

HP Apollo Series 700 Model 710 PA-RISC Workstation



The HP Apollo Model 710 is the highest-performing entry-level desktop color workstation in the industry and it extends HP's record-setting PA-RISC-based Series 700 workstation family. The Model 710 delivers 57.9 MIPS, 49.7 SPECmarks, and 12.2 MFLOPS—setting new industry price/performance standards. The Model 710 graphics is derived from the industry's leadership price/performance Series 700 CRX/GRX graphics. It delivers 950,000 2D/3D vectors (peak) and 500,000 X11 vec/sec (sustained) performance.

The Model 710 is offered in a small, quiet (4.3bels @ 30C) desktop package ideally suited for an office environment. The package measures merely 3-inches high, 16-inches wide and 14-inches deep, and offers extensive choice of internal mass storage and removable media options.

The Model 710 supports a wide variety of industry standard I/O interfaces, similar to the other members of the Series 700 family. To provide the best possible performance and cost savings for the user, the system has built-in local area networking (LAN)—both AUI (ThickNET) and ThinNET connections, external SCSI-2 port, bidirectional Centronics interface, two RS232 Serial ports, Audio I/O port and HP-HIL.

The Model 710 is the low-cost workstation of choice for a broad range of applications that require fast X Window System and 2D/3D wireframe color and grayscale graphics. It is designed primarily to meet the needs of traditional workstation markets such as electronic computer-aided design (ECAD), mechanical computer-aided design (MCAD), computer-aided software engineering (CASE), database management, GIS, 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 an audio capability and image viewer. Entry-level surface rendering is available through HP's 3D surfaces software, PowerShade.

The Model 710 shares in HP's rich tradition of standards, advanced transparent networking, advanced development tools, advanced user interfaces, and a firm commitment to openness. 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

Benefits

CPU Performance

(50 MHz PA-RISC Processor)

57.9 MIPS

49.7 SPECmarks

12.2 MFLOPS

Graphics instructions in the CPU

- Industry's fastest entry-level color workstation
- Industry's leadership price/performance
- Speeds technical computations
- High-performance graphics

Memory and Cache

High bandwidth CPU & RAM
interface

16-64MB ECC SIMMs

32KB Instruction Cache

64KB Data Cache

- Improves application performance

Mass Storage

840MB Internal

Total disk capacity 9.45GB

Internal media options: 600MB

CD-ROM, 1.44MB 3.5" Floppy, 2.0GB

3.5" DDS tape (w/HP-UX 8.07)

- A wide range of mass storage options

Standard Interfaces

Integrated I/O Subsystem

IEEE 802.3 (Thick & Thin Net),

SCSI-2, RS-232(2), HP-HIL, Centronics

Audio I/O ports

- Low cost, high performance
- Allows quick and easy integration in heterogeneous networks
- Simple connection of high-speed, low-cost disks and other peripherals
- Multimedia capability

Cooperative Computing Products

NCS, Passwd Etc.

Task Broker

NetLS

- 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

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Features

2D/3D Wireframe Graphics

Grayscale 19" (1280 x 1024, 72Hz)

500K X11 vectors/second,

7292 X11perf

8-bit grayscale

Character hardware

Color 19" (1280 x 1024, 72Hz)

Color 16" (1024 x 768, 75Hz)

2D, 3D wireframe graphics

950K 2D/3D vectors/second

8-bit color

GPCmark 3D Wireframe:

ECAD (pc _ board): 29.19

3D wireframe (sys _ chassis): 19.64

Character hardware

Graphics Software

X11/PHIGS, X11 Starbase

X11/GKS

Personal Visualizer

PowerShade Software

2D/3D Floating Point Transformations

Indexed and True Color

Depth Cueing

Hidden Line and Surface Removal

Lights sources and reflections

Non Uniform Rational B-Splines

Trimming Curves

Capping and Interferences Checking

Sectioning

Quadrilateral Mesh Primitives

Triangle Strip Primitives

User-friendly Features

HP VUE, OSF/Motif, X11 Window System

Instant Ignition

SoftPC

Benefits

- Leadership windowing and vector performance through X11 and PHIGS
- 256 shades for increased comprehension
- Fast performance for text-intensive applications

