elements.

Segments of a drawing may also be given attributes. Eight colors are provided and any lines may be dashed or blinking to call attention to certain attributes. These attributes can be changed easily and quickly.

Displays may be structured more easily because of the power of the 6200 family members. Objects may be defined as subroutines and up to four subroutines may be nested. One subroutine can call another subroutine locally. The advantage to the user is that less information has to be transmitted between the terminal and the host computer and less display memory is used.

Users also can employ the power of these terminals to provide greater graphic manipulation. The binary segment scaling capability lets the user scale objects up and down by a factor of eight from 512 x 512 to 1024 x 1024, 2048 x 2048 and 4096 x 4096. This virtual vector space allows users to scale all or part of a picture and pan continuously around the screen. Any display subroutine may also be attached to the cursor so that any graphic element can be moved around the screen totally independently of the host computer. Each 6200 uses the WAND 6200 software package to provide a high level of intelligence for reducing communications with the host computer. All programs written for the 6200 family are compatible with programs written for other Megatek graphic systems because WAND 6200 is a subset of the WAND 7200 software system.



Plant Size Tops 100,000 Feet

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Peter J. Shaw, vice president. "The addition of new product lines and the burgeoning market for computer graphics has put considerable pressure on us to expand our physical plant," Shaw said. "The acquisition of prime space nearby greatly enhances our ability to respond to market demands."

The new facilities will permit expansion of all departments of the company, Shaw noted, with manufacturing and engineering operations being the greatest benefactors. In addition, the company will be able to expand its

customer service and training facilities to accommodate future growth in business.

Megatek expects to move into the new space during the summer, dependent upon current tenants vacating and completion of leasehold improvements. The new space more than doubles the company's physical plant size to a total of 101,400 square feet.

Megatek more than doubled its graphics business from 1979 to 1980. The company employs more than 200 people and significant staff expansion is projected for 1981, Shaw added.

SIGGRAPH Features Megatek Session

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family of stroke and raster refresh systems and the Template™ software package.

As one of the 38 technical sessions planned for the three days from August 5-7, Dr. Richard Puk, Megatek director of software development, will chair a session on graphic software and languages. This session will be held from 1:30 to 2:30 p.m. on Thursday, August 6.

This year's SIGGRAPH show, will also offer attendees a choice of 18 one and two-day courses on subjects ranging from an introduction to graphics to animation, CAD/CAM systems, solid modeling, business graphics and advanced image synthesis.

The product exhibits of 103 companies will be open for viewing from 12 noon to 6 p.m. on August 4 and from 9 a.m. to 6 p.m. on August 5-6.

Trade Show List Grows

Megatek has expanded the list of trade shows at which the company will display its broad line of computer graphics products, systems and software. The new list of trade shows for 1981 includes:

- SIGGRAPH'81, Dallas, August 3-7;
- Eurographics, Darmstadt, W. Germany, September 9 - 11;
- Offshore Europe, Aberdeen, Scotland, September 15-18;
- HET Instrument, Amsterdam, The Netherlands, September 23-October 2;
- Society for Exploration Geophysicists, Los Angeles, October 11-15;
- Systems, Munich, W. Germany, October 19-23;
- Computer Graphics'81, London, October 27-29;
- Elkom'81, Helsinki, Finland, November 3-6;
- Autofact III West, Detroit, November 10-12.

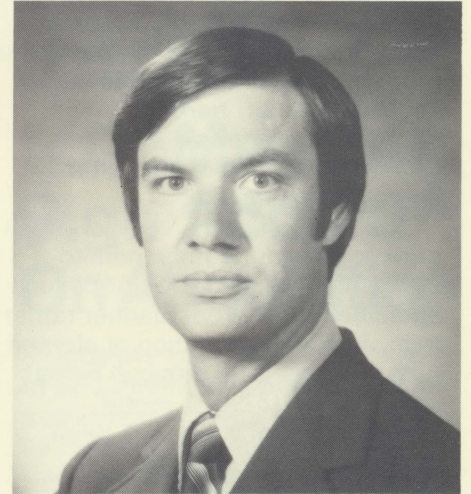


Industrial Designer John Moore coordinates the human factor engineering of Megatek products.

