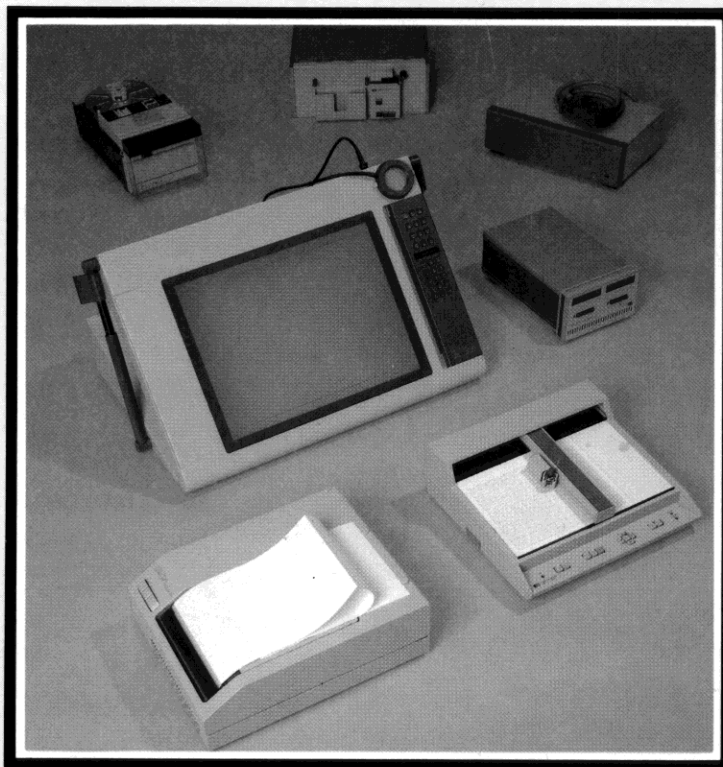


Series 9800 Desktop Computers

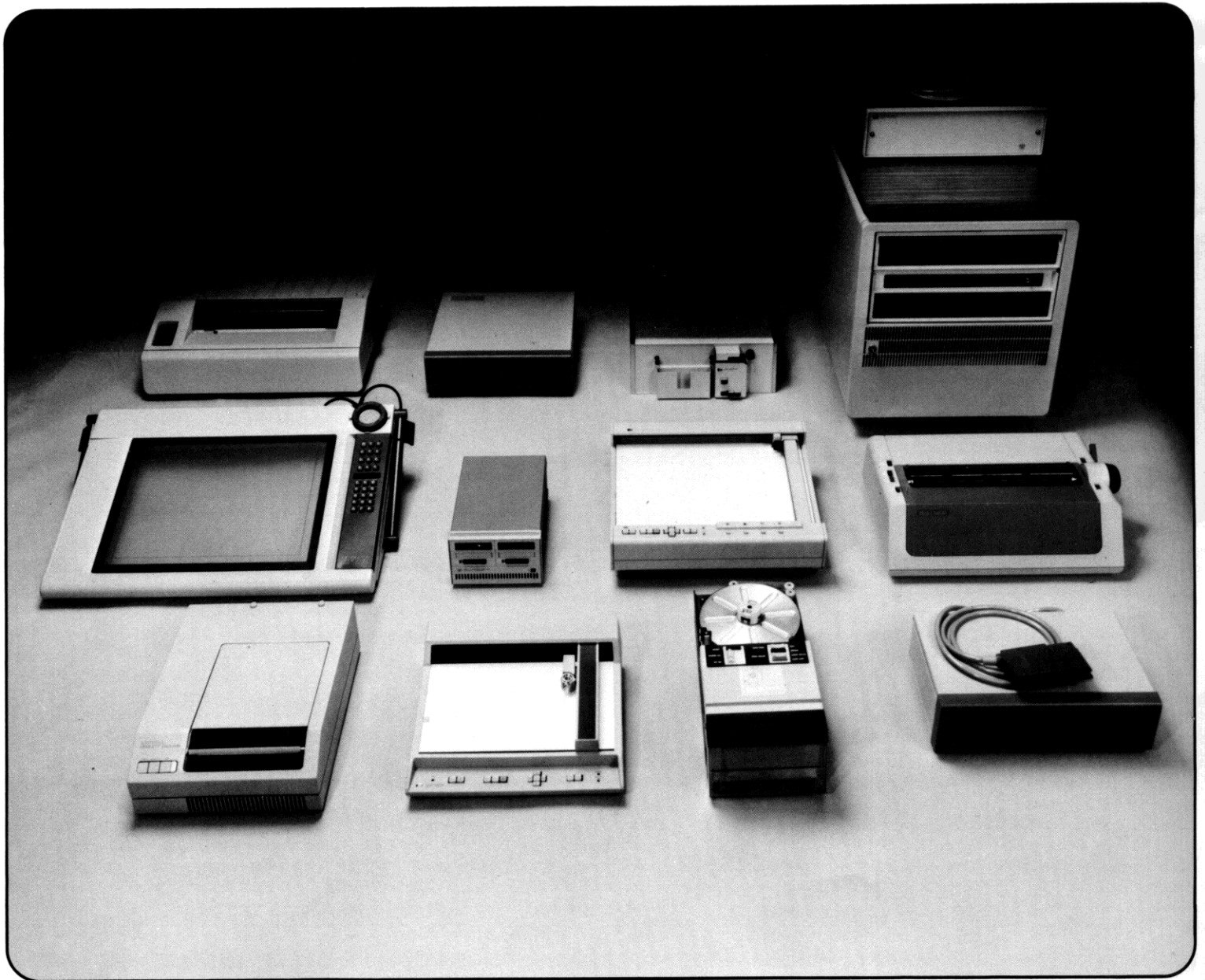
Peripherals

Extend Your Computer Capabilities



HEWLETT  PACKARD

Hewlett-Packard Desktop Computer Peripherals



Powerful, Compatible, Easy To Use

You can choose from an extensive line of Hewlett-Packard input, storage and output peripherals to configure a system to meet your exact requirements.

