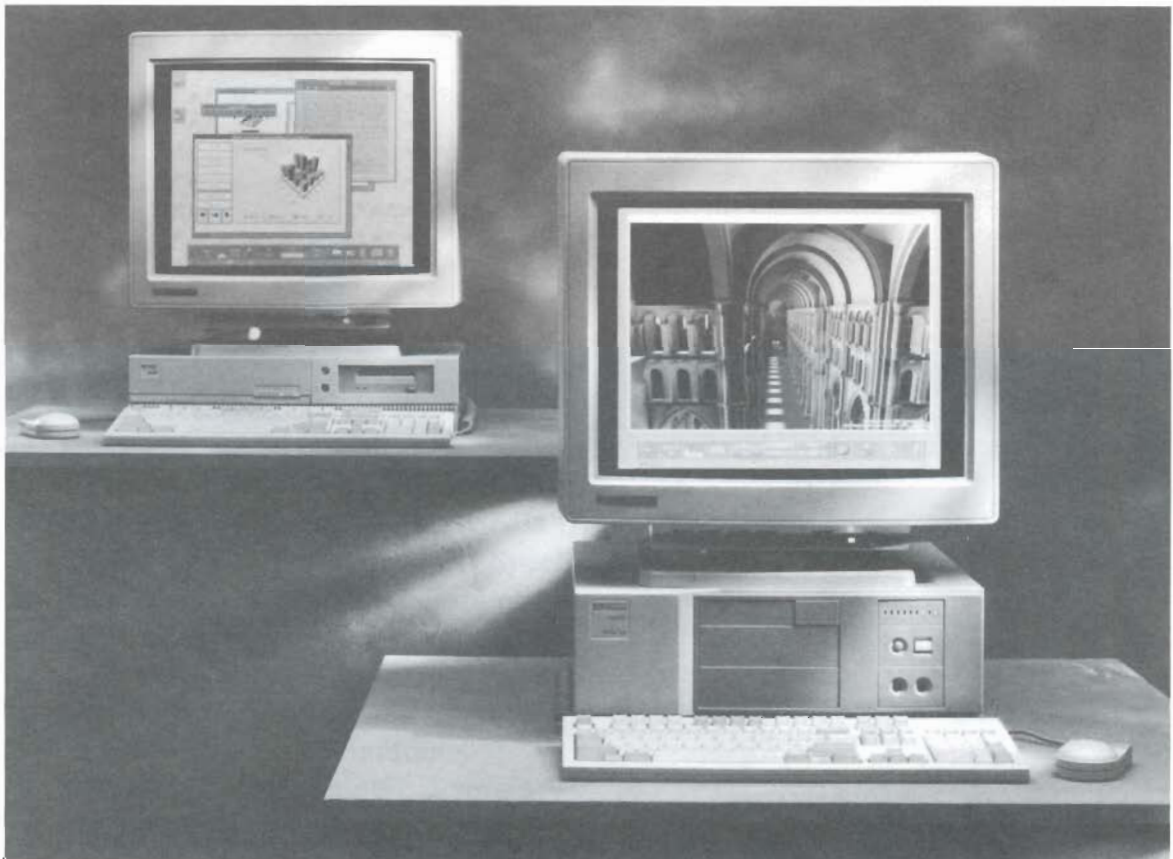

HP Apollo 9000 Series 700 Model 715/75, Model 725/75 Sales Guide

August 1993



The HP Apollo 9000 Series 700

Model 715/75 and Model 725/75 Sales Guide

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The Model 715/75 and Model 725/75

Introduction

The new Model 715/75 and 725/75 extend the HP Apollo Series 700 workstation family with higher-performance processors at the mid-range. This unit discusses these latest additions. After completing this unit, you will be able to **identify the unique characteristics and key benefits of the Model 715/75 and Model 725/75**. This unit contains Model 715/75 and Model 725/75 key information and reference tables on:

1. Product overview
2. Competitive positioning
3. Target Markets



1.0 Family Position and Product Overview

The HP Apollo Series 700 family continues to provide a complete range of industry-leading RISC workstations at every price point. This successful family is now complemented by two new products.

The Model 715/75 and 725/75 offer higher performance CPUs in low-cost Model 715 and Model 725 packaging. The Model 715/75 and 725/75 open doors to go head-on against Sun, DEC, SGI, and IBM in every selling situation where higher performance in a midrange desktop workstation is critical.

Both new models use a 75 MHz implementation of the PA 7100 PA-RISC chip. The performance gain for customers in moving from a 50 to a 75 MHz system is substantial and is additionally boosted through a higher (256KB) instruction and data cache. Depending on the applications used, customers will typically experience performance increases of up to 50 percent. While the Model 715/75 and 725/75 provide identical performance, they differ in the amount of EISA and storage expandability offered.

The following table shows the position of the Model 715/75 and 725/75 in the Series 700 family.

