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HP 9000 Models 712/60, 712/80, and 712/100 Workstations

Product Brief



The HP 9000 Models 712/60, 712/80, and 712/100 workstations offer outstanding performance at new low prices. They feature a unique combination of price/performance, ease-of-use, and networking functionality ideally suited for today's growing enterprise desktop requirements. High-performance graphics, as well as superb integer performance also make these workstations excellent tools for design, development, and analytical work. A broad set of choices for monitor sizes and resolutions fit easily on any deskspace. The graphics are derived from HP's history of leadership in price/performance.

The 712 family is designed for simple installation, expansion and serviceability. They are as easy to configure as stereo components, featuring plug-in memory modules and disks. Great application flexibility is provided through a wide selection of inexpensive networking and multimedia devices. To provide the best possible performance and cost savings for the user, the systems have the following built-in interfaces: IEEE (802.3) local area networking (LAN), external SCSI-2, bi-directional parallel (Centronics), one RS-232C, two IBM PS/2 ports allow connection of a standard PC 101/102 keyboard and a mouse. The system may be expanded with inexpensive plug-in cards. The cards available include a second RS-232C port, a second LAN (IEEE 802.3 or IEEE 802.5), and X.25 wide area networking. The Model 712 features outstanding access to PC applications through HP Wabi 2.0 and SoftWindows™.

The 712 family of workstations provides a broad range of applications that require fast X Window System performance and low cost 2D wireframe color graphics. Entry-level surface rendering is available through HP's 3D software, PowerShade. A second video monitor can be added by the use of a plug-in card. Multimedia functionality is also plentiful, including support for the easy to use HP MPower Version 2.0 (V2.0) software, fast JPEG and MPEG image display, and CD-quality audio I/O. HP TeleShare further enriches the possibilities with integrated telephone, FAX and modem capabilities.

Network control products such as OpenView enable simplified management of enterprise-wide systems, including the Model 712 and other client nodes. HP also offers financing alternatives to help get you the equipment you need now and to upgrade in the future. HP products set the standard for quality, reliability, and low cost of ownership.

Technical Specifications	712/60	712/80	712/100
System Processing Unit			
Central processor	PA7100LC	PA7100LC	PA7100LC
Clock frequency	60MHz	80MHz	100MHz
Performance			
MIPS	73.0	92.0	125.0
MFLOPS (DP)	12.9	27.6	34
SPECint92	67.0	97.1	117.2
SPECfp92	85.3	123.3	144.2
Memory Management Unit			
Virtual memory address	48 bit	48 bit	48 bit
Instruction TLB and data TLB	64 page entries unified 8 variable block entries unified full associative	64 page entries unified 8 variable block entries unified full associative	64 page entries unified 8 variable block entries unified full associative
Primary Cache			
Instruction cache size	64KByte	256KByte	256KByte
Organization	Direct mapped	Direct mapped	Direct mapped
Bus width	64 bits	64 bits	64 bits
Instruction cache bus	480MB/second	640MB/second	800 MB/second
peak performance	I-fetch (4 byte)	I-fetch (4 byte)	I-fetch (4 byte)
Data cache size	32KByte	128KByte	128KByte
Organization	Direct mapped	Direct mapped	Direct mapped
Bus width	32 bits	64 bits	64 bits
Data cache bus	480MB/second load (8 byte)	640MB/second load (8 byte)	800 MB/second load (8 byte)
peak performance	240MB/second single store (8 byte)	320MB/second single store (8byte)	400MB second single store (8 Byte)

Note: Instruction and data cache are shared, the 712/60 has a total of 64KB external cache, and the 712/80 and 712/100 have 256KB total external cache.

