

Transduction

NuPDP_Q™

Qbus Replacement Systems

Finally! Get rid of your old PDP-11 without giving up your existing applications or special equipment.

We understand your dilemma: you want to free yourself of the maintenance overhead of your PDP-11, but you want to retain your investment in application software and I/O equipment. Now you can have both. With NuPDP_Q your real-time applications can be running with a new CPU, memory, and mass storage devices without the hassle of hardware reconfiguration or software modification.

Eliminate

- *Obsolete disks and tapes*
- *High maintenance costs*
- *Unreliable equipment*

Preserve

- *Existing applications*
- *Specialized Qbus I/O interfaces*
- *Packaging and cables*

Improve

- *Significant performance increase*
- *New equipment, new warranty*
- *High performance disk*

Compatibility

- *Software compatible with existing applications*
- *Hardware compatible*
- *Diagnostic compatible*

Qbus Support

- *Support for multiple Qbus devices*
- *Follows all Qbus rules and specifications*
- *Both Qbus PIO and DMA data transfers are supported as well as all four Qbus interrupts*
- *Qbus PIO and DMA data transfers occur at maximum Qbus speeds. Throughput is limited only by the Qbus device(s).*

***Choose the
NuPDP_Q
solution
that best
meets your
requirements***



PDQ on a Board - PDQ-1000

PDP on a board - PDQ-1000 is a brand new processor that replaces your PDP-11 processor, memory, disks and tape drives. Your current PDP-11 disk images can be transferred onto PDQ-1000's self-contained hard drive and run without modification. Existing specialized Qbus controllers and equipment are supported without any configuration changes. This model is ideal for applications embedded in computer bays where packaging and cabling changes are not practical. The PDQ-1000 allows you to retain your PDP-11 chassis, Qbus controllers, and cables.



PDQ-3200 PDP-11 Replacement

NuPDP_Q Replacement Systems are complete PDP-11 system replacements for the PDP-11 chassis, CPU, memory, and mass storage. Your current PDP-11 disk images can be transferred onto a modern NUPDP_Q system.

Two NuPDP_Q systems are offered: PDQ-2000 is the PDQ-1000 installed in a brand new Qbus chassis with space for your Qbus controllers. The PDQ-3200 allows you to replace your entire system with an industry-standard platform offering updated versions of popular legacy Qbus interfaces.

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PDQ-1000

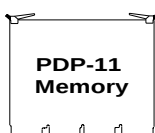
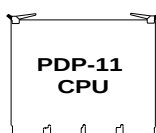
Qbus Replacement Systems



Drop a new engine in your PDP-11. Installed in your PDP-11 chassis, the PDQ-1000 replaces your PDP-11 processor, memory, and hard drives with a new state-of-the-art processor, memory and hard drive. The PDQ-1000 provides superior performance for the most demanding applications and provides a Qbus interface to support the wide variety of DMA, PIO, and interrupt Qbus controllers.

PDQ-1000 allows you to preserve your investment in hardware and software while increasing performance, improving reliability, and lowering maintenance costs. Model PDQ-1000 is designed to prolong the use of PDP-11 applications by upgrading PDP-11 systems in applications that depend on Qbus controller cards and the devices attached to these controllers.

➤ **Replace all of these:**



Disk Controller & Drive

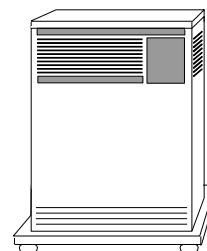
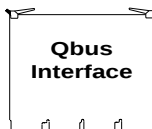
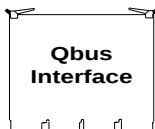


Tape Controller & Drive

➤ **With PDQ-1000**



➤ **Your specialized Qbus controllers remain in the PDP-11**



➤ **Result: the same functionality with superior performance compared to the old PDP-11.**

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PDQ-2000

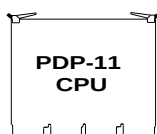
Qbus Replacement Systems



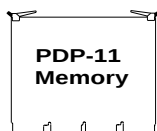
Replace your PDP-11 with a brand new system. The PDQ-2000 replaces your PDP-11 processor, memory, hard drives and chassis with a new state-of-the-art system while allowing you to retain your existing Qbus controllers. The PDQ-2000 consists of all new equipment: a Qbus chassis with power supply and Qbus backplane; a PDQ-1000 processor with memory and disks; and five available quad-width slots (or eight dual-width slots) for your Qbus controllers.

