

# HEWLETT-PACKARD

## HP Vectra QS/16 and QS/20 Personal Computers



### Data Sheet

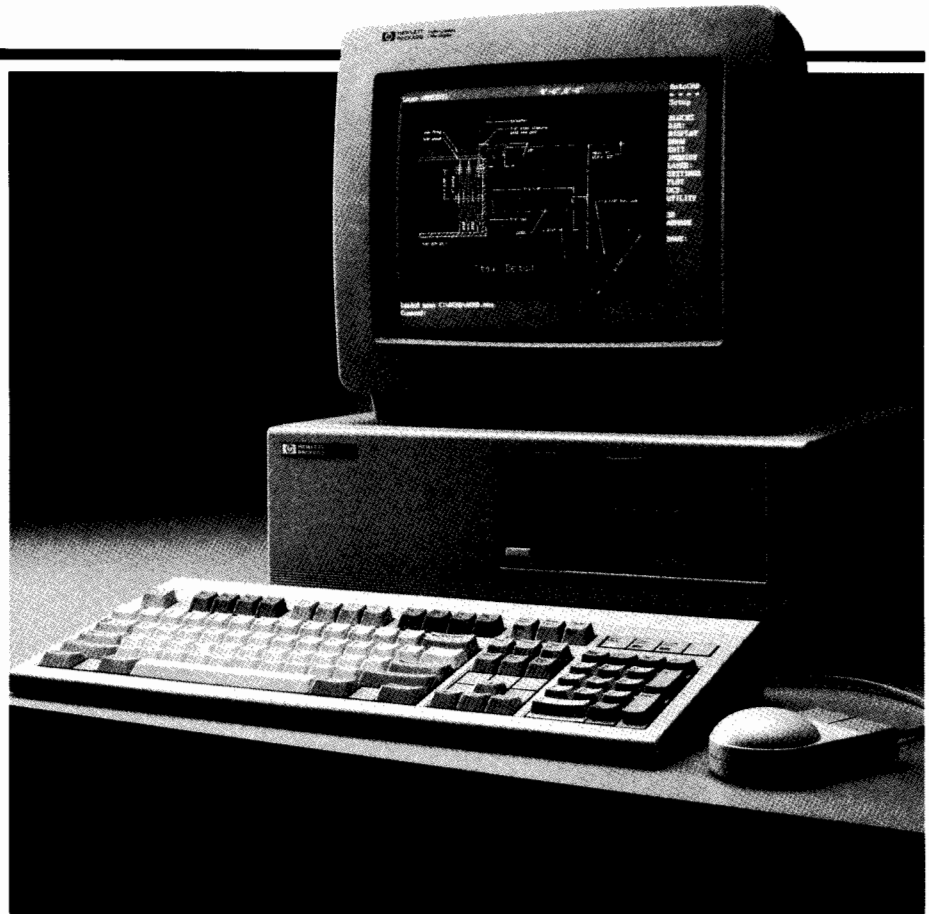
#### Powerful Desktop Workstations

The Hewlett-Packard Vectra QS personal computers are the most powerful desktop members of the HP Vectra PC family. Using the Intel 80386 microprocessor in a compact desktop package, these systems have the power to speed through today's and tomorrow's sophisticated personal computer applications.

The HP Vectra QS personal computers are superb workstations for intensive users of business software. They will enhance your office productivity by making short work of complex spreadsheets, large databases and presentation graphics.

Both the HP Vectra QS/20 PC (20-MHz, 80386) and Vectra QS/16 PC (16-MHz, 80386) systems rely on a combination of advanced microprocessor, memory, and hard disk designs that result in performance several times that of 80286 systems.

The HP Vectra QS PCs are designed to be fully compatible with existing PC/AT industry standards architecture (ISA), as well as with new software that will more fully use the power of the 80386 such as Microsoft's OS/2 operating system and Xenix 386. The Vectra QS PCs also support Microsoft® Windows/386 Presentation Manager, providing multitasking of your existing MS®-DOS applications. The HP Vectra QS PCs can meet today's most demanding needs, as well as tomorrow's.



The HP Vectra QS personal computers are members of HP's product line of high-quality, industry-standard workstations. The family includes a broad range of terminal and personal computer solutions.

