
HP Apollo Series 700 Models 715/33 and 715/50 Workstations



The HP Apollo Series 700 Models 715/33 and 715/50 are the highest performing entry-level desktop workstations in the industry. These systems deliver 46 and 69 SPEC-marks(89). And their graphics capabilities are derived from the industry's leadership price/performance Series 700 GRX and CRX graphics. They sustain 610,000 and 920,000 2D/3D vectors per second, respectively.

The Models 715/33 and 715/50 are "self-service" workstations, allowing for easy installation, upgradability, expansion, and serviceability. This family of computers

makes workstations as easy to configure as stereo components, featuring plug-in memory modules, processor upgrade boards, disks, and removable media devices. These systems support a wide variety of industry-standard I/O interfaces. To provide the best possible performance and cost savings for the user, the system has built-in local area networking (LAN), external SCSI-2 port, bidirectional Centronics interface, two RS232 serial ports, audio connection, and HP-HIL.

The Models 715/33 and 715/50 are the low-cost workstations of choice for a broad range of applications that require fast X Window System performance and 2D/3D wireframe color and grayscale graphics. They are designed to meet the needs of workstation

markets such as electronic computer-aided design (ECAD), mechanical computer-aided design (MCAD), computer-aided software engineering (CASE), desktop publishing, and desktop productivity, as well as many emerging markets such as customer services and financial services. Multimedia functionality is also supported in the form of a CD-quality audio capability and add-on video card options. Entry-level surface rendering is available through HP's 3D surfaces software, PowerShade, while optional CRX-24, CRX-24Z, and CRX-48Z (model 715/50 only) functionality is offered for solids modeling, visualization, and accelerated rendering requirements.

The Models 715/33 and 715/50 share in HP's rich tradition of standards, advanced transparent networking, advanced development tools, and advanced user interfaces. We even offer financing alternatives to help get you the equipment you need now and to upgrade in the future. And, as always, HP is famous for its quality assurance, support, and service.

Features	715/33	715/50	Benefits
CPU Performance (PA-RISC 7100 Processor)			
Clock frequency	33MHz	50MHz	<ul style="list-style-type: none"> • Industry's fastest entry-level workstation • Industry leadership price/performance
MIPS	41	62	
SPECmark89	46	69	<ul style="list-style-type: none"> • Speeds technical computations
SPECint92	24	36	
SPECfp92	45	72	
MFLOPS (DP)	8.6	13	
Memory and Cache			
Memory Capacity	*8-192MB	16-256MB	<ul style="list-style-type: none"> • Improves application performance
Instruction cache	64KB	64KB	
Data cache	64KB	64KB	
Mass Storage			
Internal Capacity	2GB	2GB	<ul style="list-style-type: none"> • A wide range of mass storage options
Total Capacity	68.6GB	68.6GB	
Removable Media			
Internal option	600MB CD-ROM 1.44MB Floppy 2.0GB DDS tape 4-8GB DDS tape	600MB CD-ROM 1.44MB Floppy 2.0GB DDS tape 4-8GB DDS tape	<ul style="list-style-type: none"> • A wide range of removable media options
Graphics			
2D/3D Wireframe			
Grayscale			
19", 1280 x 1024, 72Hz Monitor			<ul style="list-style-type: none"> • Superb image detail • Leadership windowing and vector performance through X11 and PHIGS
X11 vectors/second	570,000	860,000	
X11 perf			<ul style="list-style-type: none"> • 256 shades aid user comprehension • Fast performance for text-intensive applications
8-plane grayscale	7,633	11,187	
Character hardware			
Color			
17", 1024 x 768, 75Hz monitor			<ul style="list-style-type: none"> • Superb image detail • Superb image detail • Leadership windowing and vector performance • Ideal for design, engineering, and scientific applications • 256 colors aid user comprehension
19", 1280 x 1024, 72Hz monitor			
X11 perf	7,633	11,187	
2D/3D vectors/second	610,000	920,000	
8-plane color			
CRX-24 (24 plane, 3D wireframe)			
19", 1280 x 1024, 72 Hz Monitor			<ul style="list-style-type: none"> • Superb image detail
X11 perf	7,424	10,646	<ul style="list-style-type: none"> • Ideal for visualization and image processing
2D/3D vectors/second	610,000	680,000	
Triangles per second	12,000	18,000	
Lighted, shaded quadrilaterals per second	8,000	12,000	
24-plane color			<ul style="list-style-type: none"> • 16.7 million simultaneously displayable colors • Allows smooth movement of dynamic images • Annotation and image comparison
12/12 plane double buffering			
8 overlay planes			