Series 700 Workstation Models							
Benchmark	715/33	715/50	725/50	715/75	725/75	735	755
SPECmark89	46	69	69	110	110	147	147
MIPS	41	62	62	86	86	124	124
MFLOPS (DP)	8.9	13	13	31	31	41	41
SPECint 92	24	37	37	61	61	81	81
SPECfp 92	45	72	72	113	113	150	150

Investment Protection. With these new models, HP continues to provide unparalleled investment protection in the Series 700 product line. Customers who have invested in Models 715/33, 715/50 or 725/50 can upgrade to the to the new 75 MHz systems through a simple CPU board swap. They'll benefit from an immediate increase in application performance while protecting their investment in memory, graphics, peripherals, and software.

Product Features. The Model 715/75 and Model 725/75 feature EISA expandability, with one slot on the Model 715/75 and 4 slots on the Model 725/75. These EISA slots can be used for adding advanced CRX graphics capabilities, additional network connectivity, and additional storage.

Like other Series 700 workstations, the Model 715/75 and Model 725/75 support standard grayscale and integrated 8-plane color, as well as optional CRX 24, 24Z, and 48Z graphics. As a result these systems continue Series 700 leadership in 2D/3D vectors as well as 3D solids solutions--at prices that position these systems very competitively. The following table lists the main features of the Model 715/75 and Model 725/75.

Model 715/75 and Model 725/75 at a Glance	
MIPS	86
SPECmarks	110
MFLOPS(DP)	31
Packaging	Desktop & Deskside
	715/75 - 4.3"H, 18.5"W, 15.7"D
	725/75 - 6.6"H, 17.3"W, 16.1"D
Processor	PA-RISC
Clock	75 MHz
Cache	256KB Instruction, 256KB Data
RAM	32-256MB
Graphics	19" Grayscale (1280 x 1024, 72 Hz) 19" Color (1280 x 1024, 72 Hz) CRX-24, CRX-24Z, CRX-48Z options
Internal Formatted Disk Capacity	1.05GB (2 x 525MB) or 2.10GB (2 x 1.05 GB)
Total Disk Capacity	68.6GB (715/75); 239.8GB (725/75)
Internal Removable Media Options	600MB CD-ROM
	1.44MB 3.5" Floppy
	2.0GB 5.25" DS Tape
	4.0-8.0GB 5.25" DS Tape
Built-in I/O (input/output)	IEEE 802.3 Ethernet (ThickNET) 1 SCSI-II (Single Ended) 2 RS-232 Ports 1 Centronics Port 1 HP-HIL 1 EISA slot (715/75) 4 EISA slots (725/75) Audio ports
Keyboard Options	HP-UX or PC-style keyboard
HP-UX Options	UP-UX 9.01 run-time environment (instant Ignition, Media & Docs.) HP-UX 9.01 developer's environment (Media & Documentation)

1.1 Processor Performance

The Model 715/75 and 725/75 deliver impressive CPU performance by combining a 75 MHz PA-RISC integer processor with a 75 MHz floating-point processor. These processors, coupled with 256KB instruction and 256KB data caches, as well as a low-latency memory interface, provide the user with leading-edge application performance. These new systems not only deliver great performance and price/performance, they also offer additional functionality including CRX graphics and multimedia capabilities.

The Model 715/75 and 725/75 are designed to meet the needs of workstation users for ECAD, MCAD, Electronic Design Automation (EDA), Architecture and Engineering Construction (AEC), Geographic Information Systems (GIS), and Scientific applications. In addition, emerging markets such as Oil & Gas, Customer Services, and Financial Services are good targets for these workstations. See Section 3.0 for additional market information.

1.2 Packaging

The Model 715/75 and 725/75 make use of existing Model 715 and 725 packaging, enabling customers to add substantially higher performance through a simple CPU board swap. Existing memory, graphics, peripherals, and software can continue to be used with the 75 MHz systems.

1.2.1 Model 715/75 Packaging

The Model 715/75 is offered in the small, quiet Model 715 desktop package ideally suited for an office environment. The package measures 4.3 inches high, 18.5 inches wide, and 15.7 inches deep. This compact size is made possible by integrating the CPU, FPU, 8-plane graphics and standard I/O all on a single board. The package design gives the user the choice of placing the system on the desktop or on the floor in the desktide position using an optional pedestal.

