HP 9000 Series 700 Model 712/60 and 712/80i Workstations

The HP 9000 Series 700 Model 712/60 and 712/80i 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. The Model 712/60 has an unequaled integer performance for its price: 58.1 SPECint92. The Model 712/80i is even more powerful, with a SPECint92 measure of 84.1. 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 Models 712/60 and 712/80i are 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 multi-media 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 key 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 1.1 and SoftWindows™.

The Model 712/60 and 712/80i are the workstations of choice for a broad range of applications that require fast X Window System performance and low cost 2D wire-frame 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 and Ready-to-Wear Desktop Builder Kit (RTW DBK) 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. And HP products set the standard for quality, reliability, and low cost of ownership.

Technical Specifications	712/60	712/80*i*
System Processing Unit		
Central processor	PA7100LC	PA7100LC
Clock frequency	60MHz	80MHz
Performance		
SPECint92	58.1	84.1
SPECfp92	79	79
MFLOPS (DP)	12.8	15.6
AIM APR II	44.5	66.3
Memory management unit		
Virtual memory address	48 bit	48 bit
Instruction TLB and data TLB	120 page entries unified	120 page entries unified
	16 variable block entries unified	16 variable block entries unified
	full associative	full associative
External cache		
Instruction/data cache size	64KB	256KB
Organization	Direct mapped	Direct mapped
Bus width	64 bits	64 bits
Instruction cache bus	400MB/second	400MB/second
peak performance	I-fetch (4 byte)	I-fetch (4 byte)
Data cache size	64KB	256KB
Organization	Direct mapped	Direct mapped
Data bus width	64 bits	64 bits
Data cache peak bus	400MB/second load (8 byte)	400MB/second load (8 byte)
performance	400MB/second	400MB/second
	single store (8 byte)	single store (8byte)

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

Main memory type	ECC SIMMs	ECC SIMMs
	single bit correct	single bit correct
	double bit detect	double bit detect
Capacity	16-128MB	16-128MB
Main memory bus width	64 data bits w/8 check bits	64 data bits w/8 check bits
Main memory bus	160MB/sec	160MB/sec
peak performance	(64 byte duration)	(64 byte duration)
System DRAM technology	70ns, 4 & 16 Mbit DRAM	70ns, 4 & 16 Mbit DRAM
Memory Options	16, 32, 64, 128MB	16, 32, 64, 128MB

Note: The system has 4 memory expansion slots, and memory is installed in matching pairs. Memory modules are available in 4, 8, 16 and 32MB sizes.

Graphics Monitors		
Monitor Size		
11.8" Flat Panel	1024 x 768	1024 x 768
15"	1024 x 768	
17" (Multi-mode)	1024 x 768 or	1024 x 768 or
	1280 x 1024	1280 x 1024
19"	1280 x 1024	1280 x 1024
Performance		
Xmark93	5.9	8.5
X11 vectors/sec	1.1M	1.4M
2D/3D vectors/sec	1.2M	725K

Mass Storage		
Internal Capacity	260MB-1GB	260MB-1GB
Total External Capacity	14GB	14GB

Removable Media		
Internal Option	1.44MB Floppy	1.44MB Floppy

Operating System

HP-UX 9.03 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 9.03 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

Cooperative Computing Products

NCS, Passwd Etc, Task Broker, NetLS, NFS, OmniBack, OpenView, SoftBench, Software Distribution Utility (SDU), The Ready-to-Wear Desktop Builder Kit (RTW DBK)

Systems Processing Unit

Physical Dimensions

Desktop:
  Height
    70 mm (2.75 in)
  Width
    405mm (15.95 in)
  Depth
    370 mm (14.56 in)

Deskside:
  Height
    405 mm (15.95 in)
  Width
    70 mm (2.75 in)
  Depth
    370 mm (14.56 in)
  Net weight
    8.36 kg (18.4 lbs) (fully loaded)
  Shipping weight
    12.72 kg (28 lbs) (fully loaded)

System Unit Power Source Consumption

2.7 A RMS max @ 120V
1.2 A RMS max @ 240V
Auto ranging
  90-132 vac
  98-264 Volts
Line frequency
  47-63Hz
Maximum power input
  110 max Watts

Environmental Specifications

Temperature: operating
  10C to 40C; 20C/hr. rate of change max.
Temperature: non-operating
  -40 C to +70C
Humidity: non-condensing
Operating
  15% to 80% R.H. max.
Operating max. wet bulb temp
  37C
Non-operating max. wet bulb temp
  68C
Altitude: operating
  3050 meters (10,000 ft.) to 40C
Altitude: non-operating
  4572 meters (15,000 ft.) to 60C

