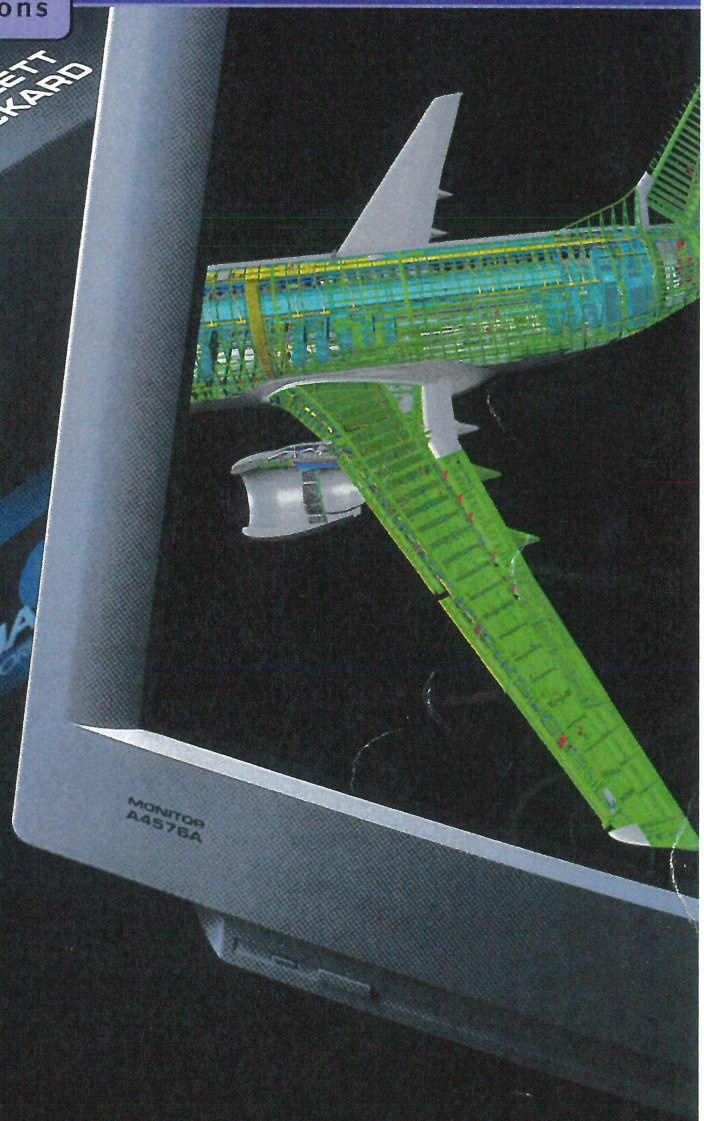


HP

VISUALIZE C3000

UNIX Workstations



HP
VISUALIZE
WORKSTATIONS

Your Ultimate Design Machine -
The Power to Visualize

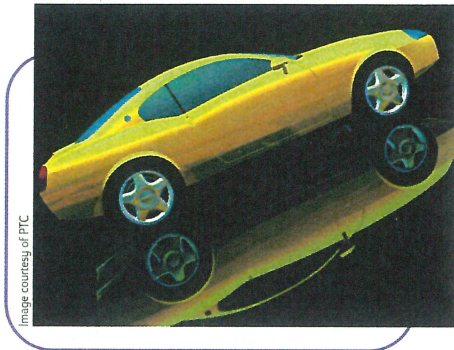


Image courtesy of PTC

Your Power to Visualize – the Power to Compute

The new HP VISUALIZE C3000 Workstation raises the standard for engineering desktops to new heights, outperforming the highest-performing systems currently available. This next-generation HP-UX workstation moves your design and engineering work forward with the power of the new HP PA-8500 processor running at 400MHz.

With an on-chip cache of 1.5MB, the 64-bit PA-8500 processor offers the industry's largest-sized on-chip memory, minimizing system latency and boosting performance. Add multiple new technologies, such as 120MHz SDRAM and Ultra2 SCSI LVD disks, and you have a workstation that breaks through all the traditional bottlenecks of computation and desktop 3D design.

