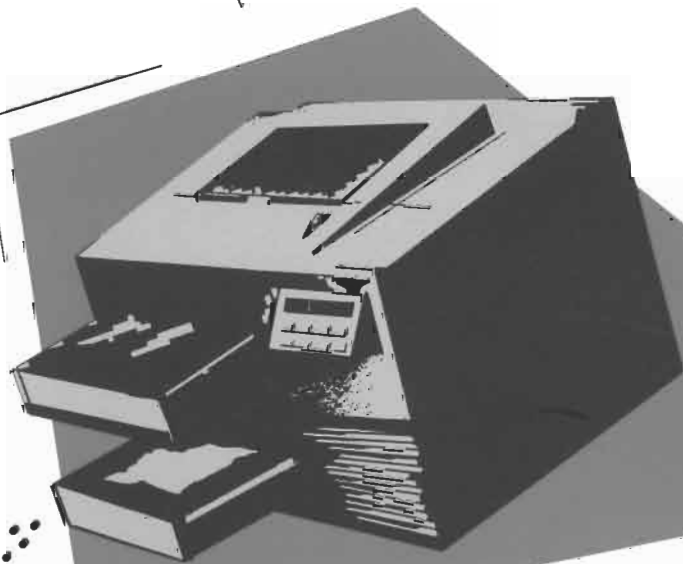
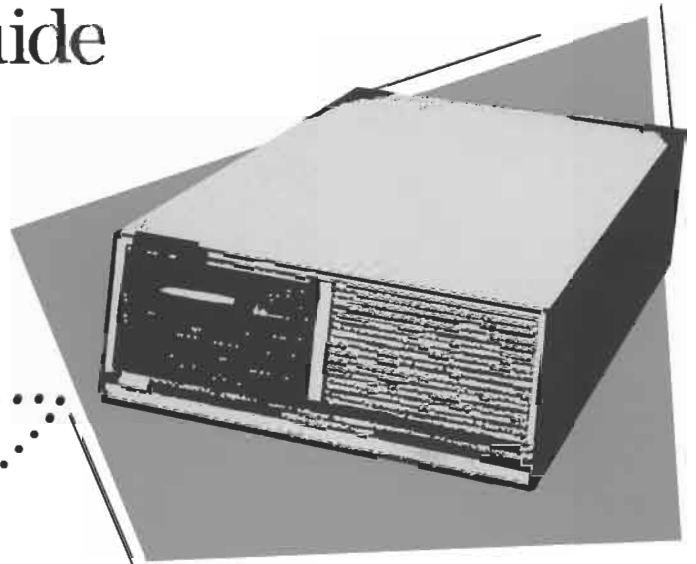
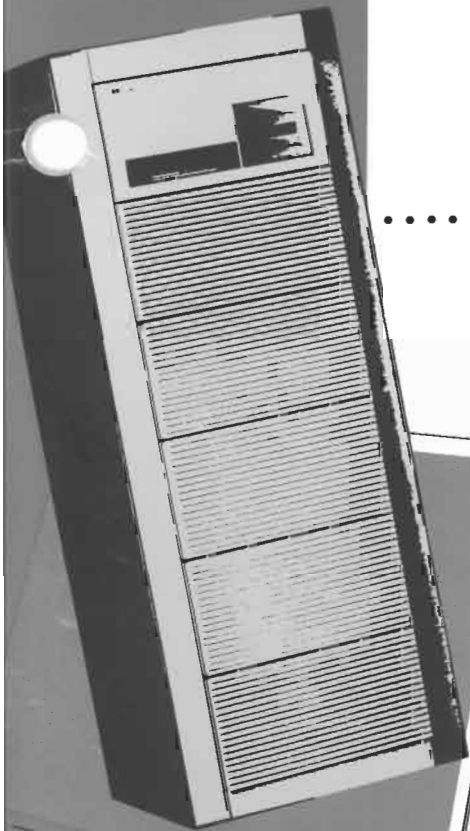


Computer Peripherals Selection Guide



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Selecting Mass Storage

Before selecting mass storage, consider the following needs:

- Online data storage for continuously available data
- Offline data storage for either data protection (backup) or to preserve information for future reference (archival storage)
- Data interchange between systems and for software distribution

Online data storage is usually provided by disk drives, and offline data storage and data interchange are provided by tape drives, flexible disk drives, or optical disk drives. The first step in your selection process is to choose a vendor known for quality and reliable products.

► Decision Factors for Disk Drives

Requirements for selection of disk drives include:

- Interface/System
- Capacity
- Performance
- Data management
- Budget



► Interface System Requirements

Hewlett-Packard systems offer three basic mass storage interface types: HP-IB, HP-FL, and SCSI. When selecting a disk drive, it is important to match the interface to the system you are using. HP-IB is a versatile interface used on many HP systems. HP-FL uses fiber optic technology for fast, noise-free data transmission; it is ideal for high-end systems that require large amounts of information online. SCSI is an ANSI-standard interface common on most workstations today; it is also growing in popularity for multiuser systems. A new implementation of SCSI, called fast differential SCSI, is now available for HP 9000 Series 700 workstations. With a 10-Mbytes-per-second transfer rate, it allows unparalleled disk performance.

► Capacity Requirements

The programs you run, the number of users on your system, and the size of your data files dictate the amount of storage your system requires. Your HP sales representative and HP system engineer can work with you to determine your capacity requirements. Remember to plan for future growth.

► Performance Requirements

Disk performance could hinder system performance if the disk is not properly matched to the system. Consult your sales representative to determine the optimal disk drive for your particular system and application.

.....▶ **Data Management Requirements**

Before selecting a disk drive, you need to analyze how you plan to manage the data on your system. Will you transfer data between different systems by means of computer networks or removable media such as flexible disks, tapes, or optical disks? Will you need to lock away removable data for security reasons? Whichever data management system you choose, be sure the products under consideration allow easy transfer of data between systems. Consult your sales representative to determine the optimal disk drive for your particular system and application.

.....▶ **Budget Requirements**

The product you choose must fit your budget. An important point to consider is the five-year cost of ownership. A lower purchase price can be offset by a higher service contract cost. Looking at the five-year cost of ownership will give you an accurate competitive comparison.

Personal Data Storage

.....▶ **3.5-inch Microfloppy Disk
(HP 9122C)**

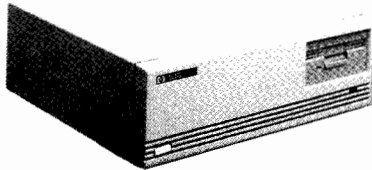


The HP 9122C is a high-density, double-sided, 3.5-inch microfloppy disk drive designed for use with HP's workstations with HP-IB interface. It is able to read and write all microfloppies up to the 2-Mbyte capacity disk. Employing a half-height 3.5-inch microfloppy mechanism enables the HP 9122C to run faster, cooler, and quieter than older, full-height mechanisms. In addition, the HP Media Monitor feature alerts the user to media wear by rhythmically flashing the drive access light.

The solution for:

- Low-cost data storage
- Data interchange needs
- Software distribution

.....▶ **Winchester Disk Drive
(HP 9153C)**



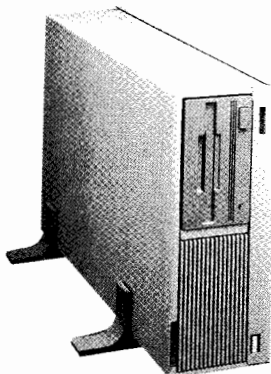
The rugged single-user HP 9153C is an expandable 3.5-inch hard disk drive specially designed for users in measurement automation, manufacturing, and general office environments. The drive is available in three base capacities: 10, 20, or 40 Mbytes. A 20-Mbyte disk mechanism is available for expanding the 10- and 20-Mbyte versions to 30 and 40 Mbytes, respectively. The drive can also be configured with a 2-Mbyte microfloppy mechanism.

The solution for:

- Basic and Pascal applications
- Flexible storage requirements
- Expandable add-on storage for future needs

Workstation Storage Systems

.....▶ **Series 6000**
Models 330S/D and 660S/D
(C2212A/D and C2213A/D)

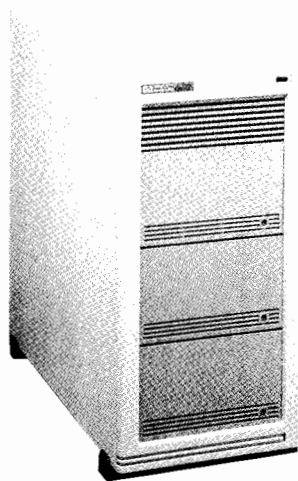


Models 330S/D and 660S/D come with either a 332-Mbyte or 664-Mbyte hard drive and space for 2 additional full-height or 1 full-height and 2 half-height devices: rewritable optical disk, CD-ROM, DDS-format tape (DAT), or disk mechanism. Targeted toward high-performance standalone workstation and server customers, these products provide a total storage solution. They are designed with single-ended SCSI interfaces that are optimized for performance on HP-UX and Domain operating systems.

The solution for:

- HP-UX or Domain operating systems
- HP 9000 Series 300, 400, 700, and Apollo workstations
- Multimedia storage environments

.....▶ **Series 6000**
Models 670SX and 1350SX
(C2481A and C2482A)



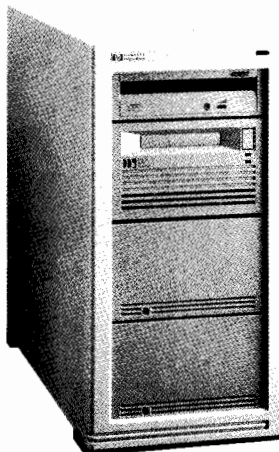
These models are designed to complement the power of the HP 9000 Series 700 workstations with exceptional disk performance, high capacity, and reliability. The 670SX and 1350SX use the new fast differential SCSI-2 interface.

The solution for:

- HP 9000 Series 700 workstations
- Fast differential SCSI-2 interface
- High-performance/capacity storage

With either 1,355- or 677-Mbyte base configuration, these models include space for two additional 5.25-inch disks in a compact mini-tower cabinet. Fully loaded, the Model 1350SX provides over 4 Gbytes of high-performance storage. Up to 42 Gbytes of online storage is possible on an HP 9000 Series 750.

.....▶ **Series 6000**
Models 670SE and 1350SE
(C2216T and C2217T)



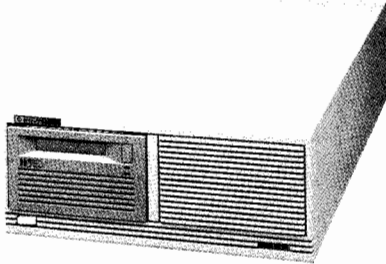
The Models 670SE and 1350SE are single-ended SCSI-2 mass storage systems that come with one 677-Mbyte or 1,355-Mbyte disk drive as the base configuration in a mini-tower cabinet. The cabinet is designed with additional slots that will hold 1.3-Gbyte DDS-format tape (DAT), 600-Mbyte CD-ROM, and 650-Mbyte rewritable optical disk drives. They are a follow on to the HP Series 6000 Model 330S and 660S. The 670SE and 1350SE can hold three full-height (DDS-format DAT, disk, or rewritable optical) or seven 5.25-inch form factor half-height (CD-ROM) mass storage devices.

The solution for:

- HP 9000 Series 300, 400, and 700 workstations
- Multimedia storage environments
- Mini-tower enclosure for deskside or desktop use
- DDS-format DAT, CD-ROM, and rewritable optical devices

Workstation Storage Systems (cont.)

► Model 1350S (C2214B)



Model 1350S is a single-ended SCSI-2 325-mm enclosure with a base configuration of one 1,355-Mbyte disk drive. The enclosure is designed with three additional slots that hold 1.3-Gbyte DDS-format DAT, 600-Mbyte CD-ROM, and 650-Mbyte rewritable optical disk drives. It is also a follow on to the HP Series 6000 Models 330S and 660S. The 1350S can hold either three full-height (DDS-format, disk, or rewritable optical) devices or four 5.25-inch form factor half-height devices (CD-ROM) with one full-height device as its total configuration.

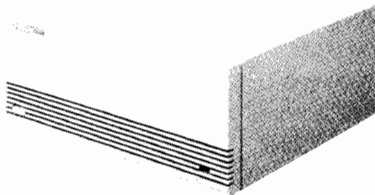
The solution for:

- HP 9000 Series 300, 400, and 700 workstations
- Outstanding random I/O performance
- DDS-format DAT, CD-ROM, and rewritable optical devices
- 325-mm rack-mountable enclosure



Multiuser Storage Systems

► Fixed Disk Drives (HP 7957B and HP 7958B)

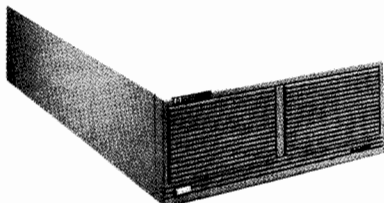


The HP 7957B and HP 7958B disk drives offer storage capacities of 81 or 152 Mbytes and are ideal for commercial and technical multiuser systems and workstations using an HP-IB interface. Users of HP 1000, HP 3000, and HP 9000 computer systems will appreciate the solid reliability these disk drives offer. The inherent reliability of these products is based on seven generations of disk drive design and manufacturing experience at Hewlett-Packard. The foundation of each model is a 5.25-inch Winchester mechanism designed and manufactured by HP.

The solution for:

- Commercial and technical multiuser systems
- Technical workstations
- High-performance and reliability needs

► Series 6000 Models 335H, 670H, and 670XP (C2200A, C2203A, and C2202A)



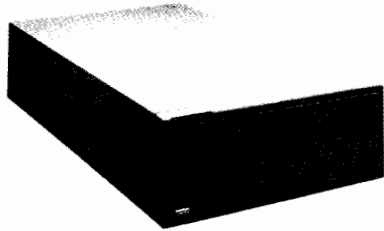
The Models 335H, 670H, and 670XP disk storage systems offer storage capacities from 335 to 670 Mbytes. They are supported on entry-level through high-end multiuser systems. The Model 670H is well suited for moderate system configurations that require the features of HP-IB interface. The Model 670XP provides HP 3000 MPE V users with high-speed controller cache.

The solution for:

- Low-end and midrange system configuration
- Caching needs (670XP) on MPE V HP 3000 systems
- Multiuser and workstation environments
- 325 mm rackable

Multiuser Storage Systems (cont.)

.....▶ **Series 6000**
Models 670FL and 1.34FL
(C2201A and C2204A)

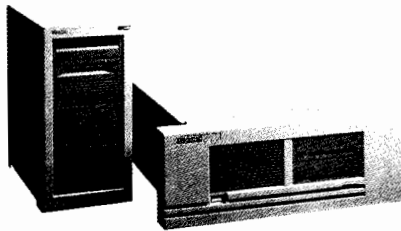


For midrange and high-end HP PA-RISC multiuser systems, choose from the Series 6000 Model 670FL (670 Mbyte) or the Model 1.34FL (1.34 Gbyte). The associated fiber optic cable is not affected by radiated noise and can be as long as 500 meters. Combined with performance enhancements, HP-FL offers a high degree of configuration flexibility and a performance growth path for medium to large HP PA-RISC systems.

The solution for:

- MPE/XL and HP-UX systems
- Midrange to high-end systems
- High degree of configuration flexibility

.....▶ **Series 6000**
Models 420F/R, 670F/R,
and 1350F/R, (C2460F/R,
C2461F/R, and C2462F/R)



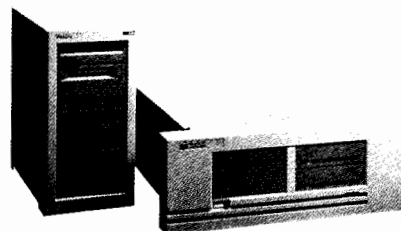
Models 420F/R, 670F/R, and 1350F/R were designed with a single-ended SCSI-2 interface for entry-level and midrange multiuser HP 9000 Series 8X7 and HP 3000 Series 9X7 users. Designed with a base configuration of one disk, they have two full-height or five half-height slots available for additional mass storage devices: disk drives (full-height), DDS-format DAT (full-height), or CD-ROM (half-height).

The solution for:

- High-performance SCSI 2 single-ended devices
- High availability through power fail recovery
- Additional slots for expandability and flexibility

The 420F, 670F, and 1350F are housed in a compact mini-tower floorstanding enclosure that supports three full-height or seven half-height devices. The 420R, 670R, and 1350R are housed in a compact, rackmount cabinet that holds either three full-height, five half-height, or four half-height and one full-height mass storage devices.

.....▶ **Series 6000**
Models 1300D F/R
(C2463F/R)



The Models 1300D F/R are single-ended SCSI-2 mass storage subsystems that come in either a floorstanding or rackmount cabinet that holds 1.3-Gbyte DDS-format tape (DAT) as its base configuration. The floorstanding model can hold three full-height or seven half-height mass storage devices. The rackmount model holds a total of either three full-height, five half-height, or four half-height and one full-height mass storage devices. The 1.3-Gbyte DAT is based on DDS-format. DDS has been adopted by the ECMA and ISO committee and is pending in the ANSI committee.

