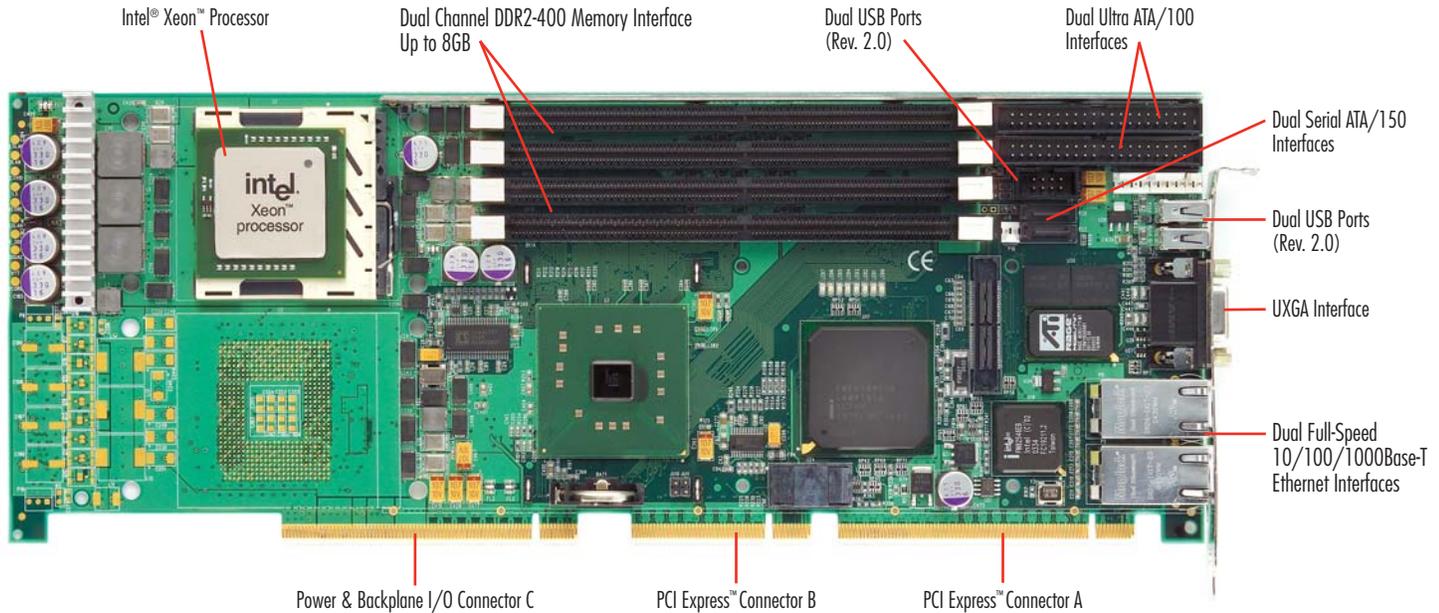


NLI (SHB Express™) SYSTEM HOST BOARD



The single processor configuration of Trenton's NLI system host board is optimized for maximum performance and value. The high-speed SHB-to-backplane PCI Express links employed on the NLI strip away parallel bus bandwidth limitations while unleashing the processing power of the next generation Intel Xeon™ processor. The NLI features the Intel E7520 chipset, an 800MHz system bus, dual DDR2-400 memory interfaces, dual Gigabit Ethernet ports and advanced video. PCI Express, PCI and PCI-X option card support makes the NLI an ideal SHB choice for a variety of applications.

PROCESSOR:

Intel® Xeon™ Processor at 2.8GHz to 3.6GHz*
Processor Package: FC-mPGA4 (604-pin)

**Higher speeds as available*

The Intel® Xeon processor used on the NLI supports an 800MHz system bus as well as the Intel® NetBurst™ micro-architecture. These new processors support both 64-bit and 32-bit applications. Intel® Extended Memory 64 Technology (Intel® EM64T) is the processor feature that allows 64-bit application support. Other processor features:

- Hyper-Threading Technology
- Streaming SIMD Extensions 2 & 3 (SSE2 & SSE3)
- Hyper-Pipelined technology
- 1M Advanced Transfer Cache (L2) (2M L2 Cache - Future)
- 16K Level 1 data cache (L1)

CHIPSET:

Increased system performance is made possible by the Intel® E7520 chipset's ability to support an 800MHz system bus. The chipset configuration on Trenton's NLI board supports two registered DDR2-400 memory channels. Data bottlenecks are reduced by the three PCI Express™ interfaces that provide high bandwidth (4GB/s) connections between the ports on the Memory Controller Hub (MCH) and external I/O devices or option cards.

PCI EXPRESS™ INTERFACES:

High-speed serial links that make up PCI Express interfaces typically have data rates twice that of PCI interfaces. A basic PCI Express link consists of at least one pair of differentially driven transmit and receive signal lines. PCI Express link bandwidth is increased linearly by adding signal pairs to form multiple lanes or wider lane widths. The most common PCI Express links used today are configured to have lane widths of x1, x4, x8 or x16. Trenton's NLI system host board provides two x8 PCI Express links, one x4 PCI Express link and five PCI Express reference clocks on edge connectors A and B. These PCI Express links are used on SHB Express™ backplanes to support PCI Express option cards and bridge chips that provide PCI/PCI-X option card support. During system initialization the NLI automatically negotiates with the PCI Express cards connected to the PCI Express links in order to set up communication between the devices. The net result is that the NLI system host board supports communication to x1, x4, x8, x16 PCI Express boards as well as PCI/PCI-X cards via PCI Express-to-PCI/PCI-X bridge chip technology on the backplane.

DDR2-400 MEMORY:

The DDR2-400 interface is a dual channel interface originating at the Memory Controller hub with each channel terminating at two DIMM module sockets, for a total of four memory sockets. The NLI uses ECC registered PC2-3200 DIMMs and supports a maximum memory capacity of 8GB and a minimum memory interface bandwidth of 3.2GB/s per channel. The total effective memory interface bandwidth increases to 6.4GB/s when at least one PC2-3200 DIMM is used in each of the channels.

STANDARDS:

- PCI Express™ Base Specification 1.0a
- SHB Express™ System Host Board PCI Express Specification - PCI Industrial Computer Manufacturers Group (PICMG®) 1.3

PCI EXPRESS™ CONFIGURATION AND BUS SPEEDS:

PCI Express - Edge Connectors A & B	- Two x8 links, one x4 link
	- Five reference clocks
PCI Express - (on-board only)	- One x4 link
PCI-X (on-board only)	- 64-bit/66MHz
PCI (on-board only)	- 32-bit/33MHz
Hub Link 1.5	- 266MB/s
System or FSB	- 800MHz

SERIAL ATA/150 PORTS (DUAL):

The primary and secondary Serial ATA (SATA) ports on the NLI boards comply with the SATA 1.0 specification and support two independent SATA storage devices such as hard disks and CD-RW devices. SATA technology provides lower-pin counts, reduced signaling voltages, simplified cabling, CRC error detection and hot-plug device support. SATA produces higher performance interfacing by providing data transfer rates up to 150MB per second on each port.

DUAL ETHERNET INTERFACES - 10/100/1000BASE-T:

The NLI uses an internal PCI-X bus to connect the I/O Controller hub to the Ethernet controller chip. This design feature provides high-speed dual Gigabit Ethernet on LAN ports 1 and 2. The SHB also supports 10Mb/s or 100Mb/s Ethernet networks. RJ-45 connectors on the I/O bracket provide the mechanical interface to the Ethernet networks.



Dependable, always.