* Note: 8MB RAM is supported only in diskless configuration. 8MB configuration does NOT support local HP-VUE, Starbase, PHIGS, local mounted disks, local swap space, floppy, CD ROM, DAT, SoftPC, printer spooler, RS232 driver, Centronics driver, audio drivers or cooperative computing products

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Features	715/33	715/50	Benefits
CRX-24Z (24 plane, Z-buffered, 3D solids)			
19", 1280 x 1024, 72 Hz Monitor			• Superb image detail
X11perf	7424	10,646	
2D/3D vectors/second	610,000	680,000	• High-performance lighting and shading for surface rendering and data animation
3D anti-aliased vectors per second			
Triangles per second	100,000	140,000	• 16.7 million simultaneously displayable colors
Lighted, shaded quadrilaterals per second	45,000	65,000	
24-plane color			• Allows smooth movement of dynamic images
12/12 plane double buffering			
8 overlay planes			• Annotation and image comparison
CRX-48Z (24 plane, Z-buffered, 2D/3D solids and visualization)			
19", 1280 x 1024, 72 Hz Monitor			• Superb image detail
X11perf		9,891	
2D/3D vectors/second		1 million	• High-performance lighting and shading for surface rendering and data animation
3D anti-aliased vectors per second		1 million	
Triangles per second		600,000	• Real-time rendering of large 3D models
Lighted, shaded quadrilaterals per second		80,000	
24-plane color			• 16.7 million simultaneously displayable colors
24/24 plane double buffering			
8 overlay planes			• Allows smooth movement of dynamic images
			• Annotation and image comparison
Graphics Software			
X11/R5, PEX, PHIGS, Starbase, GKS, PowerShade standards			• Speed and realism through enhance the capabilities of all applications of Starbase, PHIGS and GKS
User-friendly Features			
HP VUE, OSF/Motif, X11 Window System			• Ease of use through standards.
Instant Ignition			
Standard Interfaces			
Integrated I/O subsystem			• Provides immediate productivity through a preinstalled and preconfigured HP UX environment
802.3 IEEE (AUIt)			
SCSI-II, RS-232(2)			• Low-cost, high-performance IEEE
Centronics			
Audio I/O ports			• Allows quick and easy integration in heterogeneous networks
HP-HIL			
Cooperative Computing Products			
NCS, Passwd Etc			• Simple connection of high-speed, low-cost disks and other peripherals
Task Broker			
NetLS			• Multimedia capability
OmniBack			
			• Supports distributed applications, ease of administration in a networked environment
			• Provides users with access to all available power on the network
			• Allows licensing of applications based on actual usage
			• Automates system backup in a networked environment



Technical Specifications	715/33	715/50
System Processing Unit		
Central processor	PA-RISC	PA-RISC
Clock frequency	33MHz	50MHz
Performance		
MIPS	41	62
SPECmark89	46	69
SPECint92	24	36
SPECfp92	45	72
MFLOPS (DP)	8.6	13
Memory management unit		
Virtual memory address	48 bit	48 bit
Instruction TLB and data TLB	120 page entries unified, 16 variable block entries unified, fully associative	
External cache		
Instruction cache size	64KB	64KB
Organization	Direct mapped	Direct mapped
Bus width	64 bits	64 bits
Instruction cache bus performance	267MB/second I-fetch (4 byte)	400MB/second I-fetch (4 byte)
Data cache size		
Organization	Direct mapped	Direct mapped
Data bus width	64 bits	64 bits
Data cache peak bus performance		
	267MB/second load (8 byte)	400MB/second load (8 byte)
	267MB/second single store (8 byte)	400MB/second single store (8 byte)
Main memory type		
	ECC SIMMs	ECC SIMMs
	single bit correct	single bit correct
	double bit detect	double bit detect
Capacity	8-192MB	16-256MB
Main memory bus width	64 data bits	8 check bits
Main memory bus peak performance		
	33MB/sec (6 byte duration)	160MB/sec (64 byte duration)
System DRAM technology		
Memory options	80sec, 4 & 16 Mbit	DRAM
	8, 16, 32, 48, 128, 192	16, 32, 64, 128, 256