PDQ-2000 allows you to preserve your investment in hardware and software while increasing performance, improving reliability, and lowering maintenance costs. The PDQ-1000 is designed to prolong the use of PDP-11 applications by upgrading PDP-11 systems in applications that depend on Qbus controller cards and the devices attached to these controllers.

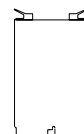
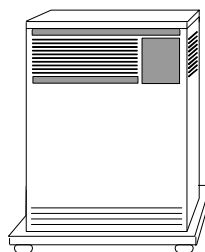
➤ **Replace all of these:**



PDP-11
CPU



PDP-11
Memory



Disk Controller & Drive

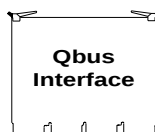


Tape Controller & Drive

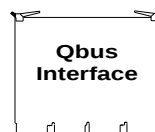
➤ **With PDQ-2000**



➤ **Retain your specialized Qbus controllers**



Qbus
Interface



Qbus
Interface

➤ **Result: the same functionality with superior performance compared to the old PDP-11.**

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PDQ-3200

Qbus Replacement Systems



Replace your PDP-11 and Qbus controllers with brand new equipment. The PDQ-3200 is a complete state-of-the-art system that replaces your outmoded PDP-11 with its slow memory and hard-to-maintain disks and tapes. PDQ-3200 allows you to run your existing application software and offers updated versions of DEC I/O interfaces.

Complete State-of-the-Art System

- The PDQ-3200 system offers a removable SATA system drive and an optional removable data drive.
- Supports up to 4 MB PDP memory.
- Supports Fast Ethernet adapters for 100 Mbps network connections to other systems using network protocols like DECnet and TCP/IP.
- Offers your choice of DHV11, DRV11, DRV11-J, DRV11-WA, DRQ3B, and IEQ11 interfaces. Other interfaces can be designed for your application. Ask your sales representative about your special requirements.
- Supports speeds of more than 25 times the PDP-11 speed.

QP Option Modules

QP option modules are offered to replace popular DEC I/O interfaces. Custom modules can be designed for your application as special projects. Check with your sales representative for more information about special projects.

DRQ3B	DQP-1500-AA
DRV11	DQP-1300-AA
DRV11-J	DQP-1400-AA
DRV11-WA	DQP-1100-AA Standard DQP-1100-AB Long Line
DHV11, DHQ11, DZQ11, CXY08	CCI1016AA
DEQNA	CEI-1000-A
IEQ11-A	DQP-3100-AA
External Unibus Support Adapter	AQP-2302-AA



QP Option Module

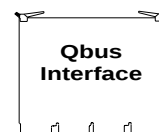
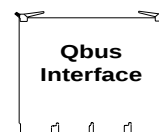
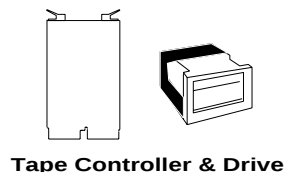
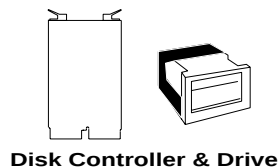
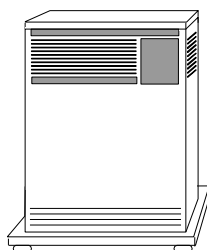
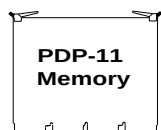
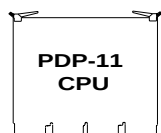
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PDQ-3200

Qbus Replacement Systems



Replace all of these:



With the PDQ-3200 model that fits your application



Model	PDQ-3200-AA	PDQ-3200-AB	PDQ-3200-BA	PDQ-3200-BB
Added Data Drive		√		√
External Qbus Support			√	√
External Unibus Support	Optional	Optional	Optional	Optional



Optional External Unibus support:

Retain Unibus equipment with the AQP-2302 external Unibus adapter and a Unibus chassis.

