
HP Apollo Series 700 Model 755 Workstation



Overview

The PA-RISC-based HP Apollo Series 700 Model 755 offers industry-leading performance and expandability in a desktide system. Performance at 147 SPECmarks, 124 MIPS, and 40 MFLOPS, along with large RAM and disk capacities, make the Model 755 ideal for compute-intensive and demanding graphics applications. Advanced input/output, networking, and EISA connectivity allow the Model 755 to act as a local shared resource in the sophisticated computing models emerging today.

Integrated graphics options include 8-plane color (CRX), 24-plane color (CRX-24), 24-plane accelerated color (CRX-24Z), and 24-plane accelerated, double buffered color (CRX-48Z). While CRX delivers the industry's best X window and 2D/3D vector performance, the CRX-24, -24Z, and 48Z are ideal for solids modeling, rendering and visualization.

The Model 755 supports the UNIX-based HP-UX operating system which incorporates the functionality and emerging standards of OSF. In addition, it provides the best ease of use through an enhanced HP VUE user interface, based on OSF/Motif.

HP offers a broad array of mass storage and peripheral options to give you the flexibility to configure your system to meet your exact needs. And now, with the Model 755, you have the expandable workstation that allows you to take full advantage of these options. With 4 EISA expansion slots, large memory and mass storage capacity, the new fast-wide 20MB/sec SCSI-II interface, support for an integrated FDDI network, CD-quality audio input/output, IEEE 802.3 Ethernet, single-ended 5MB/sec SCSI-II, HP-HIL, serial and parallel ports; the Model 755 is an ideal department-level link to all the computing resources required by the most advanced computing networks.

HP Computer Museum

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FEATURES

BENEFITS

CPU Performance (99 MHz PA-RISC 7100 Processor)

147 SPECmarks89	•Industry's leading performance
124 MIPS Integer	
40 MFLOPS	•Speeds technical computations
80 SPECint92	
150 SPECfp92	
Graphics instructions in the CPU	•High performance, cost effective graphics

Memory and Cache

High bandwidth (128 bits wide) CPU RAM interface	•Improves application performance
64-768MB ECC RAM	
256KB Instruction Cache	
256KB Data Cache	

Mass Storage

2.0-4.0GB (Internal)	•A wide range of mass storage options
297.5GB max. disk with SCSI-II	
600MB CD ROM, 2.0GB 4mmDDS tape, 2-8GB DDS-DC tape, 1.4MB floppy disk	

Standard Interfaces

Integrated I/O Subsystem	•Low cost, high performance
IEEE 802.3 (Thick or Thin Net),	•Allows quick and easy integration in heterogeneous networks
Integrated FDDI (optional)	•Fastest LAN
Fast-wide 20MB/sec SCSI-II	•Fastest SCSI interface for faster disk I/O
CD-quality audio input/output	•Audio annotation
4 EISA slots, SCSI-II, RS 232(2), Centronics, HP-HIL	•Simple connection of high speed, low cost disks and other peripherals

Cooperative Computing Products

NCS, Passwd Etc, OpenView	•Supports distributed applications, ease of administration in a networked environment
Network Node Manager, Omniback	
Task Broker	•Provides users with access to all available power on the network
NetLS	•Allows licensing of applications based on actual usage

Graphics

CRX (8 plane color)

971,000 X11 Vector/second	
19,115 X11 perf	•Leadership windowing and vector performance ideal for design, engineering, and scientific applications
1.16 million 2D/3D vectors/second	•Exceptional application performance
GPC PLBlit sys_chassis: 32.5	•256 colors aid user comprehension
8-plane color	•Smooth interactive screen refreshes
8/8 plane double buffering	
40,000 triangles per second	
25,000 lighted, shaded quadrilaterals per second	
19", 1280 x 1024, 72 Hz Monitor	•Superb image detail

CRX-24 (24 plane color)

652,000 X11 vectors/second
18,755 X11 perf
680,000 2D/3D vectors/second
GPC PLBlit sys_chassis: 33.5
GPC PLBlit head: 41.0
24-plane color
12/12 plane double buffering
8 overlay planes
40,000 triangles per second
30,000 lighted, shaded quadrilaterals
per second
19", 1280 x 1024, 72 Hz Monitor

- Fast user interfaces
- 24-bit true color for demanding visualization and image processing applications
- Exceptional application performance
- 16.7 million simultaneously displayable colors
- Smooth interactive screen refreshes
- Superb image detail



CRX-24Z (24 plane accelerated color)

652,000 X11 vectors/second
18,786 X11 perf
680,000 2D/3D vectors/second
150,000 3D anti-aliased vectors
per second
GPC PLBlit sys_chassis: 31.2
GPC PLBlit head: 69.0
24-plane color
Dedicated 24-bit Z buffer
12/12 plane double buffering
8 overlay planes
175,000 triangles per second
95,000 lighted, shaded quadrilaterals
per second
19", 1280 x 1024, 72 Hz Monitor

