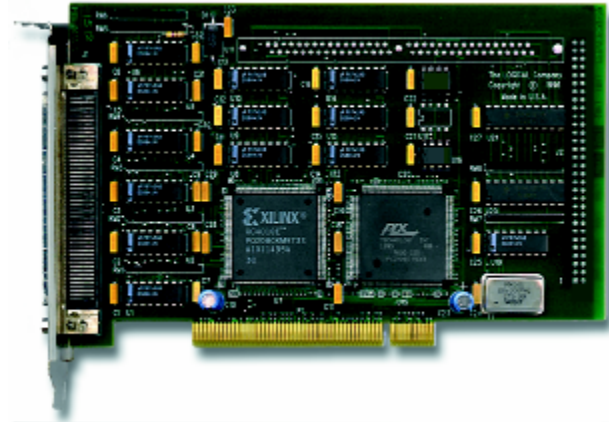# BCI-2004

Unibus Adapter for the PCI Bus and PDP-11 Emulators

The BCI-2004 Unibus Adapter enables Unibus devices to be connected to the Software Resource International's CHARON-11 or D Bit's Ersatz11 PDP-11 emulator. The BCI-2004 supports both PIO and DMA Unibus data transfers as well as providing support for all four Unibus interrupt levels. The BCI-2004 operation is identical to the BCI-2003 with the added feature of scatter/gather DMA support.

The BCI-2004 consists of a single slot PCI controller, a dual-width Unibus cable adapter module, and an eight-foot shielded interconnect cable. The PCI controller is compatible with 3.3V and 5.0V PCI bus signaling. The Unibus module installs into Unibus connectors A and B of an expansion chassis or user's equipment, replacing a Unibus cable.

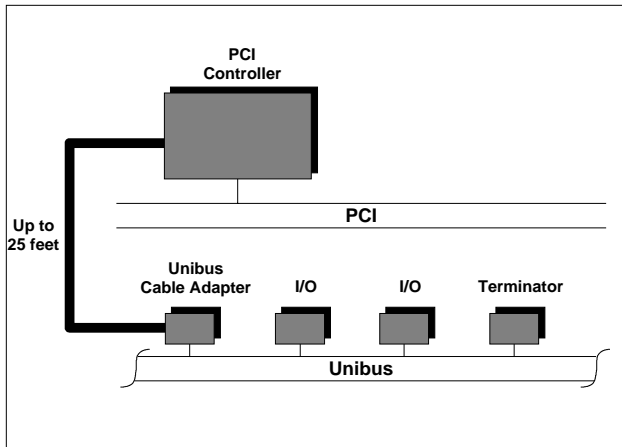The BCI-2004 provides complete support for:

· Unibus PIO data transfers including read word, data-input-pause, write word and write byte.

· Unibus DMA data transfers including read word, write word, and write byte.

· Any two of the four Unibus interrupt levels: BR4, BR5, BR6, and BR7.

Provides a migration path. The BCI-2004 allows users of Unibus systems to migrate to PDP-11 emulators and retain their existing Unibus I/O devices without loss of function or performance.

High performance. Unibus PIO and DMA data transfers occur at maximum Unibus speeds— throughput is limited only by the Unibus device.

Cost savings. The BCI-2004 provides users the choice of using lower cost, higher performance Alpha systems while retaining their existing investments in Unibus hardware and software.

Easy to install. The BCI-2004 allows multiple I/O devices to be connected to a PDP-11 emulator while occupying only a single PCI slot.

Description

PIO Transfers
The BCI-2004 supports the four type of Unibus PIO data transfers including read word, data-input-pause, write word, and write byte. The entire Unibus address space is available for access by a PCI host.

DMA Transfers
The BCI-2004 provides full compatibility with the five types of Unibus DMA data transfers including word read, write word, write byte, read-modify-write word, and read-modify-write byte. Single and multiple data transfers are supported.

Interrupts
The BCI-2004 passes Unibus interrupts to the host for service if interrupts are enabled by the host and the interrupts are higher priority than the priority established under software control. The BCI-2004 stores the 8-bit interrupt vector in an internal register that is referenced by the host to determine the interrupt service requested.

Unibus Termination
The BCI-2004 provides Unibus termination for one end of the Unibus. The user must ensure the Unibus is terminated at the end of the Unibus within the expansion chassis or user's equipment.

Unibus Parity
Unibus parity signals PA and PB are terminated but otherwise not supported by the BCI-2004.

Software Compatibility

The BCI-2004 works with either the CHARON-11 or Ersatz11 PDP-11 emulator to provide a complete software and hardware compatible solution.

Specifications

Physical Dimensions

PCI Controller	PCI short card, +5 volt only, measuring 6.88 in by 4.20 in (17.46 cm by 10.67 cm)
Cabinet Kit:	
Unibus Module	Dual-width Unibus module, 5.19 in by 8.42 in (13.18 cm by 21.39 cm)
Panel	Double B size measuring 5.3 in by 3.3 in (13.5 cm by 8.4 cm)
Unibus Module	Dual-width Unibus module, 5.19 in by 2.30 in (13.2 cm by 5.8 cm)
Interconnect Cable	8 ft.

Electrical

BCI-2004-A	3.8 amps @ 5.0 volts DC ±12 volts DC not used
Bus Loading	1 DC load, 2 AC loads
Bus Drive Capability	19 additional DC loads

PCI Local Bus

Signaling	Universal +3.3 volt and + 5 volt
Addr/Data	32-bit
Clock Rate	33 MHz
Compliance	2.1

Environmental

Operating Conditions:	
Temperature	5° to 50° C (41° to 122° F)
Relative Humidity	20% to 80% noncondensing
Storage Conditions:	
Temperature	-40° to 66° C (-40° to 150° F)
Relative Humidity	10% to 95% noncondensing

Ordering Information

BCI-2004-AA	**Unibus Adapter Package with Cabinet Kit.** Includes PCI controller, Unibus cabinet kit, and owners manual.
BCI-2004-AB	**Unibus Adapter Package.** Includes PCI controller, Unibus module, 8-foot interconnect cable, and owners manual.