

# Single Board Computers

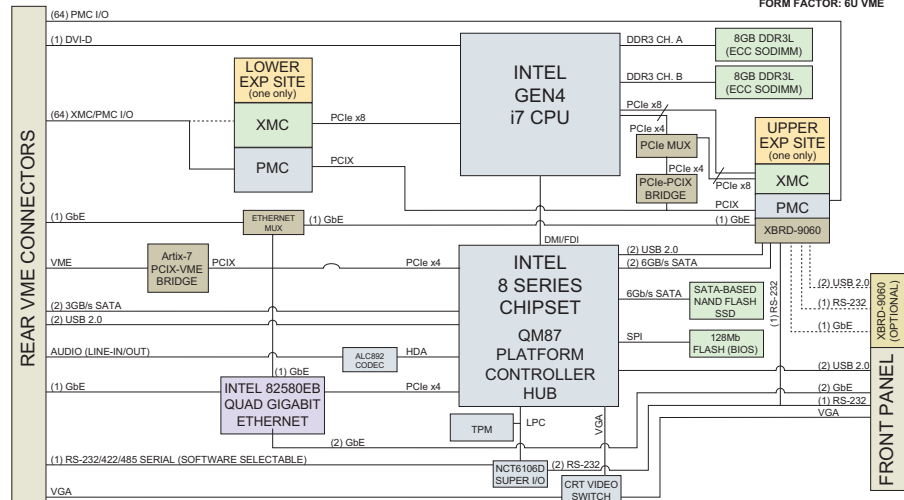
## XVME-6500 6U VME Intel® Core™ i7 Air Cooled Processor Board



FORM FACTOR: 6U VME



**ARTIX™-7 FPGA-Based VMEbus Interface**



Intel® i7 CPU ◆ TPM 2.0 ◆ Up to 16GB DDR3L ECC RAM ◆ BIOS Selectable Byte Swapping

If you're one of the thousands who depends on the continued use of your VMEbus systems you can feel confident that Acromag is there for you. This single board computer updates your legacy systems with an Intel processor that will deliver significant performance advancements such as: enhanced microarchitecture, integrated graphics, and expanded memory performance with up to 16GB of high-bandwidth DDR3L memory and ECC memory controllers.

**The XVME-6500 will add 7 to 10 years of life to your system with modern technology. This high-performance SBC features a FPGA-based VME to PCIe-bridge that solved the end of life issue with the TSI148 VME interface chip.**

Cutting-edge technology features programmable power limits allowing the user to "dial-down" the maximum power consumption of the CPU in heat sensitive applications.

Ruggedized SODIMM 16GB removable memory is surrounded by heat sink material to provide a mechanically and thermally robust mechanism. The SODIMM is secured with four screws so it is easy to replace faulty memory. The XVME-6500 also takes advantage of Intel Advanced Vector Extensions 2.0 for enhanced performance on floating point-intensive applications and Hyper-Threading Technology that enables each core to use two software threads for more efficient use of the CPU.

### Expansion Capabilities

In addition to a comprehensive range of front panel and backplane I/O features, the XVME-6500 offers increased expansion capabilities through two PMC/XMC sites on the board.

In lieu of one PMC/XMC module, the optional XBRD-9060 expansion I/O carrier module may be installed. The XBRD-9060 allows for two SSD mSATA drives, as well as another Gigabit Ethernet port, RS-232 port, and two USB 2.0 ports.

The XVME-9640 rear transition module is also available for further storage, networking, and easy access to the P2 connector I/O.

### Operating System Software

VxWorks, Linux and Windows

### Extensive Support

With over 60 years experience, more than 35 of those years working with defense and military contracts, we are focused on providing embedded computing solutions for the best long term value in the industry.

Designed and manufactured in the USA, with a 2-year standard warranty.

### Key Features & Benefits

- 4th Generation Intel Core:
  - Quad Core i7 CPU for high performance (47W)
- Programmable CPU power for heat sensitive applications
- FPGA-based VME to PCIe bridge
- Intel 8-Series QM87 PCH chipset
- Up to 16GB of high-speed DDR3L memory with SODIMM lock-down mechanism
- Front panel I/O includes:
  - dual USB 2.0 ports
  - VGA (switched w/ rear)
  - dual Gb Ethernet ports thru RJ Point 5 connector
  - RS-232 port
- Backplane I/O includes:
  - dual Gigabit Ethernet (on optional P0)
  - dual SATA ports & dual USB ports
  - DVI-D
  - RS-232/422/485
  - VGA (switched with front)
- XBRD-9060 expansion module adds:
  - dual USB 2.0 ports
  - Gigabit Ethernet port (switched with one of the rear ports)
  - RS-232 port
  - dual mSATA drives
- Power-on self test (POST) code LCD display



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## XVME-6500 6U VME Intel® Core™ i7 Air Cooled Processor Board

### Performance Specifications

#### Processor and Memory

##### Processor

Intel Core™ i7 processor.  
(4th generation, codename Haswell). The CPU allows programming a lower power limit in the BIOS setup allowing use in applications where less power is available or heat removal is an issue.

i7-4700EQ: 2.4GHz, quad core, 6Mb cache, 47W.

