

WHITE PAPER

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Compaq Computer
Corporation

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Compaq Professional Workstation 5000 Q's & A's White Paper

Compaq introduced the new Compaq Professional Workstation 5000 on October 29, 1996. The purpose of this paper is to provide answers to commonly asked questions regarding these new products. The new Workstation brings together the best industry-standard ingredients in a well-integrated solution for maximum application performance, as well as seamless OS, networking and application integration, so that customers can confidently deploy them in mission-critical applications. This paper is intended to be a supplement to other new Compaq Professional Workstation 5000 White Papers and marketing communications.

COMPAQ

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Q's & A's

Compaq Professional Workstation 5000

Draft 2.2 March, 1997

BACKGROUND**Q. Why is Compaq entering the workstation market?**

Compaq views the NT workstation market as critical to our overall objective of becoming one of the top three computing companies in the world by the year 2000. As the world's largest PC manufacturer, the leading server vendor with over 36% of the x86 server market (according to market researcher IDC), and a leading supplier of NT-based PCs and systems for the distributed enterprise, Compaq has the NT systems expertise, brand, and worldwide distribution focus needed to deliver outstanding value to workstation customers around the world.

Q. Why will Compaq be able to compete in this market against companies like Sun and SGI?

Compaq has significant expertise in producing high-performance systems, with high levels of manageability and application/network integration, which are also features critical to workstation customers. In addition, Compaq has developed key relationships with industry partners (such as Intel and Microsoft), which we can leverage for our workstation business. Moreover, Compaq has the know-how and experience in forming successful partnerships with industry-leading ISVs, and has done so with financial/business and engineering/technical ISVs to ensure the right applications are available and optimized for our workstation products. The combination of these factors enables Compaq to offer industry-standard, application-specific workstations that are well tested and highly integrated at much lower costs, yet with the same (or better) performance than proprietary RISC workstations.

Q. Why did Compaq select Windows NT as the operating system for the workstations?

Microsoft Windows NT is a robust operating environment that supports both traditional workstation and popular personal productivity applications at a much lower cost than traditional UNIX operating systems. In addition, using NT enables Compaq to offer products based on industry standards (i.e., Intel processors), which has huge benefits over proprietary systems based on the RISC platform.

Q. How do you view workstations in relationship to your traditional PC business?

Compaq believes there are many similarities between PCs and workstations and that the two markets are complementary. Both are multifunction computing devices based on a set of hardware/software components that are optimized to run specific software. PCs are optimized for general purpose business productivity applications such as the Microsoft Office Suite. They have continued to grow in performance and functionality to cover a wide spectrum of mainstream and advanced user requirements. Workstations are optimized for specialized business and engineering tasks. They are used in complex design, development, and analysis applications that require high performance, tight application and network integration, and mission-critical support.

Q. What organization within Compaq will be responsible for the workstation products?

Compaq's efforts in this area are being driven out of the Workstation Division within Compaq's Enterprise Group. This team is chartered to aggressively participate in markets traditionally served by high-end UNIX workstation vendors.

Q. Is this a new organization at Compaq?

Yes, the Workstation Division is part of Compaq's newly formed Enterprise Computing Group. In addition to the Workstation Division, this group includes the Server Division, Options Division, Solutions Division, and Internet Solutions area. The Enterprise Group is chartered with leading Compaq's efforts in providing end-to-end computer and networking solutions for the Distributed Enterprise. The Workstation Division complements this charter by focusing our efforts in the high performance business/professional and technical/engineering markets traditionally served by UNIX workstation vendors.

Q. Who is head of the Workstation Division?

Mike Perez, Vice President of Compaq's Server Division is the acting head of the Workstation Division. Compaq is currently searching for a senior executive to head the Workstation Division for the long term.

BRANDING**Q. Why did you elect to use Professional Workstation as your product name rather than Deskpro?**

Relative to the Deskpro 6000, the Professional Workstation 5000 is targeted at a different set of customers, has a feature set optimized for a different set of target applications, and will be competing against a different set of products. Given these key differences, providing the Workstation with a unique name is one of the ways we are highlighting our intent to pursue a new class of customers never before targeted by Compaq.

POSITIONING**Q. Who are the Target segments?**

Initially, Compaq will target customers in the Business/Financial, CAD/CAE, and Software/Digital Content creation markets.

Q. Why were these particular segments chosen?

These segments were selected by evaluating (1) the total opportunity each segment provides, (2) the penetration and momentum of NT within the segment, and (3) Compaq's ability to provide compelling NT systems and solutions to the customers within these segments.