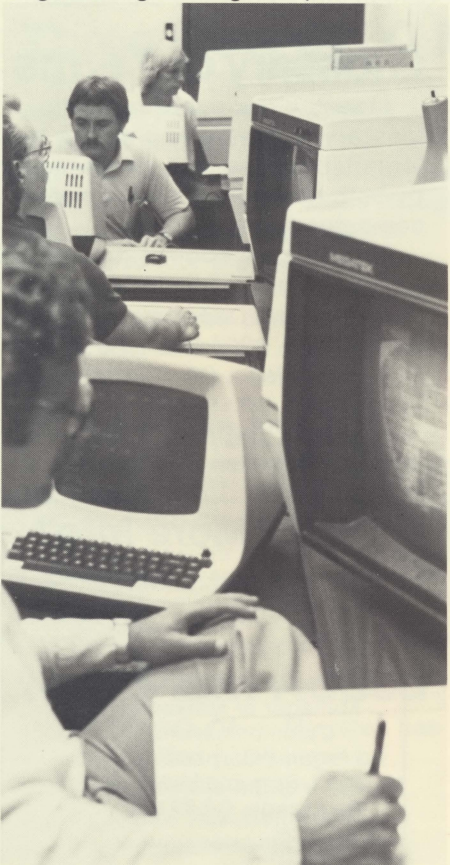
Megatek Engineering Graphics Used To Create Graphics

The Engineering Department at Megatek makes extensive use of computers and computer graphics systems in all phases of the engineering function — from design and drafting through project, test and continuation engineering.

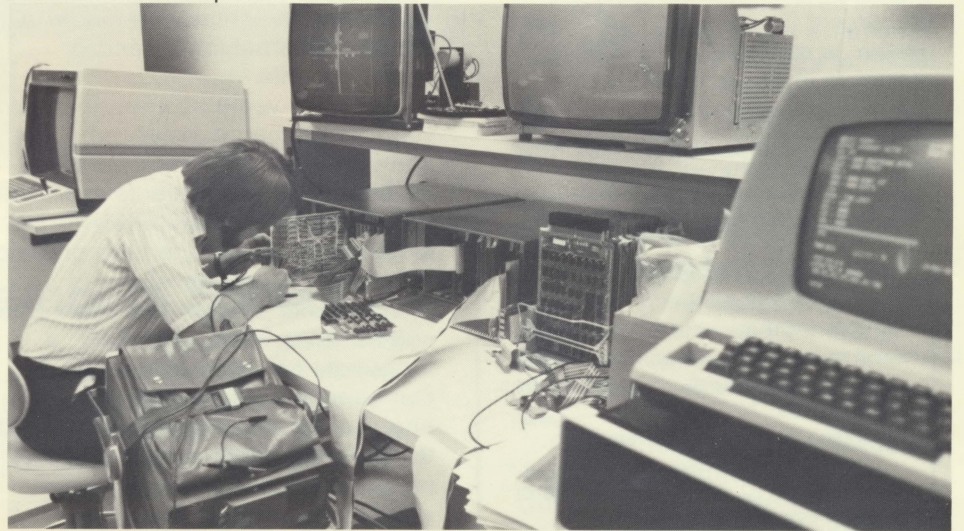
Megatek engineers use a central VAX 11/780 computer for much of their computational work. Four of Megatek's own WHIZZARD 7210 graphics workstations are interfaced to the VAX for use in design of product circuitry. Microcode and proprietary firmware which "shapes" much of the function in these sophisticated graphics systems is developed on a network of computers which includes general purpose machines as well as dedicated development stations.



Dr. Gary Stowell, Director of Engineering.



Megatek designers develop product circuitry using in-house graphics systems.



Senior Engineer Jeff Ponsor checks out a completed Graphics Engine for a WHIZZARD workstation using a custom computer-based test fixture.



