PX3030

Single-Board Computer

Conduction-Cooled Single-Board Computer

Features:

- Conduction-cooled, military-rugged SBC in 3U VPX-REDI format
- Designed for harsh-environment combat vehicle applications
- Supports 2-Level Maintenance applications
- Montevina platform:
  - Core™ 2 Duo CPU
  - GS45/ICH9Me Express Chipset
  - Scalable performance from low-power 1.2 GHz to high-performance 2.26 GHz processors
- Up to 8 GB DDR3 RAM
- Extensive I/O complement – 2 x GbE, 2 x eSATA, 6 x USB, 4 x serial, 8 x GPIO, RGB, audio
- Flexible expansion with VITA 42.3 XMC site

OpenVPX

Performance and Functionality

The PX3030 is a conduction-cooled single-board computer offering an industry-leading combination of processing power and functionality in a 3U VPX-REDI module. With a Core 2 Duo processor at up to 2.26 GHz, up to 8 GB of RAM, and up to 16 GB of Flash storage the PX3030 provides the processing power to run performance-hungry Command & Control applications. The PX3030 fully utilizes the full I/O capability of the VPX format to provide an extensive I/O complement including 2 x GbE, 2 x eSATA, 6 x USB 2.0, 4 x serial I/O, VGA, discrete I/O, and up to 5 PCI Express ports to the backplane. The PX3030 also offers an XMC site for functional expansion.

Pedigree and Quality

The PX3030 is designed and built to survive the harshest combat vehicle electronics environments by General Dynamics Canada Ltd. (GD Canada), the world's leading supplier of military-rugged Intel-based single board computers. The PX3030 is built in GD Canada's manufacturing facility which is certified to ISO 9001 and follows IPC-A-610 class 3 assembly standards. GD Canada's facility is fully equipped to deal with today's ultra fine-pitch components and dense circuit card designs and includes optical and X-ray inspection equipment. In-house manufacturing ensures full control over schedule and product quality throughout the complete manufacturing process, from component procurement to assembly, functional test, Environmental Stress Screening, final inspection, and delivery.

GENERAL DYNAMICS
Canada

Processing

- Intel® Core™ 2 Duo ULV 1.2 GHz, LV 1.86 GHz, or SV 2.26 GHz
- Supports Intel Virtualization Technology (VT-x, VT-d)
- Supports Intel Trusted Execution Technology (TXT)
- 6 MB (LV and SV) or 3 MB (ULV) L2 cache on-die
- 1066 MHz (LV and SV) or 800 MHz (ULV) Front Side Bus
- 2, 4, or 8 GB DDR3 RAM (1066 MHz LV and SV, 800 MHz ULV):
  - Max 4 GB RAM with XMC site populated

Interfaces

- Dual Gigabit Ethernet 10/100/1000 Base-T (PHY/SerDes):
  - High performance and secure implementation – each port is implemented in a separate chip with dedicated PCIe interface
  - Boot from LAN support
  - Factory selectable option for SerDes outputs
  - Hardware support for IEEE 1588, Precision Time Protocol
- 2 x External Serial ATA Interfaces (eSATA):
- 6 x USB 2.0 ports (4 with VBUS):
  - Boot From USB support
- 4 asynchronous serial ports, selectable RS-232/422 levels:
  - Gang selectable in groups of two
  - Optional hand-shaking signals on Comm1, RS-232 only
- Up to 16 x GPIOs capable of generating interrupts
- High definition stereo audio In and Out
- TPM conforming to TCG 1.2 specification
- One 8-lane PCIe host port from GS45 to VPX P1 rows 1 to 8:
  - This interface not available if XMC PCIe used
- One 4-lane PCIe host port from ICH9M-E to VPX P1 rows 9 to 12:
  - Also configurable as four 1-lane host ports
- IPMI 1.5 subset (optional)

On-board Storage

- Up to 16 GB of onboard SATA flash storage
- 128 KB Serial EEPROM
- SATA Flash and EEPROM write-protected via backplane NVMRO

Graphics

- Intel X4500 Internal graphics
- RGB video output
- 2 single-link DVI output ports with level-shifter XMC (compatible with 8 GB memory option)

XMC Expansion Site

- VITA 42.3-compatible XMC site with 8-lane PCIe link to GS45:
  - This interface not available if backplane 8-lane PCIe used
- I/O routing to backplane conforms to VITA46.9 X8D and the first 4 signals of X38S
- LPC Bus, 1 SATA, 1 USB, and GPIOs routed to XMC P16 connector to support low-cost customization

Operating Systems Supported

- Microsoft Windows®
- Linux, RHEL and others
- VxWorks 6.x
- LynxOS

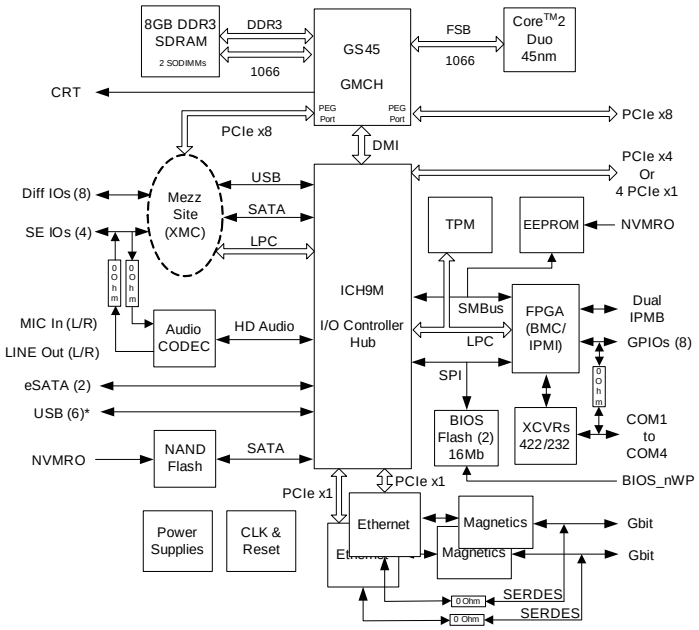
Module Standards

- VITA 46.4 (VPX)
- OpenVPX module profile MOD3-PAY-2F1F2U-16.2.1-3
- VITA 48.2 (VPX-REDI) Type 1 (conduction-cooled supporting 2-Level Maintenance)
- 0.85" pitch

Environmental

- Conduction-cooled per ANSI/VITA 30.1
- VITA 47 Compliant:
  - Operating temperature: VITA 47 CC4, -40°C to +85°C at card edge
  - Storage temperature: VITA 47 C4, -55°C to +105°C
  - Vibration: VITA 47 V3 random vibration, extended to .12g²/Hz from 5 to 2000 Hz
  - Shock: VITA 47 OS2, 40 g, 11 msec

PX3030 Block Diagram



Notes:
- USB 5and 6 are data only. Vbus must be supplied by the backplane
- the SERDES and Gbit pins are shared on the backplane
- audio MIC In/LINE Out and some SE IOs pins from the XMC are shared on the backplane
- COM1 handshaking signals and some GPIOs pins are shared on the backplane
- only one of the backplane x 8 PCIe and XMC PCIe can be enabled for a given configuration

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