Valuable tools for a broad range of applications, HP peripherals offer optimum solutions for your particular applications.

Magnetic tape cartridge units and paper tape and card readers provide accurate, speedy and convenient data entry.

The microprocessor-controlled, easy-to-use HP digitizer is valuable for converting your graphic information — such as maps, X-rays, photos or strip charts — into numeric form for computer analysis.

HP also offers a choice of mass storage devices ranging from tape cartridge units and flexible disc units, up to 50M-byte fixed discs.

In addition, a variety of printers and plotters is available to help you organize your data into formatted reports, tables, labeled curves, histograms, bar charts and summaries. With this information at your fingertips, you can quickly recognize fluctuations, trends and abnormalities. Plus, you can keep a permanent record of your results.

The Hewlett-Packard

A Choice of Both - Desktop Computers and Peripherals to Meet Your Needs

The following table lists the HP peripherals and desktop computers you can choose from to match capability and performance to your application.

HP provides you with a complete system solution, a cost-saving plus.

The Series 9800 Desktop Computers and fully compatible peripherals save you the design and setup time common to many systems. In addition, they offer you the flexibility to tailor a system to your exact requirements.

You're not faced with evaluating operating systems, writing and debugging I/O drivers in machine language or documenting entire systems.

To further save you time, HP also offers you a choice of standard, ready-made interface cards and preprogrammed ROMs to complete the communication link between the desktop computer and peripherals of your choice.

You can choose a complete system designed to meet today's needs as well as provide a growth path to the future.

Complete System Solution

Peripherals	Desktop Computers				
Input Devices	9815 A/S	9825 A/S	9830 A/B	System 35A/B	System 45
9869 Card Reader (pg. 4)		•	•	•	•
9874 Digitizer (pg. 4)	•	•	•	•	•
9883 Tape Reader Subsystem (pg. 5)	•	•	•	•	•
9884 Tape Punch (pg. 5)	•	•	•	•	•
Mass Storage Devices					
9865 Cassette Memory (pg. 9)			•		
9875 Cartridge Tape Unit (pg. 8)	•	•	•	•	•
9877 External Tape Memory (pg. 9)		•			
9880 Mass Memory Subsystem (pg. 8)			•		
9885 Flexible Disc Drive (pg. 6)		•		•	•
7906 Hard Disc Drive (pg. 6)					•
7920 Hard Disc Drive (pg. 7)					•
7925 Hard Disc Drive (pg. 7)					+
Output Devices					
9866 Dot Matrix Thermal Line Printer (pg.10)	•	•	•	•	•
9871 Full Character Impact Printer (pg. 11)	•	•	•	•	•
9872 Plotter (pg. 13)	•	•		•	•
9876 Thermal Graphics Printer (pg.10)		•		•	•
2608 Line Printer (pg.11)				•	•
2631A Serial Impact, Dot Matrix Printer (pg. 12)		•	•	•	•
2631G Graphics Printer (pg. 12)					+
7225 Graphics Plotter (pg.13)	•	•	•	•	•
7245 Printer/Plotter (pg. 14)		•	•	•	•

+ Available only on System 45B

9874A**Digitizer**

The microprocessor-controlled 9874A Digitizer provides a convenient method of entering graphic information into any Series 9800 Desktop Computer and other computers using the HP-IB (IEEE Standard 488-1975) interface.

The 9874's adjustable glass platen, key pad with special function, numeric entry and control keys, and unique cursor vacuum are combined into one compact unit for maximum flexibility and comfort.

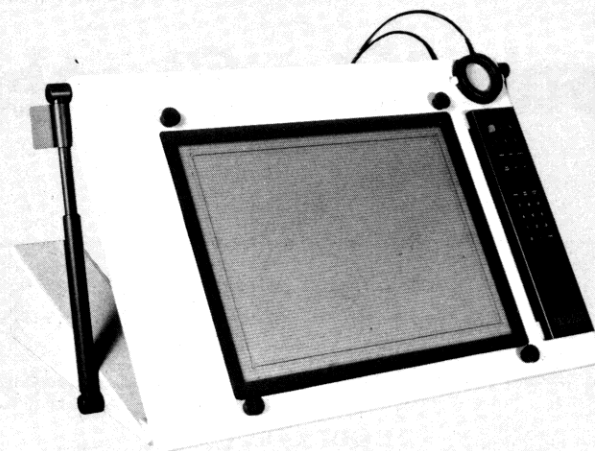
Used in numerous applications – strip chart analysis, mapping and resource management, X-ray analysis, left ventricular volume analysis and PC board layout (to name just a few) – the 9874's advanced and powerful features make it easy to control your entire application right from the digitizer.

Active digitizing area:

435 mm x 315 mm (17.13 in. x 12.40 in.)

Axis extension:

ability to work with virtually any size document including large drawings and long strip charts



Resolution:

0.25 mm (.000984 in.)

Accuracy:

cursor

± 0.125 mm (.00492 in.) from 10° to 40° C

± 0.200 mm (.00787 in.) from 0° to 55° C

stylus

± 0.500 mm (.01969 in.) from 10° to 40° C

± 0.600 mm (.02362 in.) from 0° C to 55° C

9869A**Card Reader**

For 9825A/S, 9830A/B and Systems 35 and 45 Desktop Computer applications that require high-volume processing of marked or punched cards, the 9869A Hopper Card Reader is the answer. It has a 450-card input hopper and will read a variety of formats at 300 cards/minute.

For specific applications like individual test scores, cards can be custom designed for easy and convenient data entry with the card printed in the language of the user.

Code:

Cards can be marked or punched in Hollerith; the binary image of the card can also be transmitted under program control.

