GE Intelligent Platforms

XVR15
3rd Generation Intel® Core™ i7 Based Rugged VME Single Board Computer

Features
- Single slot 6U VME Single Board Computer
- 3rd Generation Intel Core i7 dual and quad core processors
- Integrated two channels up to 16 GB soldered DDR3 SDRAM with ECC
- Up to 6 MB shared cache
- Up to 8 GB Solid State Disk Drive
- Dual on-board Expansion Sites: two PCI-X PMC and two x8 PCIe XMC
- Front I/O:
  - 2x Gigabit Ethernet ports
  - 1x VGA
  - 1x USB port
  - 1x COM port
  - 1 x eSATA (optional)
  - 1 x USB 3.0 (optional)
- Rear IO:
  - 2x Gigabit Ethernet ports (VITA 31.1)
  - 1x VGA (2 ports possible if front I/O not required)
  - 2x DVI
  - Up to 4x SATA ports
  - 2x COM ports
  - 2x USB 2.0 ports (1 upgradable to USB3.0 in place of 1 SATA port)
  - 1x Audio
  - 12x GPIO
  - 2x PMC rear I/O
  - 2x XMC rear I/O
- BIOS backup Flash
- Optional on-board SATA HDD
- Optional conduction cooling
- Optional extended operating temperature range
- Deployed Test Software
- Windows®, Linux® and Real-Time OS support

The XVR15 Rugged Single Board Computer (SBC) from GE Intelligent Platforms features the high performance, highly integrated 3rd Generation Core i7 processor platform from Intel.

3rd Generation Core i7 offers integrated graphics and memory controller plus dual and quad core processing up to 2.5 GHz all in one device. Coupled with the Mobile Intel QM77 Express Chipset this provides an unmatched level of I/O bandwidth for both on-board and off-board functions.

Features of the 3rd Gen. Core i7 processor
- Up to 15% (compute) and 50% (3D graphics) performance improvement over previous generation
- Advanced Vector Extensions (AVX) signal processing
- Intelligent performance on-demand with Intel Turbo Boost Technology
- PCIe GEN 3 (8 GT/sec) and USB 3.0 (10x the Bandwidth of 2.0) data transfer capability
- Hyper-Thread Technology – 2 threads per core

In addition to a comprehensive range of onboard I/O features, the XVR15 also offers two on-board mezzanine expansion sites for enhanced system flexibility, both of which offer PMC and XMC capability. Memory resources include up to 16 GB DDR3 SDRAM, 8 GB Solid State Disk Drive, optional SATA hard drive, BIOS Flash and BIOS backup Flash.

The XVR15 is designed to meet the requirements of a wide range of applications from industrial through to fully rugged Defense and Aerospace programs. It offers extended temperature capability and a range of air and conduction cooled build levels.

A rich software choice is planned for the XVR15, including comprehensive Deployed Test Software (BIT and BCS) plus OS support for Windows 7, Open Linux, Wind River Linux, VxWorks®.

Specifications
Processor
- Intel 3rd Gen. Core i7 Processor, options include but are not limited to:
  - i7-3615QE (Quad Core) @ 2.3 GHz (45W)
  - i7-3555LE (Dual Core) @ 2.5 GHz (25W)
  - i7-3517UE (Dual Core) @ 1.7 GHz (17W)
  (CPU speed is dependent on environment, consult manual for details)
- 22nm monolithic die processing technology
- Last Level Cache
  - 6 MB (Quad i7)
  - 4 MB (Dual i7)

SDRAM
- Maximum memory configuration of dual channels up to 16 GB DDR3 SDRAM soldered with ECC

Flash Memory
- Soldered Solid State Disk Drive up to 8 GB

BIOS
- 1x 16 Mb for BIT and BIOS plus 1x 16 Mb for redundancy
**Specifications (continued)**

**Ethernet**
- Dual Gigabit Ethernet interface via two Intel 82574 Gigabit Ethernet controllers – routed to front panel
- Dual Gigabit Ethernet interface via two Intel 82574 Gigabit Ethernet controllers – routed to rear

**USB Ports**
- Two USB 2.0 ports routed to rear P2 connector (one of which is upgradable to USB3.0 in place of 1 SATA port)
- One USB 2.0 port routed to front panel
- One USB 3.0 port (optionall routed to front panel (precludes use of XMC / PMC site 2)

**VME Backplane Interface**
- 2eSST capable via TSi148 (ANSI/VITA 1.5-2003 offering bandwidths up to 320 MB/s)

**Serial Ports**
- Three 16550 compatible full duplex async serial ports
- One routed to front panel RS-232 (COM3)
- Two routed to P2, with user selectable RS-232/422/485
- Ports feature independent 16-byte FIFO supporting baud rates up to 115 Kbaud

**PMC/XMC Expansion**
- Up to two on-board mezzanine expansion sites
  - Site 1 PMC (PCI-X up to 64-bit/133 MHz) and XMC (x8 PCIe Gen 2) capable; PMC rear I/O routed to P2
  - Site 2 PMC (PCI-X up to 64-bit/133 MHz) and XMC (x8 PCIe Gen 2) capable; PMC rear I/O routed to P0
- PCI signaling is 3.3V, 5V tolerant; +/-12V mezzanine only
- 25W per site capable mezzanine power supply

**Audio**
- High Definition Audio Codec
- Stereo line in and stereo line out

**Video**
- One VGA port routed to front panel
- One VGA port routed to P2; can be two ports if front I/O not used
- Two DVI ports routed to rear I/O P0/P2

**SATA**
- Up to four SATA ports to rear I/O
- One eSATA port (optional) routed to front panel (precludes use of XMC / PMC site 2)

**GPIO**
- 12 GPIO pins – software configurable

**Other HW Features**
- Hardware Write Protection
- Front power button LED
- IPMI 2.0 Controller (PICMG 2.9)
- Transition Module
- VTM26

**MRAM/Watchdog/Real-Time Clock/TPM**
- 512 kB non-volatile RAM (MRAM)
- SuperIO watchdog
- Real-time clock in PCH

**Temperature Sensor**
- Onboard ambient temperature; CPU

**Environmental**

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*With a flat response to 1000 Hz, 6 dB/Oct roll-off from 1000 to 2000 Hz ** From 10 to 1000 Hz *** Peak sawtooth 11 ms duration

**About GE Intelligent Platforms**

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit www.ge-ip.com.

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