Q. In what instances would customers want a Professional Workstation 5000 versus a Deskpro 6000?

Customers should choose a Professional Workstation 5000 when they have one or more of the following requirements:

1. When running high performance, specialized design, development and/or financial applications that require the highest performance system available, including disk, I/O, networking and multiprocessor support.
2. Require high-performance 3D graphics to run their applications.

3. Want the assurance that their specialized application for financial, CAD, software or digital content creation has been tested and certified for optimum performance and compatibility with their platforms.
4. Require seamless UNIX interoperability to connect into their legacy systems.

ISVs

Q. Are Compaq workstations being certified to run leading application packages?

A number of application partners have formal certification programs. Of the ISVs Compaq is partnering with, SDRC, EDS/Unigraphics, Parametric Technologies Corp., and SoftImage have certification programs, and the Compaq Professional Workstation 5000 is certified.

HARDWARE PLATFORM

General

Q. Does the product contain support for USB?

No. Compaq recognizes that the Professional Workstation 5000 will be used for business-critical applications where product stability and testing is of the utmost importance. While USB is an exciting new technology that we will continue to evaluate for future products, we elected to omit it from the Professional Workstation 5000 definition, because currently, a broad set of USB-enabled peripherals is not available for us to test with the system.

Q. Is the product Energy Star compliant?

Although Compaq has an award-winning history for building environmentally conscious products, Windows NT and the power requirements of this high-performance, dual Pentium Pro-capable Workstation prevent it from being Energy Star compliant. Windows NT 4.0 periodically polls the CD ROM to monitor potential activity. This prevents the system from ever having sufficient idle time to power down. Additionally, a system needs to consume 30 Watts or less when idle to be Energy Star compliant. The power demands of the Workstation's high-performance components, such as the Pentium Pro Processors, video cards, and hard drives, exceed the Energy Star threshold.

Currently, any Windows NT/ Pentium Pro system of this caliber will not be Energy Star compliant for these reasons.

Processors

Q. How do customers with one processor upgrade to dual processors?

Processor upgrade kits are available as an option from Compaq. Once the kit has been acquired, the Professional Workstation 5000 system board includes ZIF sockets for the easy installation of the second processor.

Q. When adding a second processor, can the processor be different speeds (MHz)?

Due to the architecture of the Pentium Pro Processor, all dual Pentium Pro Processor systems require the second processor to be the same speed as the primary processor. Thus it will not work if a second Pentium Pro Processor running at 150 Mhz, 166 Mhz, or 180 Mhz is added.

Q. Will there be higher speeds of the Pentium Pro Processor that customers can upgrade to later?

At this point there are no indications from Intel that a Pentium Pro Processor with frequencies greater than 200 MHz will be available.

GRAPHICS**Q. Why was ELSA selected as the 3D graphics vendor?**

Compaq conducted an extensive evaluation of several leading graphics vendors. ELSA was chosen for the following reasons:

1. They have proven experience and expertise in providing high-performance award-winning 3D graphics solutions.
2. They have manufacturing capabilities that meet Compaq's rigorous requirements for quality and reliability.
3. In evaluating a wide range of GLINT-based graphics products, ELSA outperformed all competitors due to their high-performance driver architecture.
4. They have won numerous awards from industry publications such as *CADENCE*, *CADALYST*, *BYTE*, and *NewMedia Magazine*.
5. They are endorsed by leading 3D software vendors such as Kinetix, SENSE8, and SolidWorks.

Q. Will the workstation products have their own line of monitors?

Professional Workstation 5000 will offer Compaq's award-winning performance monitors as options. The 17" P70 and 21" QVision 210 are the recommended monitors for the Professional Workstation 5000.

Q. Are the Matrox Millennium drivers used on the Workstations the same as those used on existing Deskpro products?

Yes. The Matrox drivers for Windows 95, Windows NT 3.51 and 4.0 are the same for the Deskpro 6000 and Professional Workstation 5000.

Q. What is Compaq's relationship with Intergraph?

Compaq and Intergraph have a technology agreement to investigate ways to integrate Intergraph solutions in Compaq workstation products.

Q. When will Compaq Workstations equipped with Intergraph solutions be available?

Compaq wants to ensure customers are provided with the best solutions available based on open industry standard solutions utilizing OpenGL. Many exciting new products will be available in 1997 from a number of graphics vendors, and we are continuing to evaluate our graphics roadmap.

MEMORY**Q. Why was EDO memory used instead of Synchronous DRAM?**

Although future chipsets from Intel will most likely support Synchronous DRAM, the current chipset (440FX) only supports EDO and Fast-Page Mode (FPM) memory. Between EDO and FPM, EDO provides the best performance, making it the optimum choice for the Professional Workstation 5000.