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NuPDP_q

Specifications

	PDQ-1000	PDQ-2000	PDQ-3200
Physical	Standard quad-width board, 26.7 cm by 21.3 cm. Requires 4 quad-width Qbus slots to install.	Chassis measuring 13.4 cm x 48.3 cm x 43.2 cm (5.25" x 19" x 17")	Standard 4U rack-mount chassis (20 inch depth)
Processors Supported	PDP-11/03, PDP-11/23, PDP-11/53, PDP-11/73, PDP-11/83, PDP-11/93		
Disks Emulated	RK11D, RLV11, RLV12, RP11C, RQDX3, RQZX1, RXV11, RXV21		
Tapes Emulated	TSV05, TQK25, TQK50, TQK70		
PDP-11 Memory	4 MB		
Clock	KW11-L emulation		
Hard Drive	Two IDE ATA 100 ports, one port reserved	Two IDE ATA100 ports, one port reserved	Removable 80GB SATA drive - one system drive, one optional data drive
Ethernet	Two ports: • One DEQNA emulation • One reserved	Two ports: • One DEQNA emulation • One reserved	10/100 port for DEQNA emulation
RS232 Serial Port (COM1,COM2)	Console (TT0) and DLV11 (TT1)		Console (TT0)
• Speed	38.4 Kb maximum		
USB	Reserved		
Keyboard, VGA	Can be configured by user to be the console (TT0)		
Mouse	Not supported		
Printer	LPV11		
Power	5.5 amps @+5 VDC	250 W @ 115/230 VAC, 50/60 Hz auto-sensing	300 W @ 115/230 VAC, 50/60 Hz auto-sensing
QP Slots for I/O	None	None	5
Qbus Slots for I/O	System specific	5 quad-width	NA
Qbus Loading	1dc load, 2 ac loads		NA
Qbus Drive Capability	19 additional dc loads		NA
Operating Environment			
• Temperature	10° to 50° C (50° to 120° F)		
• Relative Humidity	10 to 90% non-condensing		
Storage Environment			
• Temperature	-40° to 60° C (-40° to 140° F)		
• Relative Humidity	5% to 90% non-condensing		

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NuPDPq

Ordering Information

PDQ-1000 - PDP on a Board



Model	Description
PDQ-1000-AA	PDP-11 replacement controller consist of a quad-width Qbus module with CPU, hard drive, memory, and license/ key. Requires 4 Qbus slots for BA23 and BA123. Requires 3 Qbus slots for the BA2xx style enclosures.

PDQ-2000 - PDP-11 Replacement System



Model	Description
PDQ-2000-AA	PDP-11 replacement system consisting of a PDQ-1000-AA in a Qbus chassis with 5 available quad-width Qbus slots. Includes slides for rack mounting.

PDQ-3200 - PDP-11 Replacement Systems



Model	Features	Description
PDQ-3200-AA	Standard System	PDP-11 replacement system with a removable system drive. Supports up to 5 QP option modules. Includes slides for rack mounting.
PDQ-3200-AB	System with Removable Data Drive	PDP-11 replacement system with a removable system drive and a removable data drive. Supports up to 5 QP option modules. Includes slides for rack mounting.
PDQ-3200-BA	System with External Qbus Support	PDP-11 replacement system with a removable system drive and support for an external Qbus. Supports up to 5 QP option modules. Includes slides for rack mounting and a Qbus interconnect kit. Order Qbus expansion chassis separately.
PDQ-3200-BB	System with Removable Data Drive and External Qbus Support	PDP-11 replacement system with a removable system drive, a removable data drive and support for an external Qbus. Supports up to 5 QP option modules. Includes slides for rack mounting and a Qbus interconnect kit. Order Qbus expansion chassis separately.

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PDQ-3200

Option Modules



QP option modules are plug-and-play replacements for popular legacy Digital interfaces. Option modules install in a PDQ-3200 system and offer the same functionality as the Digital equivalent, thus allowing users to migrate from their Qbus systems to 3200 systems and maintain their investment in software and user equipment.

New Technology

- *State-of-the-art design*
- *New equipment, new warranty*

Software Compatible

- *Application compatible*
- *Diagnostic compatible*

Hardware Compatible

- *Signal compatible*
- *Connector & switch compatible*
- *Use existing user cables and equipment*



QP Interconnect

QP option modules install into a single slot and connect to the NuPDPo bus adapter and, optionally, other QP option modules by way of QP interconnects.

Digital Module	Digital Interface	Part Number
M3104	DHV11	CCI1016AA
M3106	DZQ11	CCI1016AA
M3107	DHQ11	CCI1016AA
M3119	CXY08	CCI1016AA
M7504	DEQNA	CEI-1000-A
M7651	DRV11-WA	DQP-1100-AA
M7651 + M9056	DRV11-WA + Long Line	DQP-1100 AB
M7658	DRQ3B	DQP-1500-AA
M7941	DRV11	DQP-1300-AA
M8049	DRV11-J	DQP-1400-AA
M8634	IEQ11-A	DQP-3100-AA

