

DOCUMENTATION DU CALCULATEUR DE BUREAU HEWLETT-PACKARD HP 9825A

FICHE N° 3833

PRÉSERVER
SAUVEGARDER
VALORISER

Période de fabrication : 1975-1999
Fabricant : Hewlett-Packard Company
Domaines : Mathématiques, Physique
Sous-domaines : Calcul, Electronique
Organisme : Université de Rennes
Ville : Rennes
Modèle : HP 9825A
Matériaux : Papier

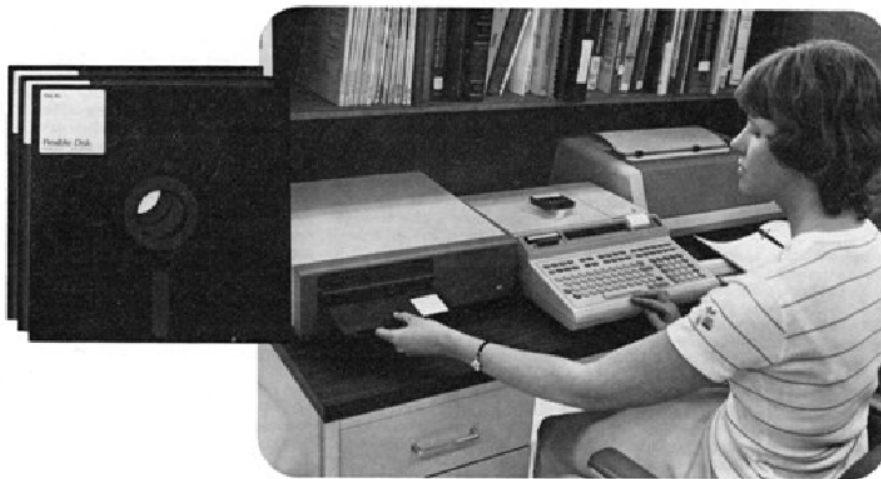
Description

De nombreuses documentations existent sur le calculateur de bureau Hewlett-Packard HP 9825A, généralement en anglais. Le catalogue HP de 1978 page 580 donne un détail des caractéristiques de cette machine. On trouve aussi beaucoup de description et d'images sur des sites internet spécialisés.

Utilisation

Ce calculateur a été retrouvé dans les collections d'instruments des travaux pratiques d'électronique de la faculté des sciences de Rennes. Il servait probablement à l'enseignement mais pouvait aussi piloter des montages ou servir d'interface à des traceurs, digitaliseurs, imprimantes...

Il possède de nombreuses fonctions mathématiques (jusqu'à 24 dont la trigonométrie et l'algèbre booléenne) et des grandes possibilités de mémoires pour l'époque.



The HP 9825 nonpareil desk-top computing/controlling system is magnified in power by new accessories.

A fast, new, low-cost flexible disk drive dramatically expands the 9825's available memory, while a new input/output expander increases the usable I/O channels from three to nine.

Several months ago, in an effort to describe the potentialities of our new 9825, we said, "You must resist thinking of it either as a programmable calculator or as a computer." We then pointed out capabilities of an order not to be found in other desk-top systems: With its live keyboard, vectored priority interrupt, direct memory access, and built-in tape storage, the 9825 can control and acquire data from several instruments while it performs calculations, prints or plots results, and reviews programs—all through simple keyboard commands and with apparent simultaneity.

To supplement data storage capacity and access speed of the 9825's tape cartridge, the new 9885 Flexible Disk Drive lets you store programs and data on an economical flexible disk and transfer them to and from 9825 memory at high speeds. The 9885's outstanding performance characteristics are especially useful in systems involving many instruments:

- Storage capacity for a single disk is 468,480 bytes; average access time is 0.3 second.
- Data transfer rate is 23,000 bytes per second.