Q. Will Synchronous DRAM be used on future workstation products?

Compaq does not discuss unannounced products. However, synchronous DRAM is under evaluation for future Workstation products, and as with all new technologies, if it provides a compelling price/performance solution, it will be given serious consideration.

CD-ROM DRIVES

Q. Why is the 8X CD ROM an EIDE implementation on the Professional Workstation 5000 where SCSI is the standard controller?

SCSI CD-ROM drives are more expensive and provide minimal performance benefit over EIDE CD-ROM drives. Other SCSI devices that have both read and write capability, such as hard disk drives and the PD CD Drive, benefit more with a SCSI controller implementation. CD-ROM drives, however, will not benefit as much since they are not limited by I/O bandwidth.

Q. Will Professional Workstation 5000 include models with the PD-CD?

PD CD suppliers will be transitioning from the 4X PD-CD to the 6X PD-CD at the beginning of 1997. Instead of offering the PD-CD as a standard feature on the Workstation, it was decided that customers should have the flexibility to add one if they need it at the initial Professional Workstation 5000 introduction, or wait for the new technology when it becomes available.

Q. When will the Professional Workstation 5000 support the LS-120?

The LS-120 is a new and exciting product that is under consideration for future workstation products.

CHASSIS

Q. How do the serviceability features of the Workstation compare with the serviceability features of the Deskpro family?

The serviceability features of the Professional Workstation 5000 are similar to those in the Deskpro family of products.

Following is a comparison of the two:

Deskpro 6000	Professional Workstation 5000
Quick-access hood latches ensure quick access to the inside of the PC. No tools are required to remove the cover.	3 thumbscrews on the back of the PC provide quick access to the inside. No tools are required to remove the cover.
Slide-out system board	Slide-out system board
Slide-out drive cage for easy installation of additional drives	Slide-out drive cage for easy installation of additional drives
FlashROM - no switches required	FlashROM - no switches required

No hard drive rails required; easy installation of industry-standard drives.	No hard drive rails required; easy installation of industry-standard drives.
Slide-out riser card for easy access to system board and easy installation of PCI/ISA cards	Slide-out riser card for easy access to system board and easy installation of PCI/ISA cards

AUDIO

Q. With 32-bit audio implementations available, why did Compaq elect to use a 16-bit solution?

The Compaq Professional Workstation 5000 comes standard with integrated 16-bit stereo audio based on ESS technology. Although 32-bit audio technology is available, the difference between the quality of sound from 16-bit to 32-bit audio is relatively minor. The 32-bit audio provides some enhancements at the outer limits of the spectrum but not enough to warrant the cost of providing it for this product at this time. As applications begin to support enhanced audio features and customers begin demanding increased functionality, Compaq will consider enhancing the audio solutions delivered with the Workstation product line.

SOFTWARE PLATFORM

Software Installation and Setup

Q. How is software installed on the Compaq Professional Workstation?

Compaq Workstations come standard with SmartStart for Workstations which provides customers a quick and easy way to load and optimize their operating system and support software. The Workstation does contain a factory-installed diagnostic partition containing Compaq Diagnostics, Setup, and Inspect for Workstations. Through the use of SmartStart for Workstations, the installer can add Win NT 4.0, Compaq Support Software, and Try and Buy applications.

Q. Is there a difference between SmartStart for Workstations and SmartStart 3.0 (for servers)?

The two products are similar in that they share the common goal of providing the user with a productive means of consistently deploying optimized, well-integrated, and reliable computing platforms. The differences between the two products reflect the fact that one is optimized for workstations while the other is engineered for servers. SmartStart for Workstations installs off-the-shelf software CDs like Win NT 4.0, reinstalls the diagnostic partition along with Compaq utilities, and installs and licenses fully functional Try and Buy applications for evaluation. SmartStart 3.0 for servers performs hardware detection to support the variety of server hardware options, handles disk carving to partition hard drives, supports diskette building for making driver and boot diskettes, allows network OS optimization, supports database performance tuning, and builds Integration Servers.

Q. Can a customer use their retail version of NT?

Yes. SmartStart for Workstations supports installation of retail versions of Win NT 4.0 and 3.51.

Q. Can a customer use the SmartStart 3.0 CDs shipped with servers on Professional Workstation 5000?

No. The SmartStart 3.0 CDs for Compaq servers are not for use on the Professional Workstation 5000. Neither are Professional Workstation 5000 CDs usable on Compaq servers.

