PDP-11 Qbus Replacement System

Model NuPDP$_Q$ 4200

Your PDP-11 has been a dependable workhorse for decades, but,

- *What do you do if it stops running?*
- *Can you obtain spare parts?*
- *Do you have knowledgeable staff to troubleshoot the old system?*

You want to get rid of the high maintenance overhead, but how do you connect a new system to your expensive, hard-to-replace externally connected equipment?

You might be able to replace it all –
system, software and external equipment –
for a significant capital investment;

Or, save time and money and choose NuPDP 4200:

- *Retain your investment in software.*
- *Preserve your investment in external equipment.*
- *Migrate to a brand new system with a new warranty.*

NuPDP 4200 is a modern, industry-standard system that replaces the PDP-11 chassis, CPU, memory, and mass storage. Your current PDP-11 disk images can be transferred onto a NuPDP system running your existing operating system and applications.

You can select from a variety of new technology controllers such as the DRV11-WA and DRV11-J to replace popular legacy Qbus interfaces. When a new interface is not available for your application, you can choose to retain your interfaces in a Qbus chassis connected to the NuPDP, or we can design a replacement interface.

Eliminate

- *Obsolete disks and tapes*
- *High maintenance costs*
- *Aging, unreliable equipment*

Preserve

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

Improve

- *Speeds 25 times faster than a PDP-11*
- *New equipment, new warranty*
- *High performance disk*

Qbus Support

- *Support for multiple Qbus devices*
- *Follows all Qbus rules and specifications*
- *Both Qbus PIO and DMA data transers 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)*

PDP-11 Compatibility

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

Specifications

Physical	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	RLV11, RLV12, KDA50, RQDX3, RQZX1, RXV11, RX21
Tapes Emulated	TU58, TK25, TK50, TK70
Software Supported	RSX-11M, RT11
PDP-11 Memory	4 MB
Hard Drive	Removable 320GB SATA drive - one system drive included, one data drive optional
RS232 Serial Port (COM1)	Console (TT0) only
Serial Speeds	50, 75,110,134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 7200, 9600, 19.2K, 38.4K bits/sec
USB	Not supported
Keyboard, VGA	Not supported
Mouse	Not supported
Printer	LPV11
Power	300 W @ 115/230 VAC, 50/60 Hz auto-sensing
Slots for Internal I/O	9
Operating Environment	
Temperature	10° to 40° C (50° to 104° F)
Relative Humidity	20 to 80% non-condensing
Storage Environment	
Temperature	-40° to 60° C (-40° to 140° F)
Relative Humidity	10% to 90% non-condensing

Ordering Information

All NuPDP 4200 systems support external Qbus capability. The system comes with a KWV11-C clock. Qbus interconnect is offered separately.
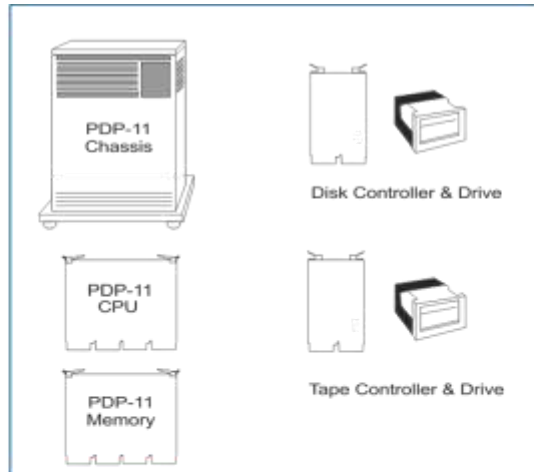
Description	Model
Base System	PDQ-4200-AA
Interconnect kit for BA23/123	CAQ-2101-AA

Option modules offered are listed below and are described on the following pages.