Cards:

Conform to American National Standards Institute (ANSI) specifications for general purpose cards up to 279 mm (11 in.) long.



9883A**Tape Reader Subsystem**

The 9883A is a high-speed, photoelectric tape reader used to read any punched data or programmed 8-bit-level code tapes. This information is read by the 9883 at speeds up to 500 characters/second. It can read paper, mylar or plastic tapes punched on teletypewriters or other tape punches. This information can then be fed into any Series 9800 Desktop Computer by using the appropriate Read Only Memory (ROM).

Code:

8-level ASCII

Tape width:

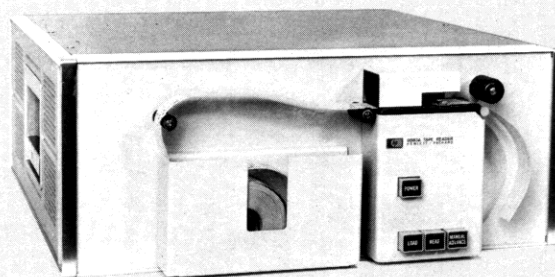
25.4 mm (1 in.)

Tape material:

any material with less than 60 percent transmissivity

Punch speed:

up to 500 char./s

**9884A****Tape Punch**

The 9884A provides you with a fast, reliable method of transferring data or programs from any Series 9800 Desktop Computer onto paper tape.

The 9884 has automatic cut-out and visible indications if the tape becomes too tight, breaks, or falls below a predetermined level during feeding or punching operations. Other features include: automatic rewinding of tape as it leaves the punch; a tape lifter with retractable tearer; and an additional tearer located at the point where tape emerges from the punching unit.

Code:

5-, 6-, 7-, or 8-level

Tape width:

17.5 mm (0.69 in.) standard 5-level

25.4 mm (1.0 in.) 8-level



Tape material:

paper, mylar or plastic

Punch speed:

75 char./s, asynchronous

Parity:

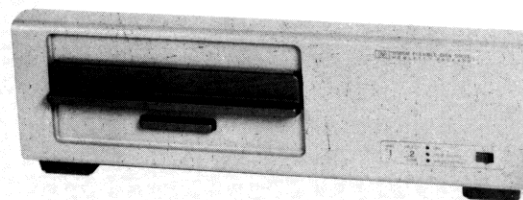
set to even, odd or no parity

9885M/S Flexible Disc Drive

The 9885M/S is for applications that require data access and transfer speeds faster than those of tape, yet don't warrant the expense of a fixed disc. Easy to use, the 9885 provides a fast, reliable means of transferring data and programs to and from the 9825 or Systems 35 and 45 Desktop Computers.

Each 9885M (Master) contains a built-in controller which can also direct the operation of up to three 9885Ss (Slaves).

The Unified Mass Storage Command structure on Systems 35 and 45 makes it especially easy to address the 9885 (or HP 7900 Series Disc Drives). You define the mass storage code only once for the various storage devices because they all respond to a common set of commands.



Data capacity available:

468 480 bytes per disc (9825)

499 200 bytes per disc (Systems 35 and 45)

Speed:

360 rpm

Average access time:

267 ms

Data transfer rate:

23 000 bytes/s

7906M/S Disc Drive

The 7906M/S provides the System 45 Desktop Computer with a disc-cartridge-based, HP-formatted, storage capacity up to 19.6M bytes. A microprocessor-based disc controller provides many advanced features, including automatic detection of faulty tracks.

The 7906 (Opt. 100) connects to the System 45 via the 98041A Disc Interface. One 98041 can connect to a disc controller, which in turn, can be connected to any combination of up to two HP 7906, 7920 or 7925 disc drives.

To meet your continuing growth requirements, the System 45's built-in unified mass storage commands make it easy to change mass storage devices without making any program changes. All HP mass storage devices, whether you're using the System 45's internal cartridge tape drive or one of the external disc drives, respond to the same set of mass storage commands.



Data capacity available:

9.8M-byte removable disc

9.8M-byte fixed disc

Speed:

3 600 rpm

Average access time:

33.3 ms

Transfer rate:

937.5K bytes/s

7920M/S

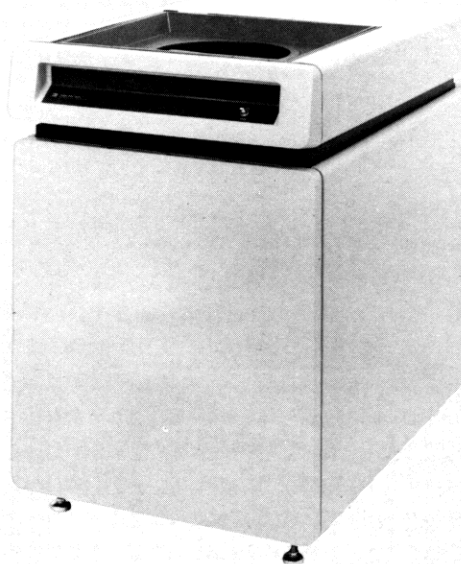
Disc Drive

The 7920M/S provides the System 45 Desktop Computer with exceptionally high-performance, fast-access storage in capacities up to 50M bytes of formatted information.

The 7920 features a removable disc pack having three data recording discs and two protective discs (upper and lower). This configuration allows safe handling of valuable data.

The 7920 (Opt. 100) connects to the System 45 via the 98041A Disc Interface. One 98041 can connect to a disc controller, which in turn, can be connected to any combination of up to two HP 7906, 7920 or 7925 disc drives.

To meet your continuing growth requirements, the System 45's built-in unified mass storage commands make it easy to switch storage media without making any program changes. All HP mass storage devices, whether you're using the System 45's internal cartridge tape drive or one of the external disc drives, respond to the same set of mass storage commands.



Data capacity available:

The removable disc pack allows 50M bytes of storage.