#### Advanced Technology

Both the hardware and the system software reflect the HP Vectra QS PC's use of state-of-the-art technology. Mass storage subsystems have been developed to provide superior performance and reliability. The HP Vectra QS/20 PC supports not only 40 Mbyte hard disk subsystems, but also high speed (<17 ms seek time) 108 and 152 Mbyte

hard disk subsystems using the Enhanced Small Device Interface (ESDI). Like the other members of the HP Vectra PC family, the HP Vectra QS PCs make extensive use of surface-mount and VLSI devices to save space and promote reliability.

Significant expandability and flexibility are provided by the HP Vectra QS PCs. For high performance without sacrificing compatibility with the many add-in cards designed for lower-speed machines, the HP Vectra QS PCs have a dual-bus architecture: a 32-bit, 20 or 16 MHz path for lightning-fast access to system

memory, and a 16-bit, 8-MHz industry standard I/O bus. Additionally, because the HP Vectra QS PCs use the latest in memory technology, they can be expanded to 16 Mbytes of high-speed memory without using an I/O slot.

Powerful software utilities are included in every HP Vectra QS PC. Each system includes disk caching for superior performance in disk-intensive applications and terminal emulation for easy connectivity to HP 3000 and other computer systems. The HP Vectra QS PCs also support the latest version of the Lotus®/Intel/Microsoft® Expanded Memory Specification (LIM EMS 4.0) enabling MS-DOS applications written for LIM EMS to broaden the capability of memory installed on your system.

## Basis for Powerful Solutions

The HP Vectra QS PCs form the core of several powerful HP computing solutions.

For CAD/CAE applications, combining an HP plotter and HP graphics tablet with an HP Vectra QS PC results in an outstanding desktop engineering system.

With the Intel 80387 coprocessor, the HP Vectra QS PCs are superb platforms for complex numeric applications.

And, with the HP ScanJet scanner and HP LaserJet series II printer, an HP Vectra QS PC provides the engine for a high-throughput desktop publishing solution.

## Quality for Lasting Value

The name Hewlett-Packard is synonymous with excellence. HP's extensive testing and quality controls provide superior reliability, outstanding quality, and exceptional lasting value. A worldwide service organization is dedicated to

keeping your equipment in first-rate condition, and HP's skilled support professionals provide valuable technical assistance and advice. With all of these advantages, it is understandable that in survey after survey, Hewlett-Packard has been consistently ranked first in customer satisfaction.

## HP Vectra QS/16 and QS/20 PC Configurations

All HP Vectra QS PCs come with 1 Mbyte of user memory, a flexible disk controller, an ESDI or ST-506 hard disk controller, a serial port, and a parallel port:

### HP Vectra QS/16 PC Models

Model	Flexible disk (Mbytes)	Hard disk (Mbytes)	Controller	Video adapter
Model 10 D1400A	5.25 inch (1.2 Mbytes)	none	ST-506	none
Model 40 D1401A	5.25 inch (1.2 Mbytes)	40	ST-506	none
Model 46 D1402A	5.25 inch (1.2 Mbytes)	40	ST-506	VGA
Model 47 D1404A	3.5 inch (1.44 Mbytes)	40	ST-506	VGA

### HP Vectra QS/20 PC Models

Model	Flexible disk (Mbytes)	Hard disk (Mbytes)	Controller	Video adapter
Model 10e D1420A	5.25 inch (1.2 Mbytes)	none	ESDI	none
Model 15e D1427A	3.5 inch (1.44 Mbytes)	none	ESDI	none
Model 46 D1422A	5.25 inch (1.2 Mbytes)	40	ST-506	VGA
Model 47 D1424A	3.5 inch (1.44 Mbytes)	40	ST-506	VGA
Model 100e* D1425A	5.25 inch (1.2 Mbytes)	108	ESDI	none

\* Available Second Calendar Quarter 1989.

---

## Features

### System Processing Unit

- Intel 80386 32-bit microprocessor, running at 20 or 16 MHz clock rate, switchable to 8 MHz from the keyboard.
- 1 Mbyte memory (RAM) standard
- Seven IBM PC/AT-compatible accessory slots:
  - One 8-bit slot
  - Six 16-bit slots
- Four-function controller card: hard and flexible disk controllers, serial and parallel ports (takes one 16-bit slot).
- Three half-height data storage shelves, two with front access
- Socket for Intel 80387 numeric coprocessor.
- HP Human Interface Loop (HP-HIL) port allows up to seven HP-HIL devices (such as mouse, graphics tablet, and barcode reader) to be connected simultaneously without using an accessory slot.
- Clock/calendar and system configuration in CMOS Random Access Memory (RAM) with battery backup.
- Optional keylock provides system security.

