

**Owner's Manual
for the DQP-1300
DRV11 Option Module
for NuVAX and NuPDPq**

**DQP-1300-OM
Revision A**



Owner's Manual for the **DQP-1300**

DRV11 Option Module for NuVAX and NuPDPq



Document Number DQP-1300-OM
Revision A, May 2007

VMS is a trademark of Hewlett Packard Corporation.

The material in this manual is for informational purposes only and is subject to change without notice.

Contents

1	Installation	1
1.	Set the switches on the DQP-1300 controller.....	2
2.	Open the system enclosure.....	3
3.	Install the DQP-1300 module.....	4
4.	Cable the DQP-1300 to the Bus Adapter.....	5
5.	Cable the DQP-1300 to the adapter panel.....	6
6.	Cable the CPX-1303 adapter to user equipment.....	8
7.	Close the system enclosure.....	9
8.	Verify installation in a NuVAX system.....	10
9.	Verify installation in a NuPDPq system.....	11
2	General Description	13
	Specifications.....	15
	Appendix A PCI Local Bus Interface Connector Pin Assignments	17
	Appendix B CPX-1303 Adapter Panel Connectors	19

Illustrations

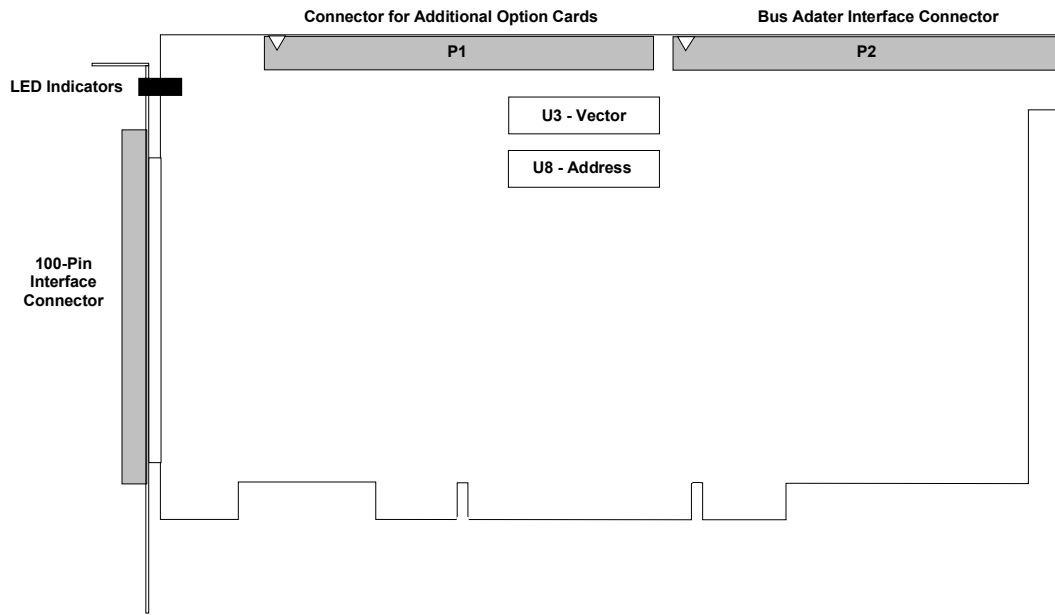
Figure 1-1:	DQP-1300 Module.....	1
Figure 1-2:	Device Address Switch Settings.....	2
Figure 1-3:	Vector Address Switch Settings.....	2
Figure 1-4:	Inserting the Board into the Option Slot.....	4
Figure 1-5:	Cabling the DQP-1300 and the Bus Adapter.....	5
Figure 1-6:	CPX-1303 Adapter Panel.....	6
Figure 1-7:	Cabling the Option Module to the Adapter Panel.....	7
Figure 1-8:	Cabling the CPX-1303 Adapter Panel to User Equipment.....	8

Contents

1 Installation

This chapter lists the steps involved in installing the DQP-1300 hardware.

References throughout this chapter tell you where to look for more detailed information. The DQP-1300 module is shown in Figure 1-1. Refer to this figure as you follow the steps outlined below.