Main Memory			
Type	ECC SIMMs Single bit correct double bit correct	ECC SIMMs Single bit correct double bit detect	ECC SIMMs Single bit correct double bit detect
Capacity	16-128MB	16-128MB	16-192MB
Main memory bus width	64 data bits w/8 check bits	64 data bits w/8 check bits	64 data bits w/8 check bits
Main memory bus	160MB/sec	160MB/sec	160MB/sec
Sustained bandwidth	(64 byte duration)	(64 byte duration)	(64 byte duration)
System DRAM technology	70ns, 4 & 16 Mbit DRAM	70ns, 4 & 16 Mbit DRAM	70ns, 4 & 16 Mbit DRAM

Note: 712/60 and 712/80 have 4 memory expansion slots, and memory is installed in matching pairs. Memory modules are available in 4, 8, 16 and 32MB sizes. (712/100 has 6 memory expansion slots).

Graphic Specifications 712/60

Graphics Performance (using HP-UX 9.07)

	3D KV/s	3D KT/s	LS KQ/s	X mark93	PLB wire93	PLB surf93
Color Graphics	1200	22	11	6.0	39	14

Graphic Specifications 712/80

Graphics Performance (using HP-UX 9.07)

	3D KV/s	3D KT/s	LS KQ/s	X mark93	PLB wire93	PLB surf93
Color Graphics	1800	33	19	8.2	49	19

Graphic Specifications 712/100

Graphics Performance (using HP-UX 9.07)

	3D KV/s	3D KT/s	LS KQ/s	X mark93	PLB wire93	PLB surf93
Color Graphics	1600	40	23	8.6	63	23

Graphics Processing Unit

Monitors 17 in. color 1280x1024 or 20 in. color 1280x1024

Graphics Software

X11R5, PEX, PHIGS, Starbase Capabilities, and HP Powershade

Software

Operating System

HP-UX 9.05 Complies with IEEE POSIX.1993.1 and 1003.2 FIPS 151-1, ANS X3.159-1989, System V InterfaceDefinition (SVID) Issue II (Base System and all Extensions except AS, NS and shmat [KE_OS}), X/Open Portability Guide Issue IV (XPG4), (Base Branding).

HP-UX 9.05 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

User-friendly Features

HP VUE, OSF/Motif,
X11 Window System,
Instant Ignition

Systems Processing Unit

Physical Dimensions

Desktop
- Height
  - 2.75 in. (70mm)
- Width
  - 16.5 in. (423mm)
- Depth
  - 15 in. (400mm)
- Net weight
  - 18.4 lbs (8.36 kg) (fully loaded)
- Shipping weight
  - 28 lbs (12.72 kg) (fully loaded)

Power Source Consumption

2.7 Amps RMS max @ 120V
1.2 Amps RMS max @ 240V
Auto ranging
- 90–132 VAC
- 98–264 Volts

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Power Source Consumption

2.7 Amps RMS max @ 120V
1.2 Amps RMS max @ 240V
Auto ranging
- 90–132 VAC
- 98–264 Volts
- Line frequency
  - 47–63Hz

Maximum power input
- 110 watts max

Environmental Specifications

Altitude
- Operating
  - 10,000 ft (3050 m) to 40˚C
- Non-operating
  - 15,000 ft (4572 m) to 60˚C

Humidity (non-condensing)
- Operating
  - 15% to 80% R.H. max.
- Operating max. wet bulb temp
  - 37˚C

Non-operating max. wet bulb temp
- 68˚C

Temperature
- Operating
  - 10˚C to 40˚C; 20˚C/hr. rate of change max.
- Non-operating
  - –40˚C to +70˚C

Regulatory and Safety

Safety

UL1950
CSA22.2 950
TUV EN60950
Finland TSH
EMKO TUE(74) DK203
Sweden SS43614 50

Regulatory Compliance

FCC 47 CFR, part 15 sub-part J, Class A
Koren RRL, Class B
VCCI, Class 1
EN55022/CISPR 22 Class A
EN50082-1
IEC801-4

Regulatory Specifications

EN 55022 Class A
EN 55024-2/IEC 801-2
EN 55024-3/IEC 801-3
IEC 950/EN 60950
ZH1/618
UL 1950
CSA C22.2 No.950
FCC Part 15 Subpart J Class B RRL EMI