Speed:

3 600 rpm

Average access time:

33.3 ms

Transfer rate:

937.5K bytes/s

7925M/S

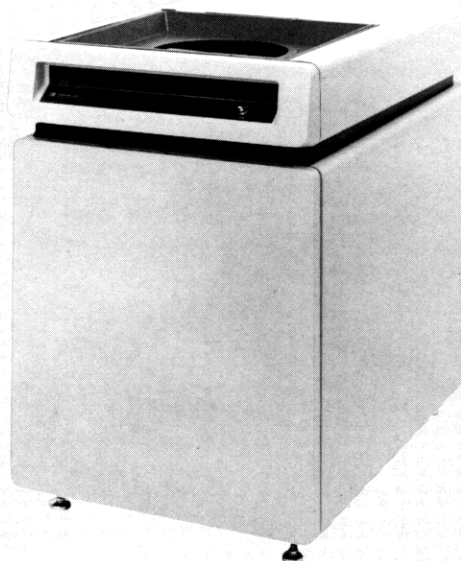
Disc Drive

Superb reliability, high-performance and fast access are features the 7925M/S provides the System 45B Desktop Computer.

Up to 120M bytes of formatted user storage are available in a compact, removable disc pack which features five data recording discs and two protective discs (upper and lower) for safe handling of valuable data.

The 7925 (Opt. 100) connects to the System 45B via the 98041A Disc Interface. One 98041 can connect to a disc controller, which in turn, can be connected to any combination of up to two 7906s, 7920s or 7925s.

The System 45's built-in unified mass storage commands make it easy to switch storage media without making any program changes. All HP mass storage devices respond to the same set of mass storage commands whether you're using the System 45's internal cartridge tape drive or one of the external disc drives.



Data capacity available:

The removable disc pack allows 120M bytes of storage.

Speed:

2 700 rpm

Average access time:

36.1 ms

Transfer rate:

937.5K bytes/s

9875A**Cartridge Tape Unit**

The 9875A is a peripheral mass storage device for data interchange among Series 9800 Desktop Computers and other HP-IB (IEEE 488-1975) compatible devices. An internal microprocessor enables the 9875 to perform low speed data acquisition operations independently, without an external computer or controller.

The 9875 is available as either a single or double tape drive unit and provides large mass storage for less cost than a disc drive.

Data capacity available:

225K bytes/cartridge (dependent on tape organization)

Search speed:

2 286 mm/s (90 in./s)



Transfer rate:

average rate between controller and tape, 1 500 bytes/s

maximum rate between controller and 9875 data buffer, 8 000 bytes/s

Media:

tape cartridges (same as used on 9815, 9825 and Systems 35 and 45 Desktop Computers)

9880B**Mass Memory Subsystem**

Interfaced with the 9830A/B Desktop Computer, the 9880B Mass Memory provides fast access and large data storage for many applications in the scientific, industrial and commercial fields.

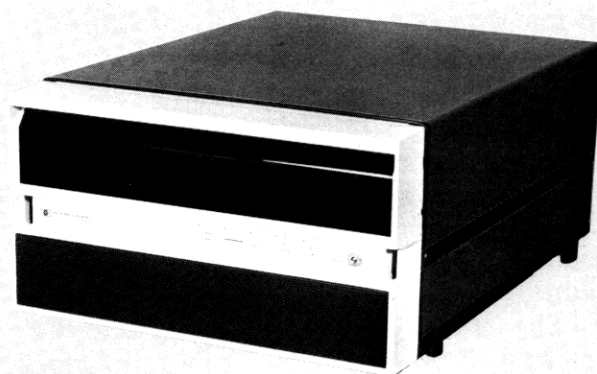
Major components of the subsystem include the 9867B Dual Platter Mass Memory Drive and a 11305A Controller.

For increased versatility, you can connect as many as four 9830A/Bs to one 9880B through the 11305A Controller. Only one desktop computer can access the system at any one time.

Data capacity available:

2.4M-byte removable disc

2M-byte fixed disc



Average access time:

42.5 ms

Data transfer rate:

800 bytes/s

Program transfer rate:

2 000 bytes/s

9865A Cassette Memory

The 9865A Cassette Memory is a low-cost external data storage for the 9830A/B Desktop Computer. Program and data manipulations are easily performed on the 9865.

The tape is organized into files which are numbered sequentially, and a high-speed search is used to locate a specified file from any point. Program execution times are significantly reduced by eliminating the need for tape rewind to begin file searching.

Capacity:

approximately 48 000 bytes on a cassette

Search speed:

approximately 660mm/s (26 in./s)



9877A Tape Memory

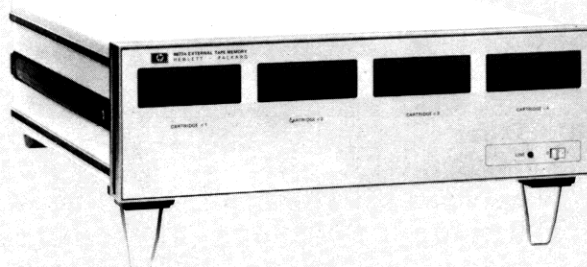
The 9877A External Tape Memory provides the 9825A/S Desktop Computer with two valuable additional capabilities. Offering up to 1 megabyte of tape memory, the unit presents a fast, inexpensive method of storing, retrieving and duplicating large volumes of data.

The External Tape Memory uses the same cartridge unit as the 9825 Desktop Computer. Each tape cartridge unit provides rapid access to data and programs with automatic verification of all stored information.

Three versions of the 9877 are available with one, two or four tape drives. Kits are available for upgrading the one or two tape drive versions to four-tape units at any time.

Data capacity available:

250 000 bytes expandable to 1 000 000 bytes



Average access time:

6 s

Read/write speed:

559 mm/s (22 in./s)

Search speed:

(bidirectional) 2 286 mm/s (90 in./s)

Transfer rate:

2 750 bytes/s

Tape duplication times (full cartridge, two tracks):

one tape - 16 minutes approx.

two tapes - 26 minutes approx.

four tapes - 50 minutes approx.