Operating System

HP-UX 9.0: Complies with IEEE POSIX.1003.1 and 1003.2 FIPS 151-1, ANS X3.159-1989, System V Interface Definition (SVID) Issue II (Base System and all Extensions except AS, NS and shmat [KE_OS]), X/Open Portability Guide Issue III (XPG3), (Base Branding).

HP-UX 9.0 also complies with IS 9945/1 and Base Component and all Optional Components except XTI only.

X Window System

Version 11 Release 5 (X11R5), OSF/Motif 1.2

Languages

C, C++, Pascal, ANSI FORTRAN, ANSI C, PA RISC 1.1, Assembler

User Interface

HP VUE 3.0

Human Interface

Keyboards

109 key, 3 adjustable angle settings, HP-HIL, available in 21 languages

Length 443.9mm

Width 177.6mm

Height 53.5mm (max - highest angle setting)

38.6mm (min - lowest angle setting)

Weight 1.48kg

101 key, PC style 3 adjustable angle settings, HP-HIL, available in 11 languages

Length 463.2mm

Width 177.6mm

Height 55.3mm (max - highest angle setting) min - lowest angle setting)

Weight 1.54kg

Regulatory Specifications -These keyboards are designed to meet all applicable of the following:
Electromagnetic Compatibility (EMC) Directive

EN 55022 Class A / CISPR 22 Class A
prEN 55024-2 / IEC 801-2
prEN 55024-3 / IEC 801-3

German Standard

TUV/GS Safety Body
IEC 950 / EN 60950
ZH1/618

Spanish Homologation

Underwriters Laboratories (UL)
UL 1950, "Information Technology Equipment"

Canadian Standards Association (CSA)

C22.2 No. 950, "Information Technology Equipment"

Federal Communications Commission (FCC)

FCC Part 15, Sub-part B -
Computing Devices, Class A

Radio Research Laboratory of Korea (RRL)

Electromagnetic Interference (EMI) Control Regulations

Mouse

3 button, rollerball, HP-HIL

Audio

16-bit CD/DAT quality stereo

Digital data rate

16-bit resolution, 44.1 or 48KHz
sampling input/output

Connectors

1 mono mic, 1 stereo headphones, 1 mono speaker, 1 stereo line in, 1 stereo line out (all mini phone jacks)

Three independent time generators controllable over 30db Frequency Range—81.46Hz to 83.3KHz (Available via speaker connected to external jack 250mW @ 8 ohms)

Interface Specifications

Type

HP-HIL, 1.0 Amps, built-in audio beeper

Device Limit

7 per interface

Connector

AMP SMD

Networking Options

LAN

Standard

IEEE 802.3 LAN with interface with ThickNET (AUI) connector

Optional

FDDI EISA controller

Networking Products

NCS, NFS, Berkeley 4.3 TCP-IP, BSD 4.3 Network Services, and ARPA Services

I/O Specifications

Graphics Bus (standard)

1 slot

Width

32-bit address

Peak bus performance

133MB/sec (block move out, 32 bytes)

LAN Interface (standard)

Type

IEEE 802.3/Ethernet

Data Rate

10Mbits/sec

Connectors

15-pin AUI (ThickNET) connector

SCSI Interface (standard)

Type

SCSI-II: single-ended, 8 bit

Data rate

5MB/sec synchronous

1.5MB/sec asynchronous with standard length cables

Device limit

7 devices

Connector

ALT-1 of SCSI-2 50-pin high density

Serial Interface (two standard)

