

# XCalibur4540

**End of Life**

5th Generation Intel® Core™ i7 Broadwell-H Processor-Based Conduction- or Air-Cooled 6U VPX Module

Please contact X-ES Sales

- › Supports 5th generation (Broadwell-H) and 4th generation (Haswell) Intel® Core™ i7 processors
- › 6U VPX (VITA 46) module
- › VITA 46.11 Tier 1 and Tier 2 IPMI Controller (IPMC)
- › Compatible with multiple OpenVPX™ (VITA 65) profiles
- › Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- › Conduction or air cooling
- › Supports two XMC/PrPMC modules
- › Up to 16 GB of DDR3 ECC SDRAM in two channels
- › Up to 64 GB of onboard SATA NAND flash
- › Four 40 Gigabit Ethernet ports or four 10 Gigabit Ethernet ports
- › Up to five Gigabit Ethernet ports
- › Four x4, two x8, or one x16 PCI Express Gen3-capable interface from switch to backplane
- › Up to two graphics ports
- › Up to three USB 2.0 ports
- › Three SATA ports
- › Two RS-232/422/485 serial ports
- › Wind River VxWorks BSP
- › Linux BSP
- › Microsoft Windows drivers
- › Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynxWorks LynxOS BSPs



## XCalibur4540

The XCalibur4540 is a high-performance, 6U OpenVPX™, multiprocessing, single board computer that is ideal for ruggedized systems requiring high-bandwidth processing and low power consumption. With a 5th generation Intel® Core™ i7 Broadwell-H processor, four 10 or 40 Gigabit Ethernet ports on the data plane, and a configurable x16 PCI Express Gen3-capable expansion plane interface, the XCalibur4540 delivers enhanced performance and efficiency for today's embedded computing applications. The XCalibur4540 also leverages Intel® Iris™ Pro graphics for graphics-intensive tasks and serves as a general-purpose GPU for demanding data processing applications.

The XCalibur4540 provides up to 16 GB of DDR3 ECC SDRAM in two channels, two XMC/PrPMC slots, and up to 64 GB of SATA NAND flash. The XCalibur4540 also supports five Gigabit Ethernet ports, two graphics ports, three SATA ports, three USB 2.0 ports, and two RS-232/422/485 serial ports out the front panel and/or backplane.

The XCalibur4540 is a powerful, feature-rich solution for the next generation of compute-intensive embedded applications. Wind River VxWorks and Linux Board Support Packages (BSPs) are available, as well as Microsoft Windows drivers.

# X-ES

Extreme Engineering Solutions

*...Always Fast*

### Extreme Engineering Solutions

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**Processor**

- 5th generation Intel® Core™ i7 (Broadwell-H)
- 4th generation Intel® Core™ i7 (Haswell)
- Integrated high-performance 3D graphics controller
- Up to Intel® Iris™ Pro Graphics 6200

**Memory**

- Up to 16 GB of DDR3 ECC SDRAM in two channels
- Up to 64 GB of NAND flash
- 64 MB NOR boot flash
- 64 kB EEPROM

**OpenVPX™**

- VITA 46.11 (System Management on VPX)
- Compatible with multiple OpenVPX™ (VITA 65) profiles
- Four 40GBASE-KR4 Ethernet ports or four 10GBASE-KX4 Ethernet ports to P1
- Configurable x16 PCI Express Gen3-capable interface to P2
- Two 10/100/1000BASE-T Ethernet ports
- Two 1000BASE-BX Ethernet ports
- XMC and PMC I/O to P3, P4, P5, and P6

**XMC**

- x8 PCI Express Gen3-capable interface to J15 and J25
- Pn6 I/O to VPX connectors per VITA 46.9 X38s+X12d+X8d

**PrPMC**

- PCI (32-bit, 66/33 MHz)
- Pn4 I/O per VITA 46.9 P64s

**Front Panel I/O (Optional)**

- One 10/100/1000BASE-T Ethernet port
- One USB 2.0 port
- Dual-Mode DisplayPort interface
- General-purpose LEDs

**Back Panel I/O**

- Four 40GBASE-KR4 Ethernet ports or four 10GBASE-KX4 Ethernet ports
- Two 10/100/1000BASE-T Gigabit Ethernet ports
- Two 1000BASE-BX Gigabit Ethernet ports
- Three SATA ports capable of 6 Gb/s
- Two USB 2.0 ports
- One HDMI/DVI-D or Dual-Mode DisplayPort interface
- Two RS-232/422/485 serial ports
- Pn4 and Pn6 I/O per VITA 46.9