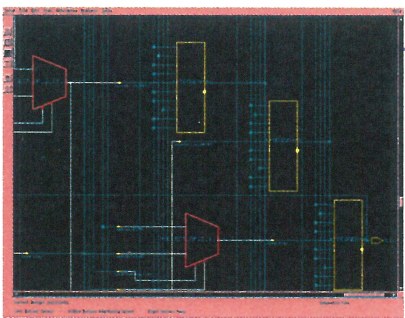


Image courtesy of Synopsys

Designed for Performance

The HP VISUALIZE C3000 Workstation is built for mechanical designers, electronic designers, industrial designers, scientific researchers and others who need to solve the world's toughest design problems. It is tuned to meet the challenges of your complex data sets, from large-model rendering and design analysis to IC verification and system simulation.

With the 3D graphics options, the HP VISUALIZE C3000 Workstation is ideal for mechanical CAD design and solid modeling work. It delivers the power you need to work interactively with your designs and to collaborate more easily with others on your team.

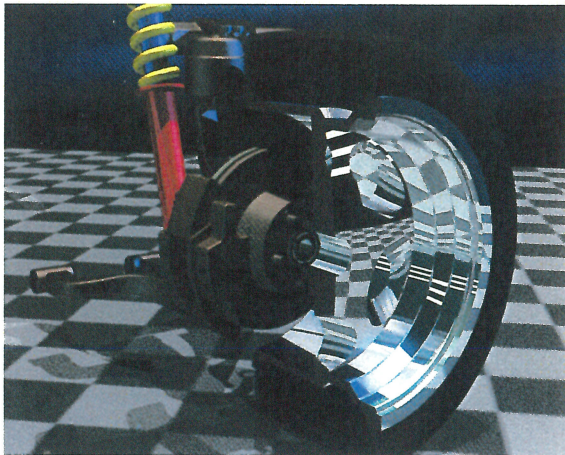


Image courtesy of PTC

You will feel the difference. With the VISUALIZE-EG 2D graphics, the C3000 provides a powerful computing solution for IC design. Whether you're designing analog, digital or hybrid circuits, the C3000 will help you create your ICs faster.

The Power of HP VISUALIZE Graphics

For 3D applications, the HP VISUALIZE C3000 brings your work to life with HP's powerful OpenGL graphics, including the HP VISUALIZE-*fx² Pro*, *fx⁴ Pro* or *fx⁶ Pro* subsystems. You will see your work in a new way with texture mapping, 3D geometry acceleration, hardware occlusion culling and shadow casting.

Great Investment Protection

The HP VISUALIZE C3000 Workstation is open and expandable, accommodating more disk, RAM or I/O capability within the box. The C3000 also delivers binary compatibility with your existing PA-RISC applications and data. The C3000 accommodates up to 4GB of RAM to tackle complex and growing data sets.

Looking ahead, today's HP-UX operating systems put you on the best path to tomorrow's IA-64 architecture, the future of technical computing. Working closely with Intel, HP is at the forefront of this effort to deliver this next-generation microprocessor architecture. With HP, you have the security of binary compatibility between your PA-8500 and IA-64-based applications. This level of compatibility is available from only one vendor, Hewlett-Packard.

The Ultimate Design Machines

Like the other HP VISUALIZE systems, the C3000 workstation is built for people who need to solve the toughest design problems in reduced time. The HP VISUALIZE Workstation family has it all: powerful processors, the industry's fastest graphics subsystems, increased disk, RAM and I/O capabilities, and UNIX®-Windows NT® interoperability. In short, the HP VISUALIZE C3000 is the ultimate design machine.



