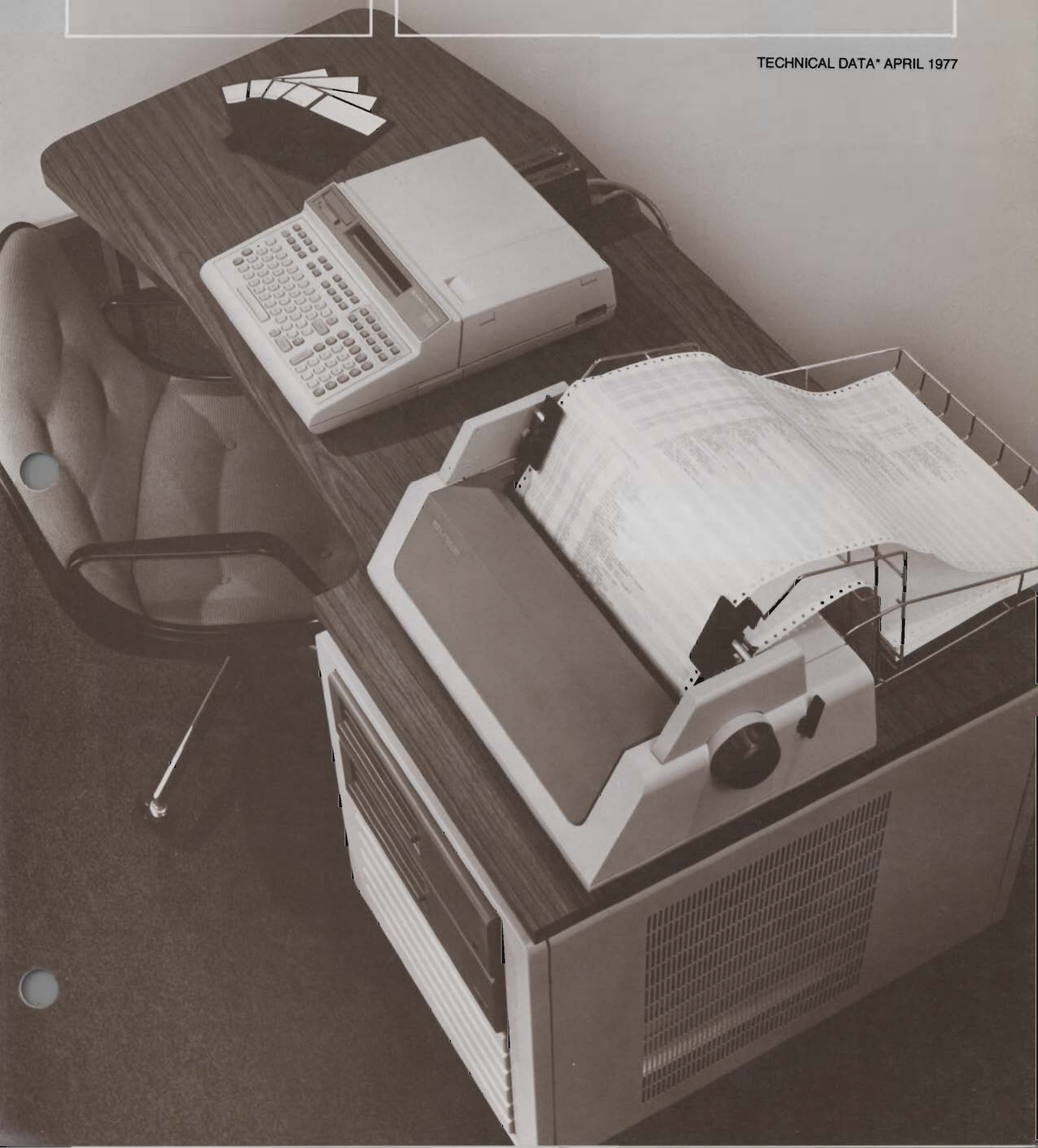


HEWLETT  PACKARD

9896A Computation System

TECHNICAL DATA* APRIL 1977



9896A Computation System



Hewlett-Packard's 9896A Computation System is a complete, flexible disk-based data processing system, suitable in both commercial and selected scientific fields.

