



HP 1000 A-Series Computer Products

product numbers
2426E and 2426F

The HP 2426E and 2426F Micro 16 Computers provide A600+ processing power in HP's smallest, lowest cost A-Series package. This package is ideally suited for factory floor cell control and other low end real-time applications. Careful design has optimized manufacturability for low cost production. Significantly improved reliability will result in maximum up-time on the factory floor. Both computers include a license to execute RTE-A.

The table-top or rack mountable package is 20.5 cm (8.1 in.) high by 32.5 cm (12.8 in.) wide by 50 cm (19.7 in.) deep. The 2426E and 2426F provide an A600+ CPU card, a memory controller card, and four available card cage slots for additional memory arrays and/or I/O interfaces. The 2426E includes a parity memory controller with 512 kB of parity memory; the 2426F includes an ECC memory controller with 1 MB of ECC memory. Memory array cards can be added to provide up to 6 MB of memory in the 2426F computer, leaving one slot available for an I/O interface. At least one I/O interface and a display terminal or a remote HP 1000 computer system is required in addition to the Micro 16 computer for a supported system.

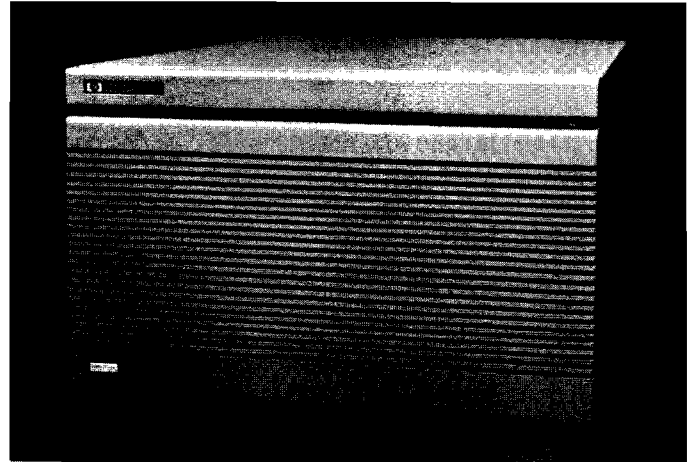
HP 2426E/F Computer operations, managed under the RTE-A Real-Time Executive operating system, provide A-Series power in the small Micro 16 package. RTE-A supports multiprogramming, the 92078A VC+ enhancement for large programs, virtual memory, and extended memory areas for data. Other capabilities include data base management, distributed systems networking, and graphics.

The Micro 16 supports the same peripherals as other A600+ computers. These include display and industrial workstation terminals, low-priced flexible and hard discs, a variety of printers, graphics devices, and measurement and control subsystems.

Despite its relatively small card cage, the Micro 16, coupled with efficient multi-channel interfaces and cost-effective HP peripheral devices, offers users surprising power and excellent value for many different applications. Best of all, Micro 16 computers execute the same programs as the larger A600+, A700, and A900 Computer Systems. This facilitates transfer of applications from central development systems to the Micro 16.

Features

- Compact computer with four available card cage slots in a low priced package for low end applications
- Distributed intelligence I/O with DMA per channel I/O efficiency



- Extensive software support, including:
 - Real-time multiprogram executive operating system
 - FORTRAN 77, Pascal, BASIC, and Macro-assembler programming plus interactive screen editor, and Symbolic Debug/1000 for program development*
 - Image/1000-II Data Base Management software
 - Graphics/1000-II software
 - NS/1000 and DS/1000-IV Networking software
 - Two packages for communication with IBM or IBM plug-compatible systems
 - Programmable controller interface software
 - Forms design and data entry software package
- Large program and data capacity support under RTE-A operating system with:
 - Optional VC+ capability for programs up to 7.75 MB, divided between main memory and disc
 - Virtual memory for data divided between main memory and disc supports transparent processing of data arrays up to 128 megabytes
 - Multiple sharable Extended Memory Areas (EMAs) for large data arrays resident in main memory. Up to 15 EMAs are supportable, each sharable by as many as 63 programs