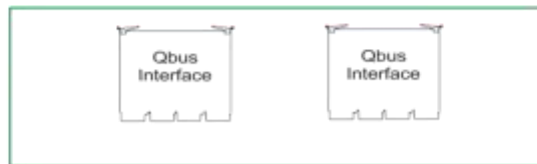| DEC Module	DEC Interface	Option Module	Page
M3104	DHV11	CCI1016AA	4
M3107	DHQ11	CCI1016AA	4
M7651	DRV11-WA	DQP-1100-AA	4
M7651 + M9056	DRV11-WA + Long Line	DQP-1100 AB	4
M7658	DRQ3B	DQP-1500-AA	5
M7941	DRV11	DQP-1300-AA	5
M8049	DRV11-J	DQP-1400-AA	5
M8634	IEQ11-A	DQP-3100-AA	6
None	Unibus Adapter + 2 KW11-K	AQP-2303-AA	6
Custom	We can design an option module to migrate your Qbus controller into NuPDP.		

Update Your Equipment

Option Modules

Option modules are plug-and-play replacements for popular legacy Digital interfaces. Option modules install in a NuPDP 4200 system and offer the same functionality as the Digital equivalent, thus allowing users to migrate from their Qbus systems to NuPDP 4200 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*

Module Interconnect

Option modules install into a single slot and connect to the NuPDP bus adapter, and optionally, to other option modules by way of Module Interconnects.

Hardware Compatible

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

Option modules for the NuPDP 4200 are described on the following pages.

Model	**AQP-2303-AA**	Description	**Unibus Adapter + 2 KW11-K Clocks**
Function	External Unibus adapter for applications with Able Microverter. Allows Unibus controllers in an external chassis to be accessed from the NuPDP-11 system. Includes two KW11-K clocks with fixed address and vector. Clocks can be individually disabled.		
Power	2.5 amps @ +5V, 0.5 amps @ +3.3V		
Part No: AQP-2302-AA	Includes controller, Module Interconnect, Unibus module, Cable Adapter Panel, 8-foot, 100-pin Connection Cable, external clock connector panel, and ribbon cables.		

Model	**CCI1016AA**	Description	**DHV11, DZQ11, DHQ11, DLV11**
DEC Module	M3104, M3106, M3107, M7940		
Function	16-port RS232/RS422 asynchronous communication controller with external DB25 user connection and modem control.		
Power	1.25 amps @ +5V, 0.12 amps @ ±12V		
User Connection	Sixteen DB25-M connectors with port-selectable RS232 or RS422 data leads.		
Line Parameters	Data bits: 5, 6, 7, 8 Stop bits: 1, 1.5, 2 Parity: Odd, even, or no parity Baud Rates: 50 bps - 38.4K bps		
Modem	RTS, CTS, DSR, DCD, DTR		
Part No: CCI1016AA	Standard package includes controller, distribution panel, and interconnect cable.		

Model	**DQP-1100-AA/AB**	Description	**DRV11-WA Interface**
DEC Module	M7651 + M9056 for differential		
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. The board supports 22-bit addressing and 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, Module Interconnect, Cable Adapter Panel, 8', 100-pin Connection Cable, and test cable.		
Part No: DQP-1100-AB	Package includes controller, Module Interconnect, Differential Cable Adapter Panel, 8' 100-pin Connection Cable, test cable.		

Model	**DQP-1500-AA**	Description	**DRQ3B Interface**
DEC Module	M7658		
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, Module Interconnect, Cable Adapter Panel, 8', 100-pin Connection Cable, and test cable.		

Model	**DQP-1300-AA**	Description	**DRV11 Interface**
DEC Module	M7941		
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. This device is not supported by VMS autoconfigure.		
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, Module Interconnect, Cable Adapter Panel, 8', 100-pin Connection Cable, and test cable.		

Model	**DQP-1400-AA**	Description	**DRV11-J Interface**
DEC Module	M8049		
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, Module Interconnect, Cable Adapter Panel, 8', 100-pin Connection Cable, and test cable.		

Model	**DQP-3100-AA**	Description	**IEQ11 Interface**
DEC Module	M8634		
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, Module Interconnect, IEC625 to IEEE488 cables, and test cable.		