PDP-11 Unibus Replacement System

Model NuPDP_U 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 DR11-W, DR11-C, and DHU to replace popular legacy Unibus interfaces. When a new interface is not available for your application, you can choose to retain your interfaces in a Unibus 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 Unibus I/O interfaces
- Packaging and cables

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

Unibus Support
- Support for multiple Unibus devices
- Follows all Unibus rules and specifications
- Both Unibus PIO and DMA data transfers are supported as well as all three Unibus interrupts
- Unibus PIO and DMA data transfers occur at maximum Unibus speeds; throughput is limited only by the Unibus device(s)

PDP-11 Compatibility
- Software compatible with existing applications
- Hardware compatible
- Diagnostic compatible
Specifications

<table>
<thead>
<tr>
<th>Physical</th>
<th>Standard 4U rack-mount chassis (20 inch depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disks Emulated</td>
<td>RC11, RF11, RK11D, RK611, RL11, UDA50, RX11, RX211</td>
</tr>
<tr>
<td>Tapes Emulated</td>
<td>TA11, DL11+TU58, TC11, TS11, TSU05, TM11, KLES1, PC11</td>
</tr>
<tr>
<td>Software Supported</td>
<td>RSX-11M, RT11</td>
</tr>
<tr>
<td>PDP-11 Memory</td>
<td>4 MB</td>
</tr>
<tr>
<td>KW11-K Clock</td>
<td>Can be disabled</td>
</tr>
<tr>
<td>Hard Drive</td>
<td>Removable 320GB SATA drive - one system drive, one optional data drive</td>
</tr>
<tr>
<td>RS232 Serial Port (COM1)</td>
<td>Console (TT0) only</td>
</tr>
<tr>
<td>Serial Speeds</td>
<td>50, 75,110,134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 7200, 9600, 19.2K bits/sec.</td>
</tr>
<tr>
<td>USB</td>
<td>Not supported</td>
</tr>
<tr>
<td>Keyboard, VGA</td>
<td>Not supported</td>
</tr>
<tr>
<td>Mouse</td>
<td>Not supported</td>
</tr>
<tr>
<td>Printer</td>
<td>LP11</td>
</tr>
<tr>
<td>Power</td>
<td>300 W @ 115/230 VAC, 50/60 Hz auto-sensing</td>
</tr>
<tr>
<td>Slots for Internal I/O</td>
<td>9</td>
</tr>
</tbody>
</table>

Operating Environment

<table>
<thead>
<tr>
<th>Temperature</th>
<th>10° to 40° C (50° to 104° F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Humidity</td>
<td>20 to 80% non-condensing</td>
</tr>
</tbody>
</table>

Storage Environment

<table>
<thead>
<tr>
<th>Temperature</th>
<th>-40° to 60° C (-40° to 140° F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Humidity</td>
<td>10% to 90% non-condensing</td>
</tr>
</tbody>
</table>

Ordering Information

All NuPDP 4200 Unibus systems come standard with a removable system drive, a KW11-K clock, and a Unibus interconnect kit to support external Unibus.

<table>
<thead>
<tr>
<th>Description</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>System with KW11-K clock</td>
<td>PDU-4200-AA</td>
</tr>
<tr>
<td>Optional data drive</td>
<td>DRV-0020-D</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>DEC Module</th>
<th>DEC Interface</th>
<th>Option Module</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3105</td>
<td>DHU11</td>
<td>CCI1016AA</td>
<td>4</td>
</tr>
<tr>
<td>M7800</td>
<td>DL11-B</td>
<td>CCI1016AA</td>
<td>4</td>
</tr>
<tr>
<td>M7819</td>
<td>DZ11-A</td>
<td>CCI1016AA</td>
<td>4</td>
</tr>
<tr>
<td>M7860</td>
<td>DR11-C</td>
<td>DUP-1300-AA</td>
<td>5</td>
</tr>
<tr>
<td>M8716</td>
<td>DR11-W</td>
<td>DUP-1100-AA</td>
<td>5</td>
</tr>
<tr>
<td>M8648</td>
<td>IEU11-A</td>
<td>DUP-3100-AA</td>
<td>6</td>
</tr>
<tr>
<td>Custom</td>
<td>We can design an option module to migrate your Unibus controller into NuPDP.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Update Your Equipment

Replace all of these:

Replace your controllers:

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 Unibus 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

Hardware Compatible
- Signal compatible
- Connector and switch compatible
- Use existing user cables and equipment

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.

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

**Model**: CCI1016AA  
**Description**: 16-port RS232/RS422 asynchronous communication controller with external DB25 user connection and modem control.

**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  
**Description**: Standard package includes controller, distribution panel, and interconnect cable.

### DUP-1100-AA

**Model**: DUP-1100-AA  
**Description**: 16-bit parallel user interface for PIO and DMA transfers between a Unibus system and external equipment. It can also serve as a link between a Unibus system and another computer with a DRV11-WA or DR11-W compatible interface. The board supports data transfers at rates up to 400 Kbps in burst mode.

**Function**
16-bit parallel user interface for PIO and DMA transfers between a Unibus system and external equipment. It can also serve as a link between a Unibus system and another computer with a DRV11-WA or DR11-W compatible interface. The board supports 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**: DUP-1100-AA  
**Description**: Standard package includes controller, Module Interconnect, Cable Adapter Panel, 8’, 100-pin Connection Cable, and test cable.
## Model  | **DUP-1300-AA**  | Description | **DR11-C Interface**
---|---|---|---
DEC Module | M7860 | 16-bit parallel user interface for transfers between a Unibus system and parallel line TTL-based user equipment. It can also serve as a link between a Unibus system and another computer with a DRV11 or DR11-C compatible interface. |  
Function | | |  
Power | 0.5 amps @ +5V, 0.3 amps @ +3.3V |  
User Connection | Two 40-pin connectors |  
Part No: | DUP-1300-AA | Standard package includes controller, Module Interconnect, Cable Adapter Panel, 8', 100-pin Connection Cable, and test cable. |  
### Model  | **DUP-3100-AA**  | Description | **IEU11 Interface**
---|---|---|---
DEC Module | M8648 | DMA controller that interfaces a Unibus 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 DUP-3100, in a sequential configuration. |  
Function | | |  
Power | 0.5 amps @ +5V, 0.3 amps @ +3.3V |  
User Connection | IEEE-488 standard 24-pin connector  
IEC-625 standard 25-pin connector  
One connector per channel. |  
Part No: | DUP-3100-AA | Includes controller, Module Interconnect, IEC625 to IEEE488 cables, and test cable. |  