3000

feature

advantage

benefit

Performance

PA-8500 processor running at 400MHz

Gives you the power of the chip that won the "Best RISC Processor" award (Microprocessor Report's Editor's Choice)

Puts more compute and visualization power behind EDA and MDA applications; runs 2X faster than earlier PA-8200 C-Class systems

1.5MB on-chip cache

Minimizes system latency with the industry's largest on-chip cache

Enhances system performance; requires less disk/cache access for instructions and data

Fastest uniprocessor

Computation speed

Faster design iterations

Main-memory synchronous DRAM up to 4GB

Supports interactive work with large 3D models

Enhances application performance

Graphics

HP VISUALIZE-*fx*⁶ Pro graphics subsystem with 6 HP PA-RISC geometry engines

Delivers the world's fastest 3D graphics performance for MDA work

Supports faster visualization and interactive work with large 3D models

HP VISUALIZE-*fx*⁴ Pro graphics subsystem with 4 HP PA-RISC geometry engines

Delivers industry's best mid-range 3D graphics performance for MDA work

Supports faster visualization of mid-size mechanical assemblies

HP VISUALIZE-*fx*² Pro graphics subsystem with 2 HP PA-RISC geometry engines

Delivers industry's best entry-level 3D graphics performance for MDA work

Supports fast visualization at an affordable price

HP VISUALIZE-EG graphics subsystem

Delivers leadership 2D graphics performance for EDA work, including IC design, analog, digital or mixed signal design verification

Supports 2D visualization needs at an affordable price

Integration

Interoperability with Windows NT systems

Allows UNIX and Windows systems to share files and data across your network

Supports your evolving computing environment; enables collaboration with users on different platforms

Investment Protection

New expansive mini-tower with 6 industry-standard PCI slots

Provides more capability for PCI I/O cards

Gives you the flexibility to expand your system

Binary compatibility with future PA-RISC and IA-64 processors

Ensures smooth transition to HP's next-generation high-performance systems

Protects your investment in applications, data and systems

3000
C3000 technical specifications

Central Processor	
Type	PA-8500
Clock frequency	400MHz
Number of processors	1
Primary Cache (On Chip)	
Instruction cache	0.5MB
Data cache	1.0MB
Performance	
SPECint95	30.3
SPECfp95	48.6
SPECint_rate95	273.6
SPECfp_rate95	437.4
Main Memory	
Bus bandwidth	2GB/s
RAM type	120MHz SDRAM
Capacity	512MB-4GB
Memory slots	8 slots
PCI Slots (6 total)	
PCI 1X (half card)	2 slots
PCI 2X (full size)	3 slots
PCI 4X (full size)	1 slot
Internal Storage Devices	
Ultra2 SCSI LVD (80-pin SCA connector)	
2 drives maximum	
Hard disk drive	9GB (10K rpm)
Hard disk drive	18GB (10K rpm)
Removable Media	
CD-ROM ATAPI interface	32X (internal)
3.5 in. PC floppy drive	1.44MB (internal)
DDS-3 tape drive	12-24GB (external)
External Storage	
NSE SCSI	
50-pin in high-density	1 port - up to 7 devices
Ultra2 SCSI LVD	
68-pin in high-density	1 port - up to 13 devices
Networking	
RJ45	10/100 Base-Tx Ethernet
LAN Data Rate	10/100Mbps/sec
Other I/O	
Serial interface 9-pin DIN	2 ports
Parallel interface 25-pin DIN	1 port
USB (Universal Serial Bus) Series A	2 ports (keyboard and mouse only)
Audio	
Type	Integrated, CD-quality stereo
Inputs	Stereo line-in, MIC-in
Outputs	Stereo line-out, internal speaker, head phone

Environmental Specifications

Altitude	
Operating	0-3000m (0-10,000 ft)
Non-operating	0-4500m (0-15,000 ft)
Temperature	
Operating	5 to +40 degrees C
Non-operating	-40 to +70 degrees C
Humidity	
Operating	15 to 80% (non condensing)
Vibration	
Operating random	0.21 G rms, 5-500Hz
Swept sine survival	0.5 G pear, 5-500Hz
Random survival	2.09 G rms, 5-500Hz
Safety	
UL 1950, CUL to CSA C22.2#950, and TUV GS Mark to EN60950/IEC950	
Emissions	
FCC and CISPR Class B And VCCI Class B	

Physical Dimensions

Height	44.5cm (17.5 in)
Height with rack kit*	48.2cm (18.98 in)
Width	22.9cm (9.0 in)
Width with rack kit*	26.2cm (10.3in)
Depth	49.5cm (19.5 in)
Depth with rack kit*	78.1cm (30.74in)