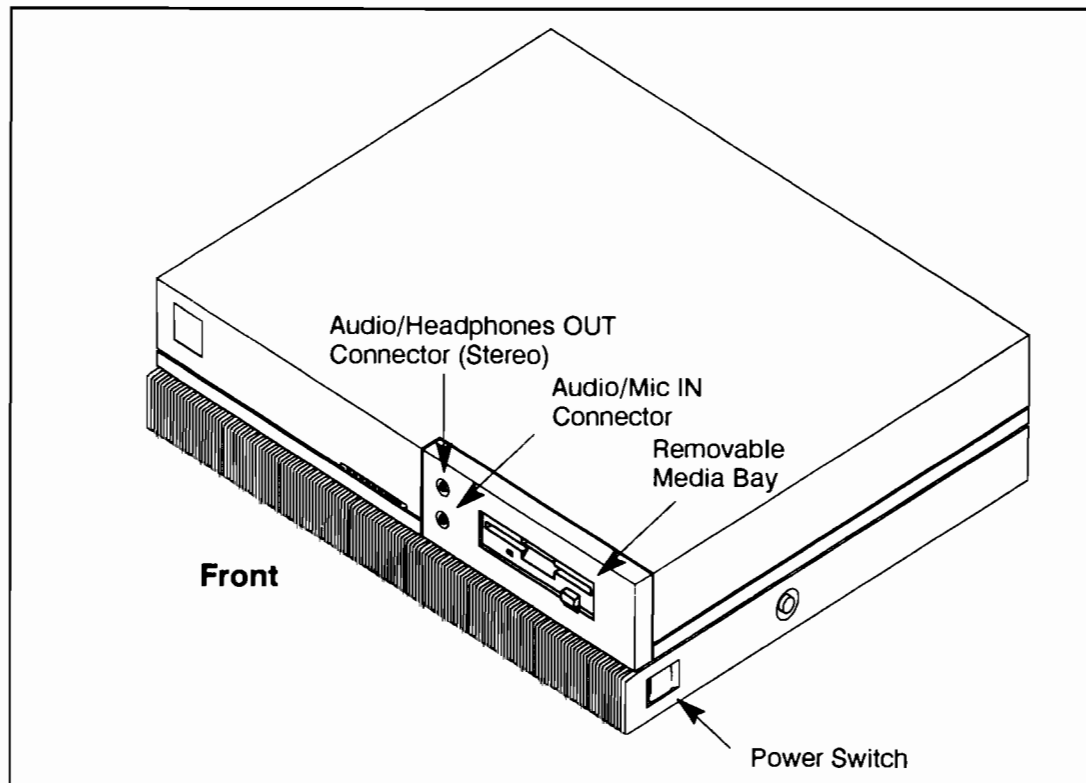
Though compact, the small package can support up to three mass storage devices, that is, two hard drives and one removable drive (floppy, CD-ROM, or DDS tape). One slot is available for removable devices. For example, two 1GB disk drives and one 2GB DDS tape drive can all be configured within the system package. In addition, the Model 715/75 can accommodate 32-256MB of memory. One EISA slot is available for optional expansion (such as CRX graphics).

The Model 715/75 provides easy installation, upgradability, expansion and service. The package opens like a book so that all components are easy to access. These workstations are as easy to configure as stereo components, featuring plug-in memory modules, processor upgrade boards, disks, and removable media devices.

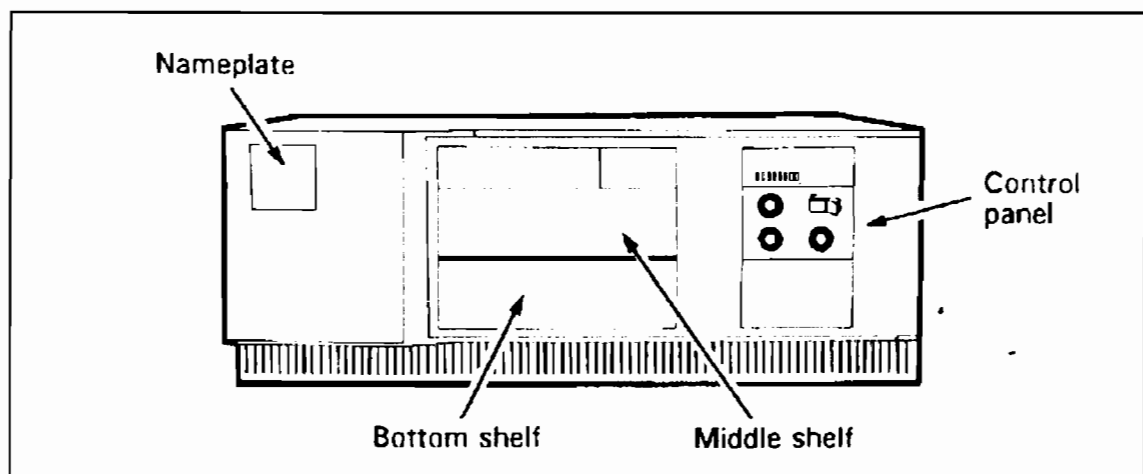
1.2.2 Model 725/75 Packaging

For users requiring more expansion, the Model 725/75 provides up to 4 EISA slots in a quiet desktop package well-suited to office environments. Storage can grow to 239.8GB through use of external storage arrays and EISA slots. The Model 725/75 package measures a compact 6.6 inches high, 17.3 inches wide, and 16.1 inches deep. If the user prefers a desktide system, an optional pedestal can be added to the system for convenient floor placement.