It can handle many jobs, including:

- accounting,
- production planning and scheduling,
- wage and salary administration,
- literature and inquiry handling,
- inventory control,
- engineering calculations,
- medical analyses,
- business statistics.

The standard 9896 is a system product of exceptional performance configured to start solving your computational problems now. The system consists of:

- desktop computer with integral keyboard and display for total system control,
- flexible disk drives (2) for rapid access to programs and data,
- full character impact printer to provide typewriter-quality printouts,
- systems desk to provide work station convenience and single power switch and printer paper storage.

In short, this computational product provides a systems approach to ensure total performance and quality but retains flexibility to meet your specific requirements.

The 9896A fits most business, laboratory, or industrial environments. The system can be cost effective in multifunction computing—within a firm, you can run payroll in the morning, a production chart after coffee break, and then program the system to help solve a highly complex engineering problem.

HP Computer Museum
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The Desktop Computer

Controlling the entire system is the 9831A Desktop Computer which features rapid data processing and easy-to-understand BASIC language.

Valuable characteristics of this language include easy manipulation of alphabetic and numeric information, rapid sorting of rows or columns of data, and efficient location of specific values in those rows or columns. These characteristics are particularly useful for searching and sorting applications such as inventory control.

Many statements and functions built into the 9831A simplify programming. For example, if you want a certain message to appear on the printout, just key in PRINT and the specific message. To find the square root of a number, you type in SQR, then the number and press the execute key. This is an advantage of BASIC—statements and function names that the 9831 knows are also easy for you to understand.

The 9831's standard read/write memory is 7162 bytes but is expandable to 15,354 bytes, 23,546 bytes or 31,738 bytes.

A Special Function keyboard provides you with 12 keys (24, with shift) that can be used as typing aids or can reduce a complicated series of keystrokes to a single keystroke. If you want to add a new employee to your payroll, for example, pressing a key labeled ADD EMPLOYEE can get the program necessary to perform this function and you can begin entering the new employee information.

Other features of the 9831A include:

- a 32-character alphanumeric display to prompt the operator in application procedures and display input information for verification,
- error messages that appear on the display to inform the operator of incorrect input or equipment performance,
- line- and character-editing keys that provide enhanced error correction and editing capabilities,
- numeric data in decimal or scientific notation that allows you to present data in the appropriate format,
- full trigonometric and Boolean capability to facilitate complex scientific computations.



The Printer

The system's hard-copy output device is the 30-character-per-second 9871A Character Impact Printer. It is controlled by the 9831.

The 96-character interchangeable print disc provides the typewriter-like, full character impact printout. Other character discs available are:

- European,
- ASCII,
- Katakana,
- Cyrillic.

The 9871A can print reports, letters, checks and invoice forms on single-sheet or continuous fan-fold, pin-feed paper with maximum width of 351 mm (15 in.). A form-feed mechanism is provided with the standard system for use with the last type of paper. As many as six copies can be produced.

Additional features of the 9871 include:

- a 335,3-mm (13.2-in.) writing line,
- a 158-character buffer which automatically fills if characters are received faster than print rate and also frees 9831A for other operations,
- a push-button test switch that automatically tests operation,
- a print-intensity adjustment switch that lightens or darkens print,
- a safety interlock which stops printing when access cover is removed.

The 9866B Thermal Line Printer which prints up to 80 columns of upper- and lower-case characters at 240 lines/minute is available as an option.

The 9866B uses heat-sensitive paper which is 223,3 mm (8.75 in.) wide and 76,2 m (250 ft) long and is available in print colors of blue, black, or blue-black.



The Mass Storage Unit

The HP 9885 M/S Flexible Disk Drive is a unique memory device used by the 9831 to store and retrieve data efficiently at high speeds.

The standard 9896 System contains two disk drives—a master and a slave. The master drive has a built-in controller that regulates as many as three slave units. The master, in turn, is controlled by the 9831.

The actual storage media, a removable flexible disk, is enclosed in a protective sealed jacket. Each disk stores nearly half a million bytes of information, which is twice the capacity of most flexible disks.

The drive's data reliability is enhanced by the automatic write-verify, ensuring that the information recorded on the disk is identical to the source information in the 9831's memory.