- Data storage capacity is easily expandable. Each 9885 master unit can manage the operations of up to three 9885 slave units simultaneously.
- System reliability is significantly increased, as much by the disk's inherent characteristics as by the 9885's write-verify feature, which automatically ensures that the information recorded on the disk is identical to the source information in calculator memory.

Best of all, the disk drive is especially easy to work with, thanks to a built-in controller and a complete software system contained in a plug-in ROM. All disk operations are initiated by one- or two-word statements, all of which are programmable. (You can program the 9825 yourself. Its advanced, easy-to-use language, HPL, offers you power and efficiency for handling complex formulas and equations that were formerly the exclusive province of big computers. HPL handles subroutine nesting and flags, and allows 26 simple and 26 array variables.)

The new 9878 I/O Expander has seven I/O slots, and plugs into one of the 9825's three I/O slots. Two expanders can be plugged into the 9825 at once. The 9825 and expander can accommodate 16-bit parallel cards for general purpose interfacing, BCD cards for BCD devices, or HP-IB cards for use with instruments conforming to IEEE Standard 488-1975.

Price for a 9885 Disk Drive with interfacing kit is \$3900*; slave units are \$2500* each; a 9878 I/O Expander is \$1200*; and the 9825 base unit is \$5900*. Together, they provide an autonomous computing and controlling capability for any laboratory with serious work to do.





MoHPC

Tape Cartridge

Memory capacity	250 000 bytes
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
Typical rewind time	19 s (end-to-end)
Typical erase time	40 s (one track)
Tape length	42.67 m (140 ft)
Size	63.5 x 82.5 x 12.7 mm (2.5 x 3.25 x 0.5 in.)
Verification	automatic on recording

Tape cartridges are intended for nominal program or data storage; the typical life cycle is 50-100 hours, depending on the application. Environmental conditions of 25°C (77°F) and 20 to 50% relative humidity are most favorable for a long tape life. Tape life is decreased by a high-duty cycle (percent of time the tape is accessed during the total time the 9825 is in use), high turning resistance and continuous use for long periods of time (longer than one-half hour). It is suggested that tape transports be regularly cleaned and cartridges removed from drives after use.

For heavy usage of mass storage files, such as in consecutive file sorts or data base management applications, flexible disk drives are recommended for optimum performance and reliability.

Printer

Paper width	57.15 mm (2.25 in.)
Speed	180 lines/min
Font	5 x 7 dot matrix; prints all the following characters in upper and lower case; up to 16 characters/line

9825S Character Set

\$	1	2	3	4	5	6	7	8	9	0	:
)	a	w	e	r	t	y	u	i	o	p	-
.	s	d	f	g	h	j	k	l	,	z	x
c	v	b	n	m	.	!	<	>	#	%	=
*	+	L	&	?	:	;	Q	W	E	R	T
Y	U	I	O	P	A	S	D	F	G	H	J
K	L	Z	X	C	V	B	N	M	!	+	+
@	F	E	J	@	/	*	-				

Built-in Functions

Mathematical and trigonometric functions and operations are included in the following with average execution times.

Absolute (abs)	0.19 ms
Fraction (frc)	0.37 ms
Integer (int)	0.47 ms
Maximum (max)	variable
Minimum (min)	variable
Modulus (mod)	3.1 ms
log	8.6 ms
In	6.7 ms

e ^x	5.5 ms
10 ^x	7.6 ms
Raise to power	15 ms
Random number (rnd)	1.8 ms
Sign (sgn)	0.20 ms
√	2.5 ms
Sine (sin)	18 ms
Cosine (cos)	18 ms
Tangent (tan)	13 ms
Arcsine (asn)	22 ms
Arccosine (acs)	22 ms
Arctangent (atn)	15 ms
+	0.32 ms
-	0.37 ms
*	0.88 ms
/	2.5 ms
Power of ten round (prnd)	0.74 ms
Digit round	0.53 ms

Logic operators

AND, NOT, OR, XOR (exclusive or)

Relational operators

= equal to
 >= or <= greater than or equal to
 > greater than
 <= or < less than or equal to
 < less than
 # or <> not equal to

ROMs — 9825S

The 9825S also includes the 98210A String—Advanced Programming ROM and a choice of the 9862A Plotter—General I/O—Extended I/O ROM or the 9872A Plotter—General I/O—Extended I/O ROM.