Though compact enough for desktop use, the package can support up to three internal mass storage devices; two removable devices can be accommodated. For example, one 1GB disk drive, one 2GB DDS tape drive, and one 1.44MB 3.5-inch Floppy drive can all be configured within the system package. Note that only one of each type of removable media can be supported on the system. The Model 725/75 can accommodate 32-256MB of memory. Four EISA slots are available for options. If optional CRX graphics are used, the system still provides three available EISA slots. Memory and processor access is simplified by a flip-up power supply that swings out of the way.



715/75



725/75

1.3 Memory (RAM)

The Model 715/75 and 725/75 offer maximum memory capacity of 256MB. The memory subsystem is designed to achieve data transfer rates (160MB/sec peak) that match the high CPU performance of these systems. Two-way memory interleaving results in a balanced system architecture providing high application throughput. Consistent with HP's operational philosophy of "maximum reliability," ECC single-bit error correction and multiple-bit error correction logic are used. Industry-standard, low-cost DRAM SIMMS are used in both the Model 715/75 and the 725/75.

1.3.1 Memory Increments

Memory increments of 32, 64, 128, and 256MB are offered either factory integrated or as add-ons. The memory occupies 4 pairs of dedicated slots. Be sure to help your customers plan for future memory needs so that they can grow to the maximum memory capacity without having to exchange existing SIMMS. For example, a customer with four 32MB SIMMS would not be able to expand to 256MB without exchanging SIMMS.

1.3.2 32MB Memory Configuration Support and Constraints

The Model 715/75 and Model 725/75 support a minimum of 32MB of memory. This configuration is suitable for most 2D and some 3D application support. This configuration can be suitable for environments where applications run locally with either no requirement for a high-speed graphical user interface such as a CRX-24Z, or with a user interface that can run remotely.

We believe that approximately 40% of Model 715/75 and 725/75 users will run a 32MB configuration. It is important to note that a majority of 3D, cache-intensive applications will require at least 64MB of total memory for optimum performance.

1.4 Graphics

The Model 715/75 and 725/75 deliver excellent graphics performance. Customers upgrading from Model 715/33, 715/50, or 725/50 workstations will experience a significant boost in graphics just by swapping CPU boards to obtain the new 75 MHz systems.

The Model 715/75 and 725/75 graphics hardware is the same integrated grayscale and 8-plane color implementation used in the Model 715/50 and 725/50. Standard graphics support is available in either 19-inch grayscale or a choice of 8-plane color monitors. The X11 performance of these workstations is 15,975. Their 2D/3D vectors per second performance is 1,100,000 using a standard 8-plane color monitor. All advanced CRX graphics options are also available. The following tables summarize the Model 715/75 and 725/75 graphics specifications.

HP Computer Museum
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Model 715/75 and 725/75 Removable Media Options			
	4 mm DDS Drive w or w/o compression	CD-ROM Drive	Floppy Drive
Drive Size Media Type Capacity Interface Data Transfer Rate Avg. Access Time HP-UX Dist. Media	3.5" half height 60m (120min)DDS 2.0GB 4-8GB w/Comp. SCSI 183KB/sec 732KB/sec comp. 20 sec Yes	5.25" half height 4.7" 600MB SCSI 154KB/sec 350 msec Yes	3.5 half height Flexible Diskette 1.44MB SCSI 500KB/sec 250KB/sec N/A No
715/75, 725/75 Support	Internal/External	Internal/External	Internal
1350SE Support Standalone Drive	Yes Yes	Yes Yes	No No
Applications	Software Distrib. HP-UX Distrib. Unattended Backup Data Exchange Low-cost Archive	Software Distrib. HP-UX Distrib. On-Line Docu- mentation Audio/Video Training	Software Distrib. Data Exchange

1.7 Standard Input/Output (I/O) Support

The Model 715/75 and 725/75 support a wide variety of industry-standard I/O interfaces, similar to the other members of the Series 700 family. In order to provide the best possible performance and cost savings for the user, the system has built-in Local Area Networking (LAN) AUI (ThickNET) connections as well as an external SCSI-II port, bidirectional Centronics interface, two RS-232 serial ports, Audio I/O, and either 1 (Model 715/75) or 4 (Model 725/75) EISA bus slots.

The Model 715/75 and 725/75 support a choice of two keyboards, the standard HP-UX keyboard and the PC-style keyboard. Both of these keyboards use HP's proprietary HP-HIL interface to the system. Only one keyboard can be configured with the system at any given time.

The Model 715/75 and 725/75 include built-in capability for recording and playing back CD-quality sound. The potential applications of CD-quality audio include voice annotation, voice notification, computer-based training, and emerging application areas such as verbatim recording and audio command & control. The following table lists the specifications for the built-in standard I/O.