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PDQ-3200

Option Modules

DQP-1100

DEC Module	M7651 + M9056 for differential
Interface Name	DRV11-WA
Function	16-bit parallel user interface for PIO and DMA transfers between a Qbus system and external equipment. It can also serve as a link between a Qbus system and another computer with a DRV11-WA or DR11-W compatible interface. 22-bit addressing capability and permits data transfers at rates up to 400 Kbps in burst mode
Power	0.5 amps @ +5V, 0.3 amps @ +3.3V
User Connection	Two 40-pin connectors, two 60-pin connectors for differential
Part No: DQP-1100-AA	Standard package includes controller, QP interconnect, adapter panel, adapter cable, and test cable.
Part No: DQP-1100-AB	Differential Package includes controller, QP interconnect, differential adapter panel, adapter cable, and test cable.



DQP-1300

DEC Module	M7941
Interface Name	DRV11
Function	16-bit parallel user interface for transfers between a Qbus system and parallel line TTL-based user equipment. It can also serve as a link between a Qbus system and another computer with a DRV11 or DR11-C compatible interface.
Power	0.5 amps @ +5V, 0.3 amps @ +3.3V
User Connection	Two 40-pin connectors
Part No: DQP-1300-AA	Standard package includes controller, QP interconnect, adapter panel, adapter cable, and test cable.



DQP-1400

DEC Module	M8049
Interface Name	DRV11-J
Function	Parallel interface that provides 64 input/output data lines. Interrupt ability up to 16 lines with programmable interrupt vectors and program selection of fixed or rotating interrupt priority.
Power	0.5 amps @ +5V, 0.3 amps @ +3.3V
User Connection	Two 50-pin connectors
Part No: DQP-1400-AA	Includes controller, QP interconnect, adapter panel, adapter cable, and test cable.



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PDQ-3200

Option Modules

DQP-1500		
DEC Module	M7658	
Interface Name	DRQ3B	
Function	High performance 16-bit parallel interface designed for real-time data collection or for high-speed inter-processor communications. It provides PIO and DMA transfers between a Qbus system and external equipment at transfer rates of up to 1.3 MHz of 16-bit words.	
Power	1 amp @ +5V, 0.3 amps @ +3.3V	
User Connection	Two 50-pin connectors	
Part No: DQP-1500-AA	Standard package includes controller, QP interconnect, adapter panel, adapter cable, and test cable.	

DQP-3100		
DEC Module	M8634	
Interface Name	IEQ11	
Function	DMA controller that interfaces a Qbus system to two independent channels that are compatible with both the IEC and IEEE instrument buses. The instrument buses conform to both the European Standard IEC 625-1 and the U. S. Standard IEEE 488.1-1987. Each instrument bus can have up to fifteen devices, including the DQP-3100, in a sequential configuration.	
Power	0.5 amps @ +5V, 0.3 amps @ +3.3V	
User Connection	IEEE IEEE-488 standard 24-pin connector IEC IEC-625 standard 25-pin connector One connector per channel.	
Part No: DQP-3100-AA	Includes controller, QP interconnect, and IEC to IEEE488 cables. Requires two rear-panel exit slots for two-line operation	

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PDQ-3200

Option Modules

CCI1016		
DEC Module	M3104, M3106, M3107, M3119	
Interface Name	DHV11, DZQ11, DHQ11, CXY08	
Function	16-port RS232/RS422 asynchronous communication controller with external DB25 user connection.	
Power	0.6 amps @ +5V	
User Connection	Sixteen DB25-F connectors	
Line Parameters	Data bits: 5, 6, 7, 8 Stop bits: 1, 1.5, 2 Parity: Odd, even, or no parity Baud Rates: 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 7200, 9600, 19.2K, 38.4K bps.	
Part No: CCI1016AA	Standard package includes controller, distribution panel, interconnect cable, and test cables.	

CEI-1000		
DEC Module	M7504	
Interface Name	DEQNA	
Function	Single-port Ethernet controller that enables higher-level software protocols, such as DECnet, to communicate over an Ethernet network. The CEI-1000 conforms with the IEEE Specification 802.3 for Local Area Networks	
Power	1 amp @ +5V	
User Connection	Standard RJ45 Ethernet connector	
Part No: CEI-1000-A	PCI Ethernet controller.	

AQP-2302		
Function	External Unibus adapter allows Unibus controllers in an external chassis to be accessed from the NuPDP system.	
Power	2.5 amps @ +5V, 0.5 amps @ +3.3V	
Part No: AQP-2302-AA	Includes controller, QP interconnect, Unibus module, adapter panel and adapter cables.	