

# XVB601

## Intel Core i7 Based VME Single Board Computer

### Features

- Intel® Core i7 Processor up to 2.53 GHz
  - Integrated two channel DDR3-1067 memory controller with ECC
  - Up to 4 MBytes shared cache
- Up to 8 GBytes soldered DDR3 SDRAM with ECC
- Mobile Intel QM57 Express chipset
- Up to 16 GBytes CompactFlash
- Dual on-board Expansion Sites:
  - One PCI-X PMC/ x4 PCIe XMC expansion site
  - One PCI-X PMC expansion site
- x8 PCIe board-to-board connector (supports EXP237 Carrier/IO expansion board)
- Front IO
  - 2x Gigabit Ethernet
  - 4x USB 2.0 ports
  - 1x VGA
  - 1x COM port
- Rear IO
  - 4x SATA ports
  - 1x DVI-I
  - 4x USB 2.0 ports
  - 1x COM port
  - 2x PMC IO
  - 8x GPIO
- Operating System Support for Windows®, VxWorks®, and Linux®
- Single slot 6U VME64 form factor
- Compliant to IEEE STD 1101.2-1992 and ANSI/VITA 20-2001, VITA 30.1

The XVB601 Single Board Computer (SBC) from GE Intelligent Platforms features the highly integrated Core i7 processor platform from Intel®. Core i7 offers integrated graphics and memory controller plus dual core processing up to 2.53 GHz.

Coupled with the Mobile Intel QM57 Express Chipset this provides an unmatched level of I/O bandwidth for both on-board and off-board functions.

Features of the Core i7 processor:

- Intel Intelligent Power Technology allows processors to operate at optimal frequency and power.
- Intelligent performance on-demand with Intel Turbo Boost Technology
- Multi-level shared cache improves performance and efficiency by reducing latency to frequently used data
- Hyper-Thread Technology – 2 threads per core
- Streaming SIMD extensions 4.1/4.2

The XVB601 offers two on-board mezzanine expansion sites for enhanced system flexibility, one of which is PMC/XMC capable and one of which is PMC only.

The XVB601 provides further customer defined I/O capabilities with the board-to-board connector for the EXP237 XMC/PMC carrier/IO expansion board, which offers customers three additional PCI-X XMC/PMC expansion sites to utilize.

### Specifications

#### Processor

- Intel Core i7 32nm Processor:
  - ULV @ 1.06 GHz
  - SV @ 2.53 GHz
- 4 MByte shared cache on all processor options
- Integrated two channel DDR3-1067 memory controller with ECC

#### SDRAM

- Maximum memory configuration of up to 8 GBytes DDR3 SDRAM soldered with ECC

#### Compact Flash

- CompactFlash up to 16 GB is supported through the conversion of a SATA port from the QM57 chipset to a PATA CF bus interface

#### UEFI (replaces BIOS)

- The XVB601 System UEFI includes all functions required by the processor core and chipset
- Also supports expansion ROM code for remote booting from either of the dual Ethernet ports

#### Ethernet

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

#### USB Ports

- Eight USB 2.0 ports: four to front panel I/O, and four to rear via P2
- Keyboard and Mouse (PS2) emulation via USB

#### VMEbus Backplane Interface

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



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## Specifications (continued)

### Serial Ports

- Two 16550 compatible full duplex async serial ports
- COM1 routed to front panel RJ45 (RS232/422/485)
- COM2 routed to P2 (RS232/422/485) requires transceivers [to convert from TTL] on RTM
- Ports feature independent 16-byte FIFO supporting baud rates up to 115 Kbaud

### PMC/XMC Expansion

- Site 1 is PMC (PCI-X up to 64 bit/133 MHz) and XMC (x4 PCIe Gen 2, 2.5 GT/s) capable
- Site 2 is PMC (PCI-X up to 64 bit/133 MHz) capable
- Up to 3 additional mezzanine sites can be added via the EXP237 (see EXP237 data sheet.)