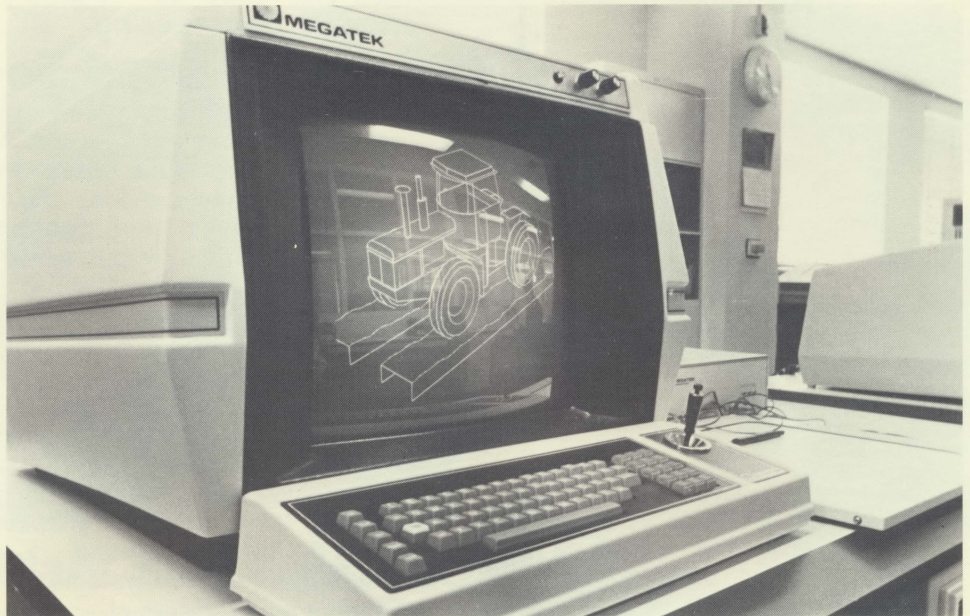
The drafting group produces drawings which will be used in the manufacture of WHIZZARD product families.

WHIZZARD Used For Dynamic Simulation

MOLINE, IL—Deere & Company engineers have added a dynamic animation capability to the computer graphics system used at the Technical Center here for mathematical analysis and simulation studies of agricultural and other equipment.

The addition of the vector refresh graphic system permits them to study the dynamic behavior of such equipment in a direct manner rather than via filmed animation of storage tube displays. One terminal being used is a WHIZZARD vector refresh terminal which has been interfaced to a Prime 400 timesharing system.

Deere engineers have simulated the dynamic behavior of farm implements and other heavy equipment for several years. Each system is modeled as rigid body elements interconnected with discrete elastic and damping elements. Computer simulations of the dynamic behavior are then



A dynamic tractor simulation at Deere & Company.

processed by forcing the model with specific external forces and/or displacements.

About six years ago the Technical Center staff began development of a software package to draw 3-D representations of objects to display the results of the computer simulations on storage tube graphic terminals. The displays are composed of straight line segments, curves, ruled surfaces and irregularly bounded planes which can contain holes—much like engineering drawings but without all the nuts-and-bolts detail. Drawings can be viewed from any direction with hidden lines automatically removed for clarity.

Since storage tube displays must be redrawn every time an element is changed in the picture, animation is difficult. The approach used initially at Deere involved filming the storage displays to produce the animation. A motion picture camera was set up in front of the display and wired for control by the computer. The system would draw one frame of the simulation on the video screen and trigger the camera to take one or more frames. Then it would advance the film, draw the next picture on the screen and expose it. At best, the filming of a tractor dynamics sequence might take anywhere from three to four hours to complete—not counting processing and production time.

The addition of a vector refresh terminal now reduces the time between the simulation run and an

animated display dramatically. A vector refresh terminal has a dynamic line drawing capability to generate animated sequences the engineers can watch "live". The vector refresh graphics display can be redrawn continuously from new data at specific time intervals of the simulation to provide animation.

Glossary of Terms

Megatek has published a new glossary of computer graphics terms, intended for use as a reference tool by both novice and sophisticated computer graphics users.

The 40-page booklet is available to the general public by writing to the Marketing Department, Megatek Corporation, 3931 Sorrento Valley Blvd., San Diego, CA 92121.