The solution for:

- Primary storage on HP 3000 Series 9X7 and HP 9000 Series 8X7
- Fastsearch utility for locating a file in 30 seconds
- Unattended backup up to 1.3-Gbytes capacity

Mass Storage Specifications

Feature	9153C	9122C	7957/58	335H/670H C2200/03A	670XP C2202A	670FL/1.34FL C2201/04A
Capacity (formatted)	10/20/40 Mb 1.42 Mb micflopy	1.42Mb (2 drvs) micflopy	81/152 Mb	335/670 Mb	670 Mb	670 Mb/1.34Gb
Seek	75 ms** 200 ms	85 ms	17 ms	17 ms	17 ms	17ms
Latency	10 ms** 100 ms	100 ms	8.96 ms	7.5 ms	7.5 ms	7.5 ms
Controller Overhead	NA	NA	<1.0 ms	1.1 ms	1.4ms	1.6 ms
Trans Rate*	185 Kb/sec** 32 Kb/sec	35 Kb/sec	700 Kb/sec	1.40 Mb/sec	1.40 Mb/sec	1.40 Mb/sec
Total Transaction*	NA	NA	28.4 ms	26.6/25.6 ms	13.5 ms	26.6 ms
Sound Level	<49 dB(A)	<49 dB(A)	41-<54 dB(A)	56 dB(A)	56 dB(A)	56 dB(A)
Voltage	Switch Selec.	Switch Selec.	opt. 015-230v	Switch Selec.	Switch Selec.	Switch Selec.
Power Consum. (max.)	50 W	67 W	115 W	90 W	105 W	135 W/175 W
Interface	HP-IB	HP-IB	HP-IB	HP-IB	HP-IB/XP	HP-FL
MTBF	30K hrs.	50K hrs.	120K hrs	100K hrs	75K hrs	65K hrs/50K hrs
Usage	—	—	8640 hrs/yr	8640 hrs/yr	8640 hrs/yr	8640 hrs/yr

* Speeds (averages) are system/application dependent.

High-End Drive: Total Transaction is derived from averaged seek, latency, cntrl ovrhd, and trans rate speeds.

PDS Drives: Transfer Rate is mechanism speed.

** Hard drive. Speeds below are for the 3.5" microfloppy mechanism.

Mass Storage Specifications (cont.)

Feature	30/660 C2212/13A	C2214B	C2481A/82A	C2216T/17T	C2460F/R	C2461/62F/R
Capacity (formatted)	332/664 Mb	1355 Mb	677Mb/1355Mb	677 Mb/1355 Mb	422 Mb	677 Mb/1355 Mb
Seek	16.5ms	13.5 ms	13.5 ms	13.5 ms	12.6 ms	13.5 ms
Latency	7.5 ms	7.5 ms	7.5 ms	7.5 ms	8.3 ms	7.5 ms
Controller Overhead	<.5 ms	<1.0 ms	<1.0 ms	<1.0 ms	<1.0 ms	<1.0 ms
Trans Rate*	1.6 Mb/sec	2.2 Mb/sec	2.2 Mb/sec	2.2 Mb/sec	1.7 Mb/sec	2.2 Mb/sec
Total Transaction*	25.1 ms	21 ms	21 ms	21 ms	21 ms	21 ms
Sound Level	<56 dB(A)	5.7 bels (3 disks)	5.7 bels (3 disks)	5.7 bels (3 disks)	5.7 bels (3 disks)	5.7 bels (3 disks)
Voltage	Switch Selec.	88-268 V	88-268 V	88-268 V	88-268 V	88-268 V
Power Consum. (max.)	147 W	70 W	70 W	70 W	45 W	70 W
Interface	SCSI	Single-ended SCSI-II	Differential SCSI-II	Single-ended SCSI-II	Single-ended SCSI-II	Single-ended SCSI-II
MTBF	100K hrs	>100K	>100K	>100K	>100K	>100K
Usage	8640 hrs/yr	8640 hr/yr	8640 hr/yr	8640 hr/yr	8640 hr/yr	8640 hr/yr

* Speeds (averages) are system/application dependent.

High-End Drive: Total Transaction is derived from averaged seek, latency, cntrl ovrhd, and trans rate speeds.

PDS Drives: Transfer Rate is mechanism speed.

Mass Storage Systems Support



Model	P/N	Multiuser					Workstations			
		HP 3000 Micro MPE V	S/900 MPE/XL	S/9X7 MPE/XL	HP 9000 S/800 HP-UX	S/8X7 HP-UX	HP 9000 S/300 HP-UX	S/400 HP-UX	S/400 Domain	S/700 HP/UX
9122C	9122C	No	No	No	Pre-7.0	HP-UX/8.02	HP-UX/6.0	HP-UX/7.0*	No	No
9153C	9153C	No	No	No	Pre-7.0 ⁶	HP-UX/8.02	HP-UX/6.5	No	No	No
330S	C2212A	und. inv.	No	planned	HP-UX/8.0	HP-UX/8.02	HP-UX/7.0 ^{8,9}	HP-UX/7.0	No	No
660S	C2213A	und. inv.	No	planned	HP-UX/8.0	HP-UX/8.02	HP-UX/7.0 ^{8,9}	HP-UX/7.0	No	HP-UX/8.05
330D	C2212D	No	No	No	No	No	No	No	SR 10.2 ⁷	No
660D	C2213D	No	No	No	No	No	No	No	SR 10.2 ⁷	No
670SX	C2481A	No	No	No	No	No	No	No	No	HP-UX/8.05
1350SX	C2482A	No	No	No	No	No	No	No	No	HP-UX/8.05
670SE	C2216T	und. inv.	No	No	planned	planned	HP-UX/8.0 ⁸	HP-UX/8.0	SR10.3 ^{**7}	HP-UX/8.05
1350SE	C2217T	und. inv.	No	No	planned	planned	HP-UX/8.0 ⁸	HP-UX/8.0	SR10.3 ^{**7}	HP-UX/8.05
1350S	C2214B	unv. inv.	No	No	planned	planned	HP-UX/8.0 ⁸	HP-UX/8.0	SR10.3 ^{**7}	HP-UX/8.05
7957B	7957B	V-d-1	No	No	HP-UX/Pre-7.0 ⁸	HP-UX/8.02 ³	HP-UX/6.0	No	No	No
7958B	7958B	V-d-1	No	No	HP-UX/Pre-7.0 ⁸	HP-UX/8.02 ³	HP-UX/6.0	No	No	No
335H	C2200A	V-d-8 ⁴	MPE/XL 2.0	MPE/XL 3.1	HP-UX/7.0	HP-UX/8.02	HP-UX/7.0	No	No	No
670H	C2203A	V-d-8 ⁴	MPE/XL 2.0	MPE/XL 3.1	HP-UX/7.0	HP-UX/8.02	HP-UX/7.0	No	No	No
670XP	C2202A	V-d-8 ⁴	MPE/XL 2.0	MPE/XL 3.1	No	No	No	No	No	No
670FL	C2201A	No	MPE/XL 2.0	MPE/XL 3.1 ⁵	HP-UX/7.0	HP-UX/8.02	No	No	No	No
1340FL	C2204A	No	MPE/XL 2.0	MPE/XL 3.1 ⁵	HP-UX/7.0	HP-UX/8.02	No	No	No	No
420F/R	C2460F/R	No	No	No	HP-UX/9.B	HP-UX/8.02	No	No	No	No
670F/R	C2461F/R	No	planned	MPE/XL 3.1	HP-UX/9.B	HP-UX/8.02	No	No	No	No
1350F/R	C2462F/R	No	planned	MPE/XL 3.1	HP-UX/9.B	HP-UX/8.02	No	No	No	No
1300D F/R	C2463F/R	No	planned	MPE/XL 3.1	HP-UX/9.B	HP-UX/8.02	No	No	No	No

* Except the 400dl and the 425e

** With PSK Q3-91

¹ Also supported as boot device

² Also supported as load device

³ Not supported as a system disk

⁴ Supported on V-d-5 if configured as a 793x disk

⁵ Not supported on 9X7 LX

⁶ Option 040 only

⁷ Except 400 dl

⁸ All models except 310, 318, 320

⁹ A post 7.0 software patch may be required



Selecting Optical Disk Storage

Before you select an optical disk drive, you should understand the three different optical storage technologies and their capabilities. These technologies include:

- Compact disk read-only-memory (CD-ROM)
 - Write-once-read-many (WORM)
 - Rewritable optical
- **CD-ROM** is consumer audio technology used to store computer data. It is unique in that information is not written directly by the user's computer; rather, data must be "prepared" and "mastered" using a special publishing process. The main features of this technology are its high storage capacity, permanence of data, and low duplication costs. Think of CD-ROM as a low-cost distribution and publishing medium, rather than a mass storage device.

Ideal applications for CD-ROM include:

- Software manuals for computer systems
- A large reference document, such as a dictionary
- Software distribution

- **WORM** technology allows the user to write data to the disk, one time only. Once data has been written it cannot be altered. The main features of WORM are its high capacity, portability, and permanence. Users should think of WORM as a low-cost, high-capacity, tamper-proof archival storage medium.

Ideal applications for WORM include:

- Electronic document management (microfilm replacement)
- Financial data storage for audit trails
- Permanent medical history recording
- Database archiving
- Legal document storage

- **Rewritable Optical** technology allows computer users to write, erase, and rewrite data to the same disk an unlimited number of times. The main features of a rewritable optical drive are its high storage capacity, durability, portability, and data editing capability. Think of rewritable optical drives as high-capacity, removable media which allow convenient access to data and file updating.

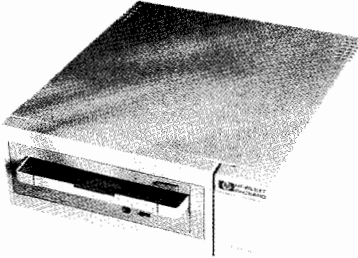
Ideal applications for rewritable include:

- Archival/Historical data storage
- Unattended backup
- Image/Text document storage
- Data editing/updating capability



Optical Disk Products

.....▶ **Standalone
CD-ROM Drive
(A1999A)**



The HP A1999A provides HP system users with fast, online access to 600 Mbytes of data. With complete industry-standard compatibility and full error correction, the A1999A is ideal for software and literature distribution. A standard CD audio jack provides high-fidelity output for computer-based training applications.

The solution for:

- Fast access to over 200,000 pages of text
- Software distribution
- Yellow Book and ISO 9660 support



.....▶ **Series 6300
Model 650/A
(C1701A)**



The HP Series 6300 Model 650/A uses magneto-optical technology to provide 650 Mbytes of removable, fully rewritable storage. The media is based on the industry-standard 5.25-inch optical cartridge and standard continuous composite recording format. The Model 650/A is positioned between hard Winchester disk drives and magnetic tapes in a segment labeled direct access secondary storage (DASS). It behaves like a large removable hard disk, fully compatible with all your application software.

The solution for:

- Direct access
- High-capacity, inexpensive storage needs
- Data backup and archiving
- Removable and durable media

Optical Disk Products (cont.)

.....▶ **Series 6300**
Models 10Gb/A and 20Gb/A
(C1703A and C1700A)



The 10Gb/A rewritable optical library is an entry-level product for Series 300 and 400 workstations in a small network environment (less than 10 workstations) or for Series 700 workstations. The 10Gb/A contains one rewritable optical disk mechanism utilizing a single-ended SCSI interface. It is the solution for convenient data management, reduced system administrator intervention, and easy retrieval of frequently accessed archived data.

The solution for:

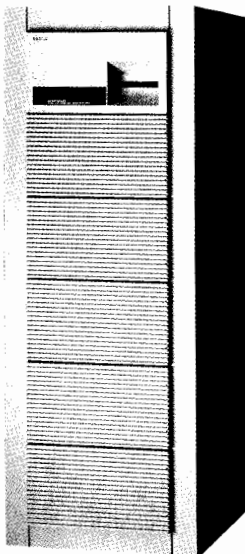
- HP 3000 Series 900 (20Gb/A only)
- HP 9000 Series 300, 400, and 700 workstations
- High-capacity unattended backup
- Upgradeability for expanding network or storage needs

The 10Gb/A holds up to 16 rewritable optical disk cartridges for a total capacity of 10.4-Gbytes and can be upgraded to a 20Gb/A rewritable optical library capacity.

Model 20Gb/A has a capacity of 32 optical disks for a total of 20.8 Gbytes of storage. Designed with two rewritable optical disk mechanisms, it is equipped with a single-ended SCSI interface. It can be ordered in either vertical-mount in desk-side cabinet or horizontal-mount in a 1.0-m (19") cabinet.

Two model 20Gb/A's can be configured in one 1-meter cabinet to provide 41 Gbytes of storage. Like the 650/A, the 10Gb/A and 20Gb/A use removable and durable media. They also are suited for easy retrieval of frequently accessed archived data.

.....▶ **Series 6300**
Models 60Gb/A and
100Gb/A
(C1704A and C1705A)



The Models 60Gb/A and 100Gb/A are rewritable optical libraries targeted for users who need large-capacity data storage that is easily accessible and upgradeable. Model 60Gb/A has a capacity of 88 optical disk cartridges (57.2 Gbytes) and 4 rewritable optical disk mechanisms. Model 100Gb/A has a capacity of 144 optical disk cartridges (93.6 Gbytes) and 4 rewritable optical disk mechanisms.

The solution for:

- HP 9000 Series 300, 400, and 700 workstations
- Low-cost, online direct access to data
- High-capacity unattended backup
- Upgradeability for expanding network or storage needs

Like the 10Gb/A and the 20Gb/A, the 60Gb/A and 100Gb/A use removable and durable media. They also are suited for easy retrieval of frequently accessed archived data.

Optical Disk Products (cont.)

.....▶ **HP's Optical Storage Server for Networked UNIX® Environments**

(photo not available)

HP's Optical Storage Server is a plug-and-play solution that brings over 22 Gbytes of information online for networked UNIX workstations. The Optical Storage Server designed with a SCSI interface can be accessed from any standards-based networked workstation in seconds. It combines high-capacity optical storage with high-performance Winchester hard disks in a reliable, affordable, centralized storage resource that is shared over the network. Specifically, it integrates an HP Model 20Gb/A Optical Disk Library System, 2 Gbytes (three Winchester) hard disks, and an HP 9000 workstation running UNIX-based data management software. The entire configuration occupies two Design Plus cabinets, giving it a small desktop footprint. Specific clients are networked UNIX workstations running NFS and ARPA/Berkeley Services over 802.3 networks. HP 9000 Series 300, 400, and 800 workstations running HP-UX 7.0 or greater have been qualified as clients, as have Sun workstations running SunOS 4.0 or greater.

The solution for:

- Network UNIX workstation storage
- Over 22 Gbytes online storage
- High-capacity centralized network storage

Optical Solutions

Optical Solutions Using Third Parties

Hewlett-Packard now has a comprehensive product line of rewritable optical storage products ranging from the 650-Mbyte standalone optical disk drive to the 10-, 20-, 41-, 57-, and 94-Gbyte libraries to meet your storage needs. The software below, combined with this hardware, provides complete solutions for file management, host backup, hierarchical storage, and system direct connect applications. These third-party products are qualified for both performance and support.

Hewlett-Packard Optical Solutions allow you to keep all of your data immediately accessible in a package that occupies very little floor space. Optical solutions provide a new level of data security, accessibility, and cost efficiency.

Solution Descriptions

Product Name	Description
Optical Storage Server	An NFS file server with automatic management of hard disk space to optical disk. Supports HP-UX and SUN clients.
OmniBack	Network backup solution for HP-UX and Domain workstations.
OmniBack/Turbo	Adds high-speed image backup when S800 is used as backup engine to the OmniBack network backup solution.
TurboSTORE XL II	Provides high-performance direct connect, unattended, and/online backup on MPE/XL systems.
HIBACK	Network backup solution for HP-UX backup server for MPE V, MPE/XL, and HP-UX systems.
HIBARS	Network manager for HIBACK providing archiving and backup capability for MPE V, MPE/XL, and HP-UX systems.
InfiniteStorage Server	An NFS file server that provides transparent, automatic file migration from hard disk to optical disk. For HP-UX networks.
Optical Jukebox Controller	Provides SCSI to HP-IB conversion for connecting the optical autochanger.