Status Indicators:

Red indicates that there is a problem with the board.
Green indicates Qbus activity.

Figure 1-1: DQP-1300 Module

1. Set the switches on the DQP-1300 controller

The DQP-1300 contains two ten-pin DIP switch-packs that allow the user to select device and interrupt addresses and 18 or 22-bit addressing mode.

Device Address Selection

Use switch-pack U8 to select the device address for the DQP-1300 as shown in Figure 1-2. For the standard address of 17767770, switch position 1 is set open; switch positions 2 through 10 are set closed.

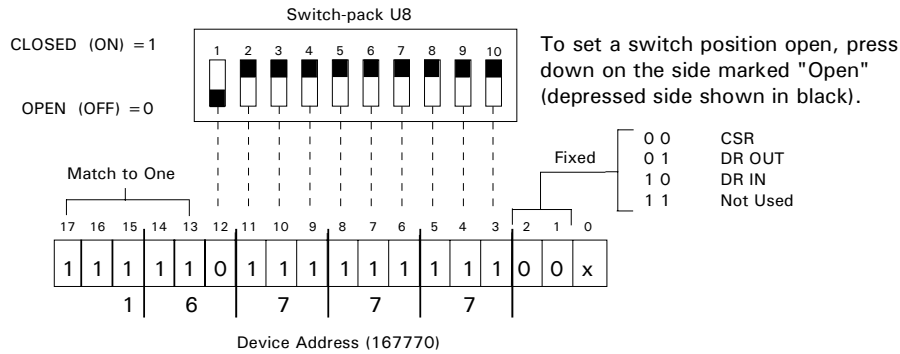


Figure 1-2: Device Address Switch Settings

Interrupt Vector Address Selection

Vector addresses 0-1774₈ are reserved for Qbus system users. The DQP-1300 is assigned vector address 0300₈.

Use switch-pack U3 to select the interrupt vector address for the DQP-1300 as shown in Figure 1-3. For the standard vector of 300, switch positions 1, 2, 5, 6, and 7 are set open; positions 3 and 4 are set closed.

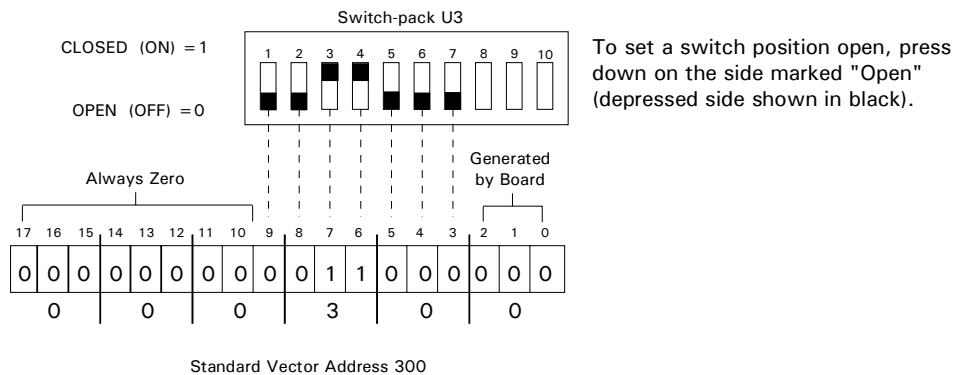


Figure 1-3: Vector Address Switch Settings

2. Open the system enclosure

To open the NuVAX or NuPDPq system enclosure:

- A. If the system is running, shut down the system software as described in the system manual.
- B. Remove power to the system unit.
- C. Open the enclosure by removing two thumb screws and sliding the cover towards the rear and lifting. Replace the two thumb screws into the chassis rear panel.
- D. Remove the PCI card retainer rail by first lifting the black release knob and then lifting the rail up and out.

Note: Use the anti-static wrist strap supplied with your system unit to prevent damage to the equipment. Clip the free end of the strap to the metal frame of the enclosure.

3. Install the DQP-1300 module

The DQP-1300 is installed in an option slot next to the bus adapter or other option module.