**NOTE: The right to execute RTE-A license included with the Micro 16 computers does not include the right to develop programs. That requires purchase of the 92077A/R RTE-A original or right to copy product.*

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Micro 16 Computers

- Instruction and program compatibility with other members of the HP 1000 family protects software investment of current OEMs and end users, and gives users access to a broad base of proven software
- Built-in dynamic mapping system, memory protect, time base generator, and self test
- Boot loaders support boot-up from:
 - CS-80 disc drive or its integral cartridge tape
 - A magnetic tape unit
 - An adjacent HP 1000 computer system in a DS/1000-IV Distributed Systems Network
- Remote loading and diagnosis for programming and operation of systems at remote sites
- Front-to-rear air flow through cabinet maximizes system cooling efficiency and equipment reliability
- High reliability and low maintenance cost designed into the Micro 16 package

Processor data

For functional description of the A600+ processor, memory systems, input/output system, diagnostic support, compatibility with other HP 1000 Computers, and A600+ specifications see the A-Series Computer Design and Specifications data sheet on page 1 of the HP 1000 A-Series Hardware Technical Data book, 5953-8761, printed 5/85.

Memory size and available I/O slots

MEMORY (MB)	ADD'L PARITY MEM ARRAY CARDS		ADDITIONAL ECC MEMORY ARRAY CARDS			AV I/O CH
	12103C 0.5 MB	12103D 1.0 MB	12111A 0.5 MB	12111B 1.0 MB	12111C 2.0 MB	

For 2426E Computer with 512 kB Parity Memory Controller

0.5P	0	0	Not supported			4
1.0P	1	0				3
1.5P	2	0				2
2.0P	1	1				2
2.5P	2	1				1
3.0P	1	2				1

For 2426F Computer with 1 MB ECC Memory controller

1.0E	0	0	0	0	0	4
1.5E	0	0	1*	0	0	3
2.0E	0	0	0	1*	0	3
3.0E	0	0	0	2*	0	2
4.0E	0	0	0	1	1	2
5.0E	0	0	0	2	1	1
6.0E	0	0	0	1	2	1

NOTE: A 12038A/B/C Memory Array connector is also required if one or more memory array cards are added to the base memory included with the computer.

* 0.5 MB and 1.0 MB Parity memory array cards can be used instead of ECC memory array cards at a cost savings if the ECC capability is not needed for all of memory.

Exclusions

- Battery backup is not supported; an uninterruptible power supply is recommended for application that needs battery backup
- 25 kHz power is not available
- Support services, such as installation, site prep consulting, and on-site warranty service are NOT included with 2426E/F Computers, but may be purchased separately from your local HP field office.

Electrical specifications

AC Power Requirements

Line voltage: 86-140V (120V +17%/-28%) or 172-276V (240V +15%/-28%), selectable by rear-panel slide switch.

Line frequency: 47.5 to 66 Hz.

Maximum power required: 216W (300 VA).

Power cable: The 2426E/F Computer includes a 3 metre (10 ft) power cable with NEMA 5-15P power plug.

DC Current and Power Available and Required for Supported I/O Interfaces and Plug-in Accessories

See Table 1.

Environmental specifications

Temperature and Altitude

	OPERATING	NON-OPERATING
ALTITUDE - metres - feet	4572 15,000	15300 50,000
TEMPERATURE - deg C - deg F	0 to 60 32 to 140	-40 to +75 -40 to +167

Relative Humidity

5% to 95% non-condensing.

Vibration and Shock

HP 2426E/F Computers are type tested for normal shipping and handling shock and vibration (contact factory for review of any application that requires operation under continuous vibration).

Safety and EMI qualification

Safety Qualification

The 2426E/F Computers meet Underwriter's Laboratory (UL), Canadian Standards Association (CSA), and International Electrotechnical Commission (IEC) safety standards.