FLEXIBLE DISK CONTROL

To control the 9885 M/S Flexible Disk Drives, additional BASIC statements, not included in a standard 9831A, are required. These commands are contained in a read-only memory (ROM) that plugs into the 9831A.

This ROM gives you the capability of "calling up" a file by its preassigned name, instead of using a complicated code. For instance, to tell the disk drive to store a program, you would key in SAVE and the name you have given to the program or data. To ask the disk drive to give you a complete list of what is on the disk, you would key in the statement CAT (for catalog). To duplicate one disk in entirety, thereby making extra copies of important information, you would use the BACKUP statement.

Equipment and Accessories Supplied (for the standard 9896 System)

Item	Quantity	HP Part No.	
9896A Operator's Guide	1	09896-90000	
System Installation Manual	1	09896-90030	
9831A Desktop Computer			
ac power cord	1	8120-1763	
9831A Operating and Programming Manual	1	09831-90000	
9831A BASIC Reference	1	09831-90010	
9831A System Test Manual	1	09831-90031	
9831A test cartridge	1	09831-90035	
Peripheral Control Manual	1	09831-90020	
Blank tape cartridge	1	9162-0061	
Utility pack	1	09831-10000	
Dust cover	1	9222-0495	
Tape head cleaner	1	8500-1251	
Special Function key overlays	5	7120-4802	
Spare fuses			
1A (SB)	1	2110-0003	
2A (SB)	1	2110-0043	
Spare fuse cap, European	1	2110-0544	
9885 M/S Flexible Disk Drive	M	S	
ac power cord	1	1	8120-1575
Initialized disk	1	0	09885-90060
Blank flexible disk	1	2	9162-0074
Utility routines flexible disk	1	0	09885-10014
Flexible disk envelope	2	1	9230-0420
Spare fuses			
2A(SB)	1	1	2110-0303
3A(SB)	1	1	2110-0381
Flexible disk labels (sheet of 3)	1	1	7120-5330
Sheet of write tabs	1	1	7120-5388
Drive no. decals (0-3)	1	1	7120-5160
Select code decals (8-15)	1	1	7120-5161
Flexible Disk Operating and Programming Manual	1	0	09885-90050
Flexible Disk Care Guide	1	1	09885-90020
Notebook	1	0	9282-0580
Spare fuse cap, (European)	1	1	2110-0544
9871A Character Impact Printer			
Standard character disc	pkg. of 3		1530-0697
Ribbon	pkg. of 3		9282-0561
Spare fuses			
1A (SB)	1		2110-0007
2A (SB)	1		2110-0002
ac power cord	1		8120-1579
Dust cover	1		9222-0492
Adjustment wrench	1		5040-7437
9871A Installation Manual	1		09871-90035

Accessories Available

9871A Character Impact Printer	
European character disc (3)	1530-1810
ASCII character disc (3)	1530-1811
Katakana character disc (3)	1530-1851
Cyrillic character disc (3)	1530-1895
Cartridge ribbon (3)	9282-0561
9885M/S Flexible Disk Drive	
Kit containing 5 flexible disks	09885-80004
Kit containing 25 flexible disks	09885-80005

Software

A wide variety of software, available for use with the 9896A, includes payroll, inventory, accounts payable, accounts receivable and general ledger. A specific listing and description of software can be obtained from your local HP Sales office.

Ordering Information

The standard 9896 Computation System specifically consists of:

Item	HP Part No.
9831A Desktop Computer	9831A
Character Impact Printer with form-feed mechanism	9871A Opt. 031 98021A
Master Flexible Disk Drive with rackmount, plug-in ROM and cable	9885M Opt. 002, Opt. 031
Slave Flexible Disk Drive with rackmount and cable	9885S Opt. 002
System desk	11244A

To give you maximum flexibility in configuring the 9896 to your own needs, HP offers the following options. These add to or remove from the standard system those items indicated.

