

Series 100 Personal Office Computer Systems



HP 120



HP 125B

Series 100 Personal Office Computers offer complete business solutions in a choice of two packaging styles. The HP 120 is a compact personal computer with minimal desk space requirements. The entire system (display, computer, keyboard and 3.5-inch disc drives) occupies only 1.7 square feet of space, about the same footprint as an open looseleaf notebook. The HP 125B includes a full-sized 12-inch display. The two products use the same operating system (CP/M®), the same broad range of software, and can be configured with comparable peripherals.

Series 100 System Features

System Architecture

- Dual Z-80A microprocessors.
- 64K bytes of main memory.
- CP/M operating system.
- 16K bytes of display memory (5 pages of 24 lines×80 columns).
- 32K bytes of ROM implementing "intelligent terminal functions."
- CMOS RAM with battery backup to store system configuration.

Display

- HP 120: 9-inch diagonal display.
- HP 125B: 12-inch diagonal display.
- Display enhancements: inverse video, underline, blinking, half-bright, and combinations.
- High resolution display. 9×15 dot character cell. Upper and lower case.
- 24 lines×80 columns. An additional two lines are used for function key labels or system message/status.
- Up to five pages of display memory; key-controlled scrolling on a line or page basis.
- V/3000 formatted screen capability.
- Monochrome display with white characters; green characters optional.

Keyboard Features

- Detachable, typewriter-style keyboard.
- Full cursor positioning.
- Special editing functions, including insert/delete character and insert/delete line.
- Numeric pad standard with HP 125B, optional with HP 120.

Programmable Function Keys

- 8 user programmable function keys.
- Function key labels (16 characters) on dedicated lines of CRT.

Data Communications

- Two EIA standard RS232C communications ports.
- Asynchronous point-to-point at 110 to 9,600 baud.
- Full duplex modem support.
- Character and line block mode operation.
- Flexible communication protocols configurable from terminal menu.

Peripheral Support

- RS232C serial printer port (configurable).
- HP-IB (IEEE-488) interface for mass storage devices, plotters, and printers.
- Optional integral thermal printer (available on Model 125B only).

Software

- Broad line of software from Hewlett-Packard and third-party vendors.
- CP/M operating system.

Support

- Hardware maintenance available on site or at an HP authorized facility.
- Software support services include phone-in consulting, training, and program updates.

Computer Features

System Architecture

Series 100 computers have dual Z-80A microprocessors which communicate through a high-speed "mailbox" to pass data and commands. One microprocessor controls terminal functions and I/O activities such as the keyboard, display, and serial data communications. The other microprocessor is dedicated to processing operating system commands and controlling HP-IB devices, such as disc drives. The standard system includes a full 64K bytes of RAM for operating system, applications, and user workspace. Additional RAM supports up to five pages of display memory.

CP/M Operating System

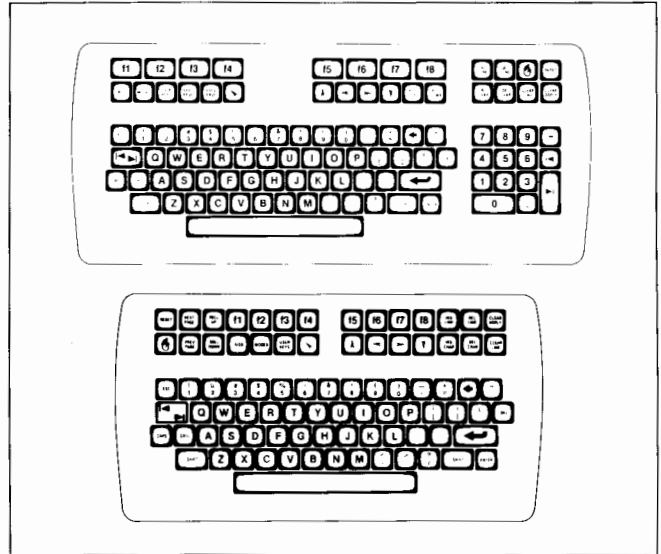
The Series 100 computers use the CP/M (version 2.2) operating system which resides on disc. On initialization, ROM-based instructions load the operating system from the disc into the processor's main memory. CP/M is a single-user, single-task operating system for which many third-party software packages have been developed.

Display

Both the HP 120 and HP 125B display 1,920 characters in a 24-line by 80-column format. The HP 120 utilizes a 9-inch diagonal display screen, while the 125B has a 12-inch screen. The 25th and 26th lines on each system are used for the screen labeling of function keys or as message/status lines. The screen memory stores five pages of text, which allows off-screen display storage. High-resolution characters with true descenders are generated in a 9x15 dot cell with half-dot shift. The standard display is white characters against a dark background. A green character display is optional.