*system racks on its side

Net Weight

Minimum configuration	20.9Kg (45.9lbs)
Fully loaded	25.4Kg (55.8lbs)

Power Requirements

Input current	7.4 Amps RMS max @ 100-120V 3.8 Amps RMS max @ 220-240V
Line frequency	50-60Hz
Maximum power input	805 Watts max @ 120 VAC, 60Hz

	VISUALIZE-EG	VISUALIZE-fx ² Pro	VISUALIZE-fx ⁴ Pro	VISUALIZE-fx ⁶ Pro
VISUALIZE Graphics				
Graphics Boards	4 Max	1 Max	1 Max	1 Max
Max Resolution	1600x1200	1280x1024	1600x1200	1600x1200
Image Planes/Overlay	8/8DB Image	24 Image	24/24DB* Image	24/24DB Image
Planes	8 Overlay	8 Overlay	8 Overlay	8 Overlay
Z-Buffer	SW	24 bit HW	24 bit HW	24 bit HW
Stencil Planes	SW	4 bit HW	4 bit HW	4 bit HW
Alpha Planes	SW	SW	SW	8/8 DB HW**
Texture Memory	SW	SW	Optional 16MB HW +32 x 32K virtual texture cache	Optional 16MB HW +32 x 32K virtual texture cache
Color Maps				
Image Planes	2 x 256	4 x 256	2 x 4096, 2 x 256	2 x 4096, 2 x 256
Overlay Planes	2 x 256	2 x 256	2 x 256	2 x 256

*24/24DB assumes 1280 x 1024 resolution
**1280 x 1024 resolution

VISUALIZE Graphics Performance	VISUALIZE-EG	VISUALIZE-fx ² Pro	VISUALIZE-fx ⁴ Pro	VISUALIZE-fx ⁶ Pro (Preliminary)
Xmark93	35.6	61.2	64.8	68
PLBwire93		375	676.1	801
PLBsurf93		712	877	1076
Pro CDRS-01		7.5	22.8	31.4
Design Review		6.8	17.3	20.4
Data Explorer		14.6	29.2	37.5
Advanced Visualizer		7.6	46.6	52.9
Lightscape		3.7	4.1	4.1

The latest information about HP VISUALIZE Workstation products is available on the World Wide Web at <http://www.hp.com/visualize>.

Information in this document is subject to change without notice.

Copyright 1999 Hewlett-Packard Co.
Printed in the USA
5968-4837E

UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited. Windows and Windows NT[®] are U.S. registered trademarks of Microsoft Corporation.

Cover screen image courtesy of Catia and Boeing. Inside system screen image courtesy of SDRG

POWERED BY HP
VISUALIZE
The Ultimate Design Machines



1999

BRIEFS

Portables Lighten Up

At its annual Worldwide Developers Conference in New York last week, Apple Computer Inc. announced new PowerBook portables that the company said are 2 pounds lighter and 20% thinner than previous models.

A PowerBook with a 333-MHz 63 chip, a 4G-byte hard drive and a 56K bit/sec. modem is priced at \$2,499.

www.apple.com

Handheld Prices: Palms Down

Palm Computing Inc., a Santa Clara, Calif., unit of 3Com Corp., last week cut prices on two handheld models. The Palm III organizer now costs \$249, down from \$299, the company said. The PalmPilot Professional Edition organizer now costs \$149, reduced from \$199.

HP to Ship Storage Servers

Starting next month, Hewlett-Packard Co. will ship a line of HP SureStore CD/DVD-ROM network-attachable storage servers. The entry-level HP SureStore CD-ROM Server will let users share one to seven CD-ROMs. The HP SureStore CD/DVD-ROM Server includes seven drives that can read CD-ROM and DVD-ROM formats.

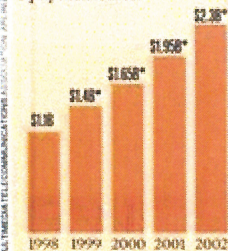
Pricing will range from \$2,750 to \$4,300.

www.hp.com

SNAPSHOT

Got the Picture?