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Want More Info?

If you'd like more information about Megatek Corporation or any of its products, systems or services, simply write to:

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Megatek Line Is Broadest

The Megatek family of computer graphics products is the broadest and most capable available from a single manufacturer. It now includes:

WHIZZARD 7200 Family:

- WHIZZARD 7210 — vector refresh line drawing system
- WHIZZARD 7250 — color raster line drawing system
- WHIZZARD 7290 — vector and raster in one system
- WAND 7200 — powerful FORTRAN graphics software

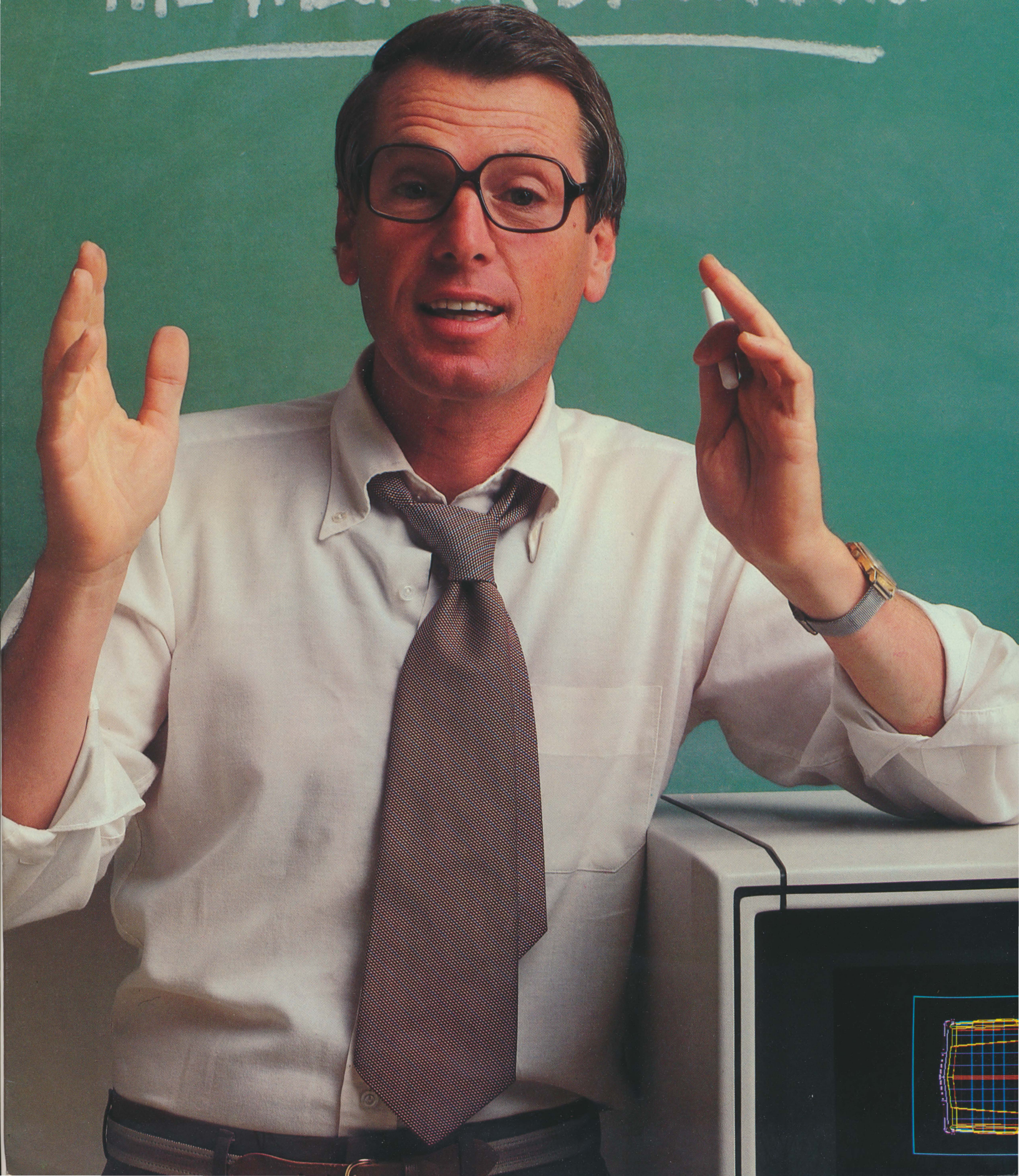
WHIZZARD 6200 Family:

- WHIZZARD 6240 — a 512x512 B&W raster line drawing workstation
- WHIZZARD 6245 — 1024x1024 B&W raster line drawing workstation
- WHIZZARD 6250 — 512x512 color raster line drawing workstation
- WHIZZARD 6255 — 1024x1024 color raster line drawing workstation
- WAND 6200 — powerful FORTRAN graphics software

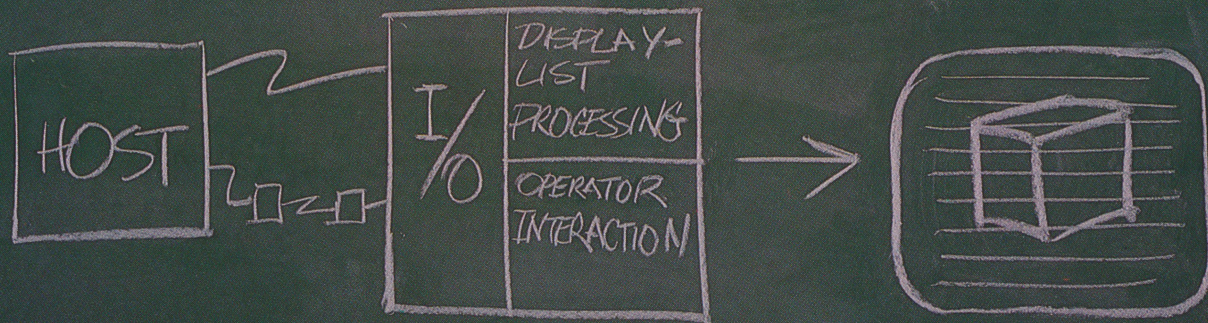
TEMPLATE:

A powerful FORTRAN software system that provides the capability to develop graphics application programming with complete computer- and device-independence.

THE MEGATEK DIFFERENCE



THE MEGATEK DIFFERENCE: REMOTE WORKSTATIONS



Whizzard 6200 raster-scan, line-drawing terminals are working remote workstations — fast, interactive, intelligent.

The Megatek difference starts with host-computer software. Wand 6200 is a computer-independent, Core-compatible Fortran package which organizes graphic information for maximum communication-line efficiency. Image segments can be dynamically extended, changed to a different color or line type, scaled, translated, or blinked with just a few simple commands.

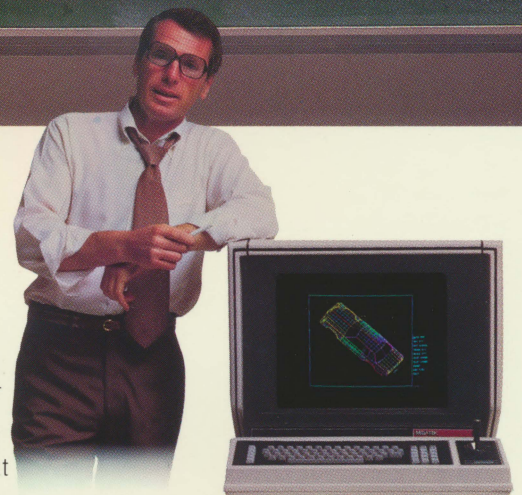
Whizzard 6200 terminals can also be programmed with hundreds of graphic subroutines (e.g., the image of a bolt head). Instead of reconstructing such "instances" each time they are needed, the host computer simply transmits a subroutine ID number.

Swiftly interacting with the host computer at the "action" end of the communication line is an intelligent Whizzard 6200 memory-management

I/O interface which maps subroutines, segments, and attribute information into a 64K-byte display-list memory (expandable to 128K bytes).