Platform	Vendor	Product Name	Country Availability	Optical Library
HP-UX	HP	Optical Storage Server	Worldwide	C1700A
HP-UX, DOMAIN	HP	OmniBack	Worldwide	C1700A
HP-UX, S800 only	HP	OmniBack/Turbo	Worldwide	C1700A
MPE/XL	HP	TurboSTORE XL II	Worldwide	C1700A
MPE V, MPE/XL, HP-UX	HI-COMP	HIBACK	Europe & USA	C1700A
MPE V, MPE/XL, HP-UX	HI-COMP	HIBARS	Europe & USA	C1700A
HP-UX	EPOCH	InfiniteStorage Server	Canada, Europe Japan, & USA	C1700A C1704A C1705A
MPE V, MPE/XL, HP-UX, RTE-A	IEM	Optical Jukebox Controller	Europe & USA	C1700A C1704A C1705A

Optical Disk Product Specifications



Feature	C1701A Standalone	C1703A Model 10	C1700A Model 20	C1704A Model 60	C1705A Model 100
Capacity formatted	650 Mb	10.4 Gb	20.8 Gb	57.2 Gb	93.6 Gb
No. of Drives	1	1	2	4	4
No. of Cartridges	1	16	32	88	144
Avg. Access Time	107 ms	avg. media exch = 7 sec avg. spin up = 2.4 sec avg. spin down = 2.8 sec avg. load/unload = 4.0/0.8 sec	avg. media exch = 7 sec avg. spin up = 2.4 sec avg. spin down = 2.8 sec avg. load/unload = 4.0/0.8 sec	avg. media exch = 8 sec avg. spin up = 2.4 sec avg. spin down = 2.8 sec avg. load/unload = 4.0/0.8 sec	avg. media exch = 8 sec avg. spin up = 2.4 sec avg. spin down = 2.8 sec avg. load/unload = 4.0/0.8 sec
Sustained Transfer Rate*					
read	680 Kb/sec	680 Kb/sec	680 Kb/sec	680 Kb/sec	680 Kb/sec
write	340 Kb/sec	340 Kb/sec	340 Kb/sec	340 Kb/sec	340 Kb/sec
Avg. Seek Time	95 ms	95 ms	95 ms	95 ms	95 ms
Buffer	64 Mb	64 Mb	64 Mb	64 Mb	64 Mb
Power Consumption	175 W (Typ)	110 W (Typ) 250 W (Max)	250 W (Typ) 110 W (Max)	200 W (Typ) 475 W (Max)	200 W (Typ) 475 W (Max)
Interface	SCSI	SCSI	SCSI	SCSI	SCSI
Sound	55 dBa	55 dBa (mech) 65 dBa (changer)	55 dBa (mech) 65 dBa (changer)	55 dBa (mech) 65 dBa (changer)	55 dBa (mech) 65 dBa (changer)
MTBF	20K hrs. (power up)	drive: 25K hrs changer: 25K hrs	drive: 25K hrs changer: 40K hrs		

* System and application software dependent
Reads and writes is for the maximum sustained

Optical Disk System Support

Model	P/N	Multiuser					Workstations			
		HP 3000 Micro MPE V	S900 MPE/XL	S9X7 MPE/XL	HP 9000 S 800 HP-UX	S 8X7 HP-UX	HP 9000 S300*** HP-UX	S400** HP-UX	S 400 Domain	S 700 HP-UX
650MB	C1701A	No	No	No	HP-UX/8.0	HP-UX/8.02	HP-UX/6.5	HP-UX/7.0	SR 10.2**	HP-UX/8.05
10GB	C1703A	No	under inv.	under inv.	under inv.	und. inv.	HP-UX/8.0	8.0**	under inv.	under inv.
20GB	C1700A	No	3.0/TS II	planned	HP-UX 8.0	8.05	HP-UX/7.0	7.0	SR 10.4*	HP-UX/8.05
60GB	C1704A	No	under inv.	under inv.	HP-UX/8.0	planned	HP-UX/8.0	8.0	under inv.	under inv.
100GB	C1705A	No	under inv.	under inv.	HP-UX/8.0	planned	HP-UX/8.0	8.0	under inv.	under inv.

* Supported only on 425S, 425T, and 433S

** Except the 400dl

*** Optical products are not supported on models 310, 318, 320

Selecting Magnetic Tape Storage

Tape drives perform five important functions:

- Backup for protection against operator error and equipment failure
- Archival storage for economical, long-term data preservation
- Data exchange with other computer systems
- Software distribution
- Online data storage for data logging and large file manipulation

The key factors to consider when buying a tape drive are:

- Tape drive data backup performance and capacity
- Interchange standards
- Budget
- Future growth needs

► **Tape Drive Data Backup Performance and Capacity**

The speed of the tape drive and the capacity of the media should be well matched to the user's computer system. In general, as the disk storage on a computer increases, there is a corresponding need for a higher-performance tape drive with a higher capacity and performance to minimize backup time and operator intervention and to improve data storage efficiency.

Workstations and low-end multiuser systems—requiring up to 300 Mbytes of online disk storage are best matched with a 1/4-inch cartridge tape drive or DDS-format DAT tape.

Midrange systems—a DDS-format DAT tape drive can be the best solution. DDS-format DAT allows for unattended backup and archival storage, sequential high-speed search, and data interchange. 1/2" tape can also be used for compatibility.

Midrange to high-end multiuser systems—for systems with large amounts of disk capacity (greater than 2 Gbytes), 1/2-inch tape drives can be a good solution. They also write data in the industry-standard formats of 1600 or 6250 characters per inch (cpi). A data compression tape storage format can be utilized to provide up to five times greater reel capacity and higher performance, saving both space and time. DDS-format DAT can also be an option with unattended backup capability, archival storage, sequential high-speed search, and data interchange.

► **Interchange Standards**

To share data between systems or distribute software to other systems, consider a tape drive with the same format as the other tape drives. A drive capable of multiple densities (6250/1600 or 1600/800 cpi) or DDS-format DAT may be appropriate in those applications which require both high-performance backup and data interchange.

.....▶ **Budget**

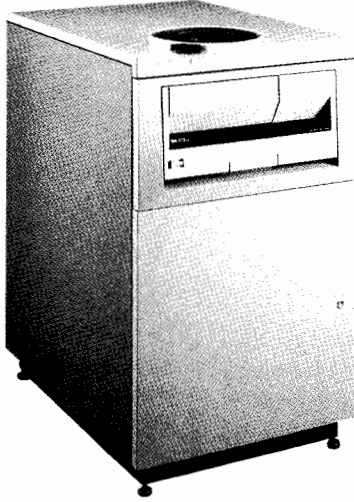
The cost of a tape drive must fit the budget. Use the same five-year cost of ownership recommended for disk drives to make an accurate comparison of your tape drive choices. Also consider the cost of media.

.....▶ **Future Growth Needs**

Be sure to plan for the future with system enhancements and additions. If disk capacity is expected to grow, it is wise to purchase a faster or higher-capacity backup device with the initial system. HP also provides attractive upgrade programs to allow smooth migration to higher-performance products.

1/2-Inch Tape Drives

► HP 7979A/S, HP 7980A/S, and HP 7980XC/SX



The HP 7979A/S, HP 7980A/S, and HP 7980XC/SX 1/2-inch tape drives are streaming, horizontal-mount, 1/2-inch tape drives with industry-standard formats. Similar in size, all three tape drives offer automatic tape loading features, are mounted in a cabinet with up to two drives per cabinet, and are field upgradeable. The result is better floor space utilization, more convenient operation, very high performance, and a low-cost solution for system growth.

The HP 7979A is a low-cost drive providing backup in 1600 characters per inch (cpi) standard format with optional 800-cpi capacity. The HP 7979A is also field upgradeable to add 6250-cpi capability. The HP 7979A is ideally positioned for systems having 100 to 400 Mbytes of disk storage and requiring standard format for data interchange. The HP 7980A is a 6250- and 1600-cpi tape drive with optional 800-cpi capability ideally suited for systems disk capacities from 400 Mbytes to 2 Gbytes. Both models can be ordered with a SCSI interface (HP 7979S and HP 7980S) or upgraded from the 7979A and 7980A.

The HP 7980XC provides 6250 and 1600 cpi as well as a data compression feature providing up to five times more storage than the standard 6250-cpi format. Benefits achieved from this high data storage capability include savings in the following areas: backup time, media cost, library storage cost, and operator time. The HP 7980XC is positioned for systems having greater than 2 Gbytes of disk storage and is field upgradeable from the HP 7980A. It can also be ordered with SCSI interface (HP 7980SX) or upgraded from the HP 7980S.

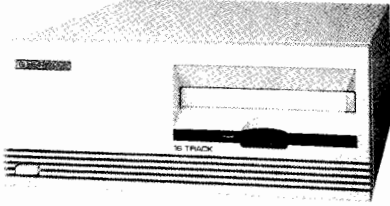
The solution for:

- Midrange to high-end multiuser systems
- Data interchange requirements
- Software distribution
- Archival storage



1/4-Inch Cartridge Tape Drives

▶ HP 9144A

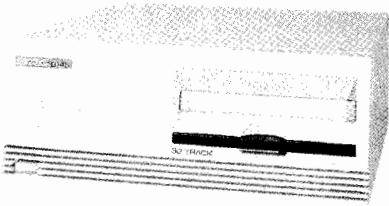


The HP 9144A is a low-cost, 16-track, 1/4-inch cartridge tape drive ideally suited for PCs, technical workstations, and small business systems having 20 to 132 Mbytes of disk capacity. With a data transfer rate of 2 Mbytes per minute and a cartridge capacity of 67 Mbytes, the HP 9144A is a convenient backup alternative to multiple floppy disks.

The solution for:

- Technical workstations
- Software distribution
- CAD/CAM/CAE applications

▶ HP 9145A



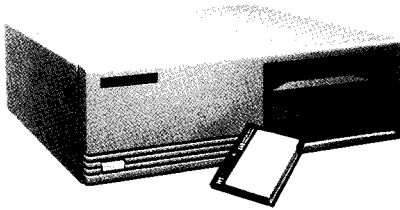
The HP 9145A is a 32-track, higher-capacity, 1/4-inch tape drive ideally positioned for low-end to midrange technical and commercial systems having 81 to 304 Mbytes of disk capacity. Both the HP 9144A and 9145A products utilize "read-while-write" data verification and extensive error detection features to ensure data integrity. Cartridges written in HP 9144A format can be read by the HP 9145A.

The solution for:

- High-performance workstations
- Software distribution
- CAD/CAM/CAE applications

DDS-Format Tape Drives

.....▶ **Series 6400
Model 1300H/S
(C1511A/C1512A)**

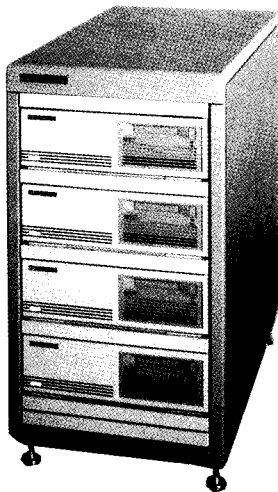


The Models 1300H and 1300S are based on Digital Audio Tape (DAT) technology and use the Digital Data Storage (DDS) format. The DDS-format has been adopted by ECMA and ISO and is pending in the ANSI committee. These DDS-format tape drives can store 1.3 Gbytes of data in under two hours with no operator intervention. DDS also makes file retrieval easier with the Fastsearch utility. When supported by the operating system, this facility searches the tape at 200 times the normal read speed to find files in an average of 20 seconds. The choice of HP-IB or SCSI gives you the flexibility to select the right interface for your system configuration.

The solution for:

- Low-end to midrange multiuser and workstations
- High-capacity/unattended backup data storage
- Fast file retrieval using Fastsearch utility
- Software distribution

.....▶ **Model 1300H DDS-format
DAT Tape Subsystem
TurboPak (C1590A)**



The DDS-format DAT subsystem is the low-cost, high-capacity unattended backup solution for midrange and high-end HP 3000 systems. This subsystem contains between two and four HP Series 6400 Model 1300H tape drives in a single cabinet. Each DDS-format DAT drive stores up to 1.3 Gbytes of data on a single cassette. By building up to four DDS-format DAT tape drives into the subsystem, you have access to a total capacity of about 5.2 Gbytes using standard HP backup utilities. For example, when combined with TurboSTORE XL II (using fast data compression) this subsystem is capable of 12 Gbytes of unattended backup in less than 2 hours on a Series 949.

The solution for:

- High-capacity unattended backup
- Archival storage
- TurboSTORE XL II support on HP 3000 systems
- OmniBack, OmniBack/Turbo support on HP 9000 systems

Magnetic Tape Drive Specifications

1/2 inch Tape Drives ¹			
Feature	7979A/S	7980A/S	7980XC/SX
Interface	HP-IB/SCSI	HP-IB/SCSI	HP-IB/SCSI
800 cpi	Opt. 800	Opt. 800	N
1600 cpi	Y	Y	Y
6250 cpi	N	Y	Y
Read/Write	125 ips	125 ips	125 ips
Rewind	320 ips	320 ips	320 ips
Trans Rate²	10.8 Mb/min	25 Mb/min	45 Mb/min
Media	2400/3600 ft*	2400/3600 ft*	2400/3600 ft*
Capacity (cpi = Mb)	1600=40 800=20	6250=140 1600=40	XC=700 625 ³ 1600=40
Back-up	100-500 Mb	400 Mb-2 Gb	2-4 Gb ⁴
Buffer	256 Kb	512 Kb	512 Kb
Voltage	FA	FA	FA
Wattage	250 W	250 W	250 W
MTBF	22.4K hrs	22.4K hrs	22.4K hrs
Usage	N/A	N/A	N/A

1/4 inch Tape Drives ¹		
Feature	9145A	9144A
Interface	HP-IB	HP-IB
Tracks	32	16
Tape Drive	9145A reads 9144A, 35401A, and Linus tapes.	
Compatibility	Compat. in other HP 1/4" drives. 9144A and 35401A are fully compatible.	
Speed	120 ips	60 ips
Search/Rewind	120 ips	90 ips
Trans Rate²	4 Mb/min	2 Mb/min
Media	150/600 ft**	Preformatted
Capacity (150/600 ft.)	33/133 Mb	16/67 Mb
Back-up	80-300 Mb	15-132 Mb
Buffer	N	N
Voltage	SS	SS
Wattage	25 W	28 W
MTBF	92K hrs	74K hrs
Usage	2.4 hrs/day	2.4 hrs/day

¹ Streaming

² Best scenario, system dependent (sustainable rate).

³ Adds up to 5 times capacity on MPE and 2.5 times capacity on UNIX.

⁴ Use 2-4 7980XC drives w/TurboStore for >4 Gb capacity.

* Support only in specific applications.

** No formatting on drive

FA Field adjustable (110/220 ranges).

SS Switch selectable

Magnetic Tape Drive Specifications



	Digital Audio Tape C1511A/C1512A	C1590A
Feature	HP-IB/SCSI	w/optional TurboStore XL/2
Technology	Helical Scan	Helical Scan
Format	DDS	DDS
Read/Write	Average access: 20 sec w/FastSearch	Average access: 20 sec w/FastSearch
Total Rewind Time	40 sec	40 sec
Trans Rate	600 Mb/hr	From 1.2 to 2.1 Gb/hr
	10.88 Mb/min	<i>System and data dependent</i>
Media	60 Meter	60 Meter
Capacity	1.3 Gb	up to 12 Gb*
Back-up	300-1300 Mb	1.3 - 12 Gb*
Voltage	Switch Select.	Switch Select.
MTBF	40K hrs	N/A

* 12 Gb can be achieved on HP 3000 S949 (figure is based on host data being compressed and compression ratio).

Magnetic Tape Storage System Support

Model	P/N	Multiuser					Workstations			
		HP 3000 Micro MPE V	S900 MPE/XL	S 9X7 MPE/XL	HP 9000 S 800 HP-UX	S 8X7 HP-UX	HP 9000 S 300 HP-UX	S 400 HP-UX	S 400 Domain	S 700 HP-UX
7979A	7979A	Yes**	Yes	3.1	Pre-7.0	8.02	HP-UX/6.2	7.0***	No	under inv.
7979S	7979S	No	planned	planned	planned	under inv.	under inv.	under inv.	Yes ¹	under inv.
7980A/XC	7980A/XC	Yes**	Yes	3.1	Pre-7.0	8.02	HP-UX/6.2	7.0 ²	No	planned
7980S/SX	7980S/SX	No	planned	planned	HP-UX/8.0	under inv.	under inv.	under inv.	Yes ¹	planned
9144A	9144A	Yes	No	No	Pre-7.0	8.02	HP-UX/5.0	7.0***	No	HP-UX/8.05
9145A	9145A	Yes	No	No	Pre-7.0	8.02	HP-UX/6.2	7.0***	No	HP-UX/8.05
C1511A	1300H	V-d-8**	2.05	3.1	8.0 ⁶	8.02	HP-UX 7.03 ^{4,7}	7.0***	No	No
C1512A	1300S	No	planned	under inv.	8.0	8.02	HP-UX 7.03 ^{4,7}	7.0 ²	Yes ^{1,2}	HP-UX/8.05

* Supported w/Domain/OS 10.2 w/PSK7 and Patch #190 or Domain 10.3 w/Patch #190 or Domain/OS 10.3 with PSK8

** MPE V UB-Delta 3, MPE V V-MIT (7980 XC has front panel support only).

* 7980XC is not supported on E/F Series RTE-6

** With patch MPECV36

*** Except the 400dl, and the 425e

¹ 425e/s/t, 433S only

² All except 400dl

³ 400S, 425S, 433S only

⁴ All models except 310

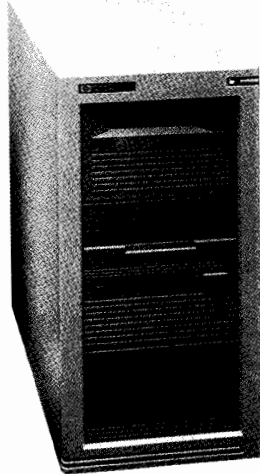
⁵ All models except 310, 318, 320

⁶ Supported with 7.0 in 7980 Emulation Mode

⁷ A post-7.0 s/w patch may be required

PC Mass Storage Product

▶ HP Storage System



The HP Storage System allows you to configure several high-performance SCSI mass storage devices in a single cabinet for use with your high-end PC or PC Local Area Network (LAN). The system provides space for up to 7 half-height or 3 full-height devices and includes device drivers and host bus adapters for 1.3-Gbyte DAT, 650-Mbyte Magneto Optical disk (MO), 600-Mbyte CD-ROM, and hard disk drives (220 Mbytes, 330 Mbytes, 440 Mbytes, 660 Mbytes, 1 Gbyte, 1.3 Gbytes). The devices and host bus adapters have been tested for direct connection to IBM PS/2, Compaq, AST, HP Vectra, and selected compatible PCs. The HP Storage System is compatible with leading network backup and recovery software, so you get management and diagnostic capabilities typically associated only with minicomputers. The system can be ordered with a choice of several leading back-up solutions (including Emerald Systems' EmQ/EmLIB, Sytos Plus from Sytron Corp., and Cheyenne ARC-Serve), which have been tested for compatibility. Working together, software and hardware provide a complete and reliable solution for data storage and management on your PC LAN or individual high-end PC.