A. If the back of the system unit has a metal cover plate over the opening of the PCI slot, remove the anchor screw that holds the cover in place then slide the cover out of the slot. Retain the anchor screw.

B. Position the DQP-1300 with the high density connector toward the slot opening. Gently rock the module into the PCI connector while you fit the metal bulkhead into the slot opening. Be sure that the connectors are firmly seated.

Note: If the enclosure contains RFI clips along the slot, take care when inserting the module not to push the clips out of alignment.

C. Dress any cable away from the PCI slot.

D. Secure the DQP-1300 using the anchor screw that you removed in Step A. Retain the cover plate for future use.

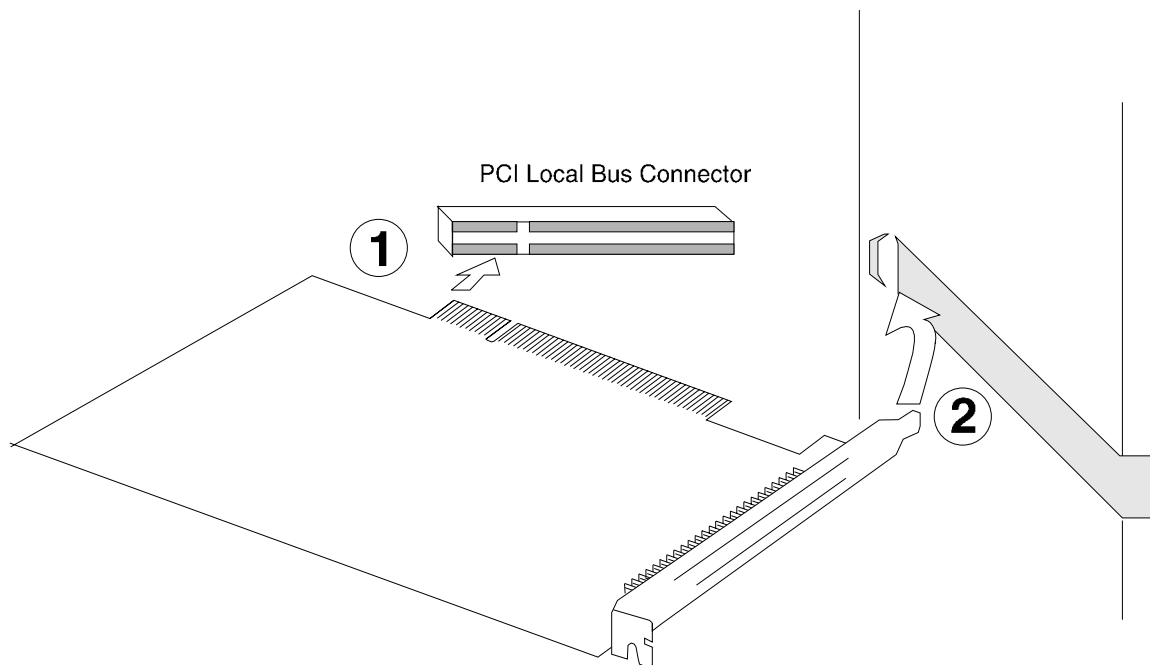


Figure 1-4: Inserting the Board into the Option Slot

D. Remove the anti-static wrist strap, replace the cover on the enclosure and secure.

You are now ready to connect the data cables.

4. Cable the DQP-1300 to the Bus Adapter

Use the supplied CAB-5011-1 cable to connect the first option module to the BQP-230x or BPQ-230x bus adapter as shown in Figure 1-5. Additional DQP-1300 or other option modules are added using the CAB-5011-1 as shown in the figure. Align the arrow on the connectors with the red line on the cable.

