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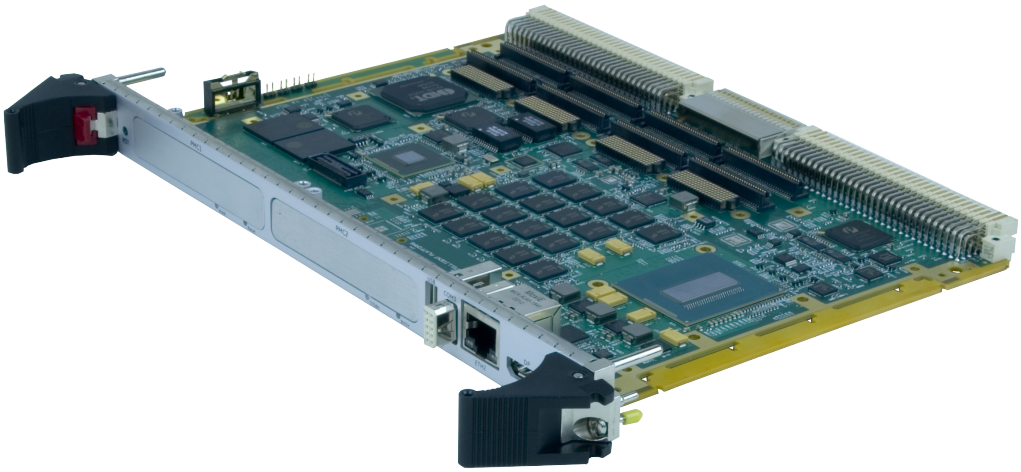
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XVR16

4th Generation Intel® Core™ i7 Based Rugged VME Single Board Computer

The XVR16 Rugged Single Board Computer (SBC) from Abaco Systems features the high performance, highly integrated 4th Generation Core i7 processor platform from Intel®.

4th Generation Core i7 offers integrated graphics and memory controller plus quad core processing up to 2.4GHz all in one device. Coupled with the Mobile Intel QM87 Express Chipset this provides an unmatched level of I/O bandwidth for both on-board and off-board functions.

Features of the 4th Generation Core i7 processor

- Graphics support for DX11.1, OpenCL 1.2, OpenGL 3.2
- 5 to 15% CPU performance boost over 3rd generation
- Intel TurboBoost Technology
- Intel AVX 2.0 extensions and AES-NI instructions
- Hardware assisted security features
- Hyper-Thread Technology – 2 threads per core

In addition to a comprehensive range of onboard I/O features, the XVR16 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, up to 64 GB NAND Flash, optional SATA hard drive, BIOS Flash and BIOS backup Flash.

The XVR16 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 XVR16, including comprehensive Deployed Test Software (BIT and BCS) and AXIS, plus OS support for Microsoft Windows 7, Open Linux, Wind River Linux, VxWorks.

FEATURES:

- Single slot 6U VME Single Board Computer
- 4th Generation Intel Core i7 quad core processor
- Two channels of soldered DDR3 SDRAM with ECC up to 16 GB
- Up to 6 MB shared cache
- Up to 64 GB NAND Flash
- On-board Expansion sites
  - 2x XMC - x8 PCIe Gen 3 capable
  - 2x PMC - PCI-X 133 MHz
- Front I/O:
  - 2x Gigabit Ethernet ports (second port is optionally available)
  - 1x DisplayPort
  - 2x USB ports (USB 3.0 optional)
  - 1x COM port
  - 1x Power button
  - 1 x eSATA (optional)
- Rear IO: 2x Gigabit Ethernet ports (VITA 31.1)
  - 2x VGA
  - 2x DVI
  - 2x SATA Gen3 ports, RAID capable
  - 2x COM ports
  - 2x USB 2.0 ports
  - 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
- AXIS and Deployed Test Software
- Microsoft® Windows®, Linux® and VxWorks® OS support
- Five Levels of Ruggedization

abaco SYSTEMS

XVR16 *4th Generation Intel® Core™ i7 Based Rugged VME Single Board Computer*

Specifications

Processor
- Intel 4th Gen. Core i7 Processor
- i7-4700EQ (Quad Core) @ 2.4 GHz (47W) base frequency, up to 3.4 GHz TurboBoost (Note: CPU speed is dependent on environment, consult manual for details)
- 22 nm monolithic die processing technology
- 6 MB Last Level Cache

SDRAM
- Maximum memory configuration of dual channels up to 16 GB DDR3L SDRAM soldered with ECC