9876A

Thermal Graphics Printer

The 9876A is an exceptionally fast, quiet and easy-to-operate thermal line printer that delivers sophisticated graphics output in addition to alphanumeric printing. Its reliable, high-resolution performance, coupled with HP-IB and 8-bit parallel interfaces, make the 9876 compatible with a wide variety of large and small computers and terminals.

Characters/line:

80 char./line

Print speed:

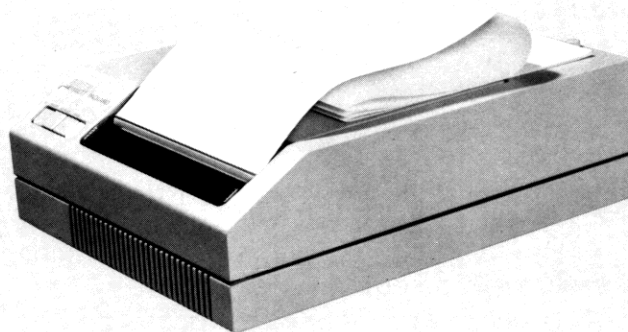
up to 480 lines/minute

Character sets:

US ASCII, French, German, British, Spanish, Katakana (Japanese), Swedish/Finnish, Danish/Norwegian, European Extension. Seven user-definable characters.

Paper types:

perforated, fanfold, black-print or blue-print. 330 pages/pkg.



English version 216 mm (8.5 in.) wide

279 mm (11 in.) long

Metric version 210 mm (8.27 in.) wide

297 mm (11.69 in.) long

Plotting capabilities:

560 dots across 185 mm (7.28 in.)

horizontal plotting field. Three dots/mm (77 dots/in.) horizontally and vertically.

Throughput:

light/medium duty

9866A/B

Thermal Printer

The 9866A/B Thermal Line Printer is a general purpose, 80-column printer that can be teamed with any Series 9800 Desktop Computer for use in scientific, industrial or commercial applications.

This peripheral provides fast, quiet, single-copy data output on thermal paper.

Characters/line:

80 char./line

0.24 lines/mm (6 lines/in.)

Speed:

up to 240 lines/minute

Character sets:

95-character uppercase and lowercase alphanumeric
ASCII code



Character style:

5 x 7 dot matrix

Number of copies:

single

Paper type:

blue or black thermal paper

222.13 mm (8.75 in.) wide

76.2 m (250 ft) long

Throughput:

light/medium duty

9871A

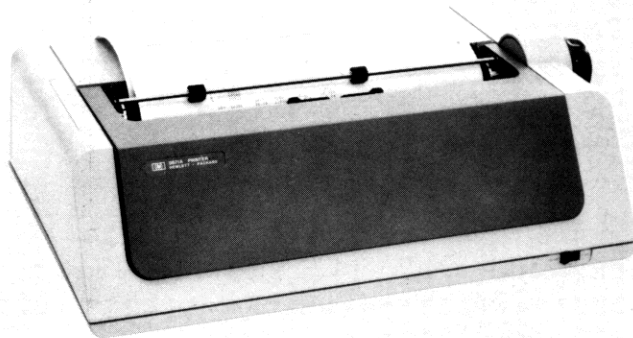
Character Impact Printer

The 9871A Character Impact Printer can be easily interfaced to any Series 9800 Desktop Computer. Its typewriter-like output makes it the logical choice when you need quality print for duplication, records or mailings, whether in scientific, industrial or commercial applications.

The interchangeable-print-wheel design provides a choice of six character sets (offering uppercase and lowercase letters). And the bidirectional platen and print mechanism mean this printer can also offer limited plotting capabilities. Programmable tabulations, both horizontal and vertical, simplify form filling. The printer will handle both single-sheet paper or continuous forms.

Characters/line:

132 char./line, 10 char./in.
6 lines/in. (0.24 lines/mm)



Speed:

30 characters/s (average text line at 10 char./in.)

Character sets:

a choice of six interchangeable, 96-character print wheels – Courier, ASCII, European, Katakana, Cyrillic and APL

Paper type:

single sheet or continuous Z-fold
(98021A form-feed mechanism required for continuous feed)

2608A

Line Printer

The 2608A is a low cost, highly reliable, medium speed, dot matrix line printer designed for use with Systems 35 and 45.

The 2608 prints at 400 lines per minute utilizing a high resolution matrix. It offers special user features such as graphics, multiple character sets, 16-channel Vertical Format Control and double-size characters.

Designed for today's systems, the 2608 is rugged enough for EDP applications, yet quiet enough to be compatible with office environments.

Characters/line:

up to 132 char./line

Speed:

400 lines per minute

Character sets:

128 ASCII

Optional: Swedish/Finnish,
Norwegian/Danish, French, German,
United Kingdom, Spanish, Cyrillic,
Katakana, Extended Roman,
Math/Greek and Forms Design



Copies:

1-6 copies up to 0.61 mm maximum pack thickness.

2631A

Printer

The 2631A Printer is a serial impact, dot matrix printer with microprocessor control for optimization of printing functions and provisions for many special user features.

High throughput is obtained through high print speed (180 cps), optimized bidirectional printing, deletion of leading and trailing blanks, and high speed skip over embedded blanks.

Each 2631 has built-in provision for a secondary 128 ASCII character set. This and all special user features of the printer can be enabled through program control.

Characters/line:

136 char./line at 10 char./in.

68 char./line at 5 char./in.