Operating Systems

Q. What Microsoft operating systems will a Workstation support?

Microsoft Windows NT Workstation NT 4.0 and 3.51 and Windows 95 are supported on the Professional Workstation. Windows NT offers a high-performance, highly reliable, multithreaded operating system that meets the demanding needs of our targeted customers. Furthermore, Windows NT has been optimized to provide maximum 32-bit performance with Pentium Pro processors. Thus, Compaq Workstations will provide full support for Windows NT 4.0 and 3.51. For compatibility, Windows 95 is supported.

Q. Can customers swap languages when exchanging OSs?

The conditions of our agreement with Microsoft prohibit language swaps. However, geographic regions will be able to work special arrangements to accommodate customers' language requirements. Compaq Professional Workstations are currently available with language support for English, German, French, Italian, Dutch, and Japanese.

Q. Will Compaq support any of the UNIX operating systems?

Compaq's primary focus in the workstation market will be centered on the Microsoft NT Workstation. Central to this focus is our efforts to ensure that our products are tested and integrate well into UNIX networking environments. Consequently, we ship Hummingbird products with our units. The Compaq Professional Workstation 5000 is certified under Solaris X86, and technical support is provided by SunSoft.

Q. Will Workstations support Solaris?

The Compaq Professional Workstation is certified with SunSoft for Solaris X86. Technical support for Solaris X86 is available from SunSoft.

UNIX INTEROPERABILITY APPLICATIONS

Q. How are Hummingbird applications installed?

Customers can use SmartStart to install Hummingbird applications. By using the Workstation Integration Manager, a key part of SmartStart for Workstations, customers can reliably integrate Compaq Workstations into UNIX and other legacy environments.

Q. How do customers purchase Hummingbird software?

To purchase Hummingbird applications, a customer can complete the License Key Fax Form, which is included with the unit, and fax it to their authorized reseller. The customer

will receive a license key that can be used with the SmartStart Application License Manager to permanently license Hummingbird applications.

Q. Why does SmartStart for Workstations have “license” keys and SmartStart 3.0 for servers have “activation” keys?

“License” keys permanently license workstation applications that have already been installed and activated through the SmartStart for Workstations Integration Manager process. “Activation” keys license and activate encrypted server software before they are installed.

Q. How can a customer obtain documentation for Hummingbird software?

The documentation is available in electronic form on the SmartStart for Workstations CD in the \Humbird\Docs subdirectory.

Q. How does a customer obtain new releases of the Hummingbird software?

Customers can obtain future releases directly from the software vendor.

Q. Who provides technical support for Hummingbird software?

Compaq has negotiated a Global Technical Support Agreement with Hummingbird.

Q. Will Compaq offer other software applications as “Try and Buy” in the future?

The inclusion of Hummingbird Try and Buy applications provides customers the ability to seamlessly integrate with their legacy UNIX and mainframe systems. Compaq will continue to evaluate customer requirements to determine if additional Try and Buy applications provide benefits in their environment.

Q. Why didn't Compaq bundle Hummingbird applications with the Compaq Workstation?

Compaq selected the Try and Buy delivery mechanism to satisfy customers who need Hummingbird software without burdening the Compaq Workstation with additional costs for those who do not.

MANAGEMENT

Q. What support does the Professional Workstation 5000 have for Compaq Insight Manager?

Workstations support the full management capabilities of Insight Manager.

Q. What support does the Workstation have for the Desktop Management Solutions Partners Program (DMSPP)?

Compaq Professional Workstation 5000s are able to provide management information to those DMSPP products that support Windows NT. Currently, Seagate and Cheyenne have Windows NT proactive back-up solutions.

Q. Do Compaq Workstations provide management support for Windows 95?

If customers choose to run Windows 95, they will have access to the local management support of system inventory, password security, and pre-failure fault detection. These capabilities are provided by POST and the pre-installed Compaq utilities -- Inspect, Setup, and Diagnostics. However, because we are not providing management agents for Windows 95 with the Compaq Workstation, the remote management capabilities provided by Insight Manager are not available.

Q. What support does the Compaq Workstation have for the Compaq Systems Management Toolkit?

Compaq Professional Workstation 5000s provide full support for this toolkit. The Toolkit provides MIB integration for HP OpenView, Solstice SunNet Manager, and Tivoli TME 10 NetView, and software distribution files for Microsoft Systems Management Server and Norton Administrator for Networks. The Compaq Professional Workstation 5000 supports all these capabilities just as Compaq servers do.

Q. Can a customer use Insight Desktop Management Agents on a Compaq Workstation?

Although it may be technically feasible, the desktop agent and the workstation are not designed to function together.

Q. Can a customer use Compaq Insight Manager on a Compaq Workstation?

Yes. Insight Manager is a 32-bit, client/server, graphical application, and the workstation makes an excellent management console.