The solution for:

- Multimedia/high-capacity mass storage for IBM PS/2, Compaq, HP Vectra, AST, and selected compatible PCs
- PC running LAN Manager, LAN Server, Novell 286, Novell 386, SCO™ UNIX V/386
- High performance and reliability

▶ HP DDS DAT Subsystem



The HP DDS DAT Subsystem is an external 2-Gbyte SCSI-2 subsystem for PCs and PC LANs. The HP DDS DAT has a Fastsearch feature that can locate a file in an average of 30 seconds. It can back up and retrieve 300 Mbytes in 30 minutes.

The HP DDS DAT Subsystem has been tested for direct connection to IBM PC AT and PS/2, Compaq, and HP Vectra. It is compatible with leading backup and recovery software such as Sytron's Sytos Plus, Cheyenne ARCserve, Emerald Systems' EMQ/EmLIB, and the SCO UNIX's HP DAT supplement.

The solution for:

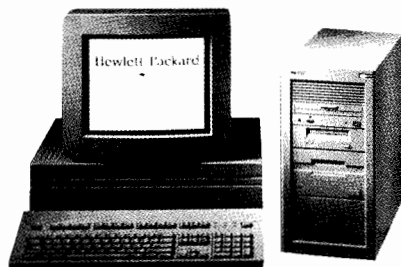
- High-capacity backup on HP Vectra, IBM AT and PS/2, and Compaq
- PC running LAN Manager, LAN Server, DOS, Novell 286, Novell 386, and SCO UNIX V/386
- High performance, higher security, and backup of clients and servers

The HP DDS DAT uses industry-standard Digital Data Storage (DDS) format. DDS has been accepted by the European Computer Manufacturing Association (ECMA) and International Standards Organization (ISO). It is pending adoption in the American National Standards Institute (ANSI).

The HP DDS DAT and backup software provide a complete backup solution for your PC and PC LAN.

Mass Storage for the Apple Macintosh

▶ **Mass Storage for the Apple Macintosh**



The HP Storage System for Macintosh allows you to configure several high-performance SCSI mass storage devices in a single cabinet for use with your high-end SCSI Macintosh and Macintosh networks. The system provides space for up to 7 half-height or 3 full-height devices and includes device drivers and host bus adapters for 1.3-Gbyte DAT, 650-Mbyte Magneto Optical disk (MO), 600-Mbyte CD-ROM, and hard disk drives (220 Mbytes, 330 Mbytes, 440 Mbytes, 660 Mbytes, 1 Gbyte, 1.3 Gbytes). These drivers and host bus adapters have been tested for direct connection to high-end SCSI Macintoshes running MAC OS System 6.05 or later. The HP Storage System for Macintosh is compatible with leading network backup and recovery software, so you get management and diagnostic capabilities. The system can be ordered with Norton Utilities and Dantz Retrospect Remote Backup Software, which have been tested for compatibility. Working together, software and hardware provide a complete and reliable solution for data storage and management on your high-end SCSI Macintosh or Macintosh networks.

The solution for:

- High-end SCSI Macintoshes running MAC OS System 6.0.5 or later
- High performance and reliability

PC Mass Storage Specifications



Mass Storage Specifications

Base Product	C2261A	C2262A	C2260A	
Platform (Cabinet & SCSI Host Adapter)	PC-AT Servers	MCA Servers	EISA Servers	
Add-On Devices	C2220/21A	C2222A	C2224A	
Technology	Winchester	Winchester	Technology	Helical Scan DDS
Capacity (formatted)	332/664 Mbyte	1 Gigabyte	Capacity	1.34 Gb
Seek	16.5 ms	17 ms	Search speed	20 Sec.
Latency	7.5 ms	7.5 ms	Trans rate	11 Mb/min
Trans Rate	5 Mb/Sec. (Synchronous) 1.5 Mb/Sec. (Asynchronous)	5 Mb/Sec. (Synchronous) 1.5 Mb/Sec. (Asynchronous)	Buffer	N
			Wattage	50W / 45W
Interface	SCSI-2	SCSI-2		
			MTBF	40K hrs
MTBF (Mech.)	150K hrs	150K hrs		
Optional Archival/Backup Software	C2420A	C2421A		
Description	Emerald Systems' EmQ/EmLIB Software	Cheyenne Software's ARCserve + Tape Software		

Additional notes: Each Host Bus Adapter (HBA) supports up to seven devices. Each cabinet supports up to seven half-height (or three full-height) devices. Note that all disk and tape accessories are full-height. Therefore each cabinet can hold up to three devices. Cabinets can be daisy-chained. This product is also supported for direct connect to an IBM PS/2, Compaq, and Vectra. Additional information on optional software can be obtained by calling Emerald (800) 767-BKUP, or Cheyenne Software (800) CHEY-INC.

HP DAT Specifications

	P/N	Model
Feature	C1520A	2000
Format	DDS	
Capacity	2 Gbytes (90 meter tape) 1.3 Gbytes (60 meter tape)	
Transfer Rate (max sustained)	183 Kbytes/sec	
Search Speed	Avg. of 30 seconds access for any file on a 90 m tape	
Power Consumption	12 watts typical	
Physical Specs	Height = 100 mm Width = 116 mm Depth = 220 mm	
MTBF*	50,000	

* Failure rates are derived for a large data base of test samples. Actual figures will vary from unit to unit.

HP Mass Storage System for the Macintosh Specifications

Feature	5.25 inch Disk	3.5 inch Disk	Rewritable Optical Disk
Capacity	670 Mb 1070 Mb 1355 Mb	235 Mb 328 Mb 422 Mb	590/650 Mb
Interface	SCSI-II	SCSI-II	SCSI-II
Avg. Seek Time	13.5 ms	12.6 ms	95 ms
Transfer Rate	Burst: Sync 5 Mb/s Async 1.5 Mb/s	Burst: Sync 5 Mb/s Async 1.5 Mb/s	Burst: Async 1.2 Mb/s
Average Latency	7.5 ms	8.3 ms	12.5 ms
MTBF (Khrs)	150,000	150,000	40,000

Feature	CD-ROM	DDS-Format Dat
Capacity	600 Mb	2.0 Gb
Interface	SCSI-II	SCSI-II
Avg. Access Time	325 ms	—
Transfer Rate	Burst: 1.5 Mb/s Avg. 150 Kb/s	Max Burst: 1.5 Mb/s Max Sustained 183 Kb/s
Audio	Front panel	N/A
MTBF (Khrs)	—	50,000

Selecting a Printer

Advanced printing technologies and multiple printer features allow today's computer users to match their needs with just the right printer to get the work done. To help you select the right printer, examine your printing needs by considering these factors:

- Work load
- Print quality and graphics
- Print versatility
- User environment
- Compatibility
- Budget

► Work Load

Consider the print quantity needed in a day, week, or month. Is the printer for your personal use, or must it serve an entire department? Consider:

Print speed—Do you need draft-quality printing for yourself, or do you need a high-speed printer to serve a network of users?

Paper handling—How often will you need to refill paper for the amount of printing you do? Printers designed for departmental use offer longer unattended printing capability.

Print volume—Printers designed for shared use handle higher monthly print volumes than personal printers.

► Print Quality and Graphics

Print quality—Do you need draft-quality, near-letter-quality (NLQ), or letter-quality (LQ) printing? Check the print resolution of the printers you are considering.

Typestyles—Do you need different type styles, fonts, and sizes?

Graphics—Do you need the graphics capabilities of dot matrix (and laser) printers?

Barcodes—Do you need barcodes for special applications?

► Printer Versatility

Do you require a variety of output: letters, labels, barcodes, and graphics? Do your software packages support the printer you are considering? Consider:

Paper sizes—Can the printer accommodate the paper sizes you will use?

Paper types—Will you use single sheets or continuous paper? Do you need an impact printer to print on multipart forms? Do you need to print on labels, overhead transparencies, or heavy stock?

.....▶ **User Environment**

Space—Consider the space available for the printer and its proximity to people. When space is minimal, you will want a printer that occupies a small area or sits on a desk.

Noise—If you are in an office environment, you will need a printer with quiet operation.

.....▶ **Compatibility**

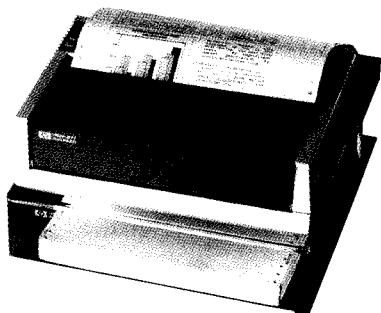
Check the compatibility specifications for a printer to determine if it has the most efficient interface to work with your computer and application software.

.....▶ **Budget**

An important budget factor for any peripheral device is the five-year cost of ownership, as product reliability can greatly affect your long-term service cost.

Inkjet Printers

.....▶ **HP ThinkJet
Personal Printers
(HP2225A/B/C/D/P)**



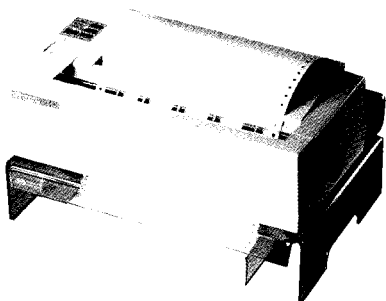
The HP ThinkJet personal printer offers quiet, convenient printing for personal and portable computer users. Its compact size is a space saver for desktop use, and a battery-powered version is ideal for portable computers. The HP ThinkJet printer delivers text and graphics at 150 characters per second (cps) in draft mode. It is compatible with most personal and portable computers and works with most popular software packages.

The solution for:

- Quiet, compact, convenient printing needs
- Portable printing
- Memos, reports, and spreadsheets
- Draft-quality or near-letter-quality printing



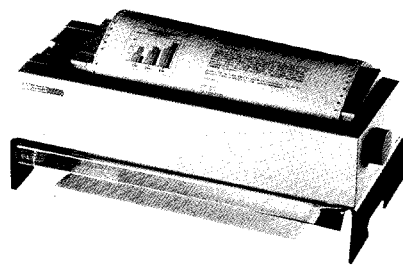
.....▶ **HP QuietJet and
QuietJet Plus Printers
(HP2228A and HP2227A/B)**



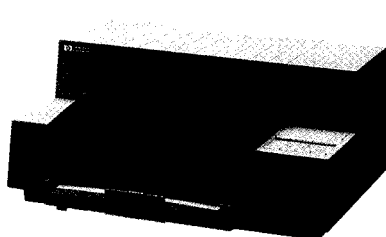
The HP QuietJet and QuietJet Plus printers offer quiet, full-featured printing for business and technical users. Both printers feature convenient key panel access to near-letter-quality printing at 48 characters per second (cps) and draft quality at 192 cps. The HP QuietJet Plus printer has a wider, 15-inch carriage to accommodate spreadsheets. Last-form tear-off, a paper advance knob, and adjustable paper-feed tractors make these printers easy to use.

The solution for:

- Quiet, convenient personal printing
- Near-letter-quality text and graphics needs
- B-size (11"x17") paper printing for wide spreadsheets
- Ease of use



.....▶ **HP DeskJet 500 Printer
(C2106A)**



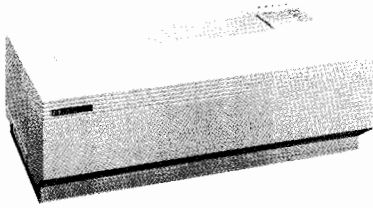
The HP DeskJet 500 printer offers 300-dots-per-inch (dpi) printing at a very affordable price using HP's InkJet technology. It has a fast text and graphics speed and prints at 240 cps in draft mode and 120 cps in letter-quality mode. It comes with 20 bitmapped internal fonts. Additional add-on fonts and memory cartridges are available.

The solution for:

- Laser-quality (300 dpi) text and graphics needs
- Quiet, affordable personal printing needs
- Portrait or landscape printing
- Scalable fonts with Microsoft 3.0 driver

Impact Printers

.....▶ **RuggedWriter 480
Dot Matrix Printer
(HP2235A)**

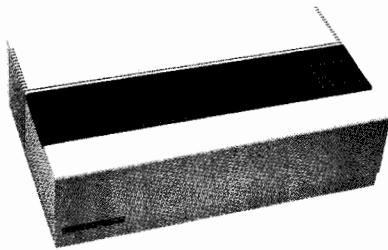


The HP RuggedWriter 480 printer is a 24-wire impact printer that offers fast printing at 480 characters per second (cps) in draft mode and 240 cps for letter quality. PC users will find that the HP RuggedWriter 480 printer speeds through many tasks—letters, multipart forms, or spreadsheets. The HP RuggedWriter 480 printer promotes convenient paper handling and preloaded fanfold and cut-sheet paper for maximum time savings. A variety of optional type styles and cartridges accommodate both custom and industry-standard preprinted forms.

The solution for:

- Printing letters, multipart forms, spreadsheets
- Office environment printing

.....▶ **Dot Matrix Printer
(HP 2934A)**

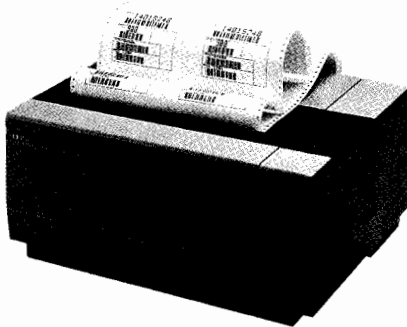


With its wide carriage (136 columns), the HP 2934A dot matrix impact printer meets the needs of departments that require a durable, versatile printer. Print speeds are either 200 characters per second (cps) in draft mode or up to 67 cps in near-letter-quality mode with a variety of optional type style plug-in cartridges. Continuous-form labels and up to 6-part forms add to the printer's flexibility.

The solution for:

- Departmental applications
- Barcode printing
- Transaction environments

.....▶ **Industrial Printer
(HP 2562C)**



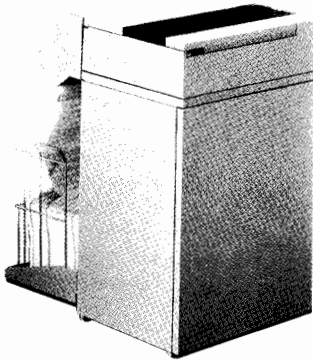
The HP 2562C line printer is designed for low-end systems, manufacturing, or transaction printing. Capable of speeds up to 420 lines per minute, the HP 2562C is offered with many standard character sets including: Roman 8 in 5, 10, and 13.3 characters per inch, compressed print, line draw, block characters, barcode, and high-density near-letter-quality print. Additional character sets are also available. Rugged design and full compatibility with the popular HP 256X printer family make the HP 2562C an exceptional printer at an affordable price.

The solution for:

- Manufacturing and light industrial environments
- High-volume industrial applications
- Multipart-form printing
- Industrial graphics (label and barcode) applications

Impact Printers

.....▶ **Impact Printers**
(HP 2563C and HP 2564C)

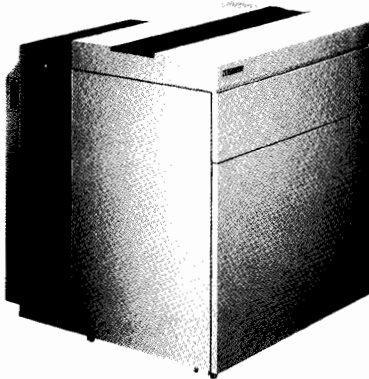


These impact line printers offer superior quality as well as fast and reliable printing for commercial, industrial, or data processing environments. A standard "quietized" cabinet and passive paper stacker make these printers ideal for unattended data center printing. The HP 2563C delivers speeds up to 420 lines per minute (lpm), and fills the need for volume printing up to 63,000 pages per month. The HP 2564C offers a fast 840 lpm and is used for volume printing up to 230,000 pages per month. Standard character sets include Roman 8 in 16.7 cpi compressed print, with many additional character sets available.

The solution for:

- Volume printing requirements
- Print speeds of 420 to 840 lpm
- Workstation and departmental printing
- Clean and efficiently stacked output
- Quiet printing needs (52.3-55 dBa)

.....▶ **Impact Printers**
(HP 2566C and HP 2567C)



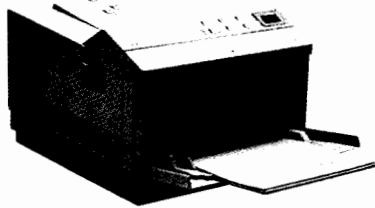
These impact line printers offer the best solution for fast, high-volume unattended system printing. A standard "quietized" cabinet and powered paper stacker make these printers ideal for fully unattended and overnight printing. The HP 2566C delivers speeds up to 1200 lines per minute (lpm) and fills the need for volume printing up to 530,000 pages per month (ppm). The HP 2567C offers a fast 1600 lpm and is used for volume printing up to 650,000 ppm. Standard character sets include Roman 8 in 5, 10, and 16.7 cpi compressed print, with many additional character sets available.