Additions

15,354 bytes of read/write memory, factory-installed	Opt. 001
23,546 bytes of read/write memory, factory-installed	Opt. 002
31,738 bytes of read/write memory, factory-installed	Opt. 003
50 Hz frequency	Opt. 050
9866B Thermal Line Printer, Opt. 031	Opt. 066
System installation (U.S. only)	Opt. 101
One 9885S Opt. 002	Opt. 185
Two 9885S's Opt. 002	Opt. 285
Financial Control software (U.S. version)	Opt. 300

Deletions

Form-feed mechanism†	Opt. 521
System desk and rackmounts from both 9885M and 9885S	Opt. 544
Character Impact Printer and form-feed mechanism	Opt. 571
One 9885S Opt. 002	Opt. 585

In addition to the factory-installed memory options, HP offers 2 field-installed memory options. Each requires an additional installation charge.

Description	Part No.
8192 bytes of memory	98221F
16,384 bytes of memory	98222F

†Deletion not recommended if you plan to use fan-fold or pin-feed paper.

Purchase Plans

Whether you want to buy, lease, or rent, Hewlett-Packard has a plan that's right for you. Contact one of the Hewlett-Packard worldwide sales and service offices for specific prices and plans in your area.

Maintenance Agreements

Maintenance agreements are recommended for all desktop computers and related products. These agreements represent HP's best level of support. Major advantages to the customer include:

- fixed annual cost,
- priority service response,
- on-site service,
- regular maintenance,
- individualized contracts.

Contact an HP Sales and Service office for price listings.

Supplementary Information

SPECIFICATIONS

9831A Desktop Computer

Dynamic range:	+10 ⁹⁹ to +10 ⁻⁹⁹ , 0, -10 ⁻⁹⁹ to -10 ⁹⁹
Read/write memory:	7162 bytes
Tape cartridge	
Memory capacity:	250,000 bytes
Typical access rate:	14,300 bytes/s
Average access time:	6 s
Read/write speed:	559 mm/s (22 in./s)
Search speed (bidirectional):	2286 mm/s (90 in./s)
Transfer rate:	2750 bytes/s
Typical rewind time:	19 s (end to end)
Typical erase time:	40 s (one entire track)
Tape length:	42.67 m (140 ft)—one track
Number of tracks:	2
Verification:	automatic on recording
Error check:	check sum
File length:	programmable

9871A Character Impact Printer

Speed:	average test line at 10 characters/in. — 30 characters/s
Paper:	single sheet continuous feed (form-feed mechanism needed) single part or 2 to 6-part form — 0,5 mm (0.020 in.) total max thickness max width—351 mm (15 in.)
Buffer:	158 characters

9866 Thermal Line Printer (Opt. 066)

Speed:	print mode—240 lines/min plot mode—900 rows of dots/min
Paper:	222,3 mm (8.75 in.) wide 76,2 m (250 ft) long blue, black, or blue-black heat sensitive
Buffer:	1 line of 80 characters

9885 M/S Flexible Disk Drive

Number of user-available tracks:	65
Number of files/disk:	352 max
Number of records/track:	30
User-available storage/disk:	499,200 bytes
Rotational speed:	360 rpm
Average access time:	267 ms
Transfer time:	11.1 ms/record
Transfer rate:	23,000 bytes/s
Number of bytes/record:	256



ENVIRONMENTAL RANGE

Environmental ranges for the standard 9896 System are listed in the following. In the event that you add or delete

Standard system

Operating temperature: 10°C to 40°C
Storage temperature: -40°C to +60°C
Humidity: 20% to 80% (relative)

Size/Weight

Standard system

Height: 1025 mm (40.35 in.)
Length: 1810 mm (71.25 in.)
Width: 818 mm (32.20 in.)
Net weight: 189 kg (417 lb)
Shipping weight: 257 kg (566 lb)
Cube: 2,21 m³ (78.2 ft³)

Desk

Height: 718 mm (28.25 in.)
Length: 1810 mm (71.25 in.)
Width: 791 mm (31.13 in.)
Net weight: 126,8 kg (279 lb)
Shipping weight: 176,8 kg (389 lb)
Cube: 2,21 m³ (78.2 ft³)

POWER REQUIREMENTS

Standard system

Source: 100, 120, 220, 240 Vac
(+5%, -10%)—switch
selectable
Line frequency: 50 Hz or 60 Hz \pm 3.5%
Power consumption: 100 V @ 6.9 A
120 V @ 5.9 A
220 V @ 3.2 A
240 V @ 3.0 A

*Data subject to change.



Sales and service from 172 offices in 65 countries.
Loveland, Colorado 80537