### Video

- Provided via the integrated Intel Graphics Controller
- VGA on front panel with DVI-I routed to P2 (for use with ACC-0603 or ACC-0627)
- Any 2 ports can be used for dual display operation

### SATA

- Two Gen 2 (3 GB/s) SATA ports to rear IO (P2)
- Two optional Gen 2 (3 GB/s)/e-SATA ports to rear IO (P0) available when P0 option fitted

### GPIO

- 8 GPIO pins available when P0 option fitted - software configurable

### On-board hard drive

- 2.5" SATA hard drive or Flash disk can be optionally ordered (precludes use of PMC/XMC site 2)

### Power Requirements

- +5V (plus ±12V if required by mounted PMC module)

### Watchdog/Timers/RTC/Temp sensors

- Two 16-bit timers and two 32-bit timers - software programmable and capable of generating PCI bus interrupts
- RTC 146818 compatible with Li
- CPU die and Chipset die, software readable

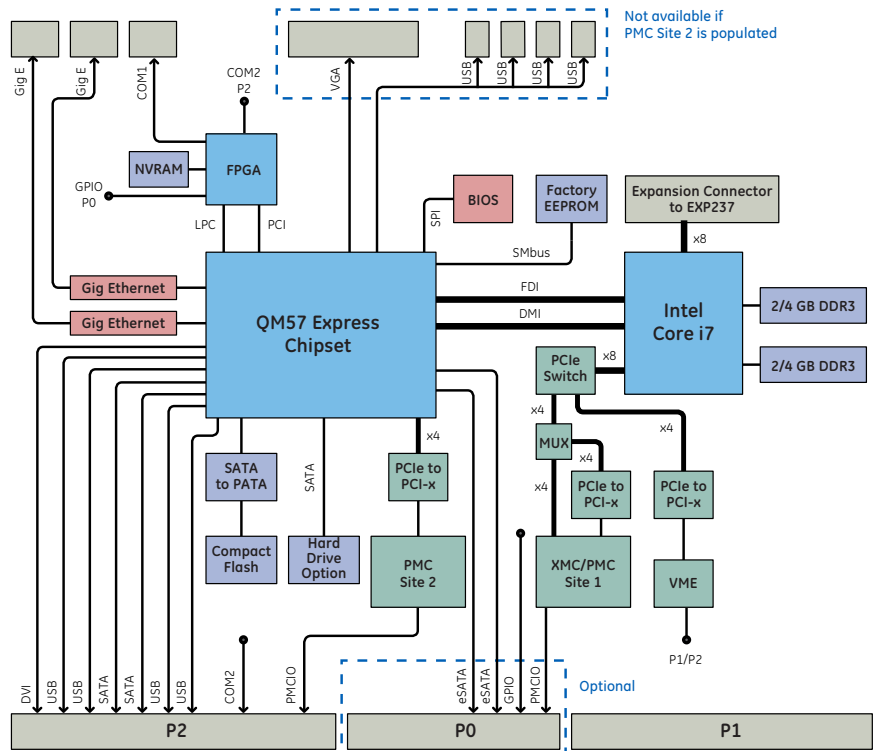
### Transition Modules and Product Combinations

- ACC-0603
- ACC-0627
- EXP237 - Used via board-to-board connector (precludes use of on-board PMC2)

### Software

- Support for Windows, Linux, VxWorks

## Block Diagram



## Environmental

	Level 1	Level B
Cooling Method	Convection	Convection
Conformal Coating	Optional	Standard
Operating Temp (for upper limit - please consult the manual)	0 to 55°C (300 ft/m)	-20 to +55°C (300 ft/m)
Random Vibration	0.002g <sup>2</sup> /Hz*	0.002g <sup>2</sup> /Hz*
Shock	20g***	20g***

\*With a flat response to 1000 Hz, 6 dB/Oct roll-off from 1000 to 2000 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 Enterprise Solutions. For more information, visit [www.ge-ip.com](http://www.ge-ip.com).

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