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Interface and Controllers

Overview

A VXIbus system may have up to 256 devices, including one or more VXIbus subsystems (mainframes). Subsystems must consist of a central timing module, referred to as a Slot 0 Controller. Selecting the appropriate Slot 0 depends on the overall system architecture and interface requirements. The VXIbus is an open-architecture system, therefore allowing VXIbus instruments to be controlled by virtually any interface, or external computer available. VXI Technology offers a wide range of VXI *plug&play* Slot 0 Controllers that allow easy integration of the VXIbus mainframe and instruments. Customers may make the selection of interface based on price, performance, system size and/or transportability.

IEEE-1394 Firewire to VXIbus Interface

VXI-1394

- Cost-effective, High-speed VXIbus
- Word-serial, Register-based Communication
- Direct Trigger and Interrupt Control
- Direct Access to VXI Memory Space
- Maximum Throughput Across 1394 Bus, 7 MB/s Sustained

The IEEE 1394 is a serial bus technology used to connect external peripheral devices to the PC. The VXI-1394 interface kit links any PCI-based computer directly to the VXIbus using the IEEE 1394 or "FireWire" high-speed serial bus. Adding the interface to a desktop PC creates an attractive cost/performance solution compared to embedded VXI controllers. It achieves a faster block throughput rate than GPIB-to-VXI controllers, but less than MXI-2. It is comparable to GPIB-to-VXI controllers for typical instrument control applications, but not as fast as MXI-2, and achieves a data transfer rate between the local computer memory and VXIbus at rates up to 7Mbytes/s sustained throughput rate.

Features

Widest Selection of Interfaces to VXI on the Market

Ethernet, Firewire, GPIB, RS-232, PCI, and Embedded Controllers

VXI *plug&play* Interface Software, Supports Virtually All Industry Applications

Solutions for Single Chassis to Multi-Bay Applications

Extensive Operating System Support Including Windows XP, NT, 2000, 95/98, Linux, VxWorks

Ordering Information

778117-01	NI VXI-1394 Interface Kit for Windows NT
778118-01	NI VXI-1394 Interface Kit for Windows 2000/98
E8491B	Agilent Technologies IEEE-1394 PC LINK TO VXI
E8491B-001	Agilent Technologies IEEE-1394/PCI card

IEEE-1394

Interface and Controllers

PCI to VXIbus

VXI-MXI-2

- Complete interface to VXI from any PCI-based computer or workstation
- High-speed block transfers from VXIbus memory to local computer memory
- Direct trigger and interrupt control
- Direct access to VXI memory space
- Maximum throughput across MXIbus: 33MB/s burst, 23 MB/s sustained
- Expandable to several VXI mainframes using MXIbus

The MXIbus is a powerful, high-speed communication link that makes the PCI computer perform as though it is plugged directly into the VXIbus backplane. This approach combines the benefits of a custom embedded VXI computer with the flexibility and availability of general-purpose computers. With the MXIbus, you can locate the computer alongside the VXI mainframe, or up to 20 meters away.

The MXIbus is a full 32-bit multi-master system bus that interconnects several devices at the hardware bus level, allowing multiple mainframes (8 total) to be added to a VXI-PCI8000 configuration in a software transparent fashion using VXI-MXI-2 mainframe extenders.

Rackmount Computer with Built-in MXI-2

Pentium IV NI 8350 Series

- Built-in MXI-2 Interface
- 3.0 GHz Pentium IV
- Up to 4 GB SDRAM
- Dual Gigabit Ethernet
- VXI 3.0 Compliant
- 2 Channel SATA IDE Raid

The NI 8350 rack-mount VXI instrument controller is the highest performance VXI controller available in the market. A powerful Pentium P4 processor provides exceptional performance in a 1U form factor to address your most demanding functional test and data acquisition applications.

The NI 8350 is completely VXIbus 3.0 compliant permitting access to the latest advancements in the VXIbus specification.

The built-in VXI-MXI-2 interface provides a dedicated connection to your VXI system. High-speed data transfers from VXIbus memory to local memory, direct access to VXI memory space, and direct trigger and interrupt control ensure maximum performance from your VXIbus system. The NI 8350 comes with the MXI-2 cable and Slot 0 for the VXIbus chassis.