Flash Memory
- Up to 64 GB via two devices per board

BIOS
- 1x 16 Mb for BIT and BIOS plus 1x 16 Mb for redundancy

Ethernet
- Gigabit Ethernet interface via Intel 82574 Gigabit Ethernet controllers – routed to front panel. Second GigE port is optional (precludes use of XMC / PMC site 2)
- 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 USB 2.0 port routed to front panel
- One USB 3.0 port (optional) 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)

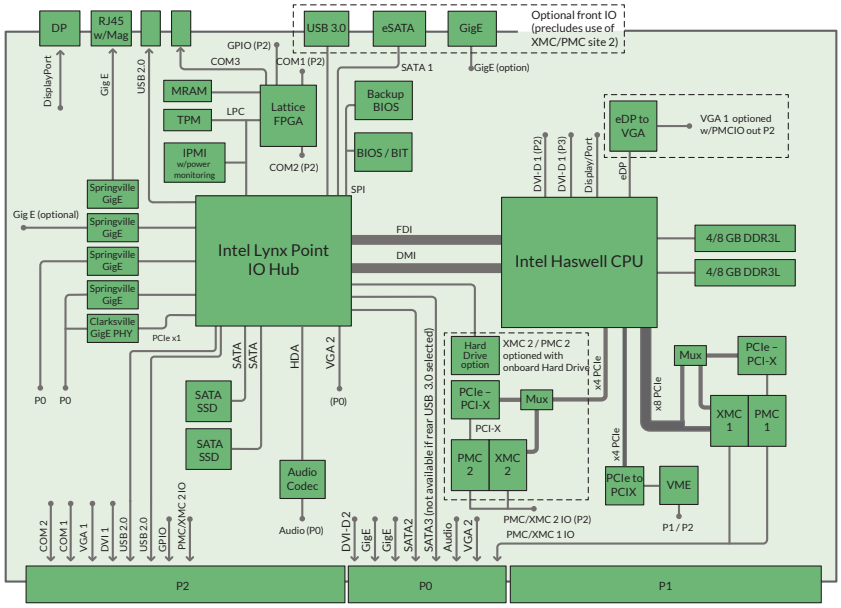
Serial Ports
- Three 16550 compatible full duplex async serial ports
- One routed to front panel RS-232 (COM3)
- Two routed to P2, with user selectable RS-232/422/485
- Ports feature independent 16-byte FIFO supporting baud rates up to 115 Kbaud

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 IO routed to P0
  - Site 2 PMC (PCI-X up to 64-bit /133 MHz) and XMC (x8 PCIe Gen 2) capable; PMC and XMC rear IO routed to P2
- PCI signaling is 3.3V, 5V tolerant
- 25W per site capable mezzanine power supply

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

Video
- Up to three independent displays
  - One DisplayPort routed to front panel
  - Two VGA ports routed to P0/P2
  - Two DVI ports routed to P0/P2

Block diagram



SATA
- Two 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

On-board Hard Drive
- SATA hard drive or SSD can be optionally ordered (precludes use of PMC/XMC site 2)

LED
- 3x status LEDs and four BIT status

Power Requirements
- +5, +3.3V
- +/-12V for mezzanine only

MRAM/ Watchdog/ Timers/ TPM
- 512 kB non-volatile RAM (MRAM)
- Software programmable watchdog
- Timers in CPLD (SW programmable)
- HW support for TXT [VPRO]

Temperature Sensor
- Onboard ambient temperature; CPU

Other HW Features
- Hardware Write Protection
- Front power button LED
- BMC (IPMI)
- JTAG via rear

Transition Module
- New RTM with Mezzio sites

Ordering information

	Level 1	Level 2	Level 3	Level 4	Level 5
Cooling Method	Convection	Convection	Convection	Conduction	Conduction
Conformal Coating	Optional	Standard	Standard	Standard	Standard
High/Low Temp	0 to 55°C	-20 to +65°C	-40 to +75°C	-40 to +75°C	-40 to +85°C
Operational	(300 ft/m)	(300 ft/m)	(600 ft/m)	At cold wall	At cold wall
Random Vibration	0.002g2/Hz*	0.002g2/Hz*	0.04g2/Hz**	0.1g2/Hz**	0.1g2/Hz**
Shock	20g***	20g***	20g***	40g***	40g***

* 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. Note: Processor performance and temperature are inter-dependent. For a given temperature, a maximum speed is achievable, and conversely for a given processor speed a maximum temperature is achievable. Consult the product manual for details.

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03/15 A-DS-2029

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