##### Chipset

Intel 8-Series QM87 PCH chipset.

Intel DH82QM87 Platform Controller Hub.

##### Memory

16GB of 1600 DDR3L ECC memory.

##### Flash Memory

40-GB standard.

##### Software Support

VxWorks, Linux and Windows.

#### Bus Compliance

##### VMEbus Interface

P1 and P2 connectors are compatible with VME64x.

VME Master/Slave using FPGA-based VME to PCIe bridge.

A32/A24/A16/D32/D16/D8, MBLT64, 2eVME/2eSST.

##### Dual PMC/XMC Sites

32/64-bit, 33/66/133MHz sites (IEEE P1386/P1386.1).

Front panel I/O bezel and P4 module user I/O on optional P0 rear connector and P2 connector. (XMC module P16 connector I/O optionally available on P0 connector, please consult the factory).

XMCs are PCIe x8.

Option to replace PMC/XMC #2 with the XBRD-9060.

#### System Integrity

A two-digit LED display is available for power-on self test (POST) codes for problems during the boot operation. It can then be used for application software user codes to aid in software debugging.

ISO9001  
AS9100



#### Form Factor

6U VMEbus 9.2" (233mm) x 6.3" (160mm).

#### Optional Expansion

##### XBRD-9060

Allows more I/O to the front panel, as well as mSATA SSD modules to be added for storage. Front panel I/O available are Gb Ethernet, RS-232 serial port, and two USB ports.

The XBRD-9060 also contains two mSATA sockets that allow two SSD drives to be added while still remaining within a single VME slot. Using the software RAID functionality of the QM87 PCH, these drives can even be setup as a RAID 0/1 array if redundancy or extra speed is desired.

##### XVME-9640

Installed onto the rear slot directly behind the XVME-6500 to easily access all of the available I/O on the P2, and optionally P0 connectors, as well as allow mSATA SSD modules to be added for storage. Front panel I/O available are two Gb Ethernet ports, one VGA port, one DVI-D port, and two USB ports. Internal connectors are also available. Please see the user manual for more information.

#### Environmental

##### Operating temperature

Standard temperature models: 0 to 70°C\*.

Extended temperature models: -40 to 75°C\*.

\* w/ 300 lfm airflow; depends on application - see manual for details.

##### Storage temperature

-55 to 85°C.

##### Relative humidity

5% to 95% at 60°C non-condensing.

##### Power Inputs from backplane

###### Quad Core i7

5V (5V only backplane): 89W maximum, 53W typical.

5V (5V +3.3V backplane): 86W max., 50W typical.

3.3V (optional): 3W.

+/-12V: Used only for PMC/XMC.

### Ordering Information

[Go to on-line ordering page >](#)

XVME-6520A-1160-LF

6U VME SBC, P0

XVME-6520A-1160E-LF

6U VME SBC, P0, extended operating temperature

XVME-6520A-1161-LF

6U VME SBC, no P0

XVME-6520A-1161E-LF

6U VME SBC no P0, extended operating temperature

XVME-6520A-1162-LF

6U VME SBC, P0, no battery

XVME-6520A-1162E-LF

6U VME SBC, P0, ext. operating temp., no battery

#### Accessories

XBRD-9060-LF

Expansion I/O Carrier Module for XVME-6500

XVME-9640-1-LF

6U VMEbus Rear Transition Module with P0 connector

XVME-9640-2-LF

6U VMEbus Rear Transition Module no P0 connector

#### Cable Set

5028-568

Cable adapter: RJ Point 5 Male to RJ45 Female, 6 in

5028-572

Cable adapter: 26-pin to 2 USB, VGA, Serial, 18 in

#### Software Development Tools

BSP includes driver and integration directions.

XVME-6500/6700-BSP-LNX

Linux board support package

XVME-6500/6700-BSP-VXW

VxWorks board support package

XVME-6500/6700-BSP-WIN

Windows board support package

IPSW-A7VME-LNX

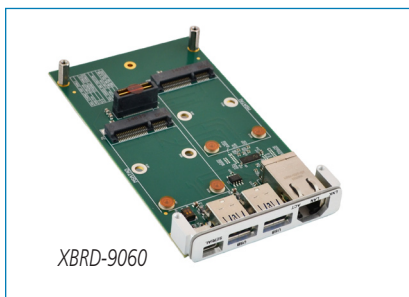
Linux example libraries.

IPSW-A7VME-VXW

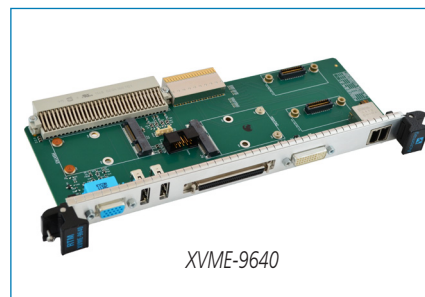
VxWorks® 7.0 64-bit, software support package.

IPSW-A7VME-WIN

64-bit and 32-bit Windows software package.



XBRD-9060



XVME-9640

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