Ordering Information

MXI-2

777119-02	NI VXI-PCI8015 Windows NT with cable
777119-32	NI VXI-PCI8015 Windows NT without cable
777119-03	NI VXI-PCI8012 Windows 2000/98/95 with cable
777119-33	NI VXI-PCI8012 Windows 2000/98/95 without cable
777185-01	NI PCI-MXI-2 Card
777178-01	NI VXI-MXI-2 Mainframe Extender
777187-03	NI-VXI Visa, WIN 98/95, PCI-MXI-2
777165-01	MXI-2 M3 rt-angle point conn to rt angle daisy chain- 1m
777165-02	MXI-2 M3 rt-angle point conn to rt angle daisy chain- 2m
779074-01	VXI 8350 3.0 GHz VXI instrument controller with CDROM, USB 2.0, IDE Raid support

Interface and Controllers

GPIB, RS232 and USB to VXI

GPIB-VXI/C

- Cost-effective control of VXIbus instruments
- VXI interrupts to/from GPIB SRQ line automatically translated for transparent GPIB operation
- Full VXI Trigger Support
- 9600 baud full duplex RS-232 Port
- One primary address for the GPIB-VXI/C and secondary addressing per VXIbus instrument. Supports successive addressing.
- USB Control of VXIbus Instruments using USB to GPIB Adapters

One of the most popular VXI system configurations is control of VXI with a GPIB-equipped computer. A GPIB cable connects the computer and the GPIB-VXI/C module installed in Slot 0 of the VXI mainframe. The computer controls each VXI instrument as a separate instrument at a unique GPIB address. This is the most cost effective Slot 0 approach, allowing seamless integration of VXI into an existing GPIB system. The GPIB-VXI/C also allows control of VXI instruments via RS-232.

Embedded Computers

Embedded Pentium III VXIpc-870 Series

- 1.4 GHz Pentium III
- Up to 512 MB SDRAM
- Programmable WatchDog Timer
- Includes 30 GB Internal Hard Drive
- Choice of Windows XP, NT or Windows 98 installed, or nooperating system installed
- DMA, VME64

The VXIpc-870B Series controllers, with a 1.4 GHz Pentium III processor, are the fastest and best integrated VXI embedded controllers available. The VXIpc-870 Series controllers are based on the Intel Pentium III Slot 1 architecture, 100 MHz processor chipset bus along with an advanced graphics port (AGP) for SVGA. Both series also offer optional CD-ROM drive, PCI expansion slot, and solid-state storage media.

All VXIpc-870 models come complete with a 3.5 in. floppy drive, Super VGA, USB, two PS/2 ports, serial and parallel ports, and 256 MB SDRAM. Other standard features include GPIB, PC Card, 10/100 Ethernet and Wide Ultra SCSI-3 and at least a 30 GB hard drive. VXI CLK I/O, TrigIN and TrigOUT SMBs are also standard.

The VXIpc-870 can be ordered in two different configurations; the VXIpc-874B includes all of the standard features, but it also adds an integrated 24X CD ROM. The VXIpc-875B uses the same base model as the VXIpc-874, but instead of a CD ROM drive, it offers one PCI expansion slot.

Ordering Information

777126-01	NI GPIB-VXI/C with VXI, PnP Software
778032-01	NI PCI-GPIB Interface Card - Windows 2000
777073-01	NI PCI-GPIB Interface Card - Windows NT
777158-01	NI PCI-GPIB Interface Card - Windows 98/95
E5810A	Lan/GPIB Multiport Controller (GPIB/RS-232 to LAN)
10883B	2 Meter GPIB Cable
10883C	4 Meter GPIB Cable

GPIB-VXI/C

Interface and Controllers

Low-cost Embedded PCs

VXIpc-770 Series

- 1.26 GHz Pentium III
- Up to 512 MB SDRAM
- DMA block-mode transfers up to 11 MB/s
- Includes integrated capability for GPIB and 10-Base-T Ethernet on motherboard
- Low-cost, 1-slot, C-size embedded VXI controller

The VXIpc-770 controller is a low-cost, single-slot, C-size embedded VXI computer that uses state-of-the-art technology and packaging to create fully PC-compatible controllers for VXI systems.

The VXIpc-770 controller is the most cost-effective single-slot VXI embedded control solution available.

Features include a state-of-the-art IEEE 488.2 compatible GPIB controller interface and 10BaseT Ethernet on the front panel. All models come with at least a 30 GB hard drive and 256 MB of DRAM.



VXI 8350

VXIbus Interface Software NI-VXI/VISA

For all NI Slot 0 interfaces the NI-VXI/VISA™ software is provided. This features integrated VXI, GPIB, and serial control capability, software compatibility across all controller platforms, and compatibility with the LabVIEW™ and LabWindows™/CVI ADEs, C, C++, and Basic, as well as a variety of other software packages.

The VISA (Virtual Instrument Software Architecture) standard was developed to unify I/O interface software for the entire industry and is the foundation upon which VXI*plug&play* software components, such as instrument drivers and executable soft front panels are built. Software written to both NI-GPIB and NI-VXI, as well as VISA, is completely protected well into the future.

Ordering Information

VXIpc-870 Series

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|------------------|---|
| 779523-01 | NI VXIpc-874B, 256 MB RAM, Windows XP Installed, Internal Hard Drive, CDROM |
| 779524-01 | NI VXIpc-875B, 256 MB RAM, Windows XP Installed, Internal Hard Drive, PCI Expansion |

VXIpc-770 Series

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|------------------|---|
| 779525-01 | NI VXIpc-771 Embedded VXI Controller Win XP |
| 779600-01 | NI Internal Flash Drive option |

VXIpc Controllers