The solution for:

- High-volume printing environments
- Print speeds of 1200 to 1600 lpm
- Overnight unattended printing
- Quiet printing needs (58-61 dBa)

LaserJet Printers

▶ HP LaserJet IIP Printer (33471A)



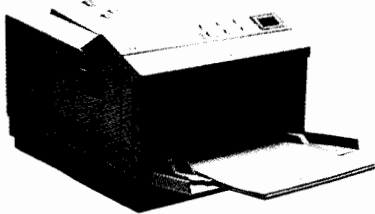
The HP LaserJet IIP printer was designed with the individual user in mind. Using HP's LaserJet technology, this printer delivers up to 4 pages per minute with a quality of 300 dpi for both text and graphics. It comes with 14 bitmapped internal fonts, with many other disk-based and cartridge fonts available.



The solution for:

- High-quality printing for individual PCs
- Low print volume needs
- Personal workstation environment
- Adobe® PostScript® and Epson FX/IBM ProPrinter emulation
- Apple Macintosh compatibility with optional PostScript cartridge and AppleTalk interface

▶ HP LaserJet IIIP Printer (33481A)



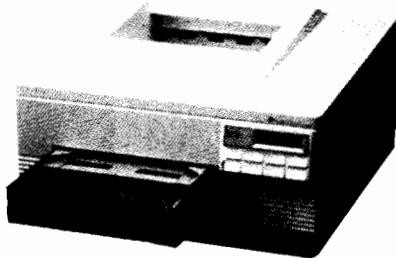
This 4-ppm compact printer brings the benefits of the HP LaserJet III printer to the personal user. Its superior "business speed" prints text and graphics faster to free your computer more quickly. In addition, the exceptional print quality from Resolution Enhancement technology uses PCL 5 language to deliver type scaling, faster graphics, and special effects.



The solution for:

- 4-ppm "business speed" printing
- Optional lower cassette for dual-bin functionality
- Apple Macintosh compatibility with optional PostScript cartridge and AppleTalk interface
- Faster graphics printing using PCL 5 with HP-GL/2

▶ HP LaserJet III Printer (33449A)



The HP LaserJet III printer is ideal for higher-volume and multiple-user environments. It has an engine speed of 8 pages per minute and an optional I/O port to accommodate HP and third-party interfaces. Designed with HP's PCL 5 printer language, it features scalable type and enhanced page formatting. In addition, it uses Resolution Enhancement technology to deliver exceptional print quality.



The solution for:

- 8-ppm printing
- LAN support on Novell and 3Com networks
- Apple Macintosh compatibility using optional PostScript cartridge and AppleTalk interface
- Faster graphics printing using PCL 5 with HP-GL/2



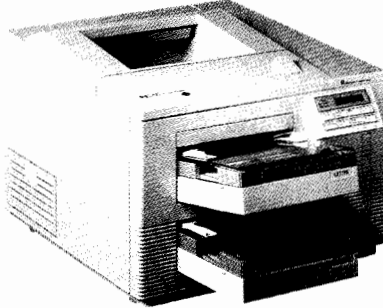
Designates Apple Macintosh connection.



Designates networking capability.

LaserJet Printers (cont.)

▶ HP LaserJet IIID Printer (33481A)



The HP LaserJet IIID printer adds advanced paper handling to the capabilities of the HP LaserJet III printer. Dual paper trays and optional envelope feeder offer more flexibility for high-volume applications. You can easily print letterhead from the top tray and second sheets from the bottom tray. Also, give documents the professional look of a book or magazine by printing on both sides of the paper (duplexing) from either tray.



The solution for:

- 8-ppm dual-tray printing
- LAN support on Novell and 3Com networks
- Duplex printing and optional envelope feeders
- Apple Macintosh compatibility using optional PostScript cartridge and AppleTalk interface
- Faster graphics printing using PCL 5 with HP-GL/2



Designates Apple Macintosh connection.



Designates networking capability.

Network Printers

▶ HP LaserJet III Si Shared Printer (33491A)



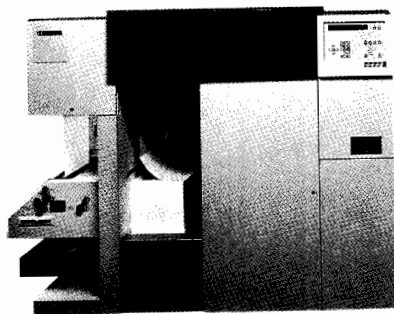
The HP LaserJet III Si printer is a 17-pages-per-minute (ppm) printer and is the perfect solution for shared environments. It is able to print most text and graphics documents at or near engine speed. Two 500-sheet input trays let you print 1000 sheets before paper changes. Optional, fully integrated Adobe PostScript lets you take advantage of PostScript's unlimited graphics capabilities and 35 scalable typefaces. Software switching allows you to switch between PCL 5 and PostScript without leaving your desk. The HP LaserJet III Si printer's microfine toner, combined with Resolution Enhancement technology, delivers the best 300 dpi print quality available—comparable to that of many 600 dpi printers.



The solution for:

- 17-ppm "business speed" printing
- Faster graphics printing using PCL 5 with HP-GL/2
- High-volume printing using dual 500-sheet paper trays
- Optional duplex printing
- Optional HP Network printer interfaces provide direct connection to Novell NetWare and 3Com 3+Open networks
- Microfine toner and RET for crisper printing

▶ High-Capacity Network Printer HP 5000 Series Model F100



The HP 5000 Model F100 production capacity printer brings a new dimension of printing to high-end HP3000 data centers. With a print speed of 100 ppm-fanfold paper, it has a monthly print volume of up to 2.8 million pages. This nonimpact, all-points-addressable LED page printing technology delivers 300-dots-per-inch resolution for both text and graphics. As the industry's first production capacity printer based on HP PCL level 4, the F100 can utilize many off-the-shelf, PC-based HP LaserJet Series II formatting tools that can be uploaded to the HP3000.

The solution for:

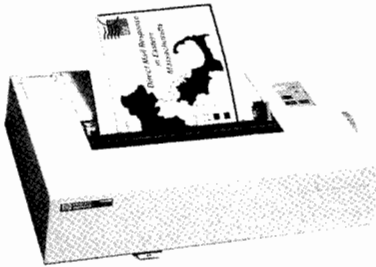
- Print speeds of 100 ppm
- High-volume printing on demand
- Production capacity printing at a 300-dpi resolution



Designates networking capability.

Color Printers

▶ **HP PaintJet Color Printer (3630A)**

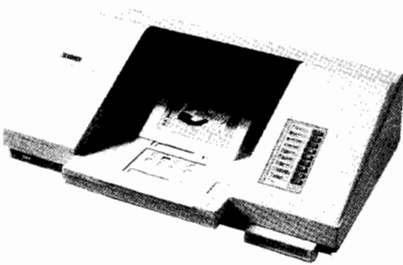


The HP PaintJet color printer offers high-quality color graphics printing for PCs and personal workstations. Using HP's InkJet Technology, it prints at 180 dots per inch and up to 16.8 million colors depending on your system software. The new ink formulations produce colors that are bolder and brighter than ever before. The compact, personal-sized HP PaintJet printer handles fanfold paper or manual feed of cut-sheet and overhead transparencies for more versatility in creating colorful reports or presentations. A choice of Centronics, RS232-C Serial, or HB-IB interfaces is available.

The solution for:

- Desktop presentations, storyboards, and architectural designs
- A/A4-size print capability
- Fanfold tractor feed output needs
- Manual feed of cut-sheet paper and overhead transparencies

▶ **HP PaintJet XL Color Printer (C1602A)**



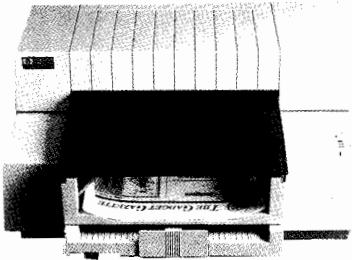
Faster than the HP PaintJet printer on graphics, the HP PaintJet XL color printer can meet the color output needs of a high-volume user or an entire workgroup. A typical letter-size page of graphics prints in just 1.5 minutes. The built-in paper tray automatically feeds up to 200 sheets of letter- or ledger-size paper and up to 70 sheets of letter-size transparency film. The optional HP-GL/2 cartridge includes a 2-Mbyte buffer and additional fonts.

The solution for:

- Speed and versatility needs
- A/A4 and B/A3 print capability
- Automatic cut-sheet feed for paper and transparency
- High-volume user or an entire workgroup

Monochrome Printers

▶ **HP DeskWriter Printer with AppleTalk (HP2279A)**

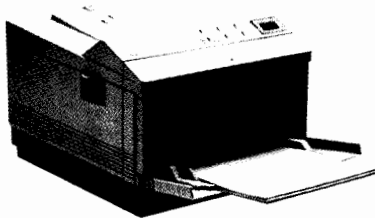


Designed exclusively for the Macintosh computer, the HP DeskWriter personal printer prints at speeds comparable, in many cases, to popular high-end Macintosh laser printers. With laser-quality output, this printer comes with the standard Macintosh fonts to give you greater control over your printing tasks. The HP DeskWriter printer supports all major Macintosh applications and comes standard with AppleTalk and a serial interface.

The solution for:

- Laser-quality output
- Word processing, spreadsheets, graphics, desktop publishing, and database documents from your Macintosh
- Print sharing on AppleTalk networks

▶ **HP LaserJet IIP PostScript Printer with AppleTalk (33427A)**

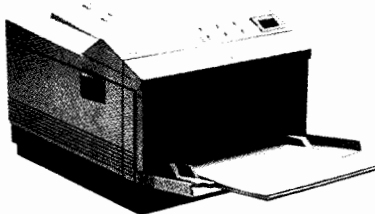


The HP LaserJet IIP PostScript printer offers outstanding 300-dpi text and graphics at a very affordable price. It comes with authentic Adobe PostScript for complete compatibility with Macintosh's PostScript fonts and applications. You also get 35 built-in Adobe typefaces, and you can download other PostScript fonts. The optional lower paper cassette allows for flexible printing of different paper sizes or types (for example, legal- or letter-size, letterhead, second sheet, labels, overheads, or envelopes).

The solution for:

- Affordable PostScript laser printing for Macintosh computers
- AppleTalk networks using the built-in LocalTalk interface
- Flexible printing with optional lower cassette
- Affordable PostScript laser printing for IBM-compatible PCs

▶ **HP LaserJet IIIP PostScript Printer with AppleTalk (33428A)**



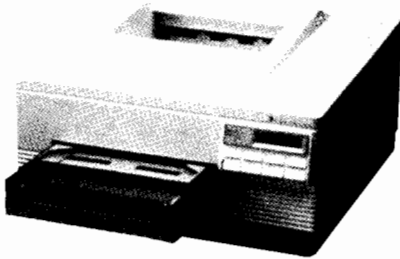
The HP LaserJet IIIP PostScript printer is the most affordable way to take advantage of HP's exclusive Resolution Enhancement technology (REt) to produce quality output far superior to other compact 300-dpi laser printers. REt smooths the edges of curves and angles in text and graphics for sharper-looking documents. True Adobe PostScript and 35 built-in typefaces let you print documents that combine complex PostScript graphics and text. You can also download any other PostScript fonts. Also, IBM-compatible printers needing PostScript capability can be connected by a standard serial and parallel I/O when the printer is not being used by the Mac.

The solution for:

- Affordable PostScript laser printing with REt for Macintosh computers
- AppleTalk networks using the built-in LocalTalk interface
- Flexible printing with optional lower cassette
- Affordable PostScript laser printing for IBM-compatible PCs

Monochrome Printers (cont.)

.....▶ **HP LaserJet III PostScript Printer with AppleTalk (33429A)**



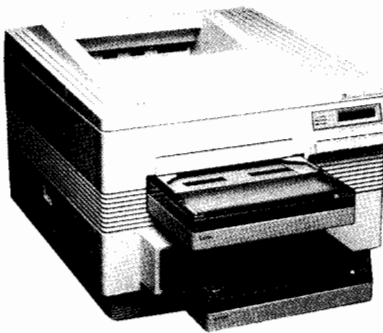
Resolution Enhancement technology (REt) complements the graphics capabilities of authentic Adobe PostScript of the HP LaserJet III PostScript printer. It makes PostScript's precise curves and straight lines even smoother and sharper. It has 35 built-in Adobe typefaces, or you can download other PostScript fonts. Built-in LocalTalk lets you plug the printer into a single Macintosh or a medium-size AppleTalk network. Also, IBM-compatible printers needing PostScript capability can be connected by a standard serial and parallel I/O when the printer is not being used by the Mac.

The solution for:

- Workgroup PostScript printing
- AppleTalk networks using the built-in LocalTalk interface
- Workgroup PostScript printing for IBM-compatible PCs



.....▶ **HP LaserJet IIID PostScript Printer with AppleTalk (33434A)**

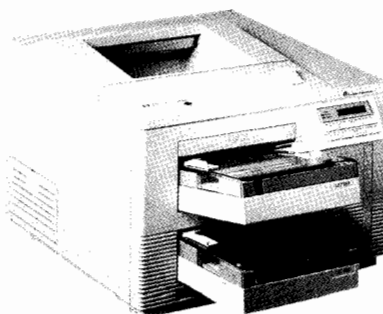


The HP LaserJet IIID PostScript printer features Resolution Enhancement technology, two-sided printing, 5 Mbytes of memory, and dual paper bins. It comes standard with two 200-page-capacity paper trays that can be loaded with different types or sizes of paper. Add an optional power envelope feeder for a third paper source. With true Adobe PostScript and 35 built-in Adobe typefaces, you can print documents with complex text and graphics. You can also download other PostScript fonts. Also, IBM-compatible printers needing PostScript capability can be connected by a standard serial and parallel I/O when the printer is not being used by the Mac.

The solution for:

- Dual-bin duplexing printing
- AppleTalk networks using the built-in LocalTalk interface
- Envelope printing optional
- Workgroup PostScript printing for IBM-compatible PCs

.....▶ **HP LaserJet IIISi Printer for the Macintosh (33491A, #002)**



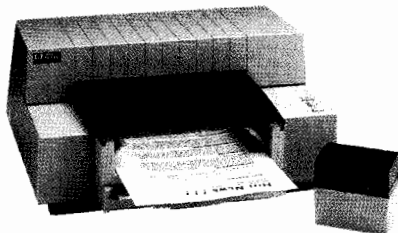
The HP LaserJet IIISi printer for the Macintosh is designed exclusively for the Macintosh user. This 17-ppm printer with a RISC-based processor and 5 Mbytes of standard memory prints most text and graphics at or near engine speed. With Resolution Enhancement technology and microfine toner, the printer can deliver 300-dpi output print quality that challenges the output of 600-dpi printers. With built-in AppleTalk interface, the HP LaserJet IIISi printer for the Macintosh is built to be shared.

The solution for:

- High-speed text and graphics printing
- "Plug-and-play" connection to the Macintosh
- Small or large workgroup printing
- High-quality printing using REt and microfine toner

Color Printers

.....▶ **HP DeskWriter C
Color Printer
(C2113A)**

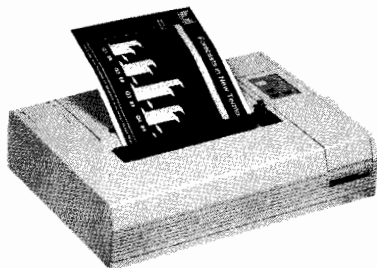


Designed exclusively for the Apple Macintosh computer, the HP DeskWriter C color-capable printer delivers the same laser-quality printing as the HP DeskWriter personal printer. At 300 dpi, choose either high-quality black or color output on plain paper or transparencies. The HP DeskWriter C printer supports all major Apple Macintosh applications in black and color and comes standard with AppleTalk and a serial interface.

The solution for:

- Laser-quality black printing
- High-quality graphics
- Affordable color printing

.....▶ **HP PaintWriter
Color Printer
(C1613A)**



The personal-sized HP PaintWriter printer prints color graphics and text on letter-size fanfold or cut-sheet paper or on overhead transparencies. It is equipped with a fast RS-422 serial interface which allows quick printing—a typical page of color graphics prints in just 4 minutes. Best of all, the HP PaintWriter printer is priced right for most Macintosh users.

The solution for:

- High-speed printing needs with RS-422 serial interface
- Font flexibility requirements
- Personal size at an affordable price
- Fanfold or manual cut-sheet paper/film
- Pantone certified color

.....▶ **HP PaintWriter XL
Color Printer
(C1662A)**



The HP PaintWriter XL color printer combines high speed with automatic sheet feed to meet the high-volume output needs of a busy individual or workgroup on an AppleTalk network. A typical letter-size page of color graphics prints in just 1.5 minutes; and with the paper size flexibility, you can print large spreadsheets, drawings, and illustrations on ledger-size paper.