The final step, from memory to screen, is nearly instantaneous. Powered by a 32-bit proprietary processor, the Whizzard 6200 "graphics engine" processes display-list data into raster images at an average rate of 200 nanoseconds per pixel. Text can be displayed in eight hardware-generated character sizes. Twelve-bit vector coordinates (4096 x 4096 virtual display space) can be scaled up to 8X with full retention of fine-line detail. Images can be "Rasterized" into full-resolution hardcopy.

Monochrome or color, 512x512 or 1024x1024, every member of the Whizzard 6200 family is a complete graphics workstation, including desk, display monitor, keyboard, joystick, and optional data tablet. And all are upwardly mobile — up to the Whizzard 7200 series of 3D rotation-and-scaling raster/vector terminals.

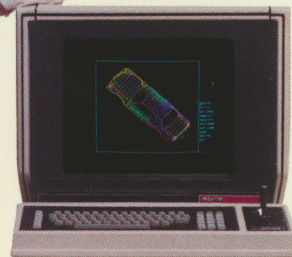
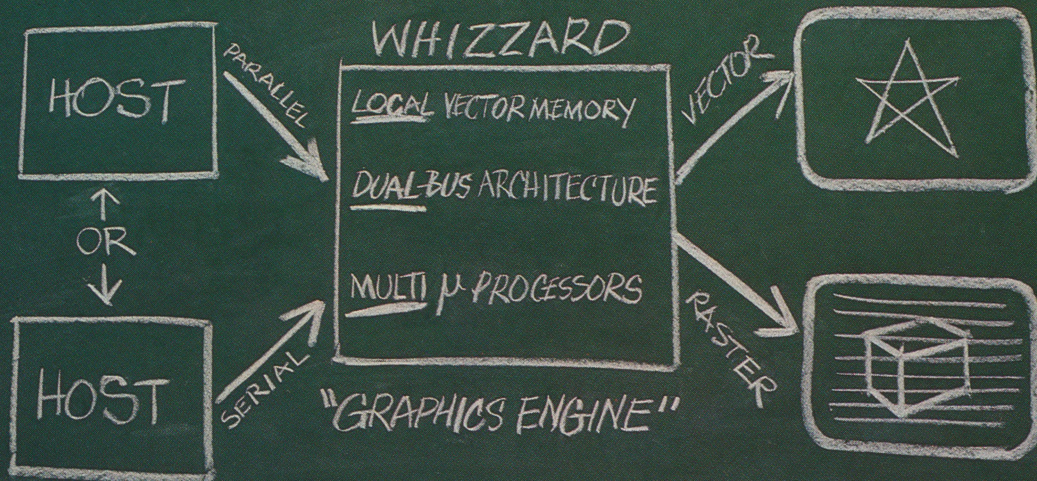


The more you know about graphics, the more you lean toward Megatek.

There is a Megatek difference. See it, believe it. Call or write: Megatek Corporation, 3931 Sorrento Valley Blvd., San Diego, CA 92121. 714/455-5590. TWX 910-337-1270.

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THE MEGATEK DIFFERENCE: OFFLOADING THE HOST



Every Megatek Whizzard™ system is a perfect "graphics guest" — allowing your host computer to concentrate on the things it does best. You get powerful, easy to use graphics without adding a burden to your expensive host CPU.

Whizzard's helping hand starts with host-computer software. Megatek's Wand, for example, enables the computer to organize display data into segments and subroutines stored in the Whizzard's own display-list memory (expandable up to 192K bytes). When a segment is extended — or its attributes altered — only the changes have to be transmitted.

Next, the interface. Either a remote-workstation data link or a parallel connection for efficient memory-to-memory transfers. Serial interfaces have their own intelligence, reducing the volume of data transfers and relieving the host from all memory-management responsibilities.

The Whizzard Graphics Engine™ takes it from there. A few simple instructions from the host, and a proprietary 32-bit processor performs translation, scaling, and display-list decoding. The display data itself is stored as 12-bit coordinates, creating a 4096² "virtual display space" for high-resolution stroke and real-time dynamic raster displays providing true scaling. Or you can output the data as full-resolution hardcopies directly from the Graphics Engine.