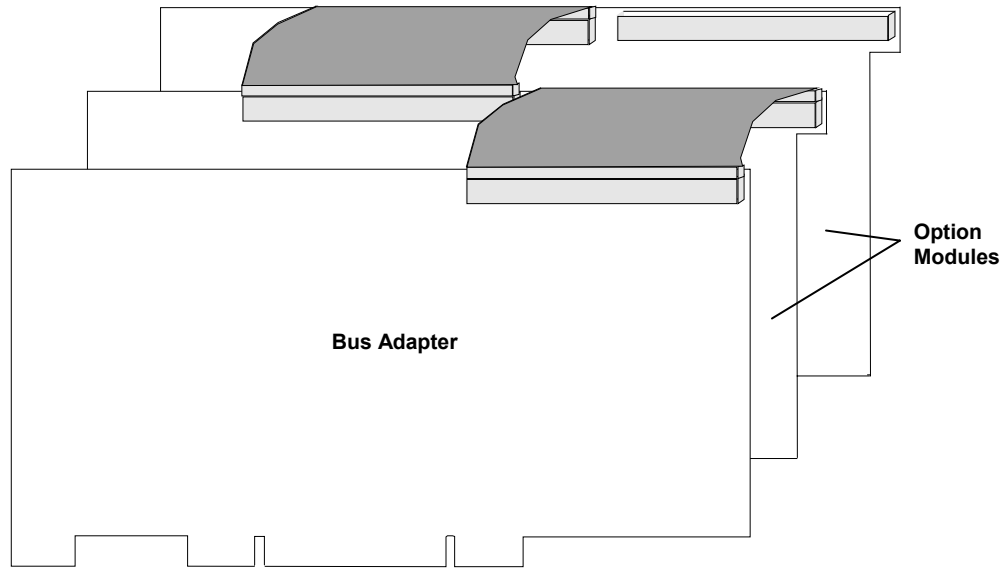
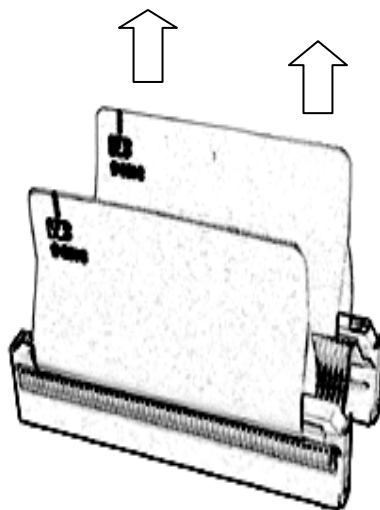


Figure 1-5: Cabling the DQP-1300 and the Bus Adapter

NOTE:

Use care when removing the 60-pin ribbon cable. Use the pull tab and pull the cable straight out from the connector to avoid damage to the connector.



5. Cable the DQP-1300 to the adapter panel

The CPX-1303 adapter panel is shown in Figure 1-6.