- Leadership windowing and vector performance ideal for design, engineering, and scientific applications
- 256 simultaneous colors aid user comprehension
- Exceptional application performance

- Fast performance for text-intensive applications

- Speed and realism through standards enhance the capabilities of all applications
- Allows users to produce highly realistic renderings without large investment or training
- Low cost access to dynamic shading and highly realistic rendering



- Offers the best ease of use through standards
- Provides immediate productivity through a pre-installed and pre-configured HP-UX environment
- Runs MS-DOS applications in an X Window

Technical Specifications

System Processing Unit

Central Processor

PA-RISC

Clock Frequency: 50MHz

Memory Management Unit

Virtual Memory Address

48 bit

Instruction TLB and Data TLB:

96 page entries, 4 variable block entries,
fully associative

External Cache

Instruction Cache Size

32KB

Organization

Direct mapped

Bus Width

32 bits

Instruction Cache Bus Performance

200MB/sec I-fetch (4 byte)

Data Cache Size

64KB

Organization

Direct mapped

Data Bus Width

64 bits

Data Cache Peak Bus Performance

400MB/sec load (8 byte)

400MB/sec single store (8 byte)

Main Memory

Type

ECC SIMMs (single bit correct,
double bit detect)

RAM

16MB standard

Main Memory Bus Width

128 data bits, 16 check bits

Main Memory Bus Peak Performance

200MB/sec (32 byte duration)

System DRAM Technology

80nsec, 1 & 4 Mbit DRAM

Maximum Memory

64MB

Memory Options

16, 24, 32, 40, 48, 64

Software

Operating System

HP-UX 8.07: Complies with IEEE

POSIX.1-1988, FIPS 151-1, ANS X3.159-1989,
proposed POSIX.2 FIPS (June 1990),

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

Component and all Optional Components

except and XTI).

Window Systems

X Window Systems, Version 11 Release 4

(X11R4), OSF/Motif 1.2

Languages

C, C++, Pascal, ANSI FORTRAN, ANSI C

PA-RISC 1.1, Assembler

User Interface

HP VUE 2.0

Human Interface

HP and PC AT-style keyboards

(each connected through HP-HIL)

Mouse

3-button, rollerball, HP-HIL

Interface Specifications

Type

HP-HIL, 1.0 Amps

Device Limit

7 per interface

Connector

AMP SMD

Audio Technical Specifications

Hardware:

Model 710:

8-bit resolution, single channel

8KHz sampling rate

internal monaural speaker

used as beeper also

headphones 3.5mm (1/8") jack

microphone 3.5mm (1/8") jack

sample audio files

Software:

HP-UX 8.07:

client/server architecture, audio library,

data type conversion, audio toolkit,

audio widgets, demonstration program

Audio API:

General functions:

play, record, stop, pause/continue,

inquiry (data types, channels, sample

speeds), data type and sample rate

selection, help

Editing functions:

copy, cut, paste, paste to file, select/play

region of a file, clear, convert file type,

help

Image (requires HP-UX 8.07)

Image library feature set:

Read/write/convert images from/to:
TIFF files
X drawables
Client memory

Image display formats supported:

Bitonal
Grayscale
Palette
RGB
YUV (available in Image Developer's Toolkit)

Automatic conversion of image types for display:

Bitonal to grayscale (anti-aliasing)
RGB to Palette (dither)
RGB to Grayscale
Grayscale to Bitonal

Compression/decompression formats supported:

CCITT Group 3 Type 2
CCITT Group 4 FAX (decompression only)
LZW
JPEG
Packbits
Note: CCITT Group 4 and JPEG available in Image Developer's Toolkit.