Ergonomics

TUV ZH-1/618
ISO9241
90/270 EEC
Power Budget
Maximum power output
70 Watts
Voltage/Current
5.1V @ 11.5 A
12.0V @ 1 A
3.3V @ 1 A
Terminator power
5.26V-4.5V @ 0.50 A

Human Interface

Keyboard

Layout
101/102 Key PC standard
Languages
13
Length
18.23 in. (463.2mm)
Width
6.99 in. (177.6mm)
Height 3 angle settings
1.49 in. (38.6mm) lowest
2.17 in. (55.3mm) highest
Weight
3.39 lbs (1.54kg)

Audio

Type
Integrated, CD quality, stereo
Inputs
Stereo line-in, MIC-in
Outputs
Stereo phone-out

Pointing Device

3-button morse, rollerball

Keyboard and Mouse Interface

Electrical
IBM PS/2 compatible
Connectors
MiniDIN Pair
Data rate
2.5K 11-bit samples/sec
Power available
4A Fused

Options

Second Monitor Support

Type
Plug-in Card

Multimedia

Software

HP MPower V2.0
Features:
MPEG decompression
HP Digital Video
Video Playback
Playback to 30 frames/sec (352 x 240 pixel frame)
Maximum frame size full screen resolution
Pause, stop, looping, reverse playback, random frame access
Image viewer
Audio Editor/Player
Digital Video Player for MPEG compressed digital chips
HP SharedX, Deskscan, Sharedprint

Hardware

Integrated graphics/audio
Optional TeleShare card

Cooperative Computing Products

NCS, Passwd Etc, Task Broker, NetLS, NFS, OmniBack, OpenView, SoftBench, Software Distribution Utility (SDU)

Networking Products

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

Networking

LAN(2)

Standard IEEE 802.3 LAN with interfaces
Type
IEEE 802.3/Ethernet
Data rate
10 Mb/sec
Connectors
15 pin AUI
RJ45, UTP (10BaseT)

Optional

Second IEEE 802.3
HP Token Ring/9000 (IEEE 802.5)
X.25

Second Serial Port with LAN AUI

LAN

Type
IEEE 802.3/Ethernet
Data rate
10 Mb/sec
Connector
15 pin AUI

Serial

Type
EIA RS232C, CCITT V.24/V.28
Data rate
to 460.8Kb/sec (16550A UART)
Connector
9 pin male DTE (PC Standard)

IBM Token Ring

Type
IEEE 802.5 (Full IBM Token Ring Interoperability)
Rate
4-16Mbit/sec
Media connections
UTP (Unshielded Twisted Pair) (with media filter)
STP (Shielded Twisted Pair)
Physical connector type
DB-9

Second Serial Port with X.25

Protocol
LAP-B
Data rates
1.2 Kb/sec to 19.2 Kb/sec
Window sizes
1–7 (level 2 and level 3)
Switched virtual circuits
1 way/2 way
Permanent virtual circuits
packet sizes
16 to 1024 bytes
DTE (level 1) or DCE(s) support
D-bit, Q-bit, M-bit
Facilities negotiation
Throughput, flow control, packet and window sizes
Interface
RS-232C/V.24
Connector
DB25S

Serial

Type
EIA RS232C, CCITT V.24/V.28
Data rate
to 460.8Kb/sec (16550A UART)
Connector
9 pin male DTE (PC Standard)

Second Monitor Port

Type
Expansion card
Resolutions
640 x 480 to 1280 x 1024
Note: the first and second monitor must be identical
Connector
15-pin VGA (PC Standard)
Note: The second monitor will not function as the boot console

External Peripherals

2GB DAT Drive
Dimensions
Width
6.7 in. (170.2mm)
Height
2.47 in. (62.8mm)
Depth
8.66 in. (220mm)
Weight
4.18 lbs (1.9kg)
Interface
SCSI-II
Connector
50-pin high density
Transfer rate
183KB/sec
Capacities
1.3GB 60M tape
2.0GB 90M tape
Format
DDS