Keyboard Features

The detached, typewriter-like keyboard is designed to provide a friendly and familiar interface to the system and minimize training time. Sculptured keycaps and dished "home" keys help to make the keyboard comfortable to use. Special keys include cursor control, display scrolling keys, and "next page" and "previous page" keys. In addition, a set of "delete" and "insert" keys are standard.



Special Function Keys

Eight screen-labeled function keys allow quick access to configuration, self-test, printer control, and other functions. The keys also offer a new level of operator/application program interface by allowing the program to redefine and relabel the keys as needed. A software program can use the screen labeled keys to guide a user step by step through an application.

Data Communications

By pressing the REMOTE MODE key a user changes the Series 100 computer from a standalone computer system to an interactive computer terminal. Either of two RS232C communications channels can connect the system to a remote computer. Flexible handshaking using hardware lines or control characters allows connection to wide range of computers and printers. In addition to standard RS232C interfaces, the HP 125B can support the 13266A 20 mA Current Loop Interface or the 13265A 300 Baud Modem.

Block/Format Mode

The Block/Format software utility allows Series 100 computers to operate as a block mode terminal with applications using V/3000 software for data entry. Using a formatted screen with protected and unprotected fields, data may be entered and edited on the display screen. When complete, the data are transmitted as a continuous block of data.

Reliability and Serviceability

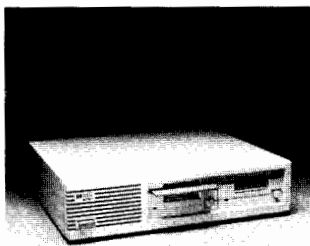
The Series 100 Personal Office Computers have been engineered for high reliability and fast repair when needed. A "Power On Test" provides a complete test of both the processor and terminal functions. Additional tests can be initiated by the user to test the integral printer and the data communications channels. The built-in self-test capabilities provide the user with a GO/NO GO indication to isolate defective components or modules which can be quickly replaced.

Peripherals*

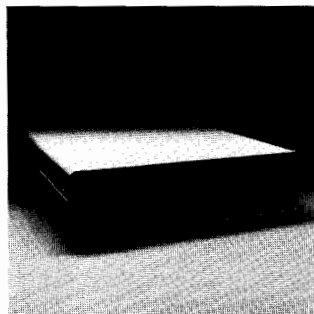
Hewlett-Packard provides a full line of peripheral products that are supported on the Series 100 computers. The built-in HP-IB interface enables you to configure up to fourteen HP peripherals to one I/O port. A serial printer port is also standard.

Mass Storage Devices

Series 100 computers can be configured with 3.5-inch, 5.25-inch, and/or 8-inch flexible disc drives. A 5.25-inch Winchester Disc is also available.



9121D



9133A

Product	Description
Mass Storage	
82901M	5.25-inch Mini Flexible Disc System-Dual Drives (496K bytes).
82902M	5.25-inch Mini Flexible Disc System-Single Drive (248K bytes).
9121S	3.5-inch Micro Flexible Disc System-Single Drive (248K bytes).
9121D	3.5-inch Micro Flexible Disc System-Dual Drive (496K bytes).
9133A	Mass Storage System-5.25-inch Winchester Disc (4.4M bytes formatted storage logically separated into 4 segments) plus 3.5-inch Micro Flexible Disc (248K bytes).
9134A	Single 5.25-inch Winchester Disc (4.4M bytes formatted storage).
9135A	Mass Storage System-5.25-inch Winchester Disc (4.4M bytes) plus 5.25-inch Mini Flexible Disc (248K bytes).
9138A	5.25-inch Winchester Disc (4.4M bytes) plus Single 8-inch Flexible Disc (1.1M bytes).
9895A	Dual 8-inch Flexible Disc System (2.2M bytes) Controller reads and writes IBM single-sided, single-density format.

Disc Drive Performance

	3.5-inch Disc Drive	5.25-inch Disc Drive	8-inch Disc Drive	Winchester Disc Drive
Total Capacity (formatted)	248K bytes	248K bytes	1.1M bytes	4.4M bytes
Recording Surfaces per Drive	1	2	2	4
Recording Format Density	Double	Double	Double	Double
Tracks per Surface	66	35	75	75
Sectors per Track	16	16	30	30
Bytes per Sector	256	256	256	256
Rotation Speed (rpm)	600	300	360	3,600
Average Access Time (msec.)	415	187	179	168**

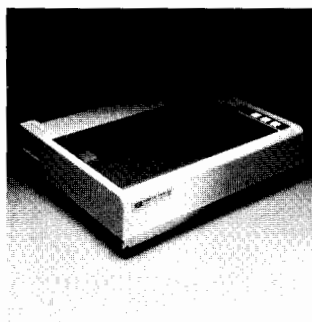
** 60 msec within one volume.