Model 715/75 and 725/75 Standard I/O Specifications	
SCSI-II Interface Quantity Type Data Rate Device Limit Connector	1 SCSI-II single-ended, 8 bit Up to 5MB/sec synchronous (1.5MB/sec asynchronous) 7 SCSI-II, ALT-1 (50-pin high density)
Serial Interface Quantity Type Data Rate Device Limit Connector	2 EIA RS-232C, CCITT V.24/V.28 Up to 460.8 Kbps with CTS/RTS 1 per connector 9-pin male DTE (PC standard)
Parallel Interface Quantity Type Data Rate Device Limit Connector	1 Centronics (Busy Handshake) Up to 300 + Kbps with DMA Up to 200 Kbps sustained 1 per interface 25-pin female (PC standard)
Audio Interface Quantity Digital Data Rate Device Limit Connector	1 16-bit CD/DAT quality stereo (44.1 or 48 KHz) 1 mic, 1 headphone, 1 line in, 1 line out, 1 speaker 2 3.5 mm mini phone jacks
HP-HIL Quantity Type Device Limit Connector	1 HP Serial Desktop Bus 7 AMP SMD
EISA Slots Options	1 (715/75); 4 (725/75) CRX graphics FDDI SNA HP-IB X.25 IEEE 802.3 IEEE 802.5 Apollo Token Ring

1.8 Networking Support

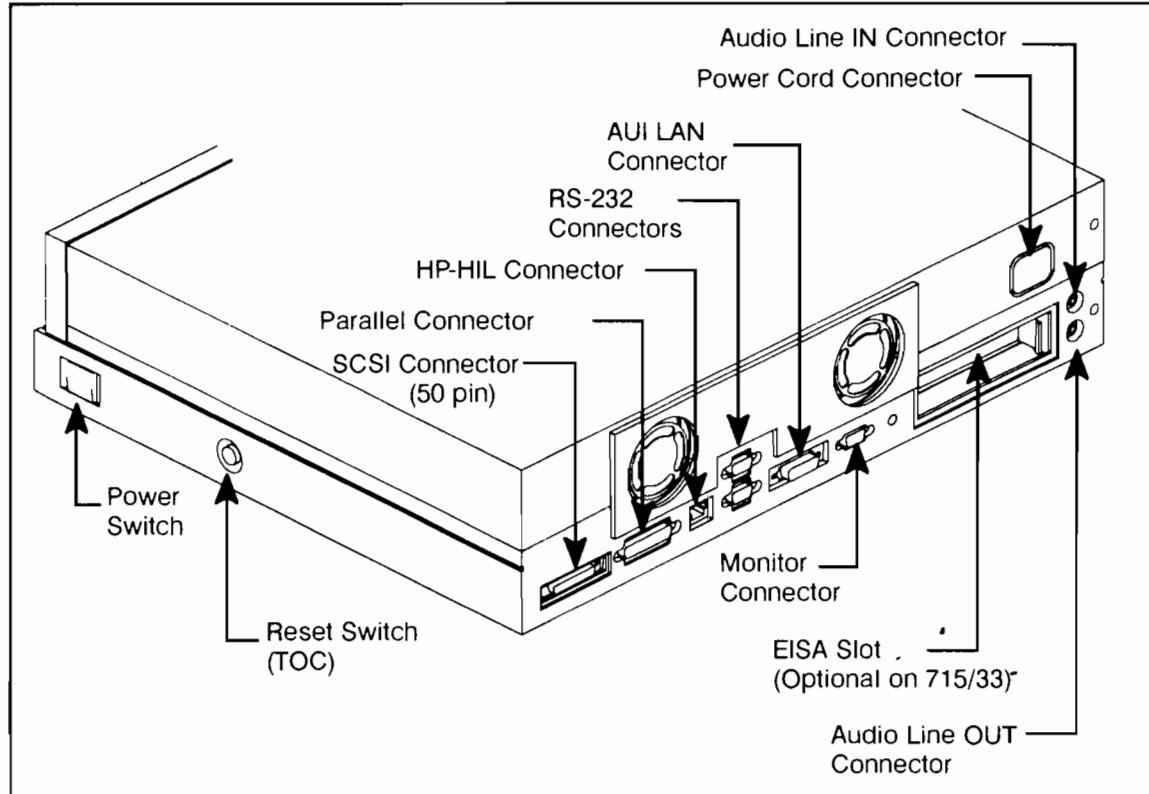
The Model 715/75 and 725/75 include the Ethernet 802.3 hardware integrated on the CPU board. An AUI (ThickLAN) connector is standard. Customers needing a ThinLAN transceiver can order add-on option A2670A.

In addition to the standard Ethernet controller, the Model 715/75 and 725/75 also provide FDDI, SNA, X.25, IEEE 802.3, (IBM) Token Ring IEEE 802.5, HP-IB and Apollo Token Ring interfaces through the EISA bus. For a complete list of EISA options with product numbers, please refer to the Prices and Configurations Guide.

The following table summarizes the standard network support for the Model 715/75 and 725/75.