Table 1. DC Current and Power Available (+) and Required for Supported I/O Interfaces and Plug-in Accessories (-)

Product Number and Name	Card Cage Slots	Direct Current at			25kHz ac Pwr at 39V rms	Total Power Supply
		+5V	+12V	-12V		
MICRO 16 COMPUTERS						
2426E Micro 16 Computer with 512 kB Parity memory	+4	+12.2A@	+2.1A@	+1.1A@	n/a	+83.9W
2426F Micro 16 Computer with 1 MB ECC memory	+4	+11.9A@	+2.1A@	+1.1A@	n/a	+82.4W
A600+ MEMORY ARRAY CARDS						
12103C 512 kB Parity Memory Array Card	-1	-2.2A@	0A	0A	n/a	-11.2W
12103D 1 MB Parity Memory Array Card	-1	-2.9A@	0A	0A	n/a	-14.8W
12111A 512 kB ECC Memory Array Card	-1	-2.6A@	0A	0A	n/a	-13.3W
12111B 1 MB ECC Memory Array Card	-1	-2.6A@	0A	0A	n/a	-13.3W
12111C 2 MB ECC Memory Array Card	-1	-3.2A@	0A	0A	n/a	-16.3W
INTERFACES						
12005B Asynchronous Serial Interface	-1	-1.6A@	-0.2A@	-0.1A@	n/a	-11.8W
12006A Parallel Interface	-1	-1.9A@	-0.2A@	0A	n/a	-12.1W
12007B HDLC Modem Interface to HP 1000	-1	-2.6A@	-0.4A@	-0.2A@	n/a	-20.5W
12009A HP-IB Interface	-1	-2.1A@	-0.1A@	0A	n/a	-11.9W
12040C/12041B 8-Channel Asynchronous Multiplexer	-1	-2.5A@	-0.1A@	-0.1A@	n/a	-15.2W
12042B/12043A Programmable Serial Interface	-1	-2.6A@	-0.4A@	-0.2A@	n/a	-20.5W
12044A HDLC Direct Connect Interface to HP 1000	-1	-2.4A@	-0.3A@	-0.1A@	n/a	-17.0W
12065A Color Video Monitor Interface	-1	-3.7A@	-0.5A@	-0.02A@	n/a	-25.1W
12072A DS/1000-IV Data Link Slave I/F to HP 1000	-1	-1.5A@	-0.2A@	-0.1A@	n/a	-11.3W
12073A Bisync Modem Interface to HP 3000	-1	-2.6A@	-0.4A@	-0.2A@	n/a	-20.5W
12075A DSN/X.25 (LAP-B) Network Interface	-1	-2.6A@	-0.4A@	-0.2A@	n/a	-20.5W
12076A LAN/1000 Link Interface (MAX. OF ONE PER COMP)	-1	-4.5A@	-0.5A@	-0.38A@	n/a	-33.5W
12082A Bisync Direct Connect Interface to HP 3000	-1	-2.4A@	-0.3A@	-0.1A@	n/a	-17.0W
12092A A-Series Multipoint/Data Link Interface	-1	-2.6A@	-0.4A@	-0.2A@	n/a	-20.5W
37203L+001 HP-IB Extender Card using fiber optic cable communication	-1	-0.8A@	0A	0A	n/a	- 4.1W
37222A Integral Modem Card	-1	-1.2A@	-0.1A@	-0.1A@	n/a	- 8.5W
OTHER PLUG-IN ACCESSORIES						
12008A PROM Storage Module	-1	-2.0A@	-0.1A@	0A	n/a	-11.2W
12010A Breadboard Interface (NOTE A)	-1	-0.8A@	-0.1A@	0A	n/a	- 5.3W
12011A Extender Card	nnc	0A	0A	0A	n/a	n/a
12012A Priority Jumper Card	-1	0A	0A	0A	n/a	n/a

FOOTNOTES: n/s = not specified; nnc = no net change; n/a = not applicable

@ Total power output from the 2426E/F power supply cannot exceed 157W, maximum, nor can the maximum available current from any one power supply output be exceeded. Subtract the current/power usage from the available current/power in the table to confirm that the maximums will not be exceeded.