- No sacrifice of user interface performance to achieve interactive modelling performance
- Exceptional application performance
- 16.7 million simultaneously displayable colors
- Smooth interactive screen refreshes
- Fast user interfaces
- Leadership low-cost 3D performance
- Superb image detail

CRX-48Z (24 plane accelerated, double buffered color)

1.24 million X11 vectors/second
19,122 X11 perf
2.0 million 2D vectors/second
1.9 million 3D vectors/second
1.2 million 3D anti-aliased vectors
per second
GPC PLBlit sys_chassis: 40.3
GPC PLBlit head: 127.1
Four independent color maps
24-plane color
24/24 plane double buffering
Dedicated 24-bit Z buffer
8 overlay planes
600,000 triangles per second
150,000 lighted, shaded quadrilaterals
per second
19", 1280 x 1024, 72 Hz Monitor

- Premier 3D modeling performance
- For complex wireframe modeling
- Exceptional application performance
- 16.7 million simultaneously displayable colors
- Interactive movement of true color images
- Fast user interfaces
- Superb image detail

Graphics Software

X11R5, PEX, PHIGS, Starbase

HP PowerShade
(standard with CRX-24Z and
CRX-48Z graphics options)

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

User-friendly Features

HP VUE, OSF/Motif,
Instant Ignition

- Ease of use through standards
- Provides immediate productivity through a preinstalled and preconfigured environment

Technical Specifications

System Processing Unit

Central Processor

PA-RISC 7100

Clock Frequency: 99MHz

Performance:

SPECmarks89	147
MIPS	124
MFLOPS	40
SPECint92	80
SPECfp92	150

Memory Management Unit

Virtual Memory Address

48 bit

Instruction TLB and Data TLB:

120 page entries, 16 variable block entries, fully associative

External Cache

Instruction Cache Size

256Kbytes

Organization

Direct mapped

Data Bus Width

64 bits

Instruction Cache Bus Performance

800MB/sec I-fetch (8 byte)

Data Cache Size

256Kbytes

Organization

Direct mapped

Data Bus Width

64 bits

Data Cache Peak Bus Performance

800MB/sec load (8 byte)

800MB/sec single store (8 byte)

Main Memory

Type

ECC (single bit correct, double bit detect)

RAM

64Mbytes standard

Main Memory Bus Width

128 data bits, 16 check bits

Main Memory Bus Peak Performance

264MB/sec (64 byte duration)

System DRAM Technology

80nsec, 4&16 Mbit DRAM

Maximum Memory

768Mbytes

Memory Options

64, 128, 256, 384, 512, & 768Mbytes

Software

Operating System

HP-UX 9.0 complies with IEEE 1003.1-1988 (FIPS 151-1), ANS X3.159-1989, IEEE 1003.1-1990, 1003.2, System V Interface Definition (SVID) Issue II (Base System and KE extensions), X/Open Portability Guide Issue III (XPG3) (Base branding), OSF Application Environment Specification (OSPI), and X/Open Worldwide Portability Interface (WPI).

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

Window Systems

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

Languages

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

User Interface

HP VUE 3.0

Human Interface

Keyboards

109 key HP-Style, 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)

40.4mm (min - lowest angle setting)

Weight 1.54kg

Mouse

3 button, rollerball, HP-HIL

Audio

Three independent tone 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 ThinMAU and BNC "T" connector and AUI (jumper selectable)

Optional Integrated FDDI

ANSI X3T9.5 Single Attach MIC Adapter

Networking Products

NCS, NFS, Berkeley 4.3 TCP-IP, BSD 4.3 Network Services, ARPA Services, HP Diskless (IEEE 802.3 only) Station Management V 6.2 (FDDI only)

I/O Specifications

Graphics Bus (standard)

2 slots (1 slot for graphics, 1 slot for audio/adaptor board in standard configuration)

Width

32-bit address

Peak Bus Perf.

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

LAN Interface (standard)

Type

IEEE 802.3/Ethernet

Data Rate

10 Mbits/sec

Connectors

15-pin AUI and BNC "T"

SCSI Interface (standard)

Type

SCSI-II: single-ended, 8 bit

Data Rate

5 Mbytes/sec synchronous
1.5 Mbytes/sec asynchronous
with standard length cables

Device limit

7 devices

Connector

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

Fast-Wide SCSI Interface (standard)

Type

SCSI-II: fast-wide, 16 bit

Data Rate

20 Mbytes/sec synchronous
asynchronous support

Device limit

15 devices (No more than 7 disk
arrays)

Connector

SCSI-3, P-connector (68-pin high
density)

Serial Interface (two standard)

Type

EIA RS232C, CCITT V.24/V.28

Data Rate

To 230.4 Kbps with CTS/RTS
bidirectional hardware flow
control

Connector

9 pin male DTE (PC Standard)

Parallel Interface (standard)

Type

Centronics, BUSY handshake

Data rate

300+ Kbytes/sec with DMA
200Kbytes/sec sustained

Connector

25 pin female (PC standard)

EISA Bus

Number of slots

4 standard

Width

32-bit address, 32-bit data

Peak Bus Perf.