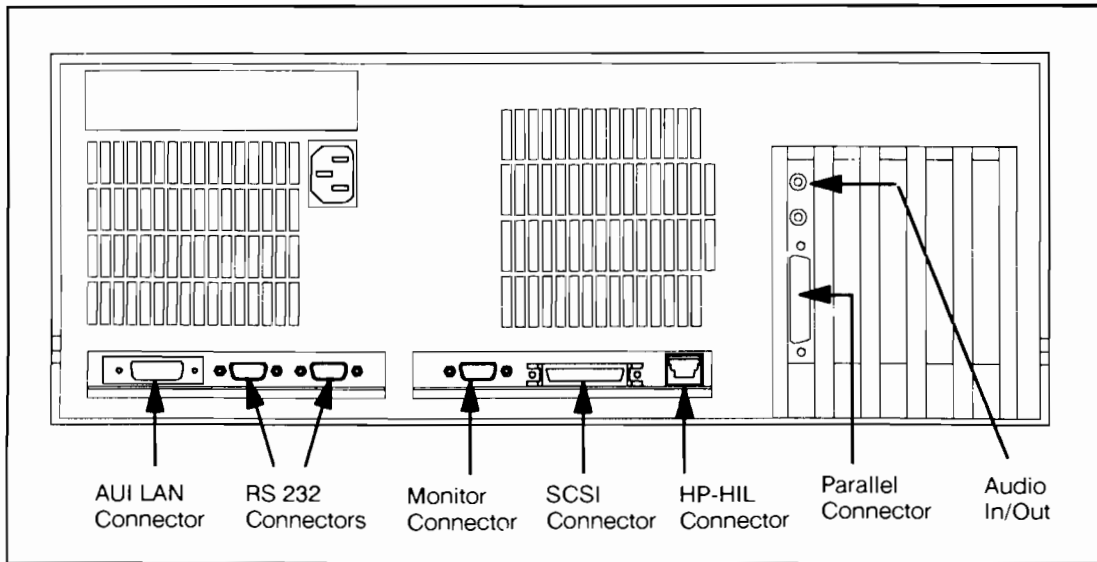
Model 715/75 and 725/75 Network Support	
LAN Type Connector	IEEE 802.3 LAN ThickLAN AUI
Data Rate	10MBits/sec
Standard HP-UX Networking Software Services	NCS, NFS BSD 4.3 TCP/IP Services BSD 4.3 Network Services ARPA Services

The following illustration depicts the back panel of the Model 715/75 with standard I/O and LAN connectors.



Model 715 Back Panel

The following illustration depicts the back panel of the Model 725/75 with standard I/O and LAN connectors.



Model 725 Back Panel

2.0 Competitive Comparisons

This unit summarizes relevant competitive information. The table provides general comparative information in a quick-reference format

Competitive Workstation Summary						
	HP 9000	HP 9000	DEC Alpha AXP	IBM RS/6000	Silicon Graphics	SUN SPARCstn
Model Name	715/75	725/75	3000 mod. 400	365	Indigo2 R4400	SS 10:51
Package	Desktop	Desktop	Desktop	Desktop	Desktop	Desktop
Ship Date	Q3 93	Q3 93	11/92	Q1 93	7/93	Mid-93
Performance						
SPECmark89	110	110	111.1	NR	100	NR
SPECint92	61	61	74.7	48.7	94.2	65.2
SPECfp92	113	113	112.5	99.2	105.2	83.0
MIPS/MFLOPS	86 / 31	86 / 31	134.3 / 26.4	NR / 22.2	120.0 / 22.6	NR / NR
System Design						
Type processor	PA 7100	PA 7100	DECchip 21064	Power	R4400	SuperSPARC
Max # process.	1	1	1	1	1	1
CPU clock spd.	75 MHz	75 MHz	133 MHz	50 MHz	75 MHz	50 MHz
# I/O slots	1 EISA	4 EISA	3 TURBO	1	4	4
Cache - int.						
inst/dat	N/A	N/A	8 / 8KB	16 / 128KB	16 / 16KB	20 / 16KB
Cache - ext.						
inst/dat	256 / 256KB	256 / 256KB	512KB	NA	1MB	1,024KB