**Additional Features**

- Non-volatile memory write protection
- Optional Trusted Platform Module (TPM)
- VITA 46.11 Tier 1 and Tier 2 IPMI Controller (IPMC)
- IEEE 1588 support (optional)
- Intel® Active Management Technology (AMT) supported by Intel® vPro™ Technology (optional)

**Software Support**

- Wind River VxWorks BSP
- Linux BSP
- Microsoft Windows drivers
- Contact factory for availability of Green Hills INTEGRITY, QNX Neutrino, and LynuxWorks LynxOS BSPs

**Physical Characteristics**

- 6U VPX-REDI conduction- or air-cooled form factor
- Dimensions: 233 mm x 160 mm
- 0.8 in. pitch
- 1.0 in. pitch Two-Level Maintenance (2LM)

**Environmental Requirements**

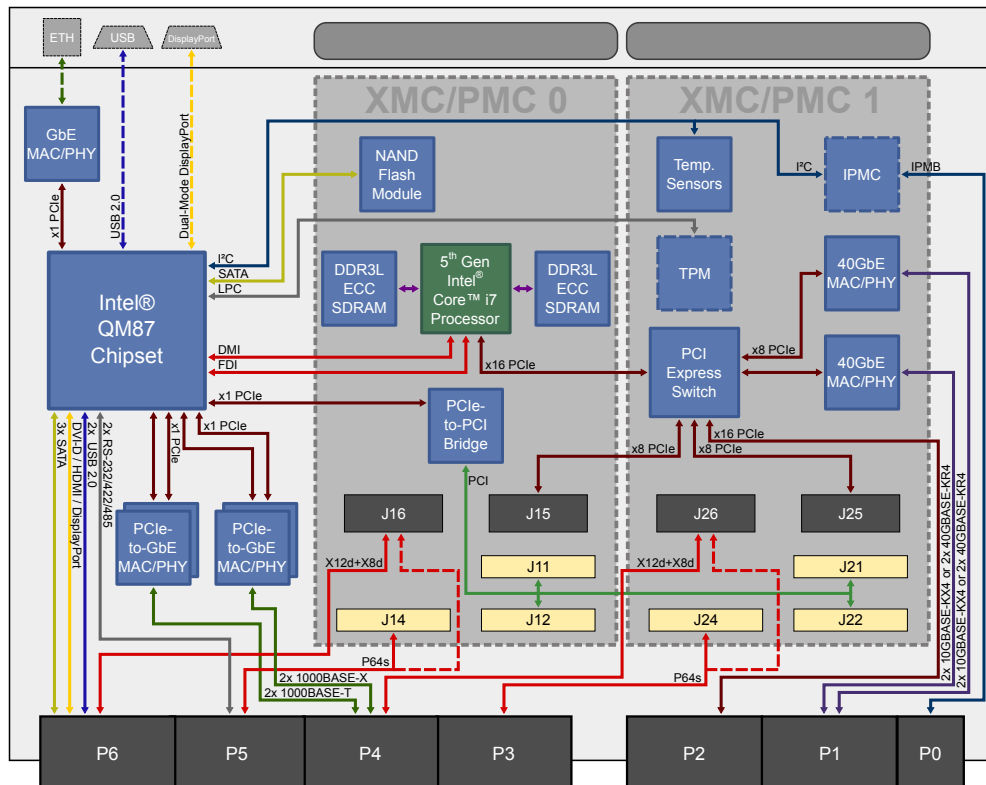
- Contact factory for appropriate board configuration based on environmental requirements.
- Supported ruggedization levels (see chart below): 1, 3, 5
  - Conformal coating available as an ordering option
  - Thermal performance will vary based on CPU frequency and application

**Power Requirements**

- Power will vary based on configuration and usage. Please consult factory.

Ruggedization Level	Level 1	Level 3	Level 5
Cooling Method	Standard Air-Cooled	Rugged Air-Cooled	Conduction-Cooled
Operating Temperature	0 to +55°C ambient †	-40 to +70°C ambient †	-40 to +85°C (board rail surface)
Storage Temperature	-40 to +85°C ambient	-55 to +105°C ambient	-55 to +105°C (maximum)
Vibration	0.002 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.04 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.1 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz
Shock	20 g, 11 ms sawtooth	30 g, 11 ms sawtooth	40 g, 11 ms sawtooth
Humidity	Up to 95% non-condensing	Up to 95% non-condensing	Up to 95% non-condensing

† Contact factory for airflow rate details.



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