The solution for:

- Fast, color printing needs
- Easy networking using built-in AppleTalk
- A/A4 and B/A3 color printing needs
- High-volume for an individual or a shared LocalTalk network
- Pantone certified color

Printer Specifications

Monochrome Printers

Features	C2106A DeskJet 500	33471A LJ Series IIP	333481A LJ Series IIIP	33449A LJ Series III	33459A LJ Series IIID	33491A LJ Series IIISi
Print Speed PPM	UP TO 3	UP TO 4	UP TO 4	UP TO 8	UP TO 8	UP TO 17
Resolution	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi
Std. Printer Language	PCL 3	PCL 4	PCL 5 (HP-GL/2)	PCL 5 (HP-GL/2)	PCL 5 (HP-GL/2)	PCL 5 (HP-GL/2)
Resolution Enhancement Technology	NO	NO	YES	YES	YES	YES+ microfine toner
Internal Bitmapped fonts	20	14	14	14	14	14
Internal Scalable Fonts	0	0	8	8	8	13
Type Scaling	w/ Windows 3.0	Yes, w/ OPT. Type Director	Yes, w/ Built-in Intellifont	Yes, w/ Built-in Intellifont	Yes, w/ Built-in Intellifont	Yes, w/ Built-in Intellifont
Font Cartridge Slots	2	1	1	2	2	2
Std. Input Trays/Capacity	1/100	1/50	1/70	1/200	2/400	2/1000
Opt. Input Tray	None	250	250	None	None	None
Output Tray Capacity	50	50	70	100	100	500 Front/50 Back
Media Size	Letter, Legal, A4, Exec., envelope	Letter, Legal, A4, Exec., envelope	Letter, Legal, A4, Exec., envelope	Letter, Legal, A4, Exec., envelope	Letter, Legal, A4, Exec., envelope	Letter, Legal, A4, Exec., envelope
Media Type	Copier, bond, envelopes, labels	Copier, bond, envel., trans- parencies, labels	Copier, bond, envel., trans- parencies, labels	Copier, bond, envel., trans- parencies, labels	Copier, bond, envel., trans- parencies, labels	Copier, bond, envel., trans- parencies, labels
Max Paper Weight (Lbs)	24	28	28	36	36	36
Std. Envelope Handling Capacity	Manual/1	Manual & Auto/5	Manual & Auto/5	Manual/1	Manual/1	Manual/1
OPT. Envelope Handling Capacity	None	Tray/20	Tray/20	Tray/15	Power feeder/ 50, tray/15	Power feeder/100 50, tray/15
Two-Sided (duplex) Printing	No	No	No	No	Yes	Yes w/ opt.
Memory Slots	2	2	2	2	2	4 SIMM Slots
Std. Memory	16 Kbytes	512 Kbytes	1 Mbyte	1 Mbyte	1 Mbyte	1 Mbyte
Opt. Memory Boards	256 Kbytes	1,2 Mbytes	1,2 Mbytes	1,2 Mbytes	1,2 Mbytes	1,4 Mbytes
Max. Memory	512 Kbytes	4 Mbytes	4 Mbytes	4 Mbytes	4 Mbytes	16 Mbytes
Std. Interface	Serial, Parallel	Serial, Parallel	Serial, Parallel	Serial, Parallel, Expanded I/O	Serial, Parallel, Expanded I/O	Serial, Parallel, Modular I/O
Opt. Languages	Epson FX 80 IBM Proprinter	Adobe PostScript Epson FX IBM Proprinter	Adobe PostScript Epson FX IBM Proprinter	Adobe PostScript Epson FX IBM Proprinter	Adobe PostScript Epson FX IBM Proprinter	Adobe PostScript
Operating Noise dB(A)	43	<45	43.3	42.9	47.7	49
Dimensions W×L×H (inches) (with trays)	17.3 × 14.8 × 8	13.4 × 15.9 × 10.2	13.4 × 15.9 × 10.2	18 × 25 × 10	18 × 33.2 × 13.5	21.6 × 29.5 × 16.5
Monthly Duty Cycle	1000	6000	8000	16000	20000	50000
Warranty	3 year	1 year	1 year	1 year	1 year on-site	1 year on-site

Impact Dot Matrix Printers

Feature	2934A	2235A	2562C	2563C	2564C	2566C	2567C
Speed:							
lpm	150	360	420	420	840	1200	1600
cps	200	480	560	560	1120	1600	2133
Print Language	PCL II	PCL III	PCL II	PCL II	PCL II	PCL II	PCL II
Bar Code	Yes	No	Yes	Yes	Yes	Yes	Yes
OCR (A and B)	Optional	No	No	Optional	Optional	No	No
Multipart	6-part	6-part	6-part	6-part	6-part	6-part	6-part
Paper Width	2.25-15.75 in.	3-14.95 in.	3-16.7 in.	3-16.7 in.	3-16.7 in.	3-16.8 in.	3-16.8 in.
Monthly Volume (ppm)	12K	5K	25K	25-63K	63-230K	230-520K	520-690K
Resolution (dpi)	90 × 90	180 × 180	140 × 144	140 × 144	140 × 144	140 × 144	140 × 144
Sound Level dB(A)	63	56	64	52.3	55	58	61
Interface	RS-232/422 std. Cent./HP-IB Opt.	RS-232 Cent. Or RS-232, HP-IB	HP-IB std	specify HP-IB, RS-232, RS-422, Cent.			
MTBF	13K	20K	1,109 hrs	1,109 hrs	789 hrs	482 hrs	446 hrs
Usage			100K pg/mo	100K pg/mo	200K pg/mo	300 pg/mo	400 pg/mo

Print Speed Conversion Table:

$cps = lpm / 60 \text{ sec.} * 80 \text{ col.}$
 $cps = ppm / 60 \text{ sec.} * 4800 \text{ char. per page}$
 $lpm = cps * 60 \text{ sec.} / 80 \text{ col.}$
 $lpm = ppm * 60 \text{ lines per page}$

$ppm = cps * 60 \text{ sec.} / 4800 \text{ chars. per page}$
 $ppm = lpm / 60 \text{ lines per page}$
 (Assume 100% character fill on page)

Feature	F100
Print Speed (8 1/2" × 11" pages)	100 ppm
Text and Graphics Resolution	300 dpi
Maximum Duty Cycle	2 million
Input Capacity	2500 pages
Output Capacity	3300 pages
Internal Fonts	20 bitmapped
Internal Symbol Sets	14
Number of Downloaded Fonts	128
Number of Fonts Per Page	128
HP3000 Interface	SCSI



Color Printers

	Color Printers 3630A	C1602A
Features	PaintJet	PaintJet XL
Technology	Color Inkjet	Color Inkjet
Print Speed	4 mpp	1.5 mpp
Resolution	180 dpi	180 dpi
Std. Printer Language	PCL 1	PCL 3
Number of Users	1	2
Standard Trays	N/A	1
Media Size	Letter	Letter, B size
Media Type	Jet paper, Z-fold transparencies	Jet paper, transparencies
Standard Fonts	13 fonts in four families	13 fonts in four families
Optional Fonts	22 fonts in 7 font families plus Adobe Type Manager	22 fonts in 7 font families plus Adobe Type Manager
Two-Sided (duplex) Printing	No	No
Std. Memory	8 Kbytes	17.2 Kbytes
Max Memory	8 Kbytes	17.2 Kbytes
Std. Interface	RS-232, Centronics, HP-IB	RS-232, Centronics, HP-IB
Opt. Languages	N/A	HP-GL/2 cartridge
Operating Noise dB(A)*	<20	<20
Dimensions W×L×H (with Trays) (inches)	17.4 × 11.89 × 3.86	29.53 × 17.36 × 9.06
Monthly Duty Cycle	500	1500
Warranty	1 year	1 year

* At 1-meter bystander position

Apple Macintosh Connect Printers

	Monochrome Printers					
	2279A	33427A	33428A	33429A	33434A	33491A Opt. 002
Features	DeskWriter	LJIIP PostScript	LJIIP PostScript	LJIII PostScript	LJIID PostScript	LJIISI for Macintosh
Technology	Inkjet	Laser	Laser	Laser	Laser	Laser
Speed	UP TO 3 ppm	UP TO 4 ppm	UP TO 4 ppm	UP TO 8 ppm	UP TO 8 ppm	UP TO 17 ppm
Resolution	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi
Printer Language	QuickDraw	PostScript or PCL 4	PostScript or PCL 5	PostScript or PCL 5	PostScript or PCL 5	PostScript
Resolution Enhancement Technology	No	No	Yes	Yes	Yes	Yes + microfine toner
Standard Typefaces:						
PostScript	N/A	35	35	35	35	35
PCL (Bitmapped/Scalable)	0/4	14/0	14/8	14/8	14/8	14/8
Memory Slots	None	2	2	2	2	4 SIMMs
Std. Memory	16 Kbyte Buffer****	1.5 Mbytes	2 Mbytes	2 Mbytes	5 Mbytes	5 Mbytes
Max. Memory	16 Kbyte	4.5 Mbytes	5 Mbytes	5 Mbytes	5 Mbytes	17 Mbytes
Std. Input Capacity	100	50	70	200	400	1000
# of Input Trays	None	2*	2*	1	3**	4**
Std. Output Capacity	50	50	50	100	100	500
Media Size	Letter, legal, A4, envelope	Letter, legal, A4, Executive, envel.	Letter, legal, A4, Executive, envel.	Letter, legal, A4, Executive, envel.	Letter, legal, A4, Executive, envel.	Letter, legal, A4, Executive, envel.
Media Type	Copier, bond, label	Copier, bond, envelopes, transparencies, labels	Copier, bond, env. transparencies, labels	Copier, bond, env. transparencies, labels	Copier, bond, env. transparencies, labels	Copier, bond, env. transparencies, labels
Two-Sided (duplex) Printing	No	No	No	No	Standard	Optional
Std. Interface	RS-422, AppleTalk	Serial, Parallel, LocalTalk	Serial, Parallel, LocalTalk	Serial, Parallel, LocalTalk	Serial, Parallel, LocalTalk	LocalTalk
Dimensions WxDxH / Weight (inches)						
Without addl. Trays	17.3 x 14.8 x 8 14.3 lbs	13.8 x 16 x 8 22 lbs	13.8 x 16 x 8 22 lbs	18 x 19.5 x 10 50 lbs	18 x 26.4 x 13.5 75.9 lbs	21.5 x 23.5 x 16.5 106 lbs***
With MP Tray Open	N/A	13.8 x 24.9 x 8/ 22 lbs	13.8 x 24.9 x 8/ 22 lbs	N/A	N/A	N/A
With Optional Lower Cassette	N/A	13.8 x 16 x 10.2/ 25.1 lbs	13.8 x 16 x 10.2/ 25.1 lbs	N/A	N/A	N/A
Monthly Duty Cycle	1000	6000	8000	16000	20000	50000
Warranty	3 years	1 year	1 year	1 year	1 year on-site	1 year on-site

* With optional lower cassette

** With optional power envelope feeder

*** With Duplex

**** 16 Kbyte receive (serial)

• With optional 1500 sheet tray

Apple Macintosh Connect Printers

	Color Printers		
	C2113A	C1662A	C1613A
Features	DeskWriter C	Paint Writer	Paint Writer XL
Technology	Color Inkjet	Color Inkjet	Color Inkjet
Speed	7 mpp	1.5 mpp	1.5 mpp
Resolution	300 dpi	180 dpi	180 dpi
Printer Language	QuickDraw	QuickDraw w/ Color PrintKit	QuickDraw
Resolution Enhancement Technology	No	No	No
Standard Typefaces:			
PostScript	N/A	N/A	N/A
PCL (Bitmapped/Scalable)	0/4	0/4	0/4
Memory Slots	N/A	N/A	N/A
Std. Memory	64 Kbytes	5-8 Kbytes	50 Kbytes
Max. Memory	64 Kbytes	8 Kbytes	50 Kbytes
Std. Input Capacity	100	N/A	200 paper/70 film
# of Input Trays	None	None	None
Std. Output Capacity	50	N/A	200 paper/70 film
Media Size	Letter, legal, A4	Letter, A4	Letter, tabloid (B), A3
Media Type	Copier, bond, env. transparencies, labels	PJ paper, z-fold, film, sprocket feed	PJ papers transparencies
Two-Sided (duplex) Printing	No	No	No
Std. Interface	RS-422, AppleTalk	RS-422	RS-422, AppleTalk
Dimensions W×D×H / Weight: (inches)			
Without addl. Trays	17.3 × 14.8 × 8 14.3 lbs	17.4 × 11.89 × 3.86 11 lbs	29.53 × 17.36 × 9.06 39 lbs
With MP Tray Open	N/A	N/A	N/A
With Optional Lower Cassette	N/A	N/A	N/A
Monthly Duty Cycle	1000	—	—
Warranty	3 years	1 year	1 year



Selecting a Scanner

Here are five considerations when selecting a scanner:

- Versatility
- Host support
- Output resolution
- Scaling
- Preview scan



► Versatility

Scanner customers have various needs, including

- 1) The ability to handle a variety of documents from small wallet-size photos or cards to full-size drawings
- 2) The ability to handle fragile documents
- 3) The ability to scan bound documents—books, magazines
- 4) The ability to perform multiple-page entry, unattended, if needed.

Customers with these needs should look for a flatbed scanner with an optional automatic document feeder. The document feeder is becoming increasingly important with the use of OCR software.

► Host Support

Many customers work in multiple environments. They have both PCs and Macintosh computers in their offices.

► Output Resolution

Output resolution can be different from optical resolution. Be certain to check carefully. Of course you want the highest output resolution you can afford, but it's also important to have a wide range of choices. The best situation is to be able to adjust the resolution to any setting—in one-dot increments. This assures you of the highest-quality images.

► Scaling

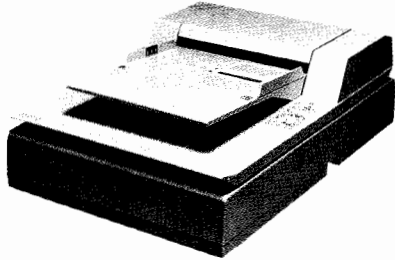
Scaling allows you to size your images to fit the space available in the document. Again, you want the widest range you can get, giving you the greatest versatility in fitting your images into your documents. And you want the most choices. Look for a full range, not predetermined settings.

► Preview Scan

A preview scan feature quickly makes and displays a low-resolution scan. Images can be clipped and sized before the final, high-resolution scan is performed. Only the portion of the image needed is scanned on the final scan, saving time and valuable disk space.



▶ **HP ScanJet Plus Scanner
(HP 9195A)**



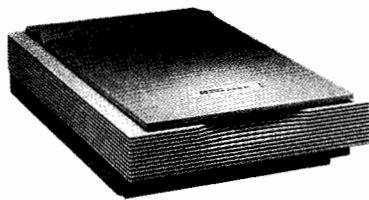
The HP ScanJet Plus scanner gives your documents a new image. The scanner's flatbed design provides you with the flexibility to scan images from a wide variety of original sources, such as books, magazines, or odd-shaped documents. An optional 20-page automatic document feeder (ADF) lets you automatically scan multiple documents. The built-in image scaling feature allows scanned images to be enlarged or reduced to the size needed. Photos, line art, graphics, and other images can be scanned at exactly the resolution needed to match your printer, with intensity and contrast controls for image fine-tuning. Apple Macintosh, IBM XT/AT, and PS/2 interfaces are available. Strong third-party software support—all major desktop publishing (DTP) and optical character recognition (OCR) packages—and a low price, make the HP ScanJet Plus the leading 8-bit monochrome scanner in the market.

The solution for:

- Enhancing reports and newsletters
- Integrating logos
- Eliminating manual text entry
- Enriching diagrams
- Apple Macintosh support



▶ **HP ScanJet IIc
Color Scanner
(C1757A or C1758A for
AT-compatible or
Micro Channel PCs, 1759A
for Apple Macintosh)**



The HP ScanJet IIc scanner with HP DeskScan II software is full of powerful features to help produce professional-quality documents in color. Using the HP AccuPage technology to automatically set intensity and page recognition, it improves OCR accuracy. Also, with 24-bit color, the HP ScanJet IIc scanner recognizes over 16 million colors. The HP ScanJet IIc scanner was also designed with automatic document feeder (ADF) to handle up to 50 8.5" × 14" pages of unattended text input.

The solution for:

- Monochrome and color scanning
- Increased line art quality
- Easy editing or incorporation of hard copy or color clip art into documents
- Unattended text input
- High-accuracy OCR
- IBM AT-compatible, or Micro Channel support
- Apple Macintosh support



Designates Apple Macintosh connection

Scanner Specifications

Feature	Scanners 9195A	C1757/8/9A
Type	Flatbed	Flatbed
Resolution	300 dpi	400 dpi
Gray Scale	8-bit 256 Levels	8-bit 256 Levels
Color	N/A	16.7 million
Speed *	10 sec	15 sec at 300 dpi 20 sec at 400 dpi
Preview	Yes	Yes
Scaling	4-200% in 1% inc.	3-200% in 1% inc.
Max Doc. Size	8.5" x 11"	8.5" x 14"
Opt. Doc. Feeder	20 sheets	50 sheets
Interface	Bidirectional Centronics for PC SCSI adapter for Macintosh	Dedicated SCSI for PC SCSI for Macintosh
Drop Out Color	N/A	Yellow

* Does not include lamp warm-up time.



Selecting a Plotter

Many of the same factors that affect printer selection also affect plotter choice. These include

- Work load
- Output quality
- Plotter Versatility
- Ease of use
- Hardware and software compatibility
- Application

► Work Load

Plotters work at various speeds just like printers. And if you create more than a few plots per day, speed can be important.