Type

EIA RS232C, CCITT V.24/V.28

Data Rate

to 460.8Kbps

Connector

9 pin male DTE (PC Standard)

Parallel Interface (standard)

Type

Centronics, BUSY handshake

Data rate

300+ KB/sec with DMA

200KB/sec sustained

Connector

25-pin female (PC standard)

EISA Bus

Number of slots one (optional on Model 715/33)

Width

32-bit address, 32-bit data

Peak bus performance

33Mbytes/sec. sequential memory write

Optional Internal Mass Storage

Max. Mass Storage Devices

Two 3.5" hard disks and one 3.5" or one 5.25" removable media devices

Max Internal Mass Storage

2GB

Internal 525MB Disk

Number supported

up to 2

Operating system

HP-UX 9.0

Size

3.5-inch

Formatted capacity

525MB

Average seek time

10.5 ms

Average latency

6.7 ms

Spindle speed

4,500 rpms

Internal 1GB Disk

Number supported
up to 2

Operating system
HP-UX 9.0

Size
3.5-inch

Formatted capacity
1.05GB

Average seek time
10.5 ms

Average latency
5.6 ms

Spindle speed
4,500 rpms

Digital Audio Tape Drive

Max. number supported
1 per unit

Operating system
HP-UX 9.0

Size
5.25 inch full height

Media type
60 and 90 meter DDS cassette

Capacity
2.0GB (without data compression)
up to 8.0GB (with data compression)

183 KB/sec

Format
Helical-scan DAT

Max. burst data transfer rate
1.5MB/sec

Max. sustained data rate transfer
183KB/sec (without data compression) up to 732KB/sec (with data compression)

Average random access time
20 seconds

1.44MB 3.5-inch Floppy

Max. number supported
1 per unit

Operating system
HP-UX 9.0

Media

HP 2MB or HP 1MB floppy disk

Formatted capacity
1.44MB or 720MB

Format
MFM or FM

Transfer rate
500KB/sec or 250KB/sec

Track to track access time
3 ms

Avg. latency
100 ms

Avg. access w/latency
194 ms

600MB 5.25" CD-ROM

Max. number supported
1 per unit

Operating system
HP-UX 9.0

Media diameter
4.7 inches

Avg. data transfer rate
154Kbits/sec

Avg. random access time
350 msec

SPU Power - Output specifications

Power
143 W max output

+5 V current
22A

+12 V current
3.0 A

-12 V current
0.1 A

-5 V current
0.1 A

+12 V HIL 1.0
5V SCSI 1.0

Physical and Environmental**System Unit Power**

Source Consumption
3.64A max @ 120V
2.0A max @ 240V

Auto Ranging
90-264 Volts

Line Frequency

47-63Hz

Power Consumption
210 max Watts
716 BTU/hour
180 Kcal/hour

Physical Dimensions

Desktop:
Height
110m

Width
470mm

Depth
399mm

Deskside:
Height
470mm

Width
110mm

Depth
399mm

Net weight
24 lbs (fully loaded)

Shipping weight
29 lbs. (fully loaded)

Environmental Specifications

Temperature: operating
5 C to 40 C; 20 C/hr.
rate of change max.

Temp. non-operating
-40 C to 70 C

Humidity: non-condensing

Operating
15% to 80% R.H. max

Operating max wet bulb temp
27 C

Non-operating
15% to 90% R.H. max

Non-operating max wet bulb temp
46 C

Altitude: operating
3050 meters (10,000 ft) to 40 C

Altitude: non-operating
15,240 meters (50,000 ft) to 60 C

Monitors

**17" color monitor
(for model 715/33 only)**

Screen refresh rate
75Hz
Video signals
RS-343 A
Resolution
1024x768
Electrical specifications
Line voltage
88-135VAC
193-269VAC
Line frequency
47-63Hz
Maximum current
1.5A/1.0A
Power consumption
100 Watts max.