Image viewer feature set

TIFF viewer layered on X/Motif
Handles multiple pages
Scale/Rotate/Par/Zoom
Directory browser
On-line help

Networking Products

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

I/O Specifications

LAN Interface (standard)

Type
IEEE 802.3/Ethernet
Data Rate
10 Mbits/sec
Connectors
ThinMAU and BNC "T" connector and 15-pin AUI connector (jumper selectable)

SCSI Interface (standard)

Type
SCSI-2: single-ended, 8 bit
Data Rate
5MB/sec synchronous
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 460.8 Kbps
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)

Optional Internal Mass Storage

Max. Mass Storage Devices
Two 3.5" mechanisms or
One 3.5" & one 5.25" mechanisms

Max Internal Mass Storage

840MB (2 x 420MB)

Internal 210MB Disk

Number Supported
up to 2
Formatted Capacity
210MB
Average Seek Time
15.5 ms
Average Latency
8.33 ms
Read Write/Sequential Access
with 2 x 210MB (Internal)
1.14MB/sec

Internal 420MB Disk

Number Supported
up to 2
Formatted Capacity
420MB
Average Seek Time
12.5-14.5 ms
Average Latency
8.3 ms
Read Write/Sequential Access
with 2 x 420MB (Internal)
2.46MB/sec
with 1 x 420MB (Internal)
1.52MB/sec

2GB 3.5-inch DDS Tape Drive

Max. Number supported
1 per unit
Operating System
HP-UX 8.07
Media
60m (120 min) DDS
Capacity
2GB
Average Access Time
20 sec
Transfer Rate
183KB/sec

1.44MB 3.5-inch Floppy

Max. Number supported
1 per unit
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

600MB 5.25" 3.5-inch Floppy

Max. Number supported
1 per unit
Media diameter
4.7 inches
Data capacity mode 1/2
599/683MB
Average data transfer rate
153kBits/sec
Average Random Access Time
350msec

Optional External Mass Storage

HP-UX 8.07 Support

Max. Ext. Mass Storage
9.45GB

External 1.3GB Disk

Operating System
HP-UX 8.07
Size
5.25 inch
Formatted Capacity⁴
1.3GB
Average Seek Time
14.5ms
Average Latency
8.33ms
Read Write/Sequential Access
with 3 x 1.3GB (External)
6MB/sec

External Digital Audio Tape Drive

Max. number supported
2 per unit
Size
3.5 inch half-height
Media Type
4mm Digital Audio Tape
Capacity
2Gbytes
Format
Helical-scan DAT
Max. burst data transfer rate
1.5Mbytes/sec
Max. sustained data transfer rate
183Kbytes/sec
Average Random Access Time
30 seconds

External Digital Audio Tape Drive with Compression

Media type
4mm DAT
Max. number supported
2 per unit
Size
3.5 inch half-height
Capacity
Up to 8GB compressed
Format
Helical-scan DAT
Max. burst data transfer rate
1.5Mbytes/sec
Max. sustained data transfer rate
732Kbytes/sec with compression
Average Random Access Time
30 seconds

External CD-ROM Drive

Max. number supported
1 per unit
Size
5.25 inch half-height
Media diameter
4.7 inches
Number of surfaces
1
Capacity
600MB
Average data transfer rate
154Kbits/sec
Average Random Access Time
350 msec

9-track 1/2" tape

Max. number supported
2 per unit
Media Type
1/2 inch x 2,400 ft. reel
Capacity
40MB
Data transfer rate
200KB/sec

Rewritable Optical Drive

Max. number supported
1 per unit
Capacity
650MB autochangers
20GB autochangers
57GB autochangers
94GB autochangers
Data transfer rate
680KB/sec
Average Access Time
95 msec

Physical and Environmental**System Unit Power**

Source Consumption
2.4A max @ 120V
1.2A max @ 240V
Auto Ranging
88-269 Volts
Line Frequency
47-66Hz
Power Consumption
186 max Watts
635 BTU/hour
160 Kcal/hour