And all of this is totally "transparent" to the host. Display outputs can be either vector refresh (4096²) or raster scan (512² or 1024², monochrome or color). Or both. High-speed hardware also generates up to eight character sizes — and allows individual segments to be moved from one point on the screen to another without changing the stored data. And in the case of Whizzard 7200

The more you know about graphics, the more you lean toward Megatek.

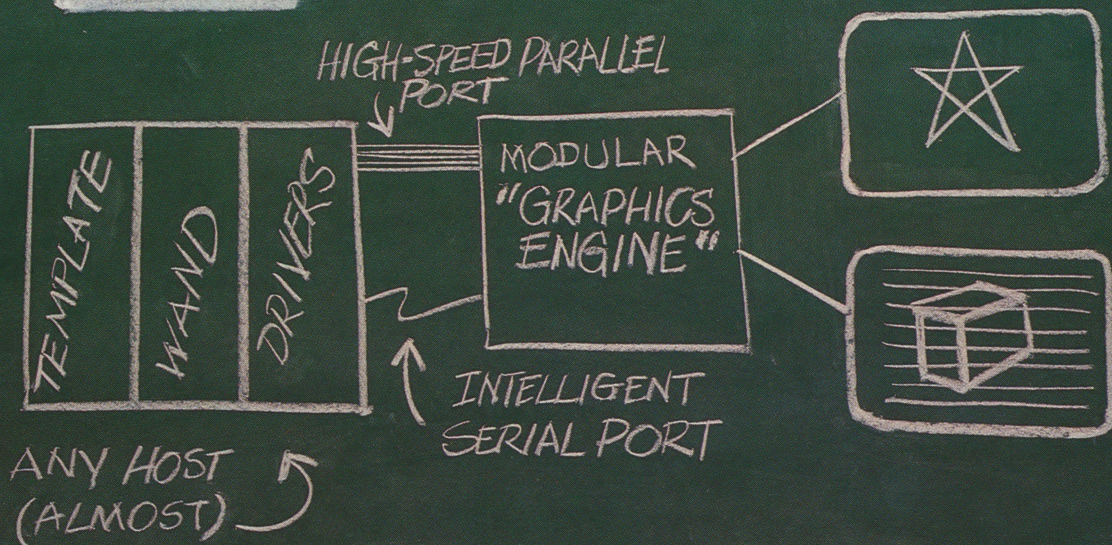
systems, optional 2D and 3D hardware clip, rotate, scale and translate modules reduce complex transformations to a single real-time operation.

See the Megatek difference. Call or write Megatek Corporation, 3931 Sorrento Valley Blvd., San Diego, CA 92121. 714/455-5590. TWX 910-337-1270.

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THE MEGATEK DIFFERENCE!

PORTABLE GRAPHICS



Computer independent. Device independent. Megatek portability provides you with a passport to the future.

Refresh-vector or raster-scan. Monochrome or color. High-speed parallel or remote serial. Wherever the graphics express takes you, you can count on Megatek graphics hardware and software.

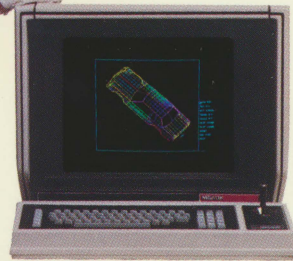
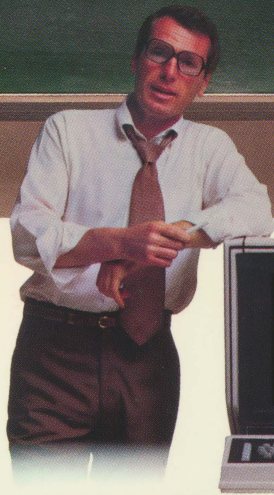
Take Megatek's top-of-the-line Template™ graphics software package. It's written in ANSI-standard FORTRAN so that it can be executed by virtually any 32-bit or larger mainframe. With Template you can make FORTRAN calls to over 200 2D and 3D routines. Choose from over 20 character fonts. Create high-quality presentation graphics. You can even generate displays or plots on equipment not offered by Megatek.

