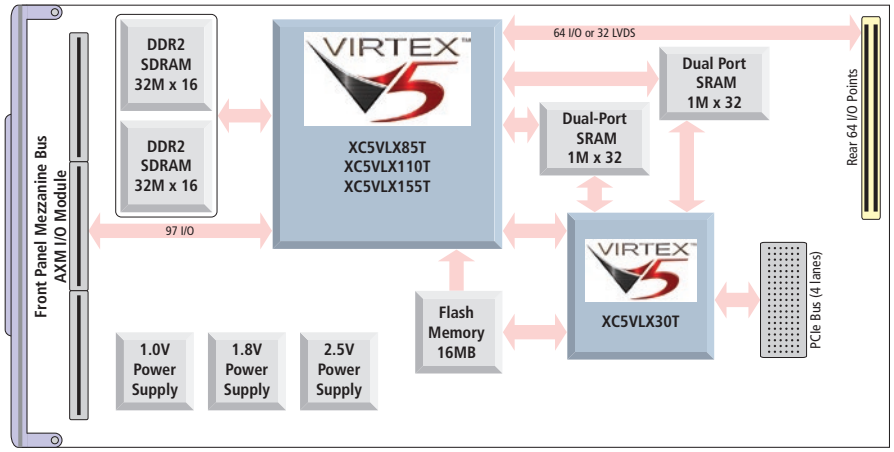
XMC Modules

XMC-VLX User-Configurable Virtex-5 FPGA Modules with Plug-In I/O

24 HOUR STOCK ITEM

2 YEAR WARRANTY



XMC module with PCIe interface ◆ Logic-optimized Virtex-5 FPGA ◆ I/O extension mezzanine modules

Description

Models

XMC-VLX85: 85k logic cells
XMC-VLX110: 110k logic cells
XMC-VLX155: 155k logic cells

Acromag's XMC-VLX mezzanine modules feature a configurable Xilinx® Virtex™-5 FPGA enhanced with multiple high-speed memory buffers and a high-throughput PCIe interface. Field I/O interfaces to the FPGA via the rear J4/P4 connector and/or with optional front mezzanine plug-in I/O modules. The result is a powerful and flexible I/O processor module that is capable of executing your custom instruction sets and algorithms.

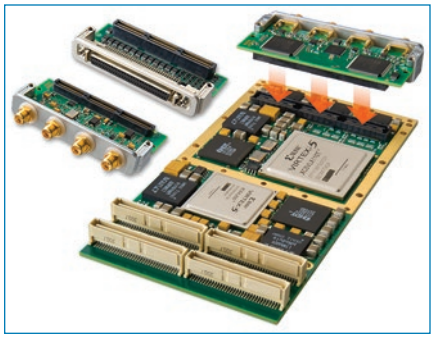
Three models provide a choice of logic-optimized FPGAs to match your performance requirements. Although there is no limit to the uses for these boards, several applications are ideal. Typical uses include hardware simulation, military servers, communications, in-circuit diagnostics, signal intelligence, and image processing.

64 I/O lines are accessible through the rear (J4) connector. Additional I/O processing is supported on a separate mezzanine card that plugs into the FPGA base board. A variety of these external I/O cards are available to interface for your analog and digital I/O signals.

Large, high-speed memory banks provide efficient data handling. Generous DDR2 SDRAM buffers store captured data prior to FPGA processing. Afterward, data is moved to dual-port SRAM for high-speed DMA transfer to the bus or CPU. Our high-bandwidth PCIe interface ensures fast data throughput.

Take advantage of the conduction-cooled design for use in hostile environments. Conduction efficiently dissipates heat if there is inadequate cooling air flow. Optional extended temperature models operate reliably from -40 to 85°C.

Acromag's Engineering Design Kit provides software utilities and example VHDL code to simplify your program development and get you running quickly. A JTAG interface enables on-board VHDL debugging.



Plug in an AXM analog or digital I/O module for additional I/O signal processing capabilities.

Key Features & Benefits

- Reconfigurable Xilinx Virtex-5 FPGA
- PCIe bus 4-lane Gen 1 interface
- Supports both front and rear I/O connections
- 64 I/O or 32 LVDS lines direct to FPGA via rear (J4) connector
- Plug-in I/O extension modules are available for the front mezzanine
- FPGA code loads from the PCIe bus or from flash memory
- 1M x 64-bit dual-ported SRAM provides direct links from the PCIe bus and to the FPGA
- 32M x 32-bit DDR2 SDRAM is directly accessed through the FPGA
- Other memory options available (call factory)
- Supports dual DMA channel data transfer to the CPU/bus
- Support for Xilinx ChipScope™ Pro interface
- Designed for conduction-cooled host card or -40 to 85°C operation in air-cooled systems

Acromag® THE LEADER IN INDUSTRIAL I/O

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XMC Modules

XMC-VLX User-Configurable Virtex-5 FPGA Modules with Plug-In I/O

Performance Specifications

FPGA

FPGA Device
Xilinx Virtex-5 FPGA.

Model XMC-VLX85:
XC5VLX85T-1FF1136 FPGA with 82,944 logic cells and 48 DSP48E slices.

Model XMC-LX110:
XC5VLX110T-1FF1136 FPGA with 110,592 logic cells and 64 DSP48E slices.

Model XMC-LX155:
XC5VLX155T-1FF1136 FPGA with 155,648 logic cells and 128 DSP48E slices.

FPGA configuration
Download via PCIe bus or flash memory.

Example FPGA program
VHDL provided for bus interface, front & rear I/O control, SRAM read/write interface logic, and SDRAM memory interface controller. See EDK kit.

I/O Processing

Acromag AXM I/O modules:
AXM modules plug into the XMC module's front mezzanine for additional I/O lines. Analog and digital I/O AXM modules are sold separately.

Rear I/O
64 I/O (32 LVDS) lines supported with a direct connection between the FPGA and the rear I/O connector (J4).

Engineering Design Kit

Provides user with basic information required to develop a custom FPGA program. Kit must be ordered with the first purchase of a XMC-VLX module (see www.acromag.com for more information).

XMC Compliance

Conforms to PCI Express 1.1a electrical and protocol standards. 2.5Gbps data rate per lane per direction.

Complies with ANSI/VITA 42.0 specification for XMC module mechanicals and connectors.

Complies with ANSI/VITA 42.3 specification for XMC modules with PCI Express interface.

Electrical/Mechanical Interface: Single-Width Module.

Environmental