1GB Hard Disk Drive

Dimensions
Width
6.7 in. (170.2mm)
Height
2.47 in. (62.8mm)
Depth
8.74 in. (222mm)
Weight
4.81 lbs. (2.19kg)
Interface
SCSI-II
Connector
50-pin high density
Operating system
HP-UX 9.03
Size
3.5 in.
Formatted capacity
1.05GB
Average seek time
10.5 ms
Average latency
5.6 ms
Spindle speed
4,500 rpms

CD-ROM Drive

Dimensions
Width
8.28 in. (210.5mm)
Height
2.47 in. (62.8mm)
Depth
10.23 in. (260mm)
Weight
5.5 lbs. (2.5kg)
Interface
SCSI-II
Connector
50-pin high density
Transfer rates
330KB/sec data
150KB/sec audio
Capacities
680MB nominal
Formats
IEC RedBook media and audio
ISO 10149 YellowBook CD-ROM

Second Monitor and Second LAN AUI

LAN

Type
IEEE 802.3/Ethernet Data Rate
10Mbits/sec Connector
15 pin AUI

Serial Interface Type

Type
EIA RS232C, CCITT
V.24/V.28
Data Rate
to 460.8kbps (16550A UART)
Connector
9-pin male DTE (PC Standard)

Note: *A high density connector is required on the bulk-head to provide enough signals for both the RS-232 and the LAN/AUI interfaces. The card uses a 26-pin D-sub receptacle for this purpose. External cabling is required to connect from this bulk-head connector to both a 9-pin RS-232 and a 15-pin AUI connector. This allows the simultaneous connection of both RS-232 and LAN/AUI Ports.*

Monitors	15 in.	17 in.	20 in.
Screen refresh rate	70 Hz	50-150 Hz (multisync)	50-150 Hz (multisync)
Video signals	RS-343A levels	RS-343A	RS-343A
Resolution	1024x768	Up to 1200x1024	Up to 1280x1024
Line Voltage	88-135 VAC, 193-269 VAC	90-264VAC	90-264VAC
Line Frequency	47-63 Hz	47-63Hz	47-63Hz
Maximum Current	1.5A/1.0A	2.7A/1.5A	3.0A/1.8A
Power Consumption	75 Watts	140 Watts Max.	140 Watts Max.
Operating Temp.	5-40°C	10-40°C	10-40°C
Non-Operating Temp.	-40-70°C	-40-60°C	-40-60°C
Humidity Operating 10-80%	15-80%R.H.	10-80% R.H.	10-80% R.H.
Max. Altitude Operating	10.000 ft (3084m)	10,000 ft (3048m)	10,000 ft (3048m)
Max. Alitiude non-operating	35,000 ft (10,668m)	35,000 ft (10,668m)	35,000 ft (10,668m)
Height	14.4 in. (366mm)	16.3 in. (414mm)	16.3 in.(414mm)
Width	13.9 in. (354mm)	15.98 in. (406mm)	15.98 in. (406mm)
Depth	15.8 in. (400mm)	17.72 in. (450mm)	19.56 in. (501.5mm)
Net Weight	311 lbs (14kg)	48.4 lbs (22kg)	66.14 lbs (30kg)

Internal/External Storage Devices	712 Family
Internal 525MB Disk	
Operating system	HP-UX 9.05, HP-UX 9.07, and HP-UX 10.0
Size	3.5 in.
Formatted capacity	525MB
Average seek time	10.5 ms
Average latency	6.7 ms
Spindle speed	4,500 rpms
Internal 1GB/2GB Disk	
Operating system	HP-UX 9.05, HP-UX 9.07, and HP-UX 10.0
Size	3.5 in.
Formatted capacity	1.05/2.1 GB
Average seek time	15.1 ms
Average latency	5.56 ms
Spindle speed	5,500 rpms
1.44MB 3.5" Floppy	
Operating system	HP-UX 9.05, HP-UX 9.07, and HP-UX 10.0
Media	HP 2MB or HP 1 MB floppy disk
Formatted capacity	1.44MB or 720MB
Format	MFM or FM
Transfer rate	500KB/sec or 250KB/sec
Avg. latency	100 ms
Avg. access w/latency	194 ms