Physical Dimensions

Desktop:
Height 75mm
Width 420mm
Depth 374mm

Deskside:
Height 435mm
Width SPU 75mm
Width Pedestal 216mm
Depth 374mm

Net Weight 12.7 Kg (28 lbs) max
Shipping Weight 19.5 Kg (42 lbs) max

Environmental Range Without Internal Mass Storage

Temperature: operating
0° to 55° C, 20° C/hr rate max
Temp. non-operating
-40° C to +70° C
Operating Humidity 40° C
to 95% R.H. max.
Non-operating Humidity 55° C
to 90% R.H. max.
Maximum Wet Bulb Temp
40° C
Altitude: operating
4570 meters (15,000 ft) to 47° C;
reduce ceiling by 286 meters (938 ft.)
for each degree C above 47° C.
Altitude: non-operating
15,240 meters (50,000 ft.) to 70° C
Acoustics
Less than or equal to 43 dbA (4.3 Bels)
Sound Power Level below 30° C
Less than or equal to 53 dbA
(5.3 Bels) @ 55° C
EMI
Conducted and radiated interference
meets FCC Class A, VCCI Class 1,
FTZ 1046/84 Level B
Regulatory Compliance
UL 1950, 1st edition; CSA 22.2;
IEC 950, 1st edition 1986/TUV EN60950

Environmental Range With Internal Mass Storage

Temperature: operating
5° C to 45° C; 20° C/hr. rate of change max.
Temp. non-operating
-40° C to 60° C
Humidity: Non-condensing
Operating
8% to 85% R.H. max
Operating Max Wet Bulb Temp
27° C
Non-operating
5% to 95% 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

Graphics Specifications

19" Grayscale			
Graphics planes	8		
Simultaneously displayable colors	256 levels of grayscale		
Frame Buffer	1536x1024		
Resolution	1280x1024		
19" Color			
Simultaneously displayable colors	256 colors from a palette of 16.7 million		
Graphics planes	8		
Frame Buffer	1536x1024		
Resolution	1280x1024		
16" Color			
Simultaneously displayable colors	256 colors from a palette of 16.7 million		
Graphics planes	8		
Frame Buffer	1536x1024		
Resolution	1024x768		
Monitors			
Screen Refresh Rate	19" Grayscale 72Hz	19" Color 72Hz	16" Color 75Hz
Video Signals	RS-343 A	RS-343 A	RS-343 A
Resolution	1280x1024	1280x1024	1024x768
Electrical Specifications			
Line Voltage	90-132 VAC 187-264 VAC	88-135 VAC 193-269 VAC	88-135 VAC 193-269 VAC
VAC			
Line Frequency	47-63 Hz	47-63 Hz	47-63 Hz
Maximum Current	1.6A	2.7A	1.7A
Power Consumption	100 Watts max.	175 Watts max.	120 Watts max.
Environmental Characteristics			
Operating Temperature	0°-40° C	0°-40° C	0° to 40° C
Non-operating Temperature	- 40° to 71° C	- 40° to 71° C	- 40° to 71° C
Humidity: Operating 40° C	15%-95% RH	15%-95% RH	15%-95% RH
Max. Altitude Operating	4570m (15,000 ft)	4570m (15,000 ft)	4570m (15,000 ft)
Max. Altitude Non-operating	15,240m (50,000 ft)	15,240m (50,000 ft)	15,240m (50,000 ft)
Regulatory Compliance			
VDE level	B	B	B
FCC class	A	A	A
VCCI class	2	1	1
Monitors Physical Characteristics			
<i>(Product Only)</i>			
Height	466mm (18.3 in.)	471mm (18.6 in.)	425mm (16.7 in.)
Width	462mm (20 in.)	500mm (20 in.)	413mm (16.3 in.)
Depth	391mm (20.2 in.)	505mm (20.2 in.)	435mm (17.1 in.)
Net Weight	22.5 Kg (49.5 lbs)	24 Kg (52.8 lbs)	18.5 Kg (40.7 lbs)
<i>(Packaged)</i>			
Height	575mm (22.6 in.)	559mm (21.9 in.)	532mm (20.9 in.)
Width	560mm (22 in.)	610mm (24 in.)	548mm (21.6 in.)
Depth	615mm (24.2 in.)	559mm (22 in.)	524mm (20.6 in.)
Net Weight	26.0 Kg (57.2 lbs)	35 Kg (77 lbs)	21 Kg (46.2 lbs)

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Hewlett-Packard is the leader in installed RISC-based systems. As a result, you can count on HP for the experience needed to offer customers the best RISC-based workstations available. In addition, our Series 700 workstations and servers are compatible with our Series 800 family which provides industry-leading transaction performance for commercial, multi-user environments. Whether you're comparing performance, applications availability, graphics performance, compatibility, price/performance, or investment protection, you'll find that HP is the leader.

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