U.S. videoconferencing equipment sales:



SOURCE: MULTIMEDIA TELECOMMUNICATIONS ASSOCIATION AND ANALYSTS

HP BOOSTS PERFORMANCE OF UNIX WORKSTATIONS

Vendor hopes to keep NT out of high end

BY JAIKUMAR VIJAYAN

WINDOWS NT is rapidly becoming the religion of the workstation market. But vendors of Unix systems are giving their users reasons to keep the faith.

Although corporate use of NT for such applications as computer-aided design (CAD), animation and mechanical CAD appears likely to grow, Unix vendors hope that recent rollouts will keep that operating system in the driver's seat when it comes to such horsepower-heavy applications as mechanical design automation and virtual prototyping.

This week, Hewlett-Packard Co. will announce three workstations based on the company's high-end, 64-bit PA-8500 RISC processor, which offers more than double the performance of systems based on the earlier PA-8200 processor.

The boost in performance comes from a number of new features, including faster clock speeds (the systems are based on 300-, 400- and 440-MHz chips); a 1.5M-byte, on-chip memory cache; a new HP chip set with 2G bytes of memory bandwidth, compared with the previous 1G byte; and support for HP's 64-bit Unix (see chart).

HP's systems come a week after Unix workstation rival Sun Microsystems Inc. boosted the performance of its boxes with newer, faster UltraSPARC chips.

Maintaining Its Lead

Such upgrades are helping those vendors maintain an edge at a time when Intel Corp.'s Pentium-based Windows NT systems are creeping ever closer to traditional Unix workstation performance, said Sarang Ghatpande, an analyst at D. H. Brown Associates Inc. in Port Chester, N.Y.

A study last year by International Data Corp. in Framingham, Mass., estimated that Windows NT workstation license shipments will grow at

an annual rate of 37.4% between 1997 and 2002, compared with a decline of 7.7% for Unix workstation licenses during the same period.

"Intel and NT have made giant strides" in the workstation market with systems based on chips like the Pentium II Xeon, Ghatpande said. "They are getting there with the performance numbers — but they're not quite there yet."

The sensors and electronics systems group at Raytheon Systems Co. is a power workstation user. Last year, the El Segundo, Calif.-based company used sophisticated Unix graphics technology from HP and Silicon Graphics Inc. to simulate an air traffic control system — with fly-throughs over the Alps and simulated bad weather conditions — for

What You Get

HP's new Unix workstation models:

- **HP Visualize B1000:** 128M bytes of RAM, 9G-byte hard disk, Visualize-EG graphics, 19-in. monitor. Starting price: \$9,900
- **HP Visualize C3000:** 512M bytes of RAM, 9G-byte hard disk, Visualize-EG graphics, 19-in. monitor. Starting price: \$13,800
- **HP Visualize J5000:** Up to two CPUs, 512M bytes of RAM, 9G-byte hard disk, Visualize-EG graphics, 19-in. monitor. Starting price: \$22,700

price \$13,800

the Swiss government.

The same application can theoretically run on Wintel systems at a much lower cost — but with nowhere near the same level of detail, the 60-frames-per-second response times or the reliability of Unix, said Howard Larson, a senior scientist at Raytheon.

"With NT, you'd have to bring down your level of detail or drop your light source, or slow [the application] down

drastically," Larson said.

Giving Unix systems the edge are the reliability of the operating environment, better scalability and the superior floating-point capabilities of RISC chips that are needed for running large design applications, according to Adrian Sannier, vice president at Engineering Animation Inc., an Ames, Iowa-based vendor of visualization software for manufacturers. ▀

32G-BYTE SNAP SERVER

Meridian Data Inc. has announced a 32G-byte version of its Snap Server network-attached storage device. The new model includes Version 2.0 of the Scotts Valley, Calif., company's software with an expanded feature set and supports Windows NT, NetWare, Unix and Macintosh platforms. It costs \$2,495 and is set to ship this month.

www.snapserver.com