Printers

A full line of letter-quality, dot matrix and thermal printers can be easily used with Series 100 personal office computers.



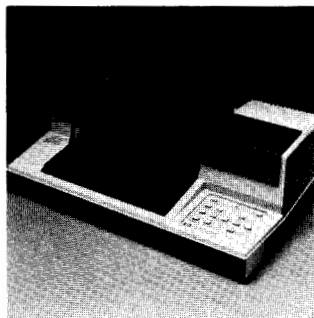
2602A



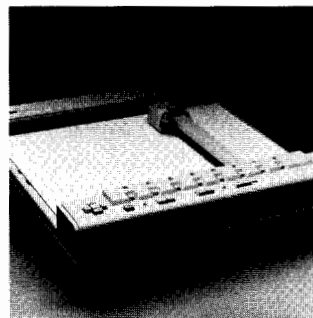
82905B

Product	Description
Printers	
2601A	Daisy Wheel Printer; 40 cps with plastic print wheel, 32 cps with metal print wheel. RS-232C interface.
2602A	Daisy Wheel Printer. 20-25 cps. RS-232C interface.
2631B	Serial Dot Matrix Printer. 180 cps. RS-232C or HP-IB interface.
2671A	Thermal Printer. RS-232C or HP-IB interface.
82905B	Serial Dot Matrix Printer. HP-IB interface.

Product	Description
Plotters	
7470A	Graphics Plotter—two pens. HP-IB interface.
9872C	Graphics Plotter—8 pens. HP-IB interface.



7470A



9872C

**Please contact your local HP sales office for information on additional peripherals. Note that not all features available in a peripheral will necessarily be supported by a Series 100 system. Use your configuration guide for ordering, since necessary options may be missing from this document.*

Software

In order to provide a wide range of software to Series 100 users, three groups of application software are available:

1. HP supported and distributed packages.
This software has either been developed by HP, or customized to use the advanced features of the Series 100. Support is available from HP.
2. HP distributed, third-party support packages.
This software has been tested by HP to ensure its operation. Support is available directly from the third-party software vendor.
3. Other CP/M compatible products available from third parties.
This software is purchased from and supported directly by the vendor.

Utilities

HP standard utilities increase system capabilities and simplify system level interaction with the computer.

Welcome Welcome is a program that is automatically run when the system is loaded. The program defines a function key for each installed application on the default disc. Thus the user can run VisiCalc or some other application without dealing with the CP/M command language.

Series 100/Back-Up This menu-styled, function key-driven program allows the user to selectively transfer data files between discs in standard CP/M format or in a compacted archiving format. Multivolume disc files may be backed up using this utility.

Copy/Format The purpose of these utilities is to provide a clean and easy way for the user to initialize and format discs and copy data between discs without operating system commands.

Block/Format Block/Format enables Series 100 computers to operate as a block mode terminal with applications using V/3000 software for data entry.

HP Supported and Distributed Software

Product	Description
45531B	Series 100/VisiCalc® Electronic Spreadsheet.
45532B	Series 100/Graphics Presentation Graphics.
45535B	Series 100/Word Word Processing. Mailing list management included.
45543B	Series 100/DSN/Link Allows Series 100 to exchange files to a host computer.
45535A	Series 100/BASIC
45536A	Series 100/Programming Package Programming tools to develop assembly language applications. Includes HP enhancements to CP/M.
45550A	Series 100/Condor 20-1 Data Base Manager.
45550E	Series 100/Condor 20-2 Extended Relational Version of 45550A.
45550H	Series 100/Condor 20-3 Extended Version with Report Writer and Indexing.
45550N	Series 100/Condor 20-2 Upgrade Kit Upgrades 45550E to 45550H.
45550K	Series 100/Condor 20-1 Upgrade Kit Upgrades 45550A to 45550E.
45560A	WordStar®/100 Word Processing
45561A	SpellStar™/100 Spelling Dictionary. For use with 45560A.
45562A	MailMerge™/100 Mailing list generator. For use with 45560A.

Hewlett-Packard Distributed Software

This software is distributed through HP and is supported through the respective vendors.