Then there is Megatek's Wand software, which includes drivers for most of the popular mini- and midi-computers. Wand 7200 is a full-capability, SIGGRAPH Core-compatible package for Whizzard

7200 high-performance graphics workstations. Wand 6200 is a serial-interface subset designed for the Whizzard 6200 family of terminal-type workstations.

With a Whizzard 7200 parallel interface, Wand supports multiple workstations. With a serial data link to a Whizzard 7200 or 6200, an intelligent interface supervises all of the display-list memory management. Only segment extensions and attribute changes must be communicated.

You can also take advantage of the upward mobility provided by Megatek's modular 32-bit Graphics Engine™ Rev it up with plug-in microprocessor interfaces for interactive devices; high-speed processors for 2D and 3D rotation, scaling, translation and clipping; and a 3D Surface Processor for real-time area fill of complex polygons. Enrich the output with a digital vector generator to drive 512² or 1024² raster-scan monitors with real-time "true" scale and translation through the Whizzard's



The more you know about graphics, the more you lean toward Megatek.

4096² virtual display space. Or a 4096² analog vector generator for stroke refresh monitors. Or a rasterizer unit for obtaining quick, full-resolution hardcopy prints.

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A clan of Megatek Whizzards with supergraphic powers

Every member of the Megatek Whizzard clan demonstrates the Megatek difference—differently. Yet all are upwardly compatible, computer independent, and fully supported by Megatek's supergraphic software.

The Whizzard 7200 family offers unprecedented line-drawing flexibility, speed, and operator-interaction capabilities. Connected to the host computer with a parallel interface, Whizzard 7200's can support multiple workstations with either stroke refresh or raster display monitors—or both. A proprietary 32-bit Graphics Engine™ processes 12-bit coordinate data to create a 4096² "virtual display space"—independent of the type of display. Coordinates, attributes, and graphic subroutines are stored in a 64K-byte display list memory, expandable to 192K bytes.

Whizzard 7210 is a full-refresh, high resolution stroke refresh display system. The basic configuration features a high-performance analog vector generator and a 21" electromagnetic

display with either a 10-mil or a 15-mil spot size.

Whizzard 7250 is a real-time, dynamic raster refresh graphics system. Hardware includes a digital vector generator, one or more double-buffered 512² or 1024² bit planes, and a dual-channel video output. The 19" non-interlaced display can be either monochrome or coded in 16 colors selected from a palette of 4096.

Whizzard 7290 combines both calligraphic-stroke and dynamic color-raster in a single dual-display graphics system. Two separate vector generators, analog and digital, support the two display screens. Both are driven by the same graphics engine and draw from the same or different coordinate data stored in the Whizzard display-list memory.



The Whizzard 6200 family consists of terminal-type graphics workstations which communicate with the host computer via a high-speed RS-232C serial interface. Each unit is powered by a standard Megatek Graphics Engine and features either a 64K-byte or 128K-byte display list memory. Each workstation is also completely self-contained and cost-effective, with its own desk, display monitor, and interactive devices. Users have a choice of 512² or 1024² raster resolution, in either monochrome or coded in eight colors.

Whizzard 6240 has a 19" monochrome screen with P4 phosphor and 512² pixel definition, with a 60 Hz non-interlaced refresh rate.

Whizzard 6245 features the same size screen and monochrome phosphor but with the resolution increased to

1024² and a non-interlaced refresh rate of 60 Hz.

Whizzard 6250 has a 13" color display with long-persistence phosphors, a pixel definition of 512² and a non-interlaced refresh rate of 47 Hz for flicker-free operation.

Whizzard 6255 increases the color-display screen size to 19" the resolution to 1024² refreshed at 60 Hz interlaced, with a long-persistence phosphor.

Whether you're an OEM, end user or system integrator, there's a Megatek graphics system or software package for you... everything from upward-compatible entry-level systems to powerful, multi-display distributed graphics networks.

Put Megatek's clan of sophisticated computer graphics systems to work for you.