Pen plotters are suitable for most users in technical fields and nearly all business applications. Pen plotter speed is measured in velocity and acceleration—the higher the velocity and acceleration, the faster the plotter draws. Other pen plotter features which affect drawing time include pen sorting, built-in intelligence, and automatic sheet-feeder or roll-feed capabilities.

CAD departments that produce more than 25 plots a day or create very complex drawings need the throughput advantages of an electrostatic plotter. After the entire drawing is transmitted to the plotter, plotting time for a typical full-size drawing is less than one minute.

► Output Quality

The quality of your plotter output reflects the quality of your work. Inspect an output sample carefully. Look for crisp characters, circles that close, and arrow-straight lines. Research the plotter's specifications—particularly resolution and repeatability.

► Plotter Versatility

Depending on your application, you may need plotter versatility in the following areas:

Media type—Ask about the variety of media you can use in the plotter you are considering. Can you use paper, glossy paper, transparency film, translucent paper, tracing bond, polyester film, or vellum?

Media size—Can the plotter use all media sizes you might need?

Pens—How many pens are available in the plotter at one time? Are paper, transparency, liquid-ink, and roller-ball pens available if you need them?

► Ease of Use

Check for convenience features and good documentation. Are the paper loading procedures simple? Are pens capped automatically? Is toner easy to load? Are the manuals well illustrated and easy to understand?

.....▶ **Hardware and Software Compatibility**

The plotter you choose should be supported by the software you want to use and be compatible with your computer.

.....▶ **Application**

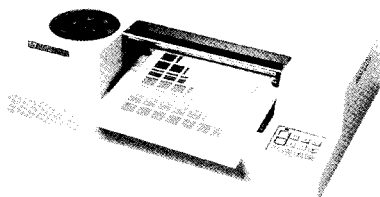
A range of plotters is available for three important areas:

- Business graphics
- Low-cost CAD and technical applications
- High-performance CAD

Your HP sales representative or dealer can help you select the features appropriate to your application at the most cost-effective price. The following descriptions will help you determine which plotter is best for your application.

Small-Format Desktop Plotters

▶ **HP ColorPro 8-Pen Compact Plotter (HP 7440A)**



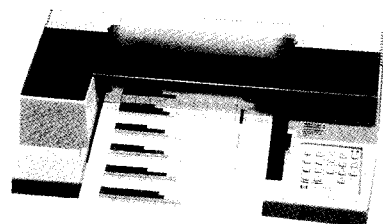
The HP ColorPro plotter is the perfect choice for the business professional who makes presentations as well as for the scientific professional who records technical measurement data. The 8-pen A/A4-size ColorPro plotter produces colorful, high-quality charts and graphs on either paper or overhead transparency film. It is supported by most popular business graphics software and works with a variety of personal, mini, and mainframe computers.

The solution for:

- Presentation-quality overhead transparencies
- Colorful graphics for reports and handouts
- Hardcopy output for detailed, technical measurement data



▶ **6-Pen Graphics Plotter (HP 7475A)**



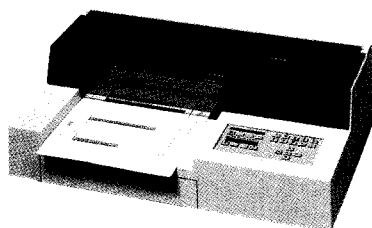
The HP 7475A plotter delivers business or technical quality graphics with the convenience of a 6-pen carousel and the versatility of two sheet sizes (A/A4 and B/A3). The 7475A is an ideal low-cost, small-format plotter for PC-CAD use. In addition, the business professional will appreciate the versatility of larger size sheets and the overhead transparency capability. Several hundred graphics packages, including all major PC-CAD software, support the 7475A on a variety of personal computers, minicomputers, or mainframes.

The solution for:

- Plotting preliminary drawings
- Presentation-quality overhead transparencies
- Large-size project schedules



▶ **HP 7550 Plus 8-Pen Plotter (HP 7550B)**



The top of the desktop line HP 7550 Plus color plotter's advanced performance features make it ideal for both high-volume individual users and multiuser departments. Designed to meet the needs of both business and technical professionals, the HP 7550 Plus offers fast throughput, high-quality output, automatic sheet feed for unattended plotting, complete pen and media support including A and B sizes, and convenient operation. With unsurpassed acceleration and pen speed, the HP 7550 Plus delivers unmatched performance in a desktop plotter.

The solution for:

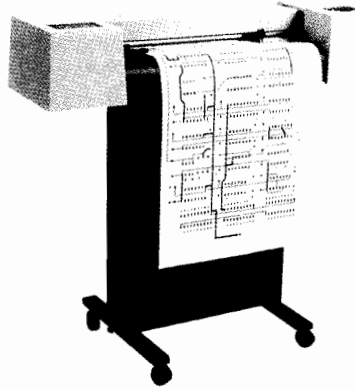
- Fast throughput with high reliability
- High-volume individual users or multiuser departments
- Full, unattended replot or multiple-plot capabilities with optional memory board



 Designates Apple Macintosh connection.

Large-Format Plotters

.....▶ **7570A DraftPro
8-Pen Plotter**



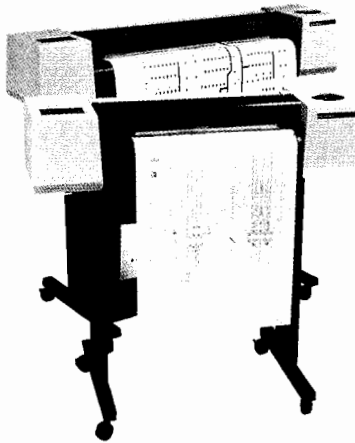
The HP DraftPro plotter is HP's lowest cost large-format plotter. It draws on single C/A2, D/A1-size sheets, and architectural-size paper. It offers good line quality, media flexibility, and high reliability—at a very low price. Like all HP drafting plotters, the HP DraftPro plotter connects easily to almost any computer and has solid software support.



The solution for:

- Low-cost, quality C/D-size CAD drawings
- Architectural, mechanical, or electrical drawing

.....▶ **7575A DraftPro DXL and
7576A DraftPro EXL
8-Pen Plotters**



The HP DraftPro series plotters, with a mechanical resolution of 0.0125 mm, can draw well defined lines, smooth curves, and crisp characters to give you the professional quality you need. Choose the DraftPro DXL for A/A4 to D/A1-size plotting and the DraftPro EXL for A/A4 to E/A0-size plotting. Architectural sizes are also supported. Two plug-in buffer options allow you to quickly download an entire plot, freeing your computer for other tasks.



The solution for:

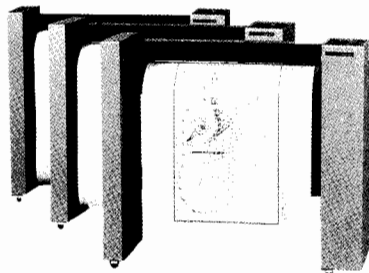
- CAD professionals with low-volume demands
- Architectural, mechanical, or electrical drawing
- Professional lower-priced plotter for personal CAD systems
- Compatibility with over 100 software packages



Designates Apple Macintosh connection.

Large-Format Plotters (cont.)

▶ **HP 7595B/96B/99A**
HP DraftMaster
SX/RX/MX Series



HP has created this family of pen plotters in the Hewlett-Packard tradition of quality, durability, and performance. With quick acceleration and a responsive pen mechanism, HP DraftMaster plots up to twice as fast as lower-cost pen plotters. And HP-GL/2, the new standard plotter language, greatly reduces transmission time to free up your computer quickly. Choose the HP DraftMaster SX for single-sheet plotting on A/A4 to E/A0-size paper. Select the HP Draftmaster RX for automatic roll-feed with long-axis plotting up to 140 feet. Both come standard with a 1-Mbyte plot buffer.

The HP DraftMaster SX (HP 7595B), with single-sheet A to E-size (ISO A4 to A0) plotting, comes standard with a 1-Mbyte buffer.

The HP DraftMaster RX (HP 7596B) offers all the features of the HP DraftMaster SX plus a roll feed and take-up feature for convenient media handling or long-axis plots (up to 140 feet).

The HP DraftMaster MX (HP 7599A) is our most advanced pen plotter. It has all the features and capabilities of the HP DraftMaster RX plus a multiuser interface for up to four users, a 20-Mbyte intelligent plot spooler, and superior plot management features.



The solution for:

- Fast pen plotting
- Increased personal productivity within a workgroup
- Convenient sharing among up to 4 users (MX only)



Designates Apple Macintosh connection.

Series 7600 Electrostatic Plotters

.....▶ **Monochrome Electrostatic Plotters**
Model 250 (C1625A)
and Model 255 (C1627A)

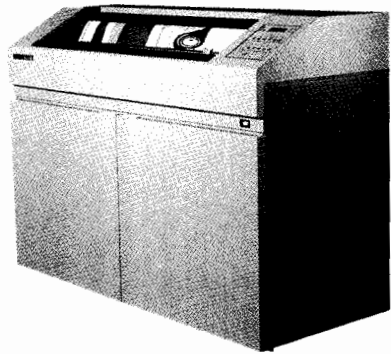


HP's electrostatic plotters offer the fastest plotting solution for high-volume CAD environments. These plotters are designed for a wide variety of plotting needs—simple to complex, line drawings to 3D shaded images. The Model 250 plots on media 24-inches wide to create drawings up to D (ISO A1) size; the Model 255 plots on media 36-inches wide for drawings up to E (ISO A0) size. Both models can create long-axis plots up to 50-foot long. Plots can also be queued in the buffer, and multiple plot copies can be made of a plot already transmitted.

The solution for:

- High-volume environments
- Automatic paper cutting and take-up reel
- Top-quality output with 406 dpi resolution
- Monochrome drawings for archival use or reproduction
- Complex drawing needs
- Full-sized plots in less than 1 minute

.....▶ **Color Electrostatic Plotter**
Model 355 (C1620A)



The Model 355 color electrostatic plotter offers the complete solution for high-volume CAD environments. It combines fast plotting speed with high-quality color output to produce line drawings, complex plots, or shaded renderings for mapping, architectural, mechanical, civil, and electrical engineering applications. The Model 355 uses 36-inch-wide roll media to create drawings up to E (ISO A0) size and long-axis plots up to 50 feet. Designed to handle unattended or overnight plotting, it provides immediate access to drawings. Plots can also be queued in the buffer, and multiple plot copies can be made of a plot already transmitted.

The solution for:

- Full-size color plots in less than 8 minutes
- Automatic paper cutting and take-up reel
- Top-quality output with 406 dpi resolution
- Monochrome drawings for archival use or reproduction
- Complex drawing needs
- Over 2,000 user-selectable colors

Plotter Specifications

Small Format Desktop Plotters

Features	7440A	7475A	7550B
Technology Type	Pen Plotter	Pen Plotter	Pen Plotter
Number of Pens	8	6	8
Media size	A/A4	A/A4 and B/A3	A/A4 & B/A3
Media Type	P, G, Tf	P, G, Tf, Pf	P, G, Tf, Pf, V
Command Language	44 HP-GL Commands expandable to 58	50 HP-GL Commands	HP-GL & HP-GL/2
Print speed	15.7 ips pen-down 20.5 ips pen-up	15.0 ips pen-down 20.0 ips pen-up	31.5 ips pen-down
Repeatability	.1 mm	.1 mm	.1 mm
Acceleration	1.2 g	2 g	6 g
Resolution:			
Addressable Mechanical	.025 mm .025 mm	.025 mm .025 mm	.025 mm .00625 mm
Buffer Size	60 bytes 1024 bytes (optional)	1024 bytes	32 Kbytes 1 or 2 Mb (expandable)
Interfaces Avail.	#001 RS-232 #002 HP-IB	#001 RS-232 #002 HP-IB	#005 HP-IB, RS-232, RS-422 or #006 Centronics, RS-232
MTBF	13.5K hrs	32K hrs	32.2K hrs
Power Consumption	20 W	35 W	105 W

A = 8.5 × 11 in B = 11 × 17 in C = 17 × 22 in D = 22 × 34 in E = 34 × 44 in (ANSI)
 A4 = 210 × 297 mm A3 = 297 × 420 mm A2 = 420 × 594 mm A1 = 594 × 841 mm A0 = 841 × 1189 mm (ISO)
 C = 18 × 24 in D = 24 × 36 in E = 36 × 48 in (Architec.)

P = Paper, G = Glossy, Tf = Transparency film, Pf = Polyester film, double matte, V = Vellum

Plotter Specifications

Large Format Plotters

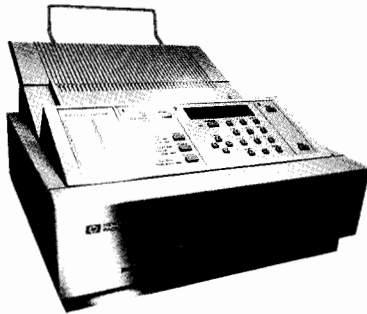
Features	7570A DraftPro	7575/7576A DraftPro DXL/EXL	7595/6B DraftMaster SX/RX	7599A DraftMaster MX	C1625/7A Model 250/255	C1620A Model 355
Technology Type	Pen Plotters	Pen Plotters	Pen Plotters	Pen Plotters	Electrostatic Plotters	Electrostatic Plotters
Number of Pens	8	8	8 (adjustable force)	8 (adjustable force)	Black & White	Color
Media Size	C, D, ARCH	A to D/A to E and Architectural	A to E and Arch. (RX-Rollfeed)	A to E and Arch. Rollfeed	A to D/A to E Rollfeed	A to E Rollfeed
# of Colors	N/A	N/A	N/A	N/A	NONE	2048 Dithered
Media Type*	P, Pf, V	P, G, Tf, Pf, V	P, G, V, Tf, Tb, Pf	P, G, V, Tf, Tb, Pf	P, V, Tp, Tf, Pf	P, V, Tp, Tf, Pf
Command Language	80 HP-GL Commands	91 HP-GL Commands	85 HP-GL Commands HP-GL/2 Compatible	85 HP-GL Commands HP-GL/2 Compatible	HP-GL and HP-GL/2 758x emulation	HP-GL and HP-GL/2 758x emulation
Print Speed	15.7 ips pen-down	32 ips pen-down	110 cm/sec (adjustable)	110 cm/sec (adjustable)	250 = 1.6 cm/sec 255 = 2.2 cm/sec	B&W = 1 min/plot CLR = 8to10 min/plot
Repeatability	.1 mm	.1 mm	.1 mm	.1 mm	N/A	N/A
Acceleration	2 g	2g axial, 2.8g diag	4g axial, 5.7g diag	4g axial, 5.7g diag	N/A	N/A
Resolution:						
Addressable Mechanical	.025 mm (.001 in) .013 mm	.0254 mm .0127 mm	.025 mm .00625 mm	.025 mm .00625 mm	406 dpi	406 dpi
Buffer Size	7.488 Kb	31 Kb upg. to 1Mb or 2 Mb	1 Mb	20 Mb	40 Mb	40 Mb
Interfaces Avail.	RS-232 std. HP-IB opt	RS-232 std. HP-IB opt	RS-232/RS-422/ HP-IB std.	4-RS-232/2-HP-IB/ RS-422 std.	RS-232/RS-422/ HP-IB std	RS-232/RS-422/ HP-IB std
MTBF	14K hrs	24K/20K hrs	N/A	N/A	N/A	N/A
Power Consumption	80 W	80 W	125 W	125 W	365 W	365 W

* P=paper, G=glossy, Tf=transparency film, Pf=polyester film, double-matte, V = Vellum, Tb = Tracing bond, Z = z-Fold, Tp = Translucent paper

A = 8.5 × 11 in B = 11 × 17 in C = 17 × 22 in D = 22 × 34 in E = 34 × 44 in (ANSI)
 A4 = 210 × 297 mm A3 = 297 × 420 mm A2 = 420 × 594 mm A1 = 594 × 841 mm A0 = 841 × 1189 mm (ISO)
 C = 18 × 24 in D = 24 × 36 in E = 36 × 48 in (Architec.)

Facsimile Products

▶ **HP LaserJet Fax**



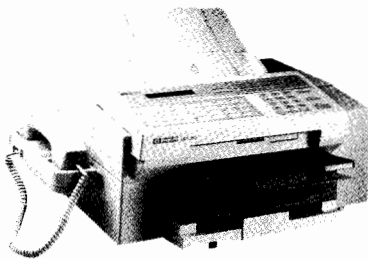
HP LaserJet fax and your HP LaserJet printer team up to let you send and receive faxes, as well as print and make copies right at your desk. When you add the HP LaserJet fax device, your software works the same, and your printer prints normally. But now you can send faxes directly from your PC that are identical to the original document quality at 300 dpi. And incoming faxes are printed on the HP LaserJet for high-quality, plain-paper reproductions.

The solution for:

- Signature-ready originals on plain paper
- Receiving faxes right on your HP LaserJet printer
- 300-dots-per-inch original document quality
- Faxing directly from your PC
- Hardcopy faxing like a standalone fax machine
- Unattended fax receiving



▶ **HP FAX-300**



The HP FAX-300 is the first standalone fax machine to wear an HP label and bring affordable plain-paper, cut-sheet fax to the business world. Based on HP's proven inkjet technology, the HP FAX-300 produces documents that are sharper and easier to read and will not fade like conventional thermal fax documents. A 100-sheet front-loading paper tray makes adding paper easy. In addition, the HP FAX-300 serves as a convenience copier.