Environmental Range

Operating temperatures	5°C to 40°C ambient
Storage temperature	-40°C to 65°C
Ambient humidity	<80%

Size/Weight

Height	129.5 mm (5.1 in.)
Width	383.5 mm (15.1 in.)
Depth	495.3 mm (19.5 in.)
Weight:	
Net	11.8 kg (26 lb)
shipping	19.5 kg (42 lb)
Cube	0.12 m ³ (4 ft ³)

Power Requirements

Source	110 V +5%, -10%
	120 V +5%, -10%
	220 V +5%, -10%
	240 V +5%, -10%

Note: Voltage is switch-selectable.

Line frequency	48 to 66 Hz
Consumption	1.7 A @ 100V
	1.5 A @ 120V
	0.8 A @ 220V
	0.75A @ 240V

9825A/S Desktop Computer Specifications

TECHNICAL DATA • FEBRUARY 1979



The HP 9825A is a desktop computer that can be used as a stand-alone device or as a system controller for industrial and scientific applications.

The 9825S is a desktop computer system which consists of:

- a 9825A desktop computer;
- 23 228 bytes of read/write memory (three times the standard 9825A);
- Read-Only Memories for string variables and interfacing.

Whichever model you choose, you get a 32-character LED display, 16-character thermal strip printer, a typewriter-like keyboard that lets you use both uppercase and lowercase alphanumerics, three I/O ports, four Read-Only Memory (ROM) slots and a two-track tape cartridge drive.

A unique feature of the tape cartridge system is the "record memory". This allows you to copy the entire contents of memory including all programs, data, flags, Special Function keys and internal system information so that the 9825 can be returned to the identical operating environment at a later time.

Another feature of the 9825 is the high-level programming language (HPL) that offers power and efficiency for handling equations and input/output operations, yet is easy to learn and use.

The live keyboard is another valuable characteristic the 9825 provides. This means you can perform calculations and execute subroutines as well as list the current program and examine or change program variables while a program is running.

The 9825 also has interrupt capability. When given a signal from a peripheral, the 9825 suspends operations to execute a priority program or input more information. The desktop computer then resumes operations at the point of interruption.

In addition to its inherent computing power, the 9825 also allows flexible interfacing with a variety of devices including plotters, digitizers, printers, and flexible disk drives. To complete your system's configuration, you can choose from a range of software packs for engineering, mathematics and statistics applications.

Features

- Alphanumeric keyboard
- 32-character LED display
- Built-in tape cartridge drive
- High-level programming language (HPL)
- Interrupt capability
- Plug-in read-only memories (ROMs)
- 12 Special Function keys (24, with shift)
- Expandable read/write memory
- 12 significant digits
- Live keyboard
- Direct memory access
- Trigonometric capability
- Boolean algebraic capability

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General Information

9825A Read/Write Memory

Standard	6 844 bytes
Opt. 001	15 036 bytes
Opt. 002	23 228 bytes
Opt. 003	31 420 bytes

(The following ROMs will not operate with

Opt. 003: — 98210A, 98213A, 98214A, and 98216A)