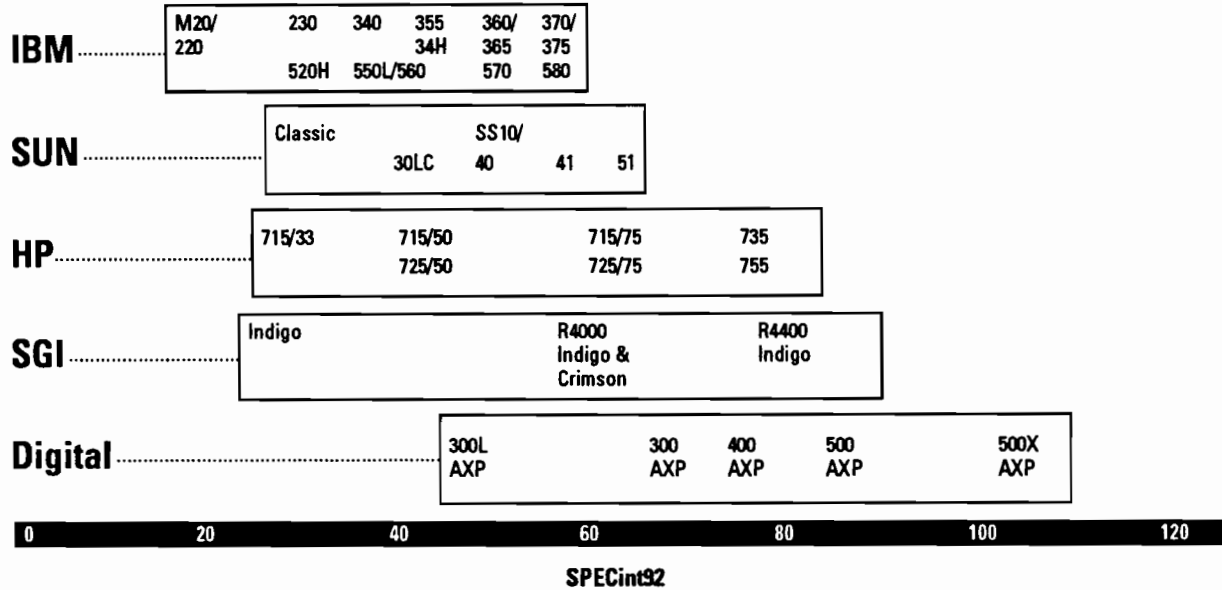
Configuration	32/256MB	32-256MB	32/128MB	16/128MB	32/384MB	32/512MB
RAM min/max	2GB	2GB	2.1GB	2GB	3.6GB	2.1GB
Disk, int. max.	68.6GB	239.8GB	36.7GB	10.5GB	48GB	41GB
Graphics						
Highest option	CRX 48Z	CRX 48Z	PGXT +	GTO24	Extreme	GT
X11 perf overall	15,975	15,975	NR	NR	NR	NR
# planes	24/24	24/24	24/24	24/24	24	24/24
3D vectors/sec	1,450 K	1,450 K	NR	990 K	1200 K	NR
triangles/sec	600 K	600 K	NR	120 K	415 K	NR
Z buffering	24-bit hardware	24-bit hardware	24-bit hardware	21-bit hardware	24-bit hardware	24-bit hardware

NR = not released.

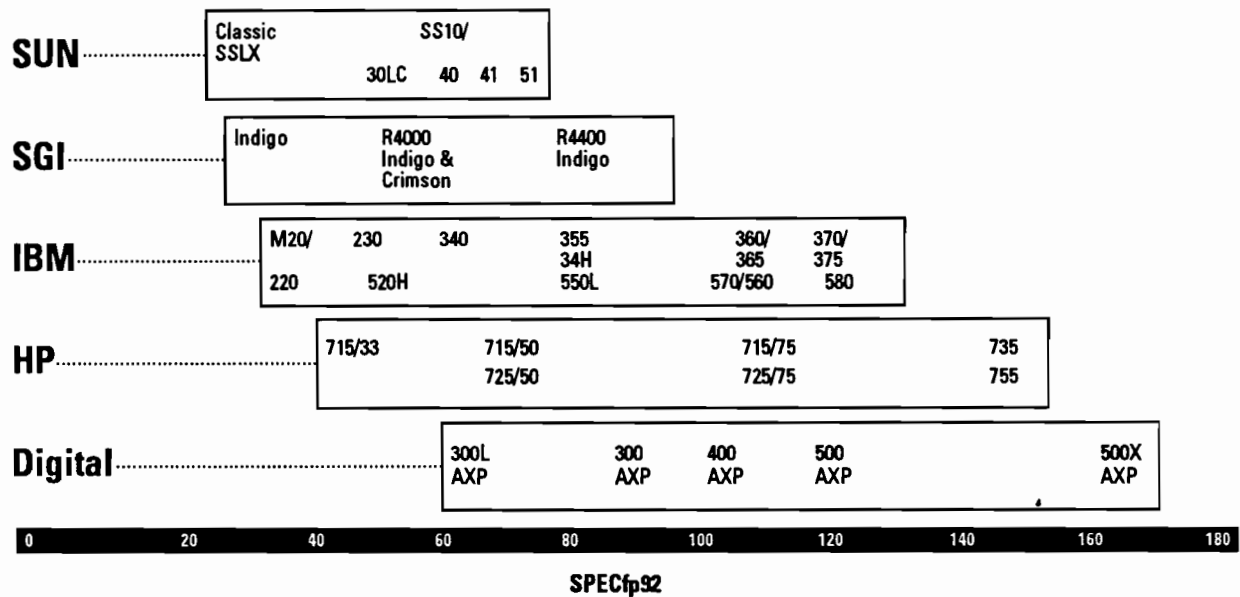
NOTE: The competitive information contained in this unit was valid at the time of printing but is subject to change. It is important to **verify all data** before using it in your sales strategy or presentations to customers.