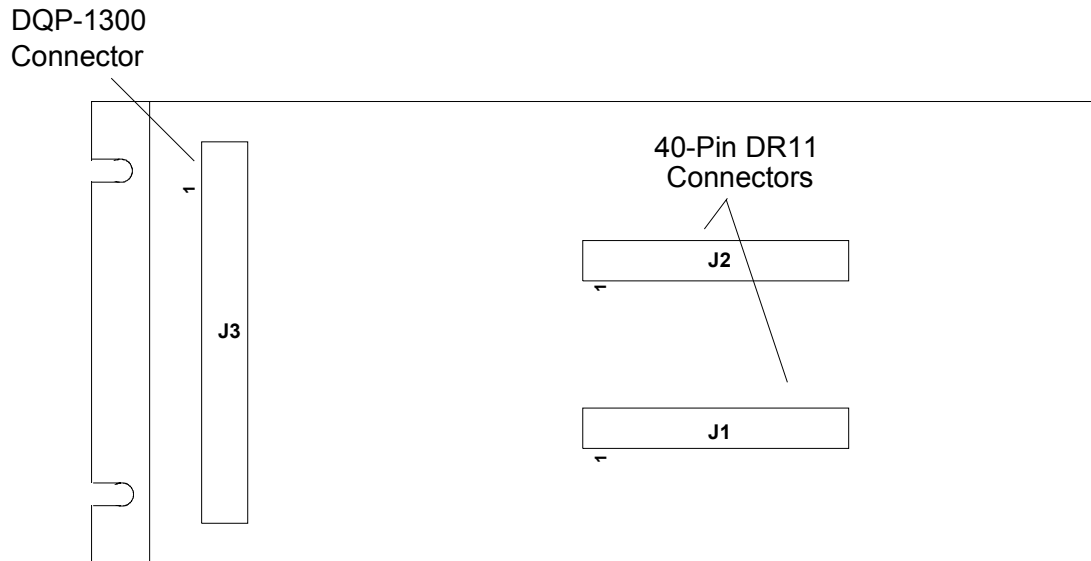


Figure 1-6: CPX-1303 Adapter Panel

Use the supplied 8-foot cable to connect the workstation to the DQP-1300 adapter panel. The adapter panel is provided with screw slots for RETMA rack mount or wall mount. It has no-mar feet for desktop or floor use.

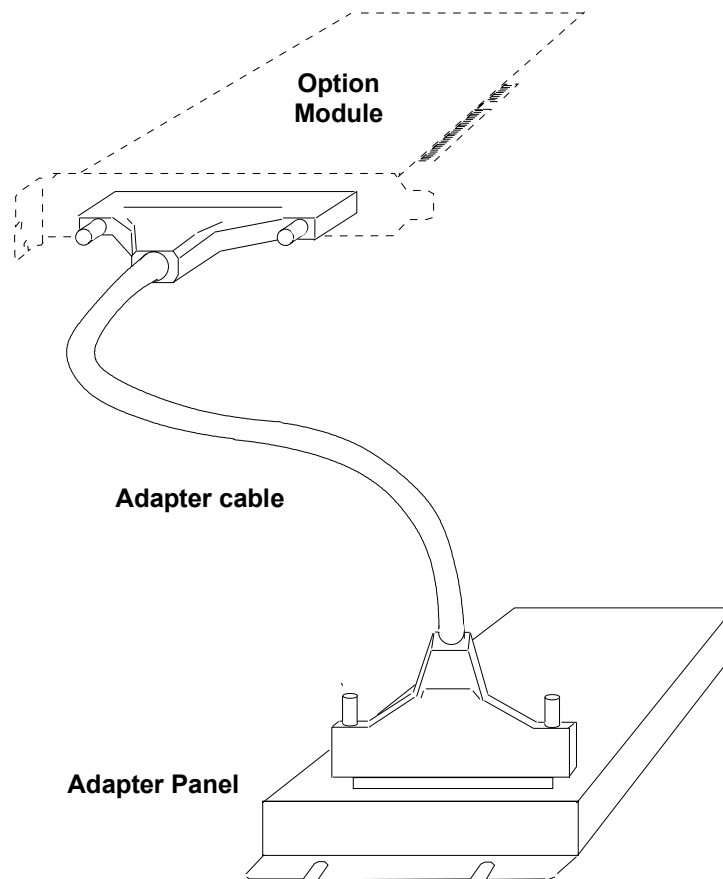


Figure 1-7: Cabling the Option Module to the Adapter Panel

6. Cable the CPX-1303 adapter to user equipment

Use two 40-pin cables to connect the user equipment to the DQP-1300 adapter panel. The function of each interface signal is described in Chapter 2.

J1 and J2 on the CPX-1303 adapter panel correspond to J1 and J2 on Digital's DRV11. Connect user cables to the adapter the same as you would connect to a DRV11. If you are unsure, refer to the connector pin assignments in Appendix B. Be sure to align the triangles on each connector with pin 1.

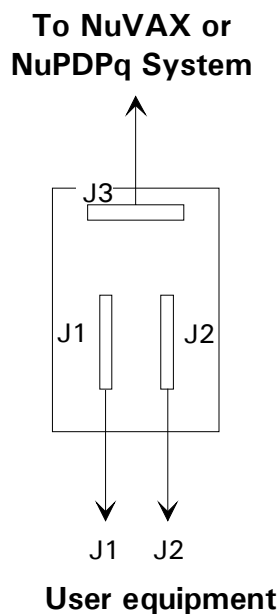


Figure 1-8: Cabling the CPX-1303 Adapter Panel to User Equipment

7. Close the system enclosure

Replace the PCI card retainer rail and the system cover.

8. Verify installation in a NuVAX system

For a NuPDPq installation, skip to Step 8.