9825S Read/Write Memory

Standard	23 228 bytes
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Range

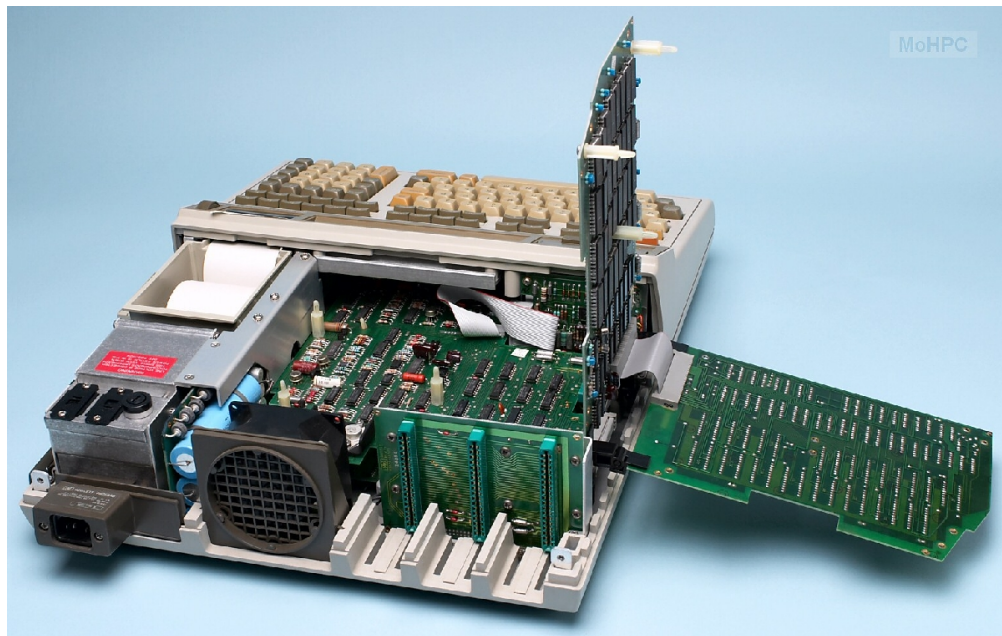
Dynamic range:

10^{99} to 10^{-99} , 0, -10^{-99} to -10^{99}

Internal calculation range:

10^{411} to 10^{-411} , 0, -10^{-411} to -10^{411}







9825A



9825A

The 9825A Desktop Computer, designed principally for use in engineering, research and statistics, has many features previously found only on minicomputers. It is a powerful stand-alone device and is particularly suited to controller applications.

Significant contributions include two-level priority interrupt, live keyboard, direct memory access with input speeds up to 400k 16-bit words per second, high-performance bidirectional tape drive, multidimensional arrays, automatic memory record and load, and extended internal calculation range ($\pm 10^{511}$ to $\pm 10^{-511}$). Some of these are standard features and others are available in optional plug-in read-only memories (ROMs).

HPL, a high-level, formula-oriented language, is easy to learn and is designed for controller applications as well as for data processing. HPL provides for subroutine nesting and flags and allows 26 single variables and 26 multidimensional array variables, limited only by the size of 9825A's memory. Editing of lines and characters is simple, and error locations are identified by a flashing cursor in the display. Fixed- and floating-point formats can be set from the typewriter-like keyboard.

The keyboard has twelve Special Function keys that, combined with the shift key, can handle 24 different operations. These keys help in program writing and in peripheral and instrument control. They can serve as immediate execute keys, as call keys for subroutines, and as typing aids.

With the live keyboard, never before found on a desktop computer, the user can examine and change program variables, perform complex calculations, call subroutines, and record and list programs while the 9825A is performing other operations.

Interrupt capability, available in the Extended I/O ROM, permits the 9825A to act as a controller for several instruments or peripherals requiring attention at unpredictable rates or times.

A 32-character LED display and a built-in 16-character thermal printer provide alphanumeric readout including both capital and lower-case letters. Some European and Greek characters are also available in an optional ROM.

The high-speed bidirectional data cartridge holds 250k bytes of information and has an average access time of 6 seconds to any place on the tape. Bidirectional search speed is 2286 mm/s (90 in./s), and

Pour nous citer :

Base de la Mission nationale de sauvegarde et de valorisation du patrimoine scientifique et technique contemporain, PATSTEC, Documentation du calculateur de bureau Hewlett-Packard HP 9825A (Hewlett-Packard Company), <https://www.patstec.fr/ressources/objets/detail?id=15851>, consulté le 2026-07-28