Standard I/O Specifications	712 Family
SCSI Interface (Standard)	
Type	SCSI-II: single ended, 8 bit
Data rate	5MB/sec sychronous
	1.5MB/sec asynchronous with standard length cables
Device Limit	7 Devices
Connector	ALT-1 of SCSI-2 50-pin high density
Serial Interface (One Standard)	
Type	EIA RS232C, CCITT V.24/V.28
Data rate	To 460.8KB/sec (16550A UART)
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)
General Optional I/O	
Second Serial Port	
Type	EIA RS232C, CCITT V.24/V.28
Data Rate	To 460.8KB/sec (16550A Uart)
Connector	9 pin male DTE (PC Standard)

HP TeleShare

HP TeleShare is a 3-in-1 telecommunication tool, incorporating telephone, FAX service, and data modem into the Model 712/60 and 712/80 workstations. The product contains two dual-line phone ports for analog phone line (POTS) access. The Motif-based TeleShare software provides an easy-to-use, point-and-click style graphical interface to all telecommunication needs. HP TeleShare can be ordered either factory-installed into the Model 712 or standalone (customer installed).

Software Specifications

GUI: X11R5, Motif 1.2

Operating System: HP-UX 9.03

Disk Space: 1.5 Mbytes

Ram Required: 1 Mbytes

FAX Class: Class II Group 3

FAX Speeds: 300–14.4K baud (v.17, v.29, v.27ter, v.21)

Data Compression: CCITT v.42bis, MNP Class 5

Error Correction: CCITT v.42 LAPM MNP Classes 2-4

Data Speeds: 1.2k–14.4k baud (v.32bis, v.32, v.22bis, v.22)

Modem: Based on HP Softmodem®

Hardware Specifications

Platform: HP PA-RISC

Data Modem: Hayes AT Command Set Compatible

Line Type: Analog

Connectors: 2 RJ14

Tip/Ring Line 1: Pins 2, 3

Tip/Ring Line 2: Pins 1, 4

Accessories: Phone cable, plitter, adapter

Dimensions: 2.5 in. x 8 in.

Headsets

(available separately)

A4370A – Stereo headset with mike

A4371A – Monaural (one-ear) headset with mike

A4372A – Monaural headset with noise cancelling mike

A4373A – Biaural (two-ear) headset with mike

A4374A – Biaural headset with noise cancelling mike

A4374A – Over-the-ear style headset with mike



Features

- 3-in-1 telecommunication tool including telephone, FAX and data modem
- Two dual-line analog phone ports
- Volume and ring control
- Mute, hold, conference, and transfer buttons
- Recording incoming or outgoing audio from phone lines
- Play back audio information into phone line
- Double-click to dial address book
- Last number redial and programmable speed-dialing key

Benefits

Eliminate separate telecommunications peripherals; the workstation becomes the one telecommunications tool with a single interface

FAX without delay from your workstation, while you talk, using HP TeleShare's dual-phone line design

Set the sound level most convenient for you and your work context

Access standard telephone services with less effort using the mouse and graphical user interface

Record calls for later reference using HP TeleShare's integration of telephony and audio services

Get immediate feedback on audio information from your caller by playing back the audio snippet directly into the phone line for your caller to hear

Speed phone number lookup and dialing with HP TeleShare's electronic phonebook

Avoid time consuming phone number lookup altogether

For more information, contact any of our worldwide sales offices or HP Channel Partners (In the U.S., call 1-800-637-7740; in Canada, call 1-800-387-3867). Look for HP on the Internet (http://www.hp.com).

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