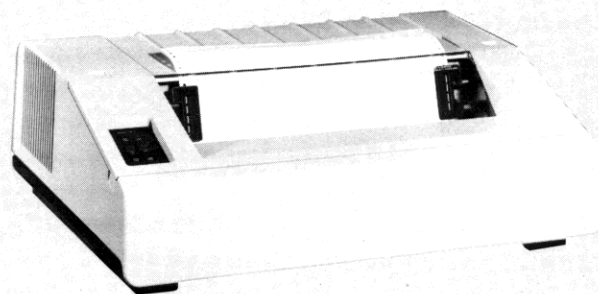
227 char./line at 16.7 char./in.

Speed:

180 char./s (bidirectional)

Character style:

7 x 9 dot matrix



Character sets:

128 ASCII

Optional: Swedish/Finnish, Norwegian/Danish, French, German, United Kingdom, Spanish, Cyrillic, Katakana, Extended Roman, Math/Greek and Forms Design

Copies:

1-6 copies up to 0.43 mm thickness

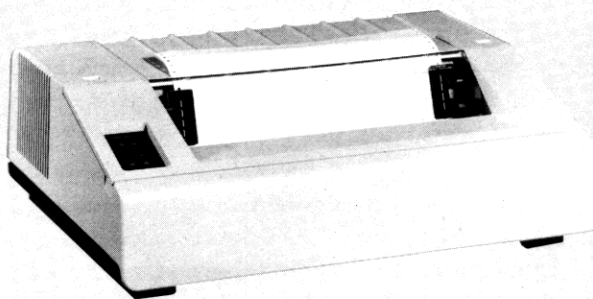
2631G

Graphics Printer

The 2631G combines the capabilities of a high performance serial printer with the ability to print raster data format graphics. With its 72 x 72 dots per inch graphics resolution, the 2631 is ideally suited for medium-resolution graphics such as business, general scientific and engineering data.

As an alphanumeric printer, the 2631 has excellent throughput and printing versatility. The print speed is 180 cps (instantaneous). Added feature includes an optional, high-density character set which enhances the print quality for letters and reports.

Plus, the 2631 has special forms handling capabilities including program-selectable page length and automatic perforation skip mode. Unlike most graphics printers, the 2631 prints on special customer forms, multi-part paper or inexpensive, continuous computer fanfold paper.



Character formation:

dot matrix 7 x 9 (alphanumeric)

72 x 72 dots resolution (graphics)

Print direction:

SMART, bidirectional (ASCII printing)
unidirectional (graphics printing)

Line spacing:

1, 2, 3, 4, 6, 8, 12 lines/in.

Forms used:

up to six parts; single or multi-part, ordinary paper

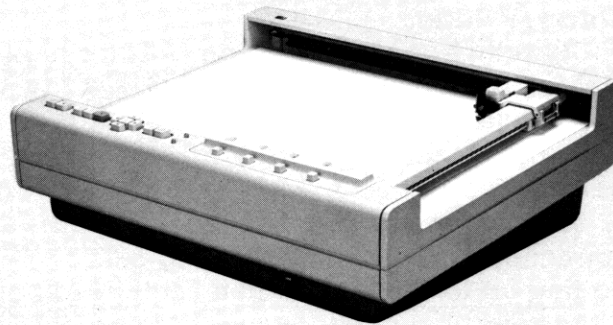
9872A

Programmable Multicolor Plotter

The microprocessor-based 9872A plotter generates finished, high-quality, 4-color plots and overhead slide transparencies. It is designed for use with the 9815S, 9825A/S, and Systems 35 and 45 Desktop Computers.

The 9872 offers exceptional line and character quality with addressable moves as small as 0.25 mm (0.001 in.). Thirty-eight different instructions are built in to equip the plotter with capabilities such as point digitizing, labeling, character sizing and window plotting.

The 9872, interfaced through the Hewlett-Packard Interface Bus (conforms to IEEE 488-1975), connects to any HP-IB compatible calculator, computer or controller.



Plotting area:

Y axis: 280 mm (11 in.)

X axis: 400 mm (15.75 in.)

Plotting accuracy:

$\pm 0.2\%$ of deflection ± 0.2 mm (0.008 in.)

Plotting speed:

maximum plotting speed of 360 mm/s

(14 in./s) on each axis with

programmable velocity control from

10 mm/s (0.4 in./s) to 360 mm/s (14.2 in./s)

7225A

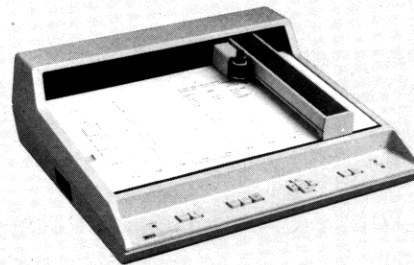
Graphics Plotter

The 7225A Plotter provides high-quality vector graphics on chart sizes up to ISO A4 or 8½ x 11 inches. The 7225 can be used with all Series 9800 Desktop Computers and a wide variety of computer and intelligent instrumentation systems through three interchangeable Personality Modules: the 17600A for general purpose interfaces; the 17601A for HP-IB (IEEE 488-1975) interface featuring HP Graphics Language with 38 instructions; and the 17602A for 8-, 12- or 16-bit computer and intelligent instrumentation systems.

Plotting area:

Y axis: 203 mm (8 in.)

X axis: 285 mm (11.2 in.)



Plotting accuracy:

± 0.25 mm (0.010 in.) measured from preset 0,0 plotting origin in temperature range 0° to 55°C (includes linearity and repeatability)

Plotting speed:

Maximum plotting speed of 250 mm/s (10 in./s) each axis; 350 mm/s (4 in./s) on 45° angle

7245A

Plotter/Printer

Whether your application calls for high quality graphics, fast text printing or a combination of both for extensive plot annotation, the 7245A Plotter/Printer is an excellent solution.

The microprocessor-based 7245 uses a bidirectional paper drive for long-axis plotting up to 16.4 feet and a (200 ft) roll of thermosensitive paper for unattended and continuous page plotting.