Regulatory and Safety

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

Safety
  UL1950
  CSA22.2 950
  TUV EN60950
    Finland TSH
    EMKO TUE(74) DK203
    Sweden SS43614 50
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
  463.2mm (18.23 in)
Width
  177.6mm (6.99 in)
Height
  3 angle settings
  38.6mm (1.49 in) lowest
  55.3mm (2.17 in) highest
Weight
  1.54kg (3.39 lbs)
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

Mouse
3 button, 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

Graphics

Features
Type
  Integrated, Color, 8-plane with
  HP Color Recovery
Resolutions
  600 x 480 x 8 to 1024 x 768 x 8
Optional resolution
  1280 x 1024 x 8 (V-Ram frame
  buffer card)
Optional second video card
  resolutions
    600 x 480 x 8 to 1280 x 1024 x 8
Note: The second video functions
the same as the integrated video
except it will not function as the
system boot console

Software
  X11/R5, PEX, PHIGS, Starbase,
  GKS

Monitors
11.8" Flat Panel
Video
  75Hz
Video signals
  RS-343A levels
Resolution
  1024 x 768
Colors
  512

Electrical specifications:
Line voltage
  90-132VAC
  180-264VAC
Line frequency
  47-63Hz
Maximum current
  1.25A/0.6A
Power consumption
  55 Watts max.

Environmental characteristics:
Operating temperature
  0-40 degrees C
Non-operating temperature
  –25–60 degrees C
Humidity operating
  15–80%RH non-condensing
Max. altitude operating
  3048m (10,000 ft)
Max. altitude non-operating
  9144m (30,000 ft)

Regulatory compliance:
  CISPR LEVEL: B
  FCC CLASS: A
  VCCI CLASS: 2

Safety:
  UL, CSA, EN60950, GS Mark

Monitors physical characteristics:
Height
  378mm (14.9 in.)
Width
  330mm (13.0 in.)
Depth
  153mm (6.0 in.)
Net weight
  5.45 Kg (12 lbs)

15" color monitor
Screen refresh rate
  70Hz (single mode)
Video signals
  RS-343A levels
Resoluton
  1024x768

Electrical specifications:
Line voltage
  88-135VAC
  193-269VAC
Line frequency
  47-63Hz
Maximum currrent
  1.5A/1.0A
Power consumption
  75 Watts max.

Environmental characteristics:
Operating temperature
  5-40 degrees C
Non-operating temperature
  -40-70 degrees C
Humidity operating
  15-80%RH non-condensing
Max. altitude operating
  3048m (10,000 ft)
Max. altitude non-operating
  10,668m (35,000 ft)

Regulatory compliance:
  CISPR LEVEL: A
  FCC CLASS: A
  VCCI CLASS: 1

Safety:
  UL, CSA, EN60950, GS Mark

Monitors physical characteristics:
Height
  366mm (14.4 in.)
Width
  354mm (13.9 in.)
Depth
  400mm (15.8 in.)
Net weight
  14kg (31 lbs)

17" color (Multi-mode)
Screen refresh rate
  50–150Hz Vertical
  28–82KHz Horizontal
Video signals
  RS-343A levels
Resoluton
  640x480, 60Hz to 1280x1024,
  75Hz

Electrical specifications:
Line voltage
  90-132VAC
  195-264 VAC
Line frequency
  47-63Hz
Maximum current
  2.7/1.5A
Power consumption
  140 Watts max.

Environmental characteristics:
Operating temperature
  0-40 degrees C
Non-operating
  -40-60 degrees C
Humidity operating
  10-80%RH non-condensing
Max. altitude operating
  3658m (12,000 ft)
Max. altitude non-operating
  15,240m (50,000 ft)

Regulatory compliance:
  CISPR level: B
  FCC class: B
  VCCI class: 2

Safety:
  UL, CSA, EN60950, GS Mark

Monitors physical characteristics:
Height
  414mm (16.3 in.)
Width
  406mm (15.98 in.)
Depth
  450mm (17.71 in.)
Net weight
  22kg (48.4 lbs)

19" Color
Screen refresh rate
  72Hz (single sync)
Video signals
  RS-343A level
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 degrees C
Non-operating temp
  -40-60 degrees C
Humidity operating 40 degrees C
  10-80%RH non-condensing
Max. altitude operating
  3048m (10,000 ft)
Max. altitude non-operating
  10,668m (35,000 ft)

