MicroPDP-11/83

The Most Powerful 16-bit Q-bus Supermicrosystem

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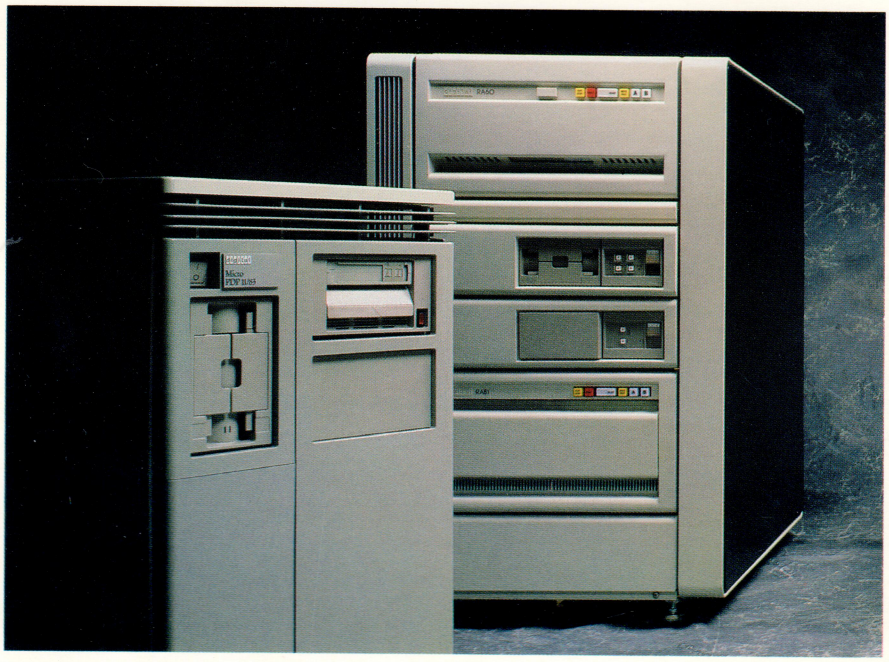


If you're looking for more power and greater multiuser, multitasking capability in a 16-bit supermicrosystem, you can stop searching. The MicroPDP-11/83 is the high-performance supermicrocomputer for all of your 16-bit computing needs.

The MicroPDP-11/83 combines Digital's 18-MHz J-11 chip and a companion floating-point accelerator chip with a new private memory interconnect to produce system throughput that approaches PDP-11/70 integer performance! This impressive chipset and PMI-memory combination boosts realtime computing power to unprecedented supermicro performance levels.

This powerful MicroPDP-11 is fully compatible with the 16-bit PDP-11 architecture and its entire collection of system and application software. You may also choose from a wide array of mass-storage devices and communications interfaces that are all compatible with the Q22 bus. As part of this comprehensive set of options, the MicroPDP-11/83 introduces support for Digital's high-capacity, high-performance 205- and 456-Mbyte disk subsystems. Disks that can give the MicroPDP-11/83 storage formerly available only on much larger systems.

Imagine having all this power right in your office. There is an enclosure so small and quiet that it can sit right under your desk. And for your applications that require more than 200 Mbytes of disk space or situations with large I/O requirements, your system can be configured in a 40-inch-high cabinet for your data processing center.

The MicroPDP-11/83 extends the MicroPDP-11 line by offering more power, more storage capacity, greater I/O capability, room for more options. And it's available to a greater number of concurrent users. Who could ask for more in a 16-bit supermicrocomputer?

Highlights

- Powerful, high-performance CPU that features Digital's new 18-MHz J-11 chip.
- Private Memory Interconnect (PMI) for high-speed data transfers between the CPU and memory.
- Memory expansion up to 4 Mbytes with high-density ECC MOS memory. Available on 1- or 2-Mbyte quad-height boards using 256-Kbyte RAMs.
- 8-Kbyte direct-mapped cache memory for increased memory transfer rates and processor speed.
- Standard hardware floating-point accelerator for very fast instruction execution.
- Complete PDP-11 instruction set including the Extended Instruction Set (EIS) for compatibility with the full line of Q-bus PDP-11 processors.
- Supports a comprehensive set of mass-storage subsystems (from 400-Kbyte flexible diskettes to 456-Mbyte disks), communications interfaces, and special purpose I/O devices.
- Choice of system enclosures including a floorstand model with casters and a 40-inch-high cabinet.
- Twelve option slots in the floorstand version's backplane, and 16 in the cabinet version.
- Supported by an extensive number of operating systems, high-level languages, and development tools.
- Supported by more than 2,400 third-party application packages.
- Easily integrates into distributed processing environments or into local area networks.

CPU Power Equivalent to That of Much Larger Minicomputers.