Forty-six built-in programmable instructions for scaling, graph rotation, point digitizing, character size, slant and direction make programming easy for clear and versatile labeling of graphs and charts.

Plotting/printing area:

188 mm x 5 m (7.4 in. x 16.4 ft)

maximum with full paper return;

188 mm x 61 m (7.4 in. x 200 ft)

maximum without full paper return

Plotting accuracy:

$\pm 0.2\%$ of deflection ± 0.25 mm (0.01 in.), including linearity and repeatability



Plotting resolution:

106 dots/in.

Plotting speed:

maximum plotting speed of 256 mm/s (10.1 in./s) each axis; 362 mm/s (14.3 in./s) on 45° angle. Pen movement speed doubles.

Character printing speed:

7 x 9 dot matrix character at 38 char./s

14 x 9 dot matrix character at 19 char./s

2.5 mm (0.1 in.) character typically drawn at 3 char./s

Reliable, Single-Source Service with HP

The array of peripherals designed and manufactured by Hewlett-Packard is supported through responsive service you can rely on.

HP's dedicated field force and 40-year reputation for quality and reliability ensure HP products long and productive lives.

From the start, HP designs in quality, reliability and serviceability. Not only are HP designs tested for thousands of hours during design and prototype stages, but each individual unit is monitored throughout production and must meet rigid quality control standards. A team of service engineers also monitors and evaluates design alternatives from the service standpoint throughout the development and production stages.

Service begins with a warranty and extends to the end of your product's useful life through a maintenance agreement tailored to meet your service needs.

The added advantage Hewlett-Packard offers is whatever your needs – peripherals, desktop computers, a system with terminals, or a network of computer systems – you could be dealing with one responsible, responsive source. By providing you with a complete system, HP leaves no question about whom to call to service your system.

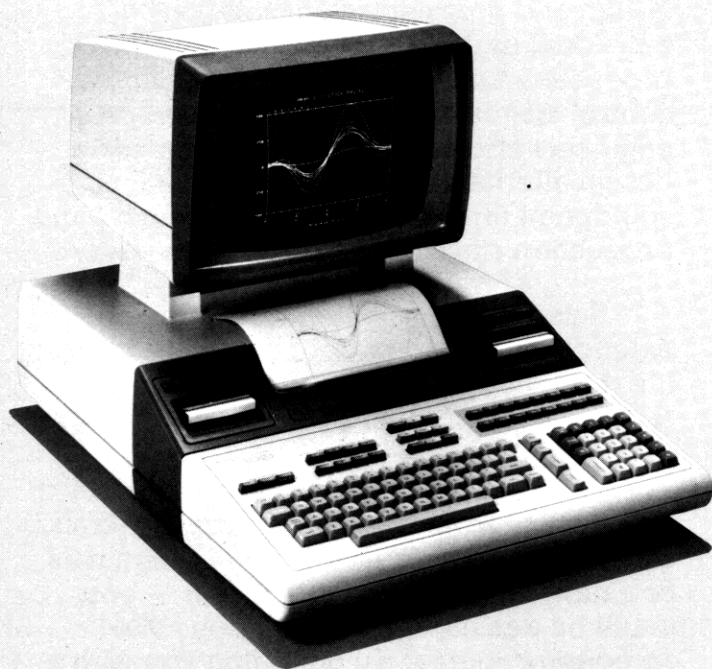
HP's service organization is a comprehensive network of computer professionals located in more than 170 locations throughout the world. Experienced HP personnel, thoroughly trained in maintenance and repair procedures, are ready to answer your questions and keep your HP computer and its peripherals up and running.

Select The Right Computer For Your Job

HP desktop computers can put the computing power and interfacing flexibility you need right at your fingertips. Whatever your problem – from quick, on-the-spot calculations to complex analysis and design of analog networks, control systems or microwave circuits – there's an HP computer that's right for you.



The System 35 is a powerful, integrated desktop computer system, ideal for many scientific and engineering applications involving computation, data acquisition and control, or both. System 35 offers 64K to 256K bytes of read/write memory, optional CRT, enhanced BASIC language, optional assembly language programming, built-in cartridge tape drive and optional 16-character strip printer. Powerful interfacing features include buffered I/O, Direct Memory Access (DMA), fast read/write, 15 levels of priority interrupt and built-in I/O drivers.



For your high-performance computational needs, HP's System 45 Desktop Computer will prove to be especially valuable. It puts powerful graphics, ROMs, enhanced BASIC language, typewriter keyboard, CRT display, optional thermal printer, four I/O channels and high-performance I/O at your command. System 45's read/write memory expands from 56K bytes to 449K bytes.