33 Mbytes/sec seq. mem write

Audio

Type

16 bit CD/DAT quality Stereo

Digital Data Rate

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

Connectors

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

Optional Internal Mass Storage

Max Mass Storage Devices

Two full height 5.25 inch
mechanisms and two half
height 5.25 inch mechanisms

Max Internal Mass Storage

4.0GB

Internal 2.0GB Disk (Single-ended)

Number Supported

up to 2

Operating System

HP-UX 9.0

Size

5.25 inch full height

Formatted Capacity

2003 Mbytes

Average Seek Time

11.5 msec

Average Latency

5.56 msec

Spindle Speed

5400 rpms

Internal 2.0GB Disk (Fast-wide)

Number Supported

up to 2

Operating System

HP-UX 9.0

Size

5.25 inch full height

Formatted Capacity

2003 Mbytes

Average Seek Time

11.5 msec

Average Latency

5.56 msec

Spindle Speed

5400 rpms

Floppy Drive 3.5-inch

Max. Number supported

1 per unit

Operating System

HP-UX 9.0

Size

3.5 inch with brackets to fit 5.25
inch half height shelf

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 with Latency

194ms

Digital Audio Tape Drive

Max. number supported

1 per unit

Operating System Support

HP-UX 9.0

Size

3.5 inch full height

Media Type

60 and 90 meter DDS cassette

Capacity

2.0Gbytes (without data
compression) up to 8.0Gbytes
(with data compression)

Format

Helical-scan DAT

Max. burst data transfer rate

1.5Mbytes/sec

Max. sustained data transfer rate

183Kbytes/sec (without data
compression) up to
732Kbytes/sec (with data
compression)

Avg. Random Access Time

20 seconds

CD-ROM Drive

Max. number supported

1 per unit

Operating System Support

HP-UX 9.0

Capacity

600MB

Size

5.25 inch half height

Media diameter

4.7 inches

Number of surfaces

1

Avg. data transfer rate

153Kbits/sec

Average Random Access Time

350 msec

Physical and Environmental***SPU Power - Input specifications***

Source Consumption

8 Amps @ 120VAC

5 Amps @ 220VAC

Auto Ranging

90-132 VAC

198-264 VAC

Line Frequency

47-63Hz

Power Consumption

540 max Watts

1843 BTU/hour

465 Kcal/hour

SPU Power - Output specifications

Power 350 W max output

+5 V current 46.0 A

+12 V current 9.10A

-12 V current 1.50 A

-5 V current 0.80 A

Power Budget

Base system

Maximum memory

HIL maximum load

AUI (lan)

High temp fan

Hard disk

DDS tape drive

CD ROM

Floppy disk

CRX-24Z

CRX-24

Dual CRX

CRX

Integrated FDDI

EISA/HP-IB

EISA/SCSI-differential

EISA/802.3 LAN

EISA/802.5 LAN

EISA/FDDI

EISA/X.25

+5 V

(Amps)

19

1.0

1.7

0.5

0.5

0.8

7.0

4.6

3.5

2.5

2.0

+12 V

(Amps)

0.6

1.0

0.5

1.8

2.6

0.3

0.3

-12 V

(Amps)

0.1

-5 V

(Amps)

Totals

(Watts)

104

5

12

6

22

38

6

6

4

35

23

17.5

12.5

10

15.3

15.4

17 typical

21.3 AUI

11.2

10

19.2

Physical Dimensions

Deskside:

Height

Width SPU

Depth

Net Weight

610mm (24 in.)

220mm (8.7 in.)

595mm (23.4 in.)

41.3 Kg (91 lbs - fully loaded)

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 70°C
Humidity, Non-condensing:	
Operating	15% 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	3048 meters (10,000 ft.) to 36°C
Altitude: non-operating	15,240 meters (50,000 ft.) to 60°C

Monitor

19" Color	
(CRX, CRX-24, CRX-24Z, and CRX-48Z)	
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 (10,000ft.)
Max. Altitude Non-operat.	10,668m (35,000ft.)

Regulatory Compliance

CISPR 22	B
FCC class	A
VCCI class	1
Safety	UL, CSA, EN60950, GS mark

Monitor Physical Characteristics

Height	472mm (18.6 in.)
Width	480mm (18.9 in.)
Depth	505mm (19.9 in.)
Net Weight	32 kg (71.5 lbs)

Regulatory Specifications

Designed to meet all applicable sections of the following:

Electromagnetic Compatibility (EMC) Directive

EN 55022 Class A / CISPR 22 Class A
prEN 55101-2 / IEC 801-2
prEN 55024-3 / IEC 801-3

Product Safety

TUV/GS license
IEC 950 / EN 60950
ZH1/618

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

VCCI CISPR 22 Class 1

Radio Research Laboratory of Korea (RRL)

Electromagnetic Interference (EMI)
Control Regulations

HP - The Leader in RISC-based Systems

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 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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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:

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Norway:

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Poland:

Tel: +48/22/36 83 00

Portugal:

Tel: +35/1/130 173 30

Russia:

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Slovenia:

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Spain:

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