The following two charts illustrate competitive SPECinteger92 and SPECfloatingpoint92 performance.

SPEC Integer 92 Competitive Performance



SPEC Floating Point 92 Competitive Performance



3.0 Target Markets

This section helps you identify those markets where the Series 700 Model 715/75 and 725/75 are appropriate workstations. Generally you are in a solid position to win in any selling situation in which

1. Cost effective workstations are required for fast X window performance
2. 2D/3D wireframe grayscale or color graphics are required
3. High-end CRX graphics are required

Key markets for the Model 715/75 and 725/75 are ECAD, MCAD, Electronic Design Automation (EDA), Geographic Information Systems (GIS), and Science, as well as emerging markets such as Oil & Gas, Customer Services, and Financial Services. Multimedia functionality is supported through CD-quality audio and add-on video card options. Entry-level surface rendering is available through HP's PowerShade 3D surface software. Optional CRX graphics are offered for solids modeling, visualization, and accelerated rendering requirements.

3.1 Mechanical Market

From a price/performance perspective, the new Model 715/75 and 725/75 systems fit nicely between the Model 715/50 and 735 systems. They compete head-to-head with SGI and their R4000-based products. For design applications such as solids modeling, the 75 MHz Model 715 and 725 will provide an attractive alternative in price-sensitive situations where the Model 735 is too expensive and the Model 715/50 does not offer adequate performance.

3.2 EDA (Electronic Design Automation)

The Model 715/75 and 725/75 are an important addition to the HP workstation product line for EDA. They provide the ideal solution for customers unsure of the need for Model 735 performance but who perceive the need for more performance--especially integer performance--than is available with the Model 715/50. The Model 715/75 will represent an ideal server for EDA accounts using less expensive software. It will do best in the IC design area and with power users in other areas of EDA.

3.3 Architecture and Engineering Construction (AEC)

The addition of the new Model 715/75 and especially the new 725/75 is important news for this market. Many applications are moving to 3D--i.e., the performance requirements are increasing. At the same time, more than one EISA slot is required in many cases. Facility design, large facility management, and infrastructure design and management are great opportunities for a low-cost, high-performance visualization system.

3.4 GIS (Geographic Information Systems)

The Model 715/75 will be a key product for the GIS marketplace; the model 725/75 will have limited potential as the additional EISA slots are not a requirement. The Model 715/75 teamed with 1 - 3 X-Stations should form a potent and common configuration, offering a very attractive cost per seat. Acceptance of X-Stations has been growing rapidly in GIS, and the Model 715/75 will be an excellent X server in this configuration. Application areas within state and local government ranging from tax assessment to city planning and environmental analysis will be large-scale users of such a configuration.

3.5 Financial Services

The Model 715/75 will be a strong trader desktop product in the Securities segment, while the Model 725/75 will be an excellent product for the Banking and Insurance industries.

In the Securities segment, the Model 715/75 completes the desktop trader offering with a strong, high-performance system. The ability to offer the same Model 715 package with three different performance points (33 MHz, 50 MHz, and now 75 MHz--all board upgradable) will provide a great competitive advantage for the HP trader desktop.

In the Banking and Insurance environments, the Model 725/75 represents an even higher performing X-Station server. These implementations are generally seen in customer service delivery functions with 5 - 10 X-Stations. Adding the Model 725/75 to this configuration should considerably increase the performance of the overall network.

3.6 Scientific Market



The new 75 MHz workstations will be very effective additions to the already successful Series 700 product family. The additional cache (256KB) will allow larger, more logical data sets to be read into fast memory. Because of the vast amount of data required in Visualization, Oil & Gas, Chemistry, and Statistical Analysis, this ability will result in much higher application performance for those industries. Especially when competing against SGI in Computational Chemistry and Oil Exploration & Production, the Model 715/75 will be an excellent fit.

3.7 Electronic Publishing

For the publishing market, the lower-performance workstations such as the 33 MHz Model 715 and the 50 MHz Model 715 and 725 are generally the preferred solution. The new 75 MHz workstations will therefore be required only in certain niches within publishing. Those niches include power users within the technical documentation segment who, for instance, have to move many engineering drawings or other graphics within documents or work on documents thousands of pages in length. In the commercial publishing pre-press market segment, the power of the 75 MHz systems will be a strong selling point for the raster image process (RIP), where vector graphics are converted to raster images before going to press. Here, high performance is a critical issue.

3.8 Office Automation

In this market segment the Model 715/75 and 725/75 will be attractive only to very specific customers. For instance, they could be used as a departmental server for applications such as Lotus Notes on HP-UX or as an e-mail backbone. Generally, the Model 715/33 and 715/50 products are the better fit in this segment.



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