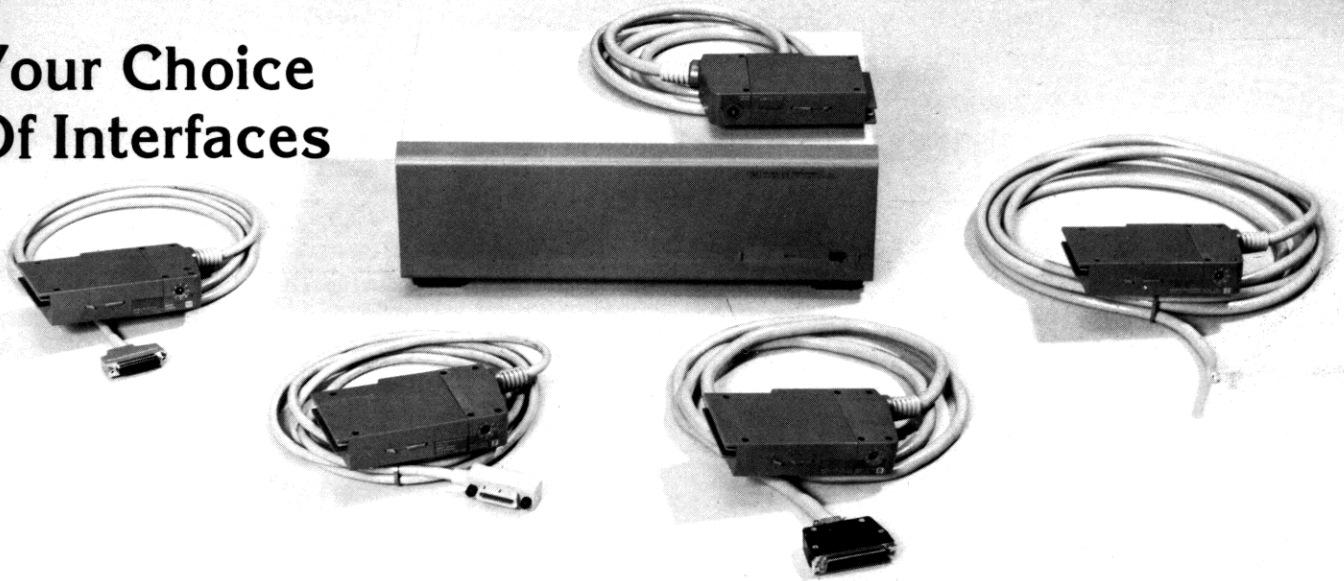
If your system requires a system controller with interrupt, Direct Memory Access, data communications, or automatic data entry at random times the HP 9825A/S Desktop Computer is your answer. The 9825 offers many advanced features: High-level Programming Language (HPL), 32-character LED display, 16-character alphanumeric thermal printer, three I/O ports, four Read Only Memory (ROM) slots and a built-in tape cartridge. A live keyboard permits you to do calculations, call subroutines, list programs etc., while a program is running.

Where enhanced small-system performance, varied interfacing capability and a moderate price are needed, HP's 9815A/S Desktop Computer can serve as a data logger or controller of a small instrumentation system. The 9815 features: an easy-to-learn programming language RPN (Reverse Polish Notation); 16-character, alphanumeric thermal printer; two optional I/O channels; and a tape cartridge for quick storage and retrieval of your data.



Let HP help you configure a system to meet your needs. For complete details, call your local HP sales office or write: Hewlett-Packard, 3404 E. Harmony Road, Fort Collins, Colorado 80525.

Your Choice Of Interfaces



HP's standard interface cards are designed to meet a variety of interfacing needs, from simple data logging to complex system integration. The I/O ports in the back of each desktop computer provide plug-to-plug compatibility with any HP Desktop Computer Peripheral and also with a wide range of instruments. All I/O cards include cables and, where appropriate, connectors.

HP's standard interfacing cards meet various physical and electrical requirements. Two of the most common interfaces used are HP-IB with connectors according to IEEE Specification 488-1975, and serial, RS-232-C, with EIA 25-pin connectors. The standard bit-parallel interface cable comes without a terminating connector, or optionally with a connector to plug into specific HP peripherals. The BCD interface cable is always unterminated, so you can choose an appropriate connector to plug into an instrument designed to your specifications. Additional interfaces include the real time clock and incremental plotter.

HP-IB – An IEEE measurement standard. In recent years, an increasing demand for a standard interface for measuring instruments has led to the IEEE Specification

488-1975. The HP-IB interface card (HP's implementation of the IEEE Standard) provides a common communication code between the Series 9800 Desktop Computers and compatible HP-IB peripherals and instruments. The HP-IB interface permits up to 14 instruments which have built-in HP-IB capability to be connected to any Series 9800 Desktop Computer at the same time.

RS-232-C – the serial communication interface. There are many applications that call for transmitting data to teleprinters, CRT terminals or telephone modems. This interface sends or receives serial data. Depending upon the interface cards and computers chosen, you will be able either to interface to RS-232-C compatible equipment or to perform asynchronous data communication.

BCD – the instrumentation/measurement interface. Many instruments and measuring devices present their data in a format called BCD or binary-coded-decimal. This format is frequently found in digital voltmeters, multimeters and other measuring instruments. Our BCD interface was specifically designed to accept inputs from

these devices and to convert those inputs into a format that can be read by the computer. The input format is selectable allowing two instruments to be read from a single interface card.

Bit-Parallel – the general purpose interface. The 16-bit parallel interface is the most versatile and widely used of our interface cards. It is used to interface many of the current HP peripherals such as printers, plotters, tape punches and readers, card readers and flexible disc drives. It is also the interface that is used most often for connecting your own special-purpose or customized peripheral to your HP computer system. The versatility of the card allows it to support a wide range of special requirements in interfacing to such devices. It also offers DMA and interrupt capability with some of our desktop computers.

The real time clock interface. The 98035A interface adds real time reference and time-related control capabilities to the 9825A/S and Systems 35 and 45 Desktop Computers. The 98035 provides real time information in the form of month, day, hour, minute and second which can be used to print the date on reports, to log the time at which data is recorded from an instrument, or to print the time on program listings during

software development. The 98035 contains four timing units that can be used in either interrupting or counting mode. In interrupting mode, you can set any or all timing units to interrupt the program at any particular time. In counting mode, the timing units are incremented every millisecond.

The incremental plotter interface. The 11282 and 98040 provide an easy way to interface the 9830A/B and Systems 35 and 45 Desktop Computers directly to incremental plotters (large drum or flatbed) which require unencoded inputs. Pen-selection capability for certain multiple-pen plotters is also provided by the 98040A.

As your system grows, if you need additional I/O ports, HP has two I/O expanders to help meet your changing requirements.

The 9868A Input/Output Expander provides the 9830A/B Desktop Computer with 10 additional I/O ports for a total of 13 I/O ports.

The 9878 Input/Output Expander, when interfaced with the 9825A/S and Systems 35 and 45 Desktop Computers provides six additional I/O ports and will accommodate all the 9825 and Systems 35 and 45 interface cards.

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