NOTE A: The requirements given here for the 12010A Breadboard Interface do not include power for user-added circuits.

EMI Qualification

The 2426E/F Computers comply with Federal Communications Commission (FCC) Class A and Verband Deutscher Elektrotechniker (VDE) Level A regulations for Electro Magnetic Interference (EMI).

Physical characteristics

Dimensions

20.5 cm (8.1 in.) high, 32.5 cm (12.8 in.) wide, 50 cm (19.7 in.) deep.

Weight

13.2 kg (29 lb).

Ventilation

One fan provides balanced air flow through the computer card cage from front to rear with a flow design that assures even cooling of all components.

Ordering information

NOTE: For operation, the 2426E/F Computer requires a 12005B terminal interface or 12040C Multiplexer, cable, and a compatible terminal or a DS/1000-IV point-to-point interface linked to another HP 1000 Computer System.

2426E Micro 16 Computer

The 2426E Computer includes:

1. 12102B Memory Controller Card with 512 kB of parity memory, expandable to 3 MB of parity memory.
2. 12105-60001 A600+ CPU Card, instruction set and VCP ROMs, and 12038A Front plane connector.
3. 6-Slot box with power supply and ventilation.
4. 02424-90002 HP 2426E/F Computer Installation and Service Manual.
5. 02156-90001 HP 1000 A600+ Computer Reference Manual.
6. 02103-90005 Computer I/O Interfacing Guide.
7. 92077E+600 Right to Execute RTE-A.

2426F Micro 16 Computer

The 2426F Computer includes:

1. 12110B ECC Memory Controller Card with 1 MB of ECC memory, expandable to 6 MB of memory.
- 2 through 7. Same as items 2 through 7 of the 2426E computer, above.

Cabinets

Although the Micro 16 computers will be adaptable to mounting in 19-inch wide rack cabinets, they are specifically designed to rack in either of the following cabinets:

HP 92211L Taboret Cabinet — provides 52.3 cm (20.6 in.) of vertical panel height.

HP 92211M Taboret Cabinet — provides 42.4 cm (16.7 in.) of vertical panel height.

HP 92211R Minirack Cabinet — provides 57.5 cm (22.6 in.) of vertical panel height. An HP 92211S Slide rail kit is also required for mounting the Micro 16 Computer in the 92211R cabinet.

Optional Software

See Table 2.

Table 2. Optional Software

PRODUCT NUMBER	NAME
92077A/R	RTE-A Operating System (92077A/R is required for program development or system generation)
92078A/R/E	VC+ Enhancement to RTE-A
92836A/R	FORTRAN 77 Compiler
92833A/R	Pascal/1000 Compiler
92857A/R	BASIC/1000C Interpreter-Compiler
92860A/R	Symbolic Debug/1000
92081A/R	Image/1000-II Data Base Mgt System
92861A/R	Version 2.0 Graphics/1000-II Device-Independent Graphics Library
92862A/R	Version 2.0 Graphics/1000-II Advanced Graphics Package
91750A/R	DS/1000-IV Network software
91781A/R	RJE/1000-II Remote Job Entry software
91784A/R	PMF/1000-II Programmatic Mainframe Facility
91790A/R	NS/1000 Network Services
92131A/R	QDM/1000 Quality Data Management software
94250B/R/E	Forms/1000 software
94200B/R	PCIF/1000 Programmable Controller
9420xA/R	Interface software

Interfaces

The HP 2426E and 2426F Computers can use all of the interfaces listed in Table 1.

Peripheral Devices

See pages 5 through 9 of the HP 1000 Ordering Guide, Literature stock number 5953-8773 or a later revision.