Regulatory compliance:
  CSPR level: A
  FCC class: A
  VCCI class: 1

Safety:
  UL, CSA, IEC950, GS Mark

Monitors physical characteristics:
Height
  410mm (16.1 in.)
Width
  485mm (19.1 in.)
Depth
  510mm (20.1 in.)
Net weight
  32.5kg (71.5 lbs)

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
    (352x240 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

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

Networking

LAN(2)
Standard IEEE 802.3 LAN with interfaces
Type
  IEEE 802.3/Ethernet
Data rate
  10 Mbits/sec
Connectors
  15 pin AUI
  RJ45, UTP (10BaseT)

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

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

Standard I/O Specifications

SCSI Interface (standard)
Type
  SCSI-II: single-ended, 8 bit
Data rate
  5MB/sec synchronous
  1.5 MB/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 460.8kbps (16550A UART)
Connector
  9 pin male DTE (PC Standard)

Parallel Interface (standard)
Type
  Centronics, BUSY handshake
Data rate
  300+ KB/sec with DMA
  200,B/sec sustained
Connector
  25-pin female (PC standard)

Optional Internal Mass Storage

Max Internal Mass Storage
  One disk drive + floppy

Internal 260MB Disk
Operating system
  HP-UX 9.03
Size
  3.5-inch
Formatted capacity
  260MB
Average seek time
  10 ms
Average latency
  6.7 ms
Spindle speed
  4,500 rpms

Internal 525MB Disk
Operating system
  HP-UX 9.03
Size
  3.5-inch
Formatted capacity
  525MB
Average seek time
  10.5 ms
Average latency
  6.7 ms
Spindle speed
  4,500 rpm

Internal 1GB Disk
Operating system
  HP-UX 9.03
Size
  3.5-inch
Formatted capacity
  1.05GB
Average seek time
  10.5 ms

Average latency
  5.6 ms
Spindle speed
  4,500 rpms

Internal removable disk (optional)
1.44MB 3.5" Floppy
Operating system
  HP-UX 9.03
Media
  HP 2MB or HP 1MB floppy disk
Formatted capacity
  1.44MB 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

General optional I/O
Second Serial Interface
Type
  EIA RS232C, CCITT V.24/V.28
Data rate
  to 460.8kbps (16550A UART)
Connector
  9 pin male DTE (PC Standard)

Second LAN AUI + Second serial port
LAN
Type
  IEEE 802.3/Ethernet
Data rate
  10 Mbits/sed
Connector
  15 pin AUI

Serial

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

HP Token Ring/9000

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

X.25 + Second serial port
X.25
Protocol
  LAP-B
Data rates
  1.2 Kbps to 19.2 Kbps
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 460.8Kbps (16550A UART)
Connector
  9 pin male DTE (PC Standard)

Second monitor connection
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   170.2mm (6.7 in)
  Height   62.8mm (2.47 in)
  Depth   220mm (8.66 in)
Weight   1.9Kg (4.18 lbs)
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   170.2mm (6.7 in)
  Height   62.8mm (2.47 in)
  Depth   222mm (8.74 in)
  Weight   2.19Kg (4.81 in)
Interface
  SCSI-II
Connector
  50-pin high density

Operating system
  HP-UX 9.03
Size
  3.5 inch
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   210.5mm (8.28 in)
  Height   62.8mm (2.47 in)
  Depth   260mm (10.23 in)
  Weight   2.5Kg (5.5 in)
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

**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).**

HEWLETT® PACKARD

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*i* 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).

Features	Benefits
• 3-in-1 telecommunication tool including telephone, FAX and data modem	• Eliminate separate telecommunications peripherals; the workstation becomes the one telecommunications tool with a single interface
• Two dual-line analog phone ports	• FAX without delay from your workstation, while you talk, using HP TeleShare's dual-phone line design
• Volume and ring control	• Set the sound level most convenient for you and your work context
• Mute, hold, conference, and transfer buttons	• Access standard telephone services with less effort using the mouse and graphical user interface
• Recording incoming or outgoing audio from phone lines	• Record calls for later reference using HP TeleShare's integration of telephony and audio services
• Play back audio information into phone line	• 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
• Double-click to dial address book	• Speed phone number lookup and dialing with HP TeleShare's electronic phonebook
• Last number redial and programmable speed-dialing key	• Avoid time consuming phone number lookup altogether

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®

® Softmodem is a registered trademark of Digicom Systems, Inc.

Hardware Specifications
Platform: S712 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, splitter, 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