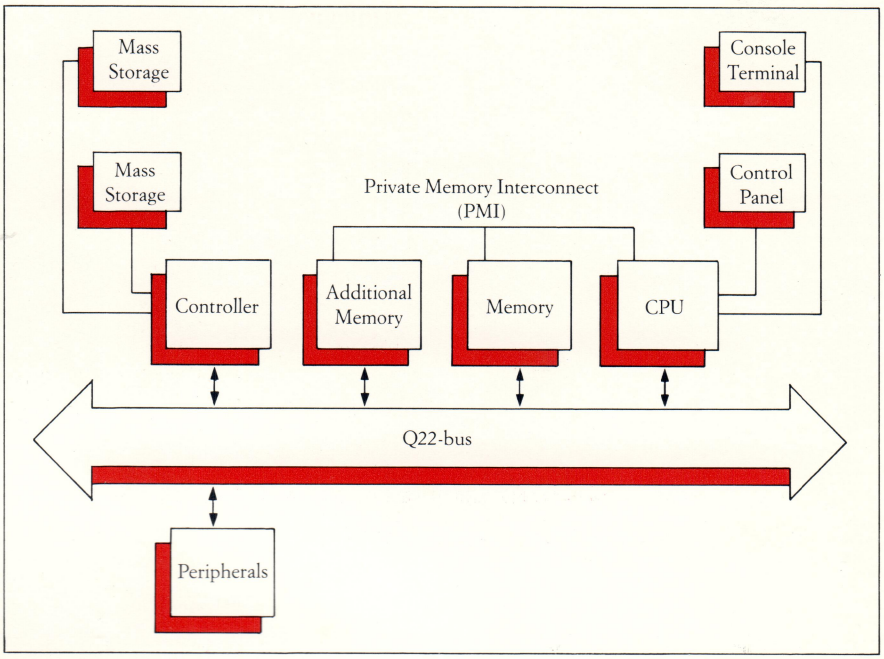
The MicroPDP-11/83 is based on the high-speed, 18-MHz J-11 microprocessor. This new CPU provides higher levels of performance to a greater number of users – more users than any of the other MicroPDP-11 systems can accommodate.

The MicroPDP-11/83 CPU module comprises:

- The J-11 chip, including 16-bit I/O, a 32-bit internal data path, addressing capability up to 4 Mbytes, maximum clock rate of 18 megahertz, and on-chip memory management.
- A floating-point accelerator chip that is standard in hardware.
- The complete PDP-11 instruction set including the Extended Instruction Set (EIS).
- An 8-Kbyte, direct-mapped cache memory.
- A Q22-bus interface that supports block-mode DMA and up to four Mbytes of physical memory.
- A 32-Kbyte, erasable read-only memory (ROM) for bootstraps and diagnostics.

The Private Memory Interconnect (PMI), one of the latest enhancements in supermicrocomputer technology, provides a high-performance communications path between the CPU and memory. Used with the MicroPDP-11/83 J-11 microprocessor, PMI allows high-speed data transfers including double-word reads. This highly efficient architecture can accelerate program execution by as much as 50 percent in some applications.

With the performance boosters found in the 18-MHz J-11 chip, the floating-point accelerator chip, and the PMI architecture, the MicroPDP-11/83 can support 33 users and more memory-resident programs than any other Q-bus PDP-11, and still deliver maximum throughput.



Micro PDP-11/83 System Block Diagram

Storage Capacity for Your Most Demanding Applications.

The Q-bus links the MicroPDP-11/83 supermicrocomputer with a compatible set of mass-storage subsystems. This collection of storage devices offers maximum configuration flexibility and more growth potential for your evolving system needs.

The following mass-storage devices can be integrated into the MicroPDP-11/83 system chassis:

- 95-Mbyte TK50 streaming cartridge-tape subsystem.
- 71-Mbyte RD53 Winchester fixed-disk subsystem.

- 31-Mbyte RD52 Winchester fixed-disk subsystem.
- 800-Kbyte RX50 dual-diskette subsystem using two 5.25-inch (13.34-cm) flexible diskettes.

Storage devices that can be integrated into the MicroPDP-11/83 cabinet include:

- 205-Mbyte RA60 removable-media disk subsystem.
- 456-Mbyte RA81 Winchester fixed-disk subsystem.
- 40-Mbyte TSV05 streaming-tape subsystem.
- 52-Mbyte RC25 that combines a 26-Mbyte Winchester fixed-disk unit and a 26-Mbyte sealed removable-cartridge disk unit.
- 10.4-Mbyte RL02 removable-media disk subsystem.

The RA60 and RA81 have not been offered until now on a MicroPDP-11 system. They can give you the large-system storage capability that was formerly not available.

The Q-bus also has a wealth of peripherals developed for it by Digital. You can select from a wide range of video display and hardcopy terminals, printers, communications devices, and special purpose I/O devices.

The Right Enclosure for Your Configuration.

You'll see the advantages of the MicroPDP-11/83 when you tailor the system to match your precise application requirements.

The newest package in the supermicrocomputer family, and perfect for the MicroPDP-11/83, is the 13-inch-wide (33-cm) floorstand enclosure with casters. This package features a 12-slot backplane and space for a 5.25-inch cartridge-tape subsystem and up to three additional 5.25-inch mass-storage disk subsystems. There is ample space for memory and communications options and room for connecting as many as 21 I/O devices.