Digital Equipment diagnostics are not available for the DRV11 or DQP-1300 when installed in a NuVAX. Consult with the customer for diagnostics they may use with their existing DRV11.

9. Verify installation in a NuPDPq system

Loop-back cable CAB-1301-12 must be installed between J1 and J2 when running the module and system level diagnostics. **Note that the cable is built to install with a 180 degree twist.**

The following conventions are used below:

output In examples, computer output is shown in this type.
user input In examples, user input is shown in bold type.

- A. NuPDP is shipped and configured to use a DEC standard, VT100-style terminal and requires CAB-2009-18 or CAB-2010-18 as an adapter cable between the NuPDP serial port and the DEC terminal cable. Terminal emulators or simple character terminals can plug directly into the NuPDP DE9 COM port using a standard cross-over cable and do not require an adapter cable.
- B. Open the drive access door and ensure that the system drive cartridge is locked. Keys to the cartridge are supplied with the system.
- C. Power up the system. The console displays:

```
Type y to boot XXDP else the OS boots in 4 seconds [Y,N]?Y
BOOTING UP XXDP-XM EXTENDED MONITOR
XXDP-XM EXTENDED MONITOR - XXDP V2.5
REVISION: F0
BOOTED FROM DL0
124KW OF MEMORY
NON-UNIBUS SYSTEM
RESTART ADDRESS: 152000
TYPE "H" FOR HELP !
.
```

- D. To run the diagnostic type:

```
.R VKAFE0
```

The diagnostic begins and displays:

```
VKAFE0.BIN
CVKAFE0 DRV11 DIAGNOSTIC
```

If no errors occur the program will start displaying END PASS # messages.

Allow a minimum of 10 error free passes.

Installation

If any error is reported, check to ensure that the loop-back cable is installed correctly. If the loop-back cable and DQP-1300 are both installed correctly and an error is reported, please contact customer support with error information.

E. To exit the diagnostic:

- 1) Restart the system by pressing the Reset button or cycling power, or
- 2) Type CTRL P to display the NuPDP prompt, type HALT to stop the diagnostic. To restart XXDP, type Boot DL0

2 General Description

The DQP-1300 option module is a general purpose interface for transferring data directly between the NuVAX or NuPDPq system and a user's device. The DQP-1300 is signal and pin compatible with Digital's DRV11 and DR11-C controllers.

The DQP-1300 is contained on a standard short PCI card. The controller contains a 100-pin, high density connector for external connection to user input and output signals. An 8-foot cable connects the DQP-1300 controller to an external adapter panel. The adapter panel provides two DRV11 and DR11-C compatible 40-pin flat ribbon connectors used to connect to user equipment.

The DQP-1300 controller contains four internal registers that provide the necessary controls and status to perform data transfers to or from the system and to transfer 16-bit data between the DQP-1300 and external user equipment. The four internal registers are a control and status register (CSR), a data output register (DOUT), a data input register (DIN), and a timer register (TMR).

Table 2-1 lists the interface signals used by the DRV11 and DR11-C. DR11-C signals are shown in parenthesis when different from DRV11.

General Description

Mnemonic	Description
OUT00-H - OUT15-H	Output data lines to user device. High true, one = high. These lines transmit the current contents of the DOUT register to the user device.
IN00-H - IN15-H	Input data lines from the user device. High true, one = high. These lines transmit information from the user device when host software reads the DIN register.
NEWDARDY-H (NEWDATARDY-H)	Output signal to the user device. High true. This pulse is sent to inform the user device that new data has been written into the output data register and is available on the output data lines. The DQP-1300 may change the data after the trailing edge of the signal. The duration of this pulse is controlled by the TMR register.
DATRANS-H (DATA TRANS-H)	Output signal to the user device. High true. This pulse is sent to inform the user device that the input data buffer is being read and the DQP-1300 is ready to accept data on the input data lines. The user device can change the data after the trailing edge of the signal. The duration of this pulse is controlled by the TMR register.
CSR1-H	Output signal to the user device. High true, one = high. This signal is controlled by the host software by writing into bit 01 of the CSR and the function is user defined.
CSR0-H	Output signal to the user device. High true, one = high. This signal is controlled by the host software by writing into bit 00 of the CSR and the function is user defined.
INIT-H (AINIT-H)	Output signal to the user device. High true. Set when the PCI reset signal is set.
INITV2-H (BINIT-H)	Output signal to the user device. High true. Set when the PCI reset signal is set.
REQA-H	Input signal from the user device. High true. This signal is controlled by the user device and is host software readable as bit 07 of the CSR. When asserted, a PCI interrupt request is generated if IEA (CSR bit 06) is set.
REQB-H	Input signal from the user device. High true. This signal is controlled by the user device and is host software readable as bit 15 of the CSR. When asserted, a PCI interrupt request is generated if IEB (CSR bit 05) is set.