---

### Internal Memory

- Interleaved, page-mode memory architecture supports zero wait state memory reads on open pages. Average number of wait states depends on the application being run.
- Fast memory chips (80 ns for HP Vectra QS/20 PCs or 100 ns for HP Vectra QS/16 PCs)
- 1 Mbyte of 32-bit memory standard, expandable to 16 Mbytes without using an accessory slot.
- Expanded Memory Manager software provides LIM 4.0 support for expanded memory applications.
- Shadow RAM area to accelerate BIOS-coded operations.
- 64 Kbytes of Read Only Memory (ROM).
- Sockets for two additional ROM chips.

### Memory Expansion

For the HP Vectra QS/16 PC:

- 1-Mbyte, 100 ns memory upgrade kit (HP D1540A)
- 4-Mbyte, 100 ns memory upgrade kit (HP D1542A)

For the HP Vectra QS/20 PC:

- 1-Mbyte, 80 ns memory upgrade kit (HP D1640A)
- 4-Mbyte, 80 ns memory upgrade kit (HP D1642A)
- HP Vectra QS/16 and QS/20 PC Memory Expansion Adapter for 10- and 16-Mbyte configurations. Also required for 4-Mbyte configurations when 1-Mbyte upgrade kits are used. (HP D1440A).

With these memory modules, the following upgrade paths are possible for the HP Vectra QS/16 and QS/20 PCs:

1 Mbyte—> 2 Mbyte—> 4 Mbyte  
1 Mbyte—> 2 Mbyte—> 10 Mbyte  
4 Mbyte—> 8 Mbyte—> 10 Mbyte  
4 Mbyte—> 8 Mbyte—> 16 Mbyte

---

### Internal Data Storage

Any mix of two flexible disk or tape drives and one hard disk is supported.\*\*

- 5.25-in., 360-Kbyte flexible disk drive (HP 45811A).
- 5.25-in., 1.2-Mbyte flexible disk drive (HP 45812A).
- 3.5-in., 1.44-Mbyte flexible disk drive (HP 45813A).
- 40-Mbyte ST-506 hard disk drive (HP D1297A).
- 108-Mbyte ESDI hard disk drive (HP D1445A)\*.
- 152-Mbyte ESDI hard disk drive (HP D1446A)\*.
- 40-Mbyte internal tape backup mechanism (D1671A).
- Four-function ESDI disk controller card (D1677A). Includes hard disk and flexible disk controller, one serial port, one parallel port (standard).

### Numeric Coprocessor

- Intel 80387 numeric coprocessors:
    - HP D1570A for the HP Vectra QS/16 PC.
    - HP D1670A for the HP Vectra QS/20 PC.
- Coprocessor operates at microprocessor speed.

---

### Video

- HP Video Graphics Adapter support 640 x 480 resolution with 16 colors in IBM VGA mode. Also supports IBM MDA, CGA, EGA and Hercules graphics video standards (HP D1180A).
- HP Video Graphics Adapter, 512-Kbyte video RAM version. Supports 256 colors in IBM VGA mode (HP D1180A Option 1A7).
- 14-inch HP Video Graphics Color Display (HP D1182A for 110 Volts and HP D1182B for 220 Volts). HP D1180A Video Graphics Adapter required.
- 14-inch HP Monochrome Video Graphics Display (HP D1181W, soft-white phosphor; HP D1181G, green phosphor; HP D1181A, amber phosphor). HP D1180A Video Graphics Adapter required.

---

### Keyboard

- Detachable, typewriter-style, 101-key IBM PC/AT enhanced keyboard format with adjustable tilt.
- Industry-standard, DIN keyboard cable connector.
- Full-travel, step-sculptured keys with tactile feedback and color-coded legends.
- Separate numeric and cursor keypads.



\* Available second calendar quarter, 1989.

\*\* Two ST-506 hard disk drives and one flexible drive is also a supported configuration.

