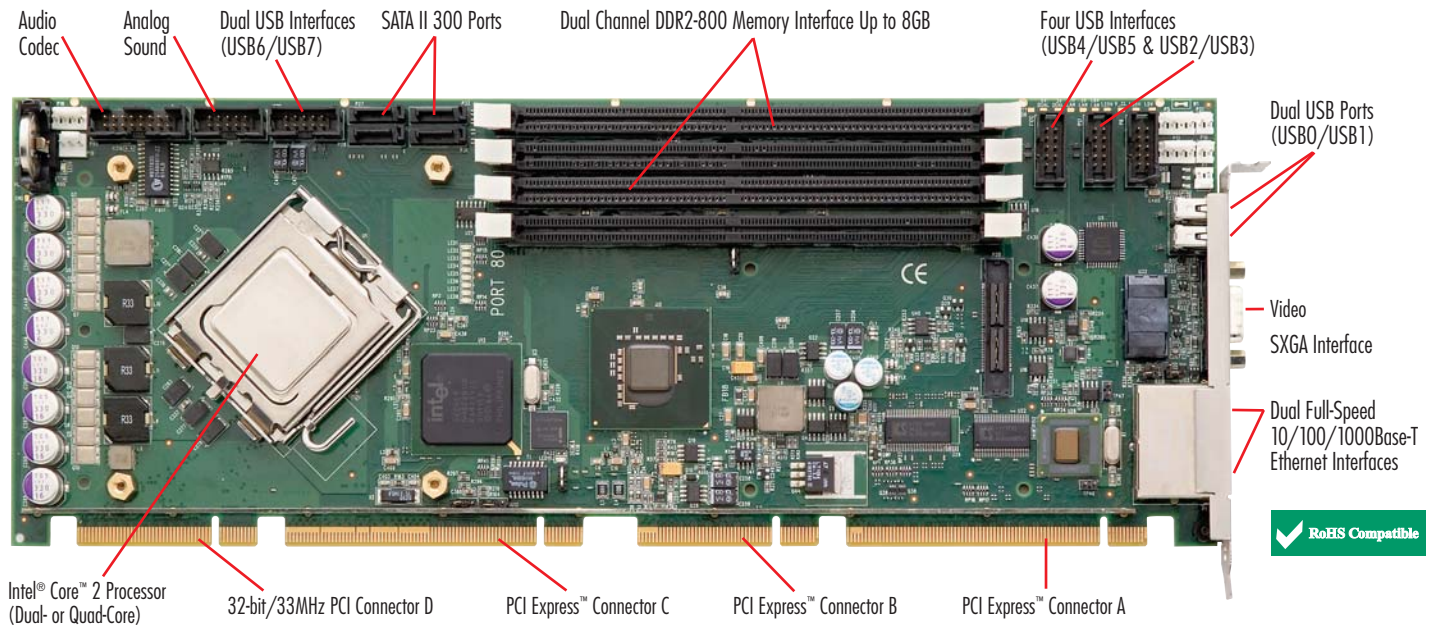


### TQ9 (SHB Express™) SYSTEM HOST BOARD



Trenton's TQ9 is a graphics-class, PICMG® 1.3 system host board that supports a wide variety of single-, dual- and quad-core Intel® processors. New TQ9 I/O interface capabilities include an audio codec interface, two eSATA connections to the backplane and a dozen USB interfaces. The Intel® Q35 MCH and Intel® ICH9DO ICH deliver advanced features like a 1333MHz system bus and SATA RAID. Plugging the TQ9 into a PICMG 1.3 graphics-class backplane enhances system design flexibility. A system designed with the TQ9 supports option cards from x16 PCI Express to legacy 32-bit/33MHz PCI cards.

#### PROCESSORS:

Intel® Core™ 2 Processor - E8xxx, Q9xxx series  
 Intel® Core™ 2 Duo Processor - E4xxx, E6xxx  
 Intel® Pentium® Dual Core Processor - E2xxx series  
 Intel® Celeron® Processor - 4xx series  
 Processor Package: LGA775 socket

The Intel® processor options on the TQ9 support a 1333MHz, 1066MHz or 800MHz system bus depending on the choice of processor. All of the processor options support both 64-bit and 32-bit applications. Other processor features:

- Quad-Core processor versions - Q9xxx series
- Dual-Core processor versions - E2xxx, E4xxx, E6xxx and E8xxx series
- Single-Core processor versions - Celeron 4xx series
- 12M L2 Cache (Q9xxx series), 6M L2 Cache (E8xxx series)
- 4M L2 Cache (E6700, E6x50 and E6x20 series)
- 2M L2 Cache (E4xxx series), 1M L2 Cache (E2xxx series)
- 512K L2 Cache (Celeron 4xx series)

#### CHIPSET:

The Intel® Q35 Express Chipset provides an advanced internal video and graphics port along with a separate x16 PCI Express interface. A dual-channel DDR2-800 memory interface supports four DIMM sockets and up to 8GB of system memory. The TQ9's ICH9DO also provides x1 and x4 PCI Express interfaces plus a 32-bit/33MHz PCI interface. Analog and digital audio capability is built into the Trenton TQ9 via the ICH9DO.

#### PCI EXPRESS™ INTERFACES:

Trenton's TQ9 graphics-class system host board provides one x16 PCI Express link on the SHB's edge connectors A and B. A x4 PCI Express link and five PCI Express reference clocks are also included on edge connectors A and B. An additional x1 PCI Express link and reference clock between the TQ9 and backplane can be provided by Trenton's optional IOB31 I/O Expansion Module. The PCI Express links are used on SHB Express backplanes to support PCI Express option cards and the bridge chips that provide PCI/PCI-X option card support. During system initialization the TQ9 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 TQ9 system host board supports communication to x1, x4, x8 and x16 PCI Express boards as well as PCI/PCI-X cards via PCI Express-to-PCI/PCI-X bridge chip technology. The TQ9 also provides a 32-bit/33MHz PCI bus interface on edge connector D.

#### DDR2-800 MEMORY:

The DDR2-800 interface is a dual-channel interface originating at the Memory Controller Hub, with each channel terminating at two DIMM module sockets. The TQ9 supports system memory transfer rates of 800MHz using unbuffered, non-ECC, PC2-6400 DIMMs. The TQ9's four DIMM sockets support a maximum memory capacity of 8GB. When using a single PC2-6400 DIMM, the peak memory interface bandwidth is 6.4GB/s, and placing a PC2-6400 DIMM in each socket of the two memory channels produces a TQ9 theoretical peak memory bandwidth of 12.8GB/s.

#### VIDEO INTERFACE:

The TQ9 supports three video connection options:

- Direct connection via the chipset's Intel® Graphics Media Accelerator 3100 with faster graphics and 3D performance
- An external video card installed in a backplane's x16 PCI Express slot will use the TQ9's x16 PCIe link that provides 3.5 times more bandwidth than an AGP 8X interface
- ADD2 video and graphic cards

#### PCI EXPRESS™ CONFIGURATION AND BUS SPEEDS:

PCI Express - Edge Connectors A & B - One x16 link, one x4 or four x1 links  
 - Five reference clocks  
 PCI Express - (via optional IOB31)  
 PCI - Edge Connector D - One x1 link and ref. clock  
 System or FSB - 32-bit/33MHz  
 - 1333MHz, 1066MHz or 800MHz

#### SERIAL ATA/300 PORTS (ON-BOARD):

The primary and secondary Serial ATA/300 (i.e. SATA II 300) ports on the TQ9 support four independent SATA storage devices such as hard disks, DVD-RW and CD-RW devices. SATA produces higher performance interfacing by providing data transfer rates up to 300MB per second on each port. The TQ9's ICH9DO I/O Controller hub features Intel® Matrix Storage Technology, which allows the ICH9DO's SATA controller to be configured as a RAID controller supporting RAID 0, 1, 5, and 10 implementations.

#### ETHERNET INTERFACES (I/O BACKET):

The TQ9 uses an internal x1 PCI Express link to connect the I/O Controller hub to the dual-port Gigabit Ethernet controller chip. This design feature enables dual 10/100/1000Base-T Ethernet interfaces on LAN 1 and LAN2. The LAN ports have RJ-45 connectors on the I/O bracket to provide the mechanical interfaces to the Ethernet networks.

#### PICMG® 1.3 BACKPLANE I/O INTERFACES:

The TQ9 enables the following PICMG 1.3 backplane I/O connectivity via the SHB's edge connector C:

- Four USB ports (Rev. 2.0)
- Two eSATA interfaces
- One 10/100Base-T Ethernet interface



Dependable, always.