Environmental characteristics
Operating temperature
10-40° C
Non-operating temp.
-40-60°C
Humidity operating
10-80%RH
Max. altitude operating
3048m (10,000ft)
Max. altitude non-operating.
10,668m (35,000ft)

Regulatory compliance
CISPR level: A
VDE level: B
FCC class: B
VCCI class: 1
Safety
UL, CSA, EN60950, GS Mark

Monitors physical characteristics
(Product only)
Height
438mm (17.2 in.)

Power Budget	+5V (Amps)	+12V (Amps)	-12V (Amps)	-5V (Amps)	Totals (Watts)
Base system	8.5	0.2	0.1		46.1
Maximum memory	1.0				5
HIL maximum load	1.0	1.0			12
AUI (lan)	0.5				6
High temp fan					23
Hard disk	1.0	.8			14.6
DDS tape drive	1.0	0.75			14
CD ROM	0.5	0.3			6
Floppy disk	0.8				4
EISA interface	1.2				6
EISA/HP-IB					15.3
EISA/SCSI-differential					15.4
EISA/802.3 LAN					17 typical
					21.3 AUI
EISA/802.5 LAN					11.2
EISA/FDDI					10
EISA/X.25					19.2
SCSI terminators	1.0				4.8
Fans					

Width
408mm (16.1 in.)
Depth
442mm (17.4 in.)
Net weight
21kg (46.2 lbs.)

19" Grayscale
Screen refresh rate
72Hz
Video signals
RS-343 A
Resolution
1280x1024
Electrical specifications
Line voltage
88-135VAC
193-269VAC
Line frequency
47-63Hz
Maximum current
1.6 A/0.8 A
Power consumption
100 Watts max.

Environmental characteristics
Operating temperature
0-55° C
Non-operating temp.
-40-71° C

Humidity operating 40° C
10-95% RH
Max. altitude operating
4572m (15,000ft)
Max. altitude non-operating.
15,250m (50,000ft)
Regulatory compliance
CISPR level: B
VDE level: B
FCC class: A
VCCI class: 1
Safety
UL, CSA, EN60950, GS Mark

Monitors physical characteristics
(Product only)
Height
444mm (17.5 in.)
Width
470mm (18.5 in.)
Depth
426mm (16 in.)
Net weight
20.5kg (45.1 lbs.)

19" Color

Screen refresh rate

72Hz

Video signals

RS-343 A

Resolution

1280x1024

Electrical specifications

Line voltage

88-135VAC

193-269VAC

Line frequency

47-63Hz

Maximum current

3.7A/2.0A

Power consumption

250 watts max.

Environmental characteristics

Operating temperature

10-40° C

Non-operating temp.

-40-60°C

Humidity operating 40°C

10-80%RH

Max. altitude operating

3048m (10,000 ft.)

Max. altitude non-operating

10,668m (35,000 ft.)

Regulatory compliance

CSPR level: A

VDE level: B

FCC class: A

VCCI class: 1

Safety

UL, CSA, IEC950, GS Mark

Monitors physical characteristics

(Product only)

Height

410mm (16.1 in.)

Width

485mm (19.1 in.)

Depth

510mm (20.1 in.)

Net weight

32.5kg (71.5 lbs.)

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Tel:+33/1/698 260 60

Germany:

Tel:+49/6172/16 0

Greece:

Tel:+30/1/682 88 11

Hungary:

Tel:+38/61/5584 72

Iceland:

Tel:+354/1/67 10 00

Ireland:

Tel:+253/12/88 33 99

Italy:

Tel:+39/ 2/92 19 91

Netherlands:

Tel:+31/ 20/54 769 11

Norway:

Tel:+47/2/87 97 00

Poland:

Tel:+48/22/36 83 00

Portugal:

Tel:+35/1/130 173 30

Russia:

Tel:+007/95/923 50 01

Slovenia:

Tel:+38/61/55 84 72

Spain:

Tel:+34/1/626 16 00

Sweden:

Tel:+48/ 8/750 20 00

Switzerland:

Tel:+41/ 57/31 31 11

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