45552A	BPI General Accounting.
45553A	BPI Payroll For use with 45552A.

VisiCalc® is a registered trademark of VisiCorp.

WordStar® is a registered trademark of MicroPro International Corporation.

SpellStar™ and MailMerge™ are trademarks of MicroPro International Corporation.

Support

Series 100 hardware includes a 90-day limited warranty. On-site repair with a specified response time as short as four hours is available in most areas. Alternatively, hardware can be returned to an HP Repair Center or an authorized Dealer Repair Center.

HP offers phone-in consulting service for programmers and users. The *Series 100 Communicator* magazine provides helpful articles, programming tips, and revision information. Consult your authorized HP Dealer or refer to the *Series 100 Support Guide* for information on training classes and details on the full set of support services.

Series 100 Product Specifications

General

System Processor:	Z-80A microprocessor operating at 3.68 MHz, Loader ROM, and HP-IB Interface.
Main Memory:	64K bytes of RAM memory.
Terminal Processor:	Z-80A microprocessor operating at 3.68 MHz, 10K bytes of display storage (120 lines of display storage total); 128 bytes of non-volatile configuration memory (battery powered).
Screen Size:	45500B: 150 mm x 215 mm (6 in. x 8.5 in.) 45600A: 114 mm x 162 mm (4.5 in. x 6.4 in.)
Screen Capacity:	24 lines x 80 columns (1,920 characters), 25th and 26th lines for labeling of function/softkeys or as message/status lines.
Character Generation:	7 x 11 enhanced dot matrix with ½ dot shifting; 9 x 15 dot character cell; noninterlaced raster scan.
Character Size:	45500B: 2.4 mm x 4.24 mm (0.094 in. x 0.167 in.) 45600A: 1.6 mm x 3.2 mm (0.063 in. x 0.126 in.)
Character Set:	128 ASCII character set standard.
Cursor:	Blinking-underline.
Display Enhancements:	Inverse video, underline, blinking, half-bright, and all combinations of enhancements.
Refresh Rate:	60 Hz/50 Hz
Tube Phosphor:	P4 (option 061 uses P31)
Implosion Protection:	Tension band
Keyboard:	Full ASCII code keyboard, eight screen-labeled keys, auto-repeat, N-key rollover, cursor controls, 14-key numeric pad (optional on 45600A), detached with 1.2 m (4 ft.) cable.

Physical Specifications

System Processor Weight:	45500B: 18.0 kg (39 pounds) 45600A: 8.2 kg (18 pounds) Opt 050: 20.2 kg (44 pounds)
Keyboard Weight:	45500B: 2.0 kg (4.4 pounds) 45600A: 1.7 kg (3.8 pounds)
Display Monitor Dimensions:	45500B: 380 mm (W) x 475 mm (D) x 440 mm (H) [15.0 in. x 18.7 in. x 17.3 in.] 45600A: 305 mm (W) x 305 mm (D) x 287 mm (H) [12.0 in. x 12.0 in. x 11.3 in.]
Keyboard Dimensions:	45500B: 430 mm (W) x 190 mm (D) x 75 mm (H) [17.0 in. x 7.5 in. x 3.0 in.] 45600A: 330 mm (W) x 190 mm (D) x 75 mm (H) [11.8 in. x 7.1 in. x 1.4 in.]

Environmental Conditions

Temperature (Free Space Ambient):	Nonoperating:	-40° to +60° C (-40° to +140° F)
	Operating:	0° to +55° C (+32° to +131° F)
	45500B opt 050 operating:	+5° to +40° C (+41° to +104° F)
Humidity:	5% to 95% (noncondensing)	
	Opt 050: 5% to 80% (noncondensing)	
Altitude:	Non-operating:	Sea level to 15,240 m (50,000 ft.)
	Operating:	Sea level to 4,572 m (15,000 ft.)
Vibration:*	0.38 mm (0.015 in.) pp, 5 to 55 Hz, 3 axis	
Shock:*	30g, 11 ms, ½ sine	

**Type tested to qualify for normal shipping and handling in original shipping container.*

Product Regulations

Product Meets:	The requirement of the following agencies/standards for EDP equipment/or office equipment in the following countries:
Safety:	Canada - CSA Certification International - IEC 380/435 Compliance United States - U.L. Listing Switzerland - SEV (pending) Finland - FEI (pending)
RFI:	Germany - VDE Class A, FTZ License VDE Class B (Except for systems with the following peripherals: 9895A, 9138A, 26010D, 2631B, and Option 050 on 45500B.) United States - FCC Level B (Except for systems with the following peripherals: 9895A, 9138A, 26010D, 2631B, and Option 050 on 45500B.)
Datacomm:	C.C.I.T.T. V.24 interchange V.28 electrical Australia - Telecomm (pending for 45600A) Belgium - PTT (pending for 45600A) Finland - PTT (pending for 45600A) Germany - FTZ (pending for 45600A) Sweden - PTT (pending for 45600A) U.K. - (pending for 45600A)

Check with your Dealer or Sales Representative to verify product safety and data communication certification in your country.