Table 2-1: User Interface Signals

Specifications

Dimensions Standard PCI short card measuring 6.875 inches by 4.2 inches (17.46 cm by 10.67 cm).

Interface

DQP-1300-A Controller 100-pin high density connector

CPX-1303 Panel Provides user connection to two 40-pin DRV11 and DR11-C style connectors.

Cable (CAB-1104-8) 8-foot terminated with 100-pin connector at both ends.

Electrical

Power Required:

+5 volts	0.5 amps
+3.3 volts	0.4 amps

Performance

Throughput Up to 200K 16-bit words per second (operating system overhead will reduce performance)

Environmental

Operating Conditions:

Temperature	5° to 50° C (41° to 122° F)
Relative Humidity	20% to 80% non-condensing

Storage Conditions:

Temperature	-40° to 66° C (-40° to 150° F)
Relative Humidity	10% to 95% non-condensing

General Description

Appendix A

PCI Local Bus Interface

Connector Pin Assignments

This appendix lists the pin assignments for the PCI bus interface.

Pin	Signal	Pin	Signal
A1	TRST-L	B1	-12V
A2	+12V	B2	TCK-H
A3	TMS-H	B3	GND
A4	TDI-H	B4	TDO-H
A5	+5V	B5	+5V
A6	INTA-L	B6	+5V
A7	INTC-L	B7	INTB-L
A8	+5V	B8	INTD-L
A9		B9	PRSNT1-L
A10	+5V	B10	
A11		B11	PRSNT2-L
A12	GND	B12	GND
A13	GND	B13	GND
A14		B14	
A15	RST-L	B15	GND
A16	+5V	B16	CLK-H
A17	GNT-L	B17	GND
A18	GND	B18	REQ-L
A19		B19	+5V
A20	AD30-H	B20	AD31-H
A21	+3.3V	B21	AD29-H
A22	AD28-H	B22	GND
A23	AD26-H	B23	AD27-H
A24	GND	B24	AD25-H
A25	AD24-H	B25	+3.3V
A26	IDSEL-H	B26	C/BE3-L
A27	+3.3V	B27	AD23-H
A28	AD22-H	B28	GND
A29	AD20-H	B29	AD21-H
A30	GND	B30	AD19-H