Q. How does a user and/or an administrator know when a management fault has occurred on a Compaq Workstation?

The workstation user is notified by POST error messages and entries in the NT Event Log service. The administrator is notified by alerts sent by the Insight Management agents. The alerts can be displayed on an Insight Manager console as well as on other SNMP management consoles, such as HP OpenView for AIX, TME 10 NetView or SunNet Manager.

Q. What is the Microsoft NT Event Log? And where do I find it?

The NT Event Log service is a standard feature of Microsoft NT that records system, security, and application logs. The Event Log service can be accessed with the Win NT Start button under Programs/Administrative Tools/Event Viewer.

Q. How can a customer obtain proactive local alerting?

The customer can be notified by POST error alerts at start-up, proactively check the NT Alert service, or install Insight Manager on a console that monitors the network. Customers can also be notified to proactively back-up their data. Currently, Seagate and Cheyenne have Windows NT proactive back-up solutions.

Q. What is the process for a customer to obtain pre-failure warranty?

The process for obtaining the Pre-Failure Warranty service is described on the limited warranty card included with the Workstation.

Q. What support does the Professional Workstation 5000 have for DMI?

The Compaq Professional Workstation 5000 has received DMI certification by submitting our Management Information Files (MIFs) to the Desktop Management Task Force (DTMF).

SUPPORT SOFTWARE MANAGEMENT**Q. What is Compaq support software?**

Compaq Support Software consists of drivers, management agents, Compaq utilities, flashable ROM images, and other non-application software used to support the interaction between hardware, firmware, and applications.

Q. What is the difference between a delivery mechanism and a distribution mechanism in the context of these questions and answers?

When we talk about delivery mechanisms, we are referring to mechanisms used to get the support software to the customer. On the other hand, distribution mechanisms refer to mechanisms a customer can use to distribute software throughout an organization.

Q. What are the support software delivery mechanisms from Compaq for workstations?

The initial set of support software is delivered on the SmartStart for Workstations CD included with each workstation. For post-sale updates, customers can obtain support software from the Support Software CD for Compaq Desktops, Portables, and Workstations or the Compaq Web site.

Q. What specific software can a customer obtain through each delivery mechanism from Compaq?

Through the Support Software for Compaq Deskpros, Portables, and Workstations CD or Compaq Web site, customers can obtain Windows NT and Windows 95 drivers, flashable ROM images, and Compaq utilities. Through a Compaq SmartStart for Servers, Support Software and Management CD subscription, customers can obtain Compaq Insight Manager, Compaq Insight Management Agents, and the Compaq Systems Management Toolkit.

Q. What support software distribution mechanisms can the customer use within their organization?

Customers can install updates locally to workstations from the Support Software CD or Compaq Web site. For remote software distribution, the Compaq Workstation supports the program distribution and script files that are included with the Systems Management Toolkit. This toolkit is included with the unit on the SmartStart for Workstations CD. By using the supplied program distribution and script files, customers can push support software through the network to workstations with either Microsoft Systems Management Server (SMS) or Symantec Norton Administrator for Networks (NAN).

Q. What specific software can the customer distribute through SMS or NAN distribution mechanism?

The customer can distribute the following support software for Microsoft Windows NT 3.51 and 4.0: NTSSD (SCSI, NIC, and health), Matrox and ELSA video drivers, ESS1868 audio drivers, and management agents.

SERVICE & SUPPORT**Q. What is the warranty on Compaq's new Workstation products?**

The Professional Workstation 5000 will come standard with a 3-year limited warranty covering 3 years of free parts, 1 year of on-site service, and 1 year of free labor.

Q. What service and support programs will be available for Compaq's new Workstation products?

Customers can upgrade the standard warranty in two ways:

1. Through CompaqCare, customers can upgrade the on-site service and labor coverage from 1 year to 3 years.
2. Through Compaq Service and Support Offerings (CSSO), customers can tailor a service and support package to their requirements. The CSSO offerings available for Workstations are:
 - On-site hardware maintenance
 - Enhanced software support
 - Installation
 - Interoperability services
 - LAN management support
 - Remote system management
 - System management support
 - System healthcheck
 - Technical consulting

OTHER**Q. Will Compaq be announcing additional Workstation products in the future?**

Compaq does not comment on unannounced products. However, Compaq is committed to the workstation market, and as new technologies are delivered to the market that would add value for our workstations customers within targeted market segments, we will expand our product line to incorporate those technologies.

Q. When will Compaq announce new workstation products based on future technologies such as the Intel Pentium® II (formerly known as Klamath)?

Again, Compaq does not comment on unannounced products. In general, we plan on being aggressive in utilizing new technologies.