Power Requirements

Input Voltage:	115 (+10%, -25%) at 50/60 Hz (+-5%) 230 (+10%, -15%) at 50 Hz (+-5%)
Power Consumption:	45500B: 80 W. With Opt 050: 130 W 45600A: 80 W.

In areas where input voltage does not satisfy these requirements, power-related problems can be reduced by using a dedicated electrical circuit with an independent earth ground. In extreme cases, a power conditioner may be required.

Data Communications

Data Channels:	HP-IB, RS232C (2 channels)
HP-IB Channel:	Computer bus used only for specified HP peripheral devices.
RS232C Channels:	General asynchronous data communications.
Data Rate:	110, 150, 300, 600, 1200, 1800, 2400, 3600, 4800, and 9600 baud. Operation with control codes, escape sequences, internal printer, or baud rates above 4800 may require externally supplied delays or handshakes. Typical throughput to the internal printer is 60 cps. Full 24 line x 80 character screen copies to the internal printer in 18 seconds. Internal printer is available only on 45500B.
Port 1 Asynchronous Interface : 45500B: 50 pin 45600A: 25 pin	EIA standard RS232C and CCITT V.24; fully compatible with Bell 103A full duplex modems. Hardware and XON/XOFF handshaking available. Accessory interfaces for 45500B provide current loop and 300 baud U.S. modem.
Port 2 Asynchronous Interface (25 pin):	Same communications capability as Port 1, except accessory interfaces are not supported. Note that only one port at a time can communicate to a computer.
Operating Modes (Either Port):	On-line; off-line; character, line, modify.

Product Support

Hardware Supplied:	HP 125B (45500B) HP 45500A Computer System processor unit Option 050 Integral Printer (includes two rolls of paper) HP 45529A HP-IB cable (1m.) Operating System	HP 120 (45600A) HP 45600A Computer System processor unit 1m. HP-IB cable Operating System
Documentation Supplied:	Installation Guide (45500-90019) Owner's Manual (45500-90020)	Installation Guide (45600-90002) Owner's Manual (45500-90020)
Documentation Available:	Service Manual (45500-90100)	Service Manual (45600-90001)
Warranty:	Series 100 computers are warranted against defects in materials and workmanship. Contact the local HP Sales Office for terms and conditions. NOTE: For warranty coverage on the HP 45500B Option 050, HP qualified printer paper must be used (HP 92160A or HP 92160B).	
Maintenance:	HP maintenance agreements are available for support after the warranty period. Contact the local HP Sales Office for terms and conditions.	

Ordering Information

Product	Option	Description
45500B		HP 125 Personal Office Computer
45600A		HP 120 Personal Office Computer Includes computer system processor unit, 64K bytes main memory, 24-line by 80-character display, five pages (120 lines) of display memory, HP-IB interface port, two RS232C communication ports, detached keyboard. 60 Hz, 110 volt operation. Operating system includes HP-IB cable.
	630	Operating System on 3.5" Mini-Disc
	650	Operating System on 5.25" Disc
	680	Operating System on 8" Disc
	061	Substitute Green Phosphor Display
	301	U.S. Data Communications Cable
	302	European Data Communications Cable
		HP 120 Options Only
	100	Substitute Extended Keyboard
	304	Direct Connect Cable to HP 3000 Series 64
	308	1 Meter HP-IB Cable (45529A)
		HP 125 Options Only
	050	Integral Printer

Accessories

45529A	HP-IB Cable - 1 Meter
45529B	HP-IB Cable - 2 Meter
45529D	HP-IB Cable - 0.5 Meter
13242G	RS-232 Printer Cable (Male Connectors)
92250A	HP 120 Dust Cover
92250B	HP 125 Dust Cover
13265A	300 Baud Modem (Port 1)
13266A	Current Loop Interface (Port 1)
92171R	Palm Rest for Extended Keyboard
92171V	Tilt Unit
92171W	Swivel Unit
13269P	Carrying Case for HP 120 and 9121D/S Drive