## HP-HIL Input Devices

- HP Mouse (HP 46060A).
- HP Touchscreen Plus Bezel (HP D1183A) Note: For HP Color Video Graphics Display (HP D1182A) only.
- HP-HIL Extension Module (HP 46080A).
- Barcode reader (HP 92916A).
- A-size digitizer (HP 46087B).
- B-size digitizer (HP 46088B).
- HP Graphics Tablet, 11 in. x 11 in. tablet (HP 45911A).

## Other Input Devices

- HP SketchPro serial digitizing tablet (HP 7060A).
- HP 700/44 terminal for multiuser systems (HP C1007A, G or W).
- HP 700/41 entry-level ASCII 7-bit terminal (HP C1003A or G).

## System Software

- Microsoft MS-DOS 3.3 for the HP Vectra Personal Computer. Includes Personal Applications Manager (PAM), File Manager and Multiple Character Set Utilities (HP 45951D, 5.25-inch disks; HP 45951E, 3.5-inch disks).
  - Microsoft® Windows/386 Presentation Manager (HP D1651A, Opt ABA, includes both 5.25-inch and 3.5-inch disks).
  - Microsoft® Windows/286 Version 2.1 (HP D1318A, Opt ABx, 5.25-inch disks; HP D1318B, Opt ABx, 3.5-inch disks).
  - Microsoft® Operating System/2 (OS/2) 1.0 Version A for the HP Vectra PC (HP D1302A, Opt AA9 for 5.25-inch disks; Opt AAD for 3.5-inch disks).
- Other software (included in the PC Kit and standard in all models):
- HP Terminal program (HP 24597A)

- Utility disk containing:
  - SETUP program
  - Disk caching software
  - Volume expansion utility for partitioning mass storage
  - HP Expanded Memory Manager Program to provide Lotus®/Intel/Microsoft® (LIM) 4.0 functionality—Speed switching utility

## Documentation

- HP Vectra QS PC Hardware Technical Reference Manual (HP D1410-90002).
- HP Vectra System BIOS Technical Reference Manual (HP 45945-60031).

## Physical Characteristics

**System Dimensions:** (without keyboard) 16.7 in. wide x 15.4 in. deep x 6.3 in. high (42.5 cm x 39.0 cm x 16.0 cm).

**System Footprint:** 1.8 sq. ft. (0.17 m<sup>2</sup>), without keyboard.

**System Weight:** (Not including keyboard or monitor) 33 lbs. (15kg).

**Keyboard Dimensions:** 18.4 in. wide x 7.8 in. deep x 1.4 in. (2.2 in.) flat (standing) position (46.8 cm x 19.8 cm x 3.4 cm [5.5 cm]).

## Environmental Conditions

- Operating temperature: 41° to 104° F (5° to 40° C).
- Non-operating temperature: -40° to 158° F (-40° to 70° C).
- Humidity: 15% to 80% (noncondensing).
- Operating Altitude: 15,000 ft. (4.6 km).
- Non-operating altitude: 50,000 ft. (15.2 km).
- Note: Operating temperature and humidity range may vary with data storage media.

## Input Voltage

- Auto-ranging power supply.
- 90 to 132 V lower range over 47 to 63 Hz.
- 198 to 264 V upper range over 47 to 63 Hz.

## Power Consumption

- 456W (487W) maximum with 110V (220V) convenience outlet used at 150 W.

## Heat

- 710 BTUs/hour maximum.

## Power Availability

- 176 W peak for 10 sec. duration, 134 W continuous.
- Accessory cards: 9.0 A at 5V; 0.39 A at 12 V; 0.25 A at -5 V; 0.25 A at -12 V

## Regulatory Compliance

### Radio Frequency Interference

- FCC Class B.
- FTZ 1046/84 Level B (VDE Radio Protection Mark) pending.
- SABS approval.
- VCCI approval.

### Safety Approvals

- UL listed.
- CSA, TUV certified.
- Nemko, FEI pending.
- IEC 380/435 compliance

### Datacomm

- Germany, Belgium, UK and Nordic network-pending.

### Ergonomics

- Complies with German standard ZH1/618.

*Lotus is a U.S. registered trademark of Lotus Development Corporation.*

*Microsoft is a U.S. registered trademark of Microsoft Corporation.*

*Technical information in this document is subject to change without notice.*

© Copyright 1989 Hewlett-Packard Company

Printed in U.S.A. M0189  
5959-2534