PCI Local Bus Interface Connector Pin Assignments

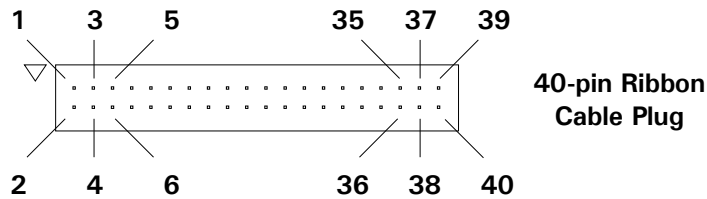
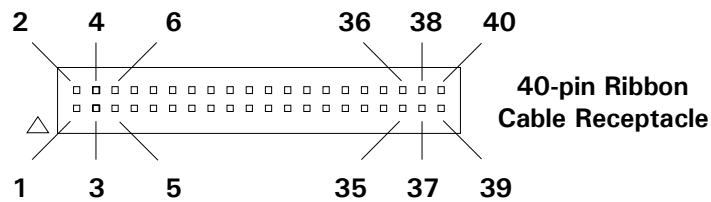
Pin	Signal	Pin	Signal
A31	AD18-H	B31	+3.3V
A32	AD16-H	B32	AD17-H
A33	+3.3V	B33	C/BE2-L
A34	FRAME-L	B34	GND
A35	GND	B35	IRDY-L
A36	TRDY-L	B36	+3.3V
A37	GND	B37	DEVSEL-L
A38	STOP-L	B38	GND
A39	+3.3V	B39	LOCK-L
A40	SDONE-H	B40	PERR-L
A41	SBO-L	B41	+3.3V
A42	GND	B42	SERR-L
A43	PAR-H	B43	+3.3V
A44	AD15-H	B44	C/BE1-L
A45	+3.3V	B45	AD14-H
A46	AD13-H	B46	GND
A47	AD11-H	B47	AD12-H
A48	GND	B48	AD10-H
A49	AD09-H	B49	GND
A50	KEYWAY	B50	KEYWAY
A51	KEYWAY	B51	KEYWAY
A52	C/BE0-L	B52	AD08-H
A53	+3.3V	B53	AD07-H
A54	AD06-H	B54	+3.3V
A55	AD04-H	B55	AD05-H
A56	GND	B56	AD03-H
A57	AD02-H	B57	GND
A58	AD00-H	B58	AD01-H
A59	+5V	B59	+5V
A60	REQ64-L	B60	ACK64-L
A61	+5V	B61	+5V
A62	+5V	B62	+5V

Appendix B

CPX-1303 Adapter Panel Connectors

This appendix lists the pin assignments for the CPX-1303 connectors. The CPX-1303 contains two 40-pin connectors for DRV11 and DR11-C interface connection.

The connector used for DRV11 and DR11-C interfaces is a 40-pin receptacle, 3M part number 2540-6002-UB. It and the mating cable connector are shown below.



Connector J1

Signal	3M Pin	Berg Pin	Berg Pin	3M Pin	Signal
NEW DATA RDY	1	VV	UU	2	GND
	3	TT	SS	4	GND
OUT02H	5	RR	PP	6	GND
OUT02 H	7	NN	MM	8	GND
REGA H	9	LL	KK	10	GND
OUT15 H	11	JJ	HH	12	OUT14 H
OUT13 H	13	FF	EE	14	GND
CSR1 H	15	DD	CC	16	GND
OUT12 H	17	BB	AA	18	OUT11 H
OUT10 H	19	Z	Y	20	GND
OUT09 H	21	X	W	22	OUT08 H
GND	23	V	U	24	OUT03 H
OUT07 H	25	T	S	26	GND
OUT06 H	27	R	P	28	INIT H
OUT05 H	29	N	M	30	GND
OUT04 H	31	L	K	32	OUT01 H
GND	33	J	H	34	
	35	F	E	36	
	37	D	C	38	OUT00 H
	39	B	A	40	

Connector J2

Signal	3M Pin	Berg Pin	Berg Pin	3M Pin	Signal
	1	VV	UU	2	GND
IN00 H	3	TT	SS	4	GND
INITV2 H	5	RR	PP	6	GND
INITV2 H	7	NN	MM	8	GND
IN01 H	9	LL	KK	10	IN04 H
GND	11	JJ	HH	12	IN05 H
	13	FF	EE	14	IN06 H
GND	15	DD	CC	16	IN07 H
IN03 H	17	BB	AA	18	GND
IN08 H	19	Z	Y	20	IN09 H
GND	21	X	W	22	IN10 H
IN11 H	23	V	U	24	IN12 H
GND	25	T	S	26	REQB H
GND	27	R	P	28	IN13 H
IN14 H	29	N	M	30	IN15 H
GND	31	L	K	32	CSR0 H
GND	33	J	H	34	IN02 H
	35	F	E	36	IN02 H
	37	D	C	38	DATA TRANS H
	39	B	A	40	



75 Gateway Blvd.
Cottage Grove, Oregon 97424 USA
<http://www.logical-co.com>

The Logical Company

Telephone: +1 541-942-3610
Fax: +1 541-942-3640
E-mail: sales@logical-co.com