Another new enclosure is the microsystem's 41.7-inch-high (106-cm) cabinet. This cabinet accommodates two MicroPDP-11/83 chassis for a total of sixteen backplane slots. This number of slots allows for plenty of expansion for additional options. The cabinet also features space for various combinations of high-capacity, high-performance disk subsystems. The I/O distribution panel provides panel inserts for as many as 37 I/O devices.

These packages may be expanded by adding external communications devices, mass-storage devices, and peripherals.

Software That Is Proven and Available.

For the PDP-11 family, thousands of software products already exist to serve virtually every area of education, science, government, business, and industry. In fact, a big advantage in selecting the MicroPDP-11/83 supermicrocomputer is the huge collection of compatible system software resources.

The MicroPDP-11/83 runs Digital's 16-bit operating systems. These are proven operating systems that meet a variety of demands efficiently and effectively—from small, dedicated laboratory and industrial control systems to large, multiuser information management systems.

Micro/RSX and Micro/RSTS are tailored specifically for the MicroPDP-11 family. Micro/RSX is a low-cost version of Digital's larger RSX-11M-PLUS. It combines the well-known realtime capabilities of RSX with refined commercial capabilities. Micro/RSTS is a subset of the RSTS/E system and supports all of the RSTS/E system calls and programming facilities. Both are distributed on the new TK50 cartridge tape as well as on RX50 flexible disks, and they are customer-installable.

Also available are RSX-11M-PLUS, RSX-11M, and RSX-11S, three multiuser realtime systems; RSTS/E, a multiuser, timesharing system environment; RT-11, a single-user realtime system; CTS-300, for small business timesharing; ULTRIX-11, Digital's enhanced native mode UNIX* software; MicroPower/Pascal, an advanced development tool kit; and DSM-11, a multiuser operating system, with high-performance data management capability, that includes the MUMPS* language.

Digital's own layered software includes a wide variety of high-level languages and data management tools. Supported high-level languages include BASIC, C, COBOL, CORAL-66, DIBOL-83, FORTRAN-77, FORTRAN IV, MUMPS, and PASCAL. Data management tools include DATATRIEVE, a query report-writing and data-maintenance system; AIMS, a multikey ISAM record management product; and FMS and INDENT forms management systems. All of these increase programmer productivity and allow nonprogrammers to develop their own applications.

Integration Means Productivity.
A wide variety of communications hardware and software is available to make the MicroPDP-11/83 supermicrocomputer available to the widest possible range of communications and networking applications. Digital's powerful DECnet software supports communications between Digital's systems, and between Digital's systems and other manufacturers' systems. DECnet offers task-to-task communications, remote file access, utilities for network file transfer, heterogeneous network command terminal support, and network resource sharing.

A high-performance, synchronous communications controller (DEQNA) connects the MicroPDP-11/83 supermicrocomputer to Digital's Ethernet local area network. Ethernet allows large amounts of data to be exchanged at high rates among various departments of an organization, whether they are located in one building or in a complex of buildings.

Digital's Commitment to Service.
Like all of Digital's products, the MicroPDP-11/83 and its system software have been designed for reliability. They are manufactured to strict quality-control standards that ensure that each unit meets its design goals. Digital's customer services organization is ready to provide quality support when required. Digital is the complete service vendor and has the products and tools to achieve its goal of customer satisfaction.

To Order Your MicroPDP-11/83...
Find out just what a MicroPDP-11/83 can do for you. Call your local Digital Sales office or Digital OEM for an indepth discussion of Digital's MicroPDP-11/83 supermicrocomputer and PDP-11 software solutions. Put the MicroPDP-11/83 to work for you!

Specifications

Power Requirements

	Floorstand with casters	Cabinet
120 Vac nominal	8.8 amperes	24 amperes
240 Vac nominal	4.4 amperes	12 amperes
120 V phasing	Single	Single
240 V phasing	Single	Single
120 Vac tolerance	90-128 VRMS	90-128 VRMS
240 Vac tolerance	176-256 VRMS	176-256 VRMS
120 Vac frequency	47-63 Hz	59-61 Hz*
240 Vac frequency	47-63 Hz	49-51 Hz*
Input power	690 watts	2200 watts maximum

Acoustics

	Floorstand with casters		Cabinet	
Acoustics Per ISO 7779	120 V	240 V	120 V	240 V
LNPE	6.0 B	6.0 B	7.1 B*	6.7 B*
LPA	45 dB	45 dB	57 dB*	55 dB*

Operating Environment

Temperature range	59-90°F (15-32°C)
Relative humidity	20-80% noncondensing
Maximum operating altitude	8,000 feet (2.4 km)

Physical Characteristics

	Floorstand with casters	Cabinet
Height	24.5 in 62.2 cm	41.7 in 106.0 cm
Width	13.0 in 33.0 cm	25.7 in 65.6 cm
Depth	27.5 in 69.8 cm	36.0 in 91.4 cm
Weight	133 lb 60 kg	358-685 lb 163-311 kg (depending on mass storage selected)

**With an RA81 disk.*

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