The solution for:

- Full-featured plain-paper, cut-sheet faxing
- Unattended fax receiving with standard 28-page fax memory
- Up to an additional 120 pages of memory optional
- Sharper fax copies
- Permanent fax copies that do not fade or require copying
- 300-dots-per-inch transmission quality

FAX Specifications

Feature	C2111A FAX-300	C1740A LJ Fax
Standalone	Yes	Needs an HP LaserJet printer
Cut-Sheet Plain Paper	Yes	Yes
Resolution	300 dpi	300 dpi
Auto Feeder	20 pages	5 pages
Transmission Speed*	12 sec/page	17 sec/page

* Based on CCITT test chart #1 scanned in the standard mode

4-mm tape drive	See digital audio tape.
8-mm tape drive	An 8-mm wide helical scan digital tape drive.
acceleration	The rate at which a plotter pen attains its maximum velocity. Faster pen acceleration will produce faster overall plotting speed.
archival storage	Long-term storage of historical data. Tape and optical media are most often used for this type of storage.
backup storage	Storage of data from the system disks used as a "backup" in case the original data is lost. Tape and optical media are most often used for this type of storage.
bit	The smallest unit of computer storage. A bit can be either a one or a zero.
bitmapped fonts	A collection of symbols with fixed character size and shape. Bitmapped fonts are made of dot-by-dot patterns in predefined point sizes that are static and cannot be scaled or changed. See also scalable fonts.
buffer	A reserved segment of memory that is used to hold data while it is being processed. In printers, a large buffer allows the system to download the entire print job and go on to other tasks.
business speed	The time it takes from the moment the "print" command is executed at the user's PC until the document is in the output tray of the printer, ready for pick up.
byte	8 bits. The amount of storage used to represent one character.
bytes per inch (bpi)	The number of bytes that can be stored in one linear inch of recording tape on 8 tracks. Typically used in conjunction with half-inch magnetic tape. See also characters per inch.
cache	A small part of the computer's high-speed memory set aside to hold frequently accessed data for future use. In cases where the system does not have extensive disk caching ability, the cache can be built into the disk drive itself.
CAD/CAE	Computer aided design/computer aided engineering.
CD-ROM	An application of CD (compact disk) technology to computer storage. ROM (read only memory) refers to the fact that data can be read but not changed by the user. CD-ROM is often used for software and literature distribution.
Centronics interface	A de facto standard 36-pin parallel interface for connecting printers and other devices to a computer. A Centronics interface is often called simply a "parallel" interface.

characters per inch (cpi)	The number of characters printed per horizontal inch (the pitch). The narrower the character, the greater the characters per inch. In the case of magnetic tape, it specifies the number of characters that can be stored in one inch of recording media. Since a character normally uses one byte of storage, characters per inch and bytes per inch are often used interchangeably in specifying tape density.
continuous-feed paper	See fanfold paper.
controller overhead	The amount of time required for the disk controller to process instructions and interact with the system during a disk transaction.
DAT	See digital audio tape.
data compression	The process of compressing data by removing blank spaces and using symbols to represent redundant information. This allows a much greater amount of data to be stored in the same space.
data interchange	The process of moving data from one computer system to another. This is facilitated through the use of standard mass storage recording techniques and standard file structures.
data logging	Also called transaction logging. The process of storing data to a mass storage device as a log of events in chronological order. The events are recorded as they occur and are often printed simultaneously.
DDS format	See digital data storage.
differential SCSI	An implementation of the SCSI II standard that can transmit data asynchronously at up to 1.5 Mbytes per second or synchronously at up to ten Mbytes per second and over a maximum distance of 25 meters. It is also called fast SCSI.
digital audio tape (DAT)	A consumer audio tape technology for recording digital sound which has been adapted for use in computer storage. It uses a 4-mm wide tape and helical scan technology to store over one Gbyte of data on a single cassette. Files are recorded using the DDS format.
digital data storage (DDS)	A format for storing computer data on digital audio tape. It specifies, among other things, error correction and data organization standards above and beyond those outlined in the DAT format standard.
direct access	See random access.
direct access secondary storage (DASS)	A new category of mass storage between magnetic disk primary storage and offline magnetic tape secondary storage. DASS is the rewritable optical solution that allows convenient access to a vast library of archived text, graphics, image, voice, and data files much less expensively than hard disk storage. See also primary storage, secondary storage.



domain	An operating environment used in Apollo systems and HP-Apollo Series 400 workstations.
dot matrix printer	A printer that lays down a matrix of dots to form a character or graphic image. The number of pins in the print head determines the maximum resolution of the printed image.
dots per inch (dpi)	A measure of the resolution of a printed image. The number of dots printed within one horizontal or vertical inch. Because most printers have the same horizontal and vertical resolution, only one number is normally specified.
draft quality	Lower-resolution output used for fast, routine printing jobs, as opposed to near-letter-quality (NLQ) or letter-quality (LQ) output, which is suitable for important letters and polished documents.
duplexing	The ability to automatically print on both sides of a sheet of paper.
ECMA	European Computer Manufacturer's Association, a standards body.
electrostatic plotter	A raster plotter which uses an electrostatic process to attract ink to the paper. It uses "logical" pens instead of actual pens and converts vectors to raster as they are received for very fast, high-resolution plotting.
fanfold paper	Paper that is manufactured as a series of sheets joined together with perforated edges. The forms are moved by sprockets (i.e., "tractors") that interlock with the holes on the left and right sides of the sheets. These "tractor feed" sprocket holes are perforated on many types of fanfold paper.
fast SCSI	See differential SCSI.
fastsearch	The ability of the HP DDS format tape drive to quickly search through a tape at 200 times the normal read speed. When supported by the computer's operating system, this provides access to files on a standard DDS-format DAT tape in an average of 20 seconds.
fiber optic	A technology which allows the transmission of data using pulses of light through very thin glass filaments. Because this light is unaffected by electromagnetic interference from other wires, fiber optic interfaces allow data to be transmitted very fast over long distances.
flexible disk drive	Floppy disk drive. A disk drive which has removable media for offline storage. The disk is called "flexible" because it is made from a flexible piece of oxide-coated polyester.
footprint	The amount of floor space or desk space used by a device, equal to its area (width times depth).
full-height device	A device that takes up the same amount of vertical space as a first-generation 5 1/4 inch disk drive.

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- gigabyte (Gbyte)** One billion bytes.
- half-inch tape** An industry-standard tape that is 1/2-inch wide and has nine parallel tracks for recording data (8 tracks for data, and one for parity). There are three standard formats: 800 cpi (called NRZI), 1600 cpi (called PE), and 6250 cpi (called GCR). In addition, Hewlett-Packard has developed a new format called 6250XC that compresses data written to the tape by a factor of two to five. The 6250XC format will hold the most data per tape, while the 1600 (PE) format is the most commonly used for data interchange.
- half-height device** A device that takes up half the vertical space of a first-generation 5 1/4 inch disk drive.
- helical scan** A method of storing data on magnetic tape. Helical scan records data in diagonal tracks on the tape, as opposed to standard recording methods in which the tracks run parallel to the length of the tape. These diagonal tracks allow data to be packed much closer together and allow for the high-capacity of DDS-format drives.
- hierarchical storage** An operating environment in which frequently accessed files are maintained on fast hard disks and in memory, while less frequently accessed files are migrated to optical or other storage devices for retrieval at a later time.
- HP-FL** Hewlett-Packard's fiber link interface that can transmit data at up to five Mbytes per second and over a maximum distance of 500 meters. See fiber optic.
- HP-GL** Hewlett-Packard graphics language. A vector graphics file format from Hewlett-Packard that was developed as a standard plotter language. Most plotters support the HP-GL standard.
- HP-GL/2** Hewlett-Packard graphics language/2. Hewlett-Packard's newest vector graphics language standard. A standard language for pen and electrostatic plotters. It is a superset of HP-GL and incorporates a data compression command for faster transmission of vector files. See also PCL 5.
- HP-IB** Hewlett-Packard interface bus. Hewlett-Packard's version of the IEEE 488 standard general purpose interface bus (GPIB) that can transmit data at high speed at up to one Mbyte per second and over a maximum distance of 15 meters.
- HP-PA** Hewlett-Packard precision architecture. This is Hewlett-Packard's implementation of RISC technology. See RISC.
- HP-UX** Hewlett-Packard's version of UNIX that runs on the HP 9000 family of computers. HP-UX incorporates some features from Berkeley 4.2 BSD as well as some HP enhancements. All HP-UX interfaces are carefully documented to show whether they are AT&T System V, Berkeley 4.2 BSD, or HP.

impact printer	A printer that uses a printhead or printbar to produce a character image by striking an inked ribbon onto the paper beneath.
inkjet printer	A printer that produces a character image by projecting carefully controlled dots of ink onto the paper. Hewlett-Packard uses the drop-on-demand thermal inkjet method of printing.
interface	A physical connection between a computer and a peripheral device. Typically, the system has an interface card which will support peripheral devices. In addition, each individual device connected to this card must have the same type of interface to communicate with the system.
I/O port	Input/output port. See interface.
kilobyte (Kbyte)	One thousand bytes.
LAN connection card	An I/O card that fits into an HP LaserJet printer and allows it to be connected directly to a network. Unlike conventional network printing connections, an HP LaserJet printer using this card need not be connected to a particular computer or file server. This allows users great flexibility in printer placement. HP LaserJet LAN connection cards are available for several popular PC networks.
laser printer	A printer which uses laser technology to print an entire page at one time. In a laser printer, a laser beam is used to charge a rotating photosensitive drum. This drum then attracts toner to the charged areas and transfers the image to the paper. The final image is fused to the page using high-temperature rollers to produce a crisp, 300-dpi image. Hewlett-Packard has made many advances to this technology, including the development of Resolution Enhancement technology and microfine toner.
latency	Rotational delay. The amount of time required for a specific sector on a disk platter to rotate under the read/write head on a disk drive.
LED page printing technology	A highly reliable, high-resolution printing technology used on Hewlett-Packard's new high-speed system page printers. The fast switching LED array is a linear assembly of tightly packed light emitting diodes.
line printer	A printer that prints an entire line of text at one time.
long-axis plotting	The ability to do plots that are longer than standard paper lengths. The ability to do long-axis plots is determined by the size of the plotter's buffer and the ability of the plotter to use roll-feed paper.
magneto-optical	Rewritable optical technology which uses a plastic disk with a magnetic layer. To write, spots on the magnetic layer are heated with a laser beam and magnetically polarized by the drive's magnet in one of two directions (representing either digital 0s or 1s). To read, a detector sees the rotation of the beam, reflected from the magnetic layer.

megabyte (Mbyte)	One million bytes.
mean time between failure (MTBF)	The average number of hours that pass between service calls on a product. HP tends to quote MTBF as a much more conservative number than other vendors.
microfloppy	A 3 1/2 inch wide floppy disk enclosed in a rigid plastic shell.
MPE V	The operating system used on older HP 3000 computers.
MPE/XL	The operating system used on all new HP 3000 computers which are based on RISC architecture.
online data storage	See primary storage.
optical autochanger	See optical library.
optical character recognition (OCR)	The computer recognition of printed characters that have been input using a scanner or hand-held wand. Special fonts have been developed that facilitate this process. OCR software is quite sophisticated and can even recognize many types of non-OCR fonts and convert them to a standard form for storage in ASCII form on conventional magnetic media.
optical library	A computer-controlled mechanism which stores and automatically selects optical disks.
page printer	A printer that prints an entire page of text at one time.
paper sizes	There are two main standards for paper sizes: U.S. and European. U.S. paper sizes are A,B,C,D,E. A-size paper is 8 1/2 by 11 inches. B-size paper is equivalent to two A-size pages placed side by side, or 17 inches by 11 inches. C size would then be 22 inches by 17 inches, and so on. European sizes are similar to U.S sizes but are based on the metric system and are slightly smaller. The European paper sizes A4,A3,A2,A1,A0 roughly correspond to the U.S. sizes A,B,C,D,E. Architectural sizes are U.S. sizes rounded out to the nearest 6 inches.
parallel interface	An interface that uses a separate data line for each bit in a byte, and all bytes are transferred simultaneously. See also Centronics interface.
PCL	Hewlett-Packard's printer command language. A standard language developed by Hewlett-Packard to define printer features and user access to those features. There are currently five levels, each of which is a superset of the previous level, providing upward compatibility.

- PCL 5** The fifth level of Hewlett-Packard's printer command language. PCL 5 is a page description language that is used in the HP LaserJet Series III family of printers. It integrates HP-GL/2, Hewlett-Packard's vector graphics language, for fast printing of vector graphic images.
- pitch** See characters per inch.
- plain-paper** Ordinary, cut-sheet paper, as opposed to chemically treated roll paper used by thermal facsimile machines and thermal printers.
- PostScript** A page description language created by Adobe Systems Inc. It is used mainly in advanced graphics and desktop publishing applications.
- primary storage** The online system disks, typically one or more fixed hard disks, used for fast, random-access applications. See also direct access secondary storage, secondary storage.
- random access** The ability to access a file without having to pass over other files on the storage device. Disk products like Winchester hard disks, floppy disks, and optical disks are random access devices. Tape products like DDS-format tape and half-inch tape are sequential access devices.
- raster** A matrix of picture elements in which each element is defined by a bit. A bit that is "on" will print a dot on the paper. A bit that is "off" will leave the area blank.
- read-after-write** The ability to check for errors in recorded files by reading data immediately after it is written.
- repeatability** A measure of how closely a plotter can return a pen to a previously plotted point.
- Resolution Enhancement technology (REt)** A Hewlett-Packard technology that improves edge smoothness and prints sharper points and line intersections by intelligently adjusting dot size and position in relation to neighboring dots. This process is designed to enhance the print quality of both text and graphics.
- rewritable-optical** An optical disk technology in which data can be repeatedly written. There are several rewritable optical technologies being developed today. Hewlett-Packard drives use magneto-optical technology which allows disks to be repeatedly written and erased with no measurable media wear or data degradation.



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- RISC** Reduced instruction set computer. A computer based on a high-speed processing technology that uses a far simpler set (fewer instructions) of operating commands than that used on previous machines. These commands greatly increase a computer's performance, especially for calculation-intensive operations such as those performed by scientists and computer-aided design engineers.
- roll-feed** The ability of a plotter to accept roll-paper.
- RS-232C/RS-422C** A standard serial interface for connecting printers and other devices to a computer. An RS232C interface is often called simply a "serial" interface.
- RTE-A** Real-time executive. The operating system used on Hewlett-Packard's 1000 A series computers.
- scalable fonts** A font whose character size (height and pitch) can be scaled within the printer. Scalable fonts are described in terms of the outlines of the characters. The printer can manipulate these outlines to reproduce the characters in various sizes, treatments, and orientations. See also bitmapped fonts.
- SCSI** Small computer system interface. An industry-standard interface for connecting mass storage and other devices to a computer. The original SCSI standard could transmit data synchronously at up to 5 Mbytes per second and over a maximum distance of six meters, or asynchronously at up to 1.5 Mbytes per second.
- SCSI II** A newer implementation of the SCSI standard that offers higher bus speeds and an enlarged command set. There are three implementations of the SCSI II standard: single-ended SCSI, fast differential SCSI, and fast and wide differential SCSI.
- secondary storage** The offline storage devices, typically tape drives, used to back-up and archive data stored on the system disks (primary storage). Secondary storage is also used for transaction logging, data interchange, and software distribution. Secondary storage devices always use removable media. See also primary storage, direct access secondary storage.
- seek time** The amount of time required for the read/write head on a disk drive to position itself on the correct track of the disk platter.
- serial interface** A serial interface uses a single data line to transfer data bits sequentially between devices. See also RS-232C.
- serial printer** A printer which uses a serial (RS-232C) interface; a printer that prints one character at a time.
- server** A high-speed computer in a local area network that stores the programs and data files shared by the users on the network. Also called a network server, it acts like a remote disk drive.

single-ended SCSI	An implementation of the SCSI II standard that can transmit data synchronously at up to five Mbytes per second and over a maximum distance of six meters, or asynchronously at up to 1.5 Mbytes per second.
single-sheet	Individual sheets of paper, as opposed to fanfold paper.
spooler	A system software routine which maintains a buffer of files to be printed. The spooler determines the priority of print jobs and "spools" the files to the printer when it is ready, thus freeing the system to go on to other tasks.
streaming tape drive	A high-speed magnetic tape drive that can accept a continuous flow of data from the system, as contrasted with a start/stop tape drive.
transaction logging	See data logging.
unattended backup	The ability to back-up system disks to a tape or optical drive without the need for operator intervention. It requires high-capacity storage systems or sophisticated system software that can back-up to several storage devices simultaneously.
unattended printing	The ability to print without the need for operator intervention. It requires a printer with a large paper source and output tray as well as the ability to stack and store finished printouts.
vector graphics	Graphic images composed of vectors (line segments). In vector graphics, the endpoints of the vector are specified, and a line is drawn between them. Vectors can be combined to form rectangles, circles, curves, and other shapes.
WORM	Write once read many. An optical technology that allows the user to write data to an optical disk once only but to read the data an unlimited number of times. This is particularly useful for users with sensitive data that should not be altered.



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