GE
Intelligent Platforms

V7812

Intel Quad-Core LV Xeon Dual Slot VME Single Board Computer

Features

- Intel® Quad-Core LV Xeon® @ 2.13 GHz
- Up to 12 Mbyte L2 cache
- Up to 4 Gbyte DDR2 SDRAM with ECC
- 1 GHz system and 667 MHz memory bus
- Integrated ATI Radeon E2400 Graphics Processing Unit delivering 2D, 3D, and multimedia graphics performance to embedded systems
- Optional 120 Gbyte SATA hard drive or 8 Gbyte SSD SATA drive
- Dual PCI-X PMC expansion sites
- 2x Gigabit Ethernet on the front panel
- Optional VXS (VITA 41.3, 1000Mbit/s IEEE 802.3)
- 2x Serial ports
- 6x USB 2.0 ports
- 4x SAS/SATA
- Operating System Support for Windows® XP and Linux®

The V7812 is a VXS capable VMEbus single board computer from GE Intelligent Platforms that offers 2.13 GHz of processing speed via the Intel Dual- or Quad-Core LV Xeon processor, up to four Gbyte DDR2 SDRAM, and also features a very rich I/O set, making this a very flexible addition to our expansive line of VME SBCs. I/O options include four Gigabit Ethernet interfaces (two via optional VXS), four SAS/SATA interfaces, six USB 2.0 ports, SVGA on the front panel (with DVI-I on the rear), as well as two PCI-X capable PMC site.

A unique feature of this SBC is the integration of the ATI Radeon E2400 Graphics Processing Unit as the primary video output providing 2D, 3D, and multimedia graphics performance for embedded systems. Features of this Graphics Processing Unit include:

- 64-bit interface to 128 Mbyte GDDR3 memory
- Native PCI Express x16 bus interface with flexibility to operate in x16, x8, x4, x2, and x1 modes (x4 mode utilized on V7812)
- Maximum HDMI Resolution: 1920 x 1080 (Full HD)

The V7812 meets the ANSI/VITA 1.5-2003 standard, based on the Tundra Tsi148. The VMEbus can run at a bandwidth of up to 320 Mbyte/s along the full length of a 21-slot backplane. Performance is increased in the following ways:

- 8x faster than the 40 Mbyte/s transfer rate of VME64
- Tsi148 VME-to-PCI/X bridge provides a 4x increase in useable bus bandwidth over existing solutions
- Broadcast Mode support for sending data to multiple cards at one time

Specifications

Processor
- Intel Dual- or Quad-Core LV Xeon Processor at 2.13 GHz
- 12 Mbyte L2 cache (Quad-Core), 4 Mbyte L2 cache (Dual-Core)
- 1 GHz system and 667 MHz memory bus

SDRAM
- Maximum memory configuration of 4 Gbyte DDR2 SDRAM with ECC via two full size DIMMs

Storage
- Can optionally order with either
  - 8 Gbyte SSD SATA drive or
  - 120 Gbyte SATA hard drive

BIOS
- The V7812 System BIOS and Video BIOS are provided in reprogrammable flash memory.

Ethernet
- 4x Gigabit Ethernet via two Intel 82571EB
  - Two ports on the front panel
  - Two ports on the optional P0 connector for VXS functionality (VITA 41.3)

USB Ports
- Six USB 2.0 ports
  - Four to the front panel
  - Two to rear I/O via P2
- Supported USB features
  - Isochronous data transfers
  - Asynchronous messaging
  - Self-identification and configuration of peripherals
  - Dynamic (hot) attachment

VMEbus Backplane Interface
- The Tundra Tsi148 enables VME320 protocol providing 320 Mbyte/s along the full length of a 21-slot backplane. Performance is increased in the following ways:
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- Tsi148 VME-to-PCI/X bridge provides a 4x increase in useable bus bandwidth over existing solutions
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V7812 Intel® Quad-Core LV Xeon® Dual Slot VME Single Board Computer

Serial Ports
- Two 16550 compatible serial ports
  - COM1 routed to front panel via RJ45 connector
  - COM2 routed to P2
- Ports feature independent 16-byte FIFO supporting baud rates up to 115 Kbaud

PMC Extension Slot
- Two 100 MHz PCI-X PMC sites
- 46-pin P2 user I/O per VITA35, P4V2-46dz

Watchdog Timer
- Programmable intervals
- Interrupt and board reset triggers

Dimensions
- 6U (4HP) double slot Eurocard form factor
- Height: 9.2 in. (233.4 mm)
- Depth: 6.3 in. (160 mm)
- Thickness: 1.6 in. (40.6 mm)

Power Requirements
- +5 VDC (+5/-2.5 percent), 12.2 A (typical), 16.8 A (maximum)
- +12 VDC (±5 percent), less than 1 mA
- -12 VDC (±5 percent), less than 1 mA

Note: VME Interface only allows lower voltage of -4.875
Note: Does not include PMC site for power requirements

Airflow
- Forced air cooling required
- 400 LFM minimum, measured at the outlet of the heatsink

Temperature
- Operating: 0° to +55° C
- Storage: -40° to +80° C

Altitude
- Operating: 0 - 10,000 ft (3,000 m)
- Storage: 0 - 40,000 ft (12,000 m)

Humidity
- Operating: relative humidity 5% to 95%, noncondensing
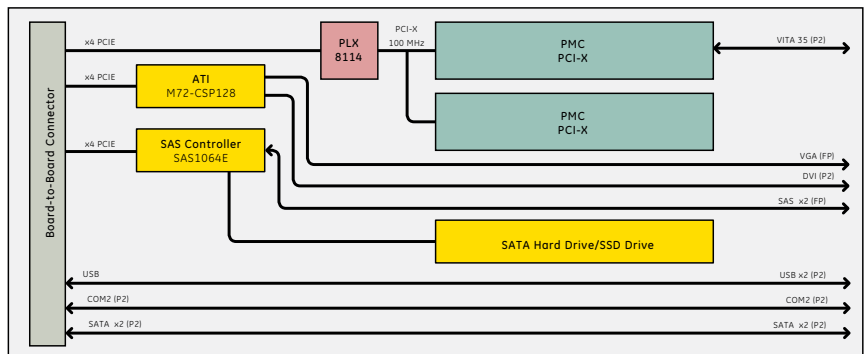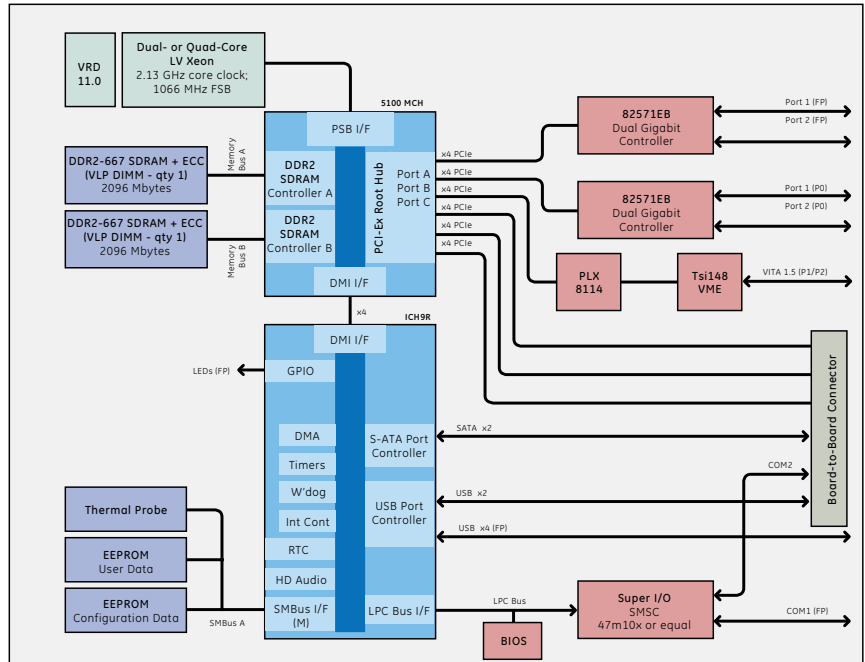- Storage: relative humidity 5% to 95%, noncondensing

MTBF
- Contact factory

Regulatory
- The V7812 has been tested and found to meet the requirements of the following standards:
  - European Union (CE Mark)
  - United States (FCC Part 15, Class A)
  - Canada (ICES-003, Class A)

Block Diagram

Ordering Information

V7812-110001:	Dual-Core Xeon Processor @ 2.13 GHz, 2 GByte DDR2 SDRAM w/ECC
V7812-220001:	Quad-Core Xeon Processor @ 2.13 GHz, 4 GByte DDR2 SDRAM w/ECC

Rear Transition Modules

ACC-0602RC-000:	3-row paddleboard
ACC-0603RC-000:	5-row 6U RTM, 2x SATA, one serial port, 2x USB 2.0, one DVI-I port

Software

V7812-SDK-XP:	Windows XP software development kit
V7812-SDK-LNX:	Linux software development kit

GE Intelligent Platforms Contact Information

Americas: **1 800 433 2682** or **1 434 978 5100**

Global regional phone numbers are listed by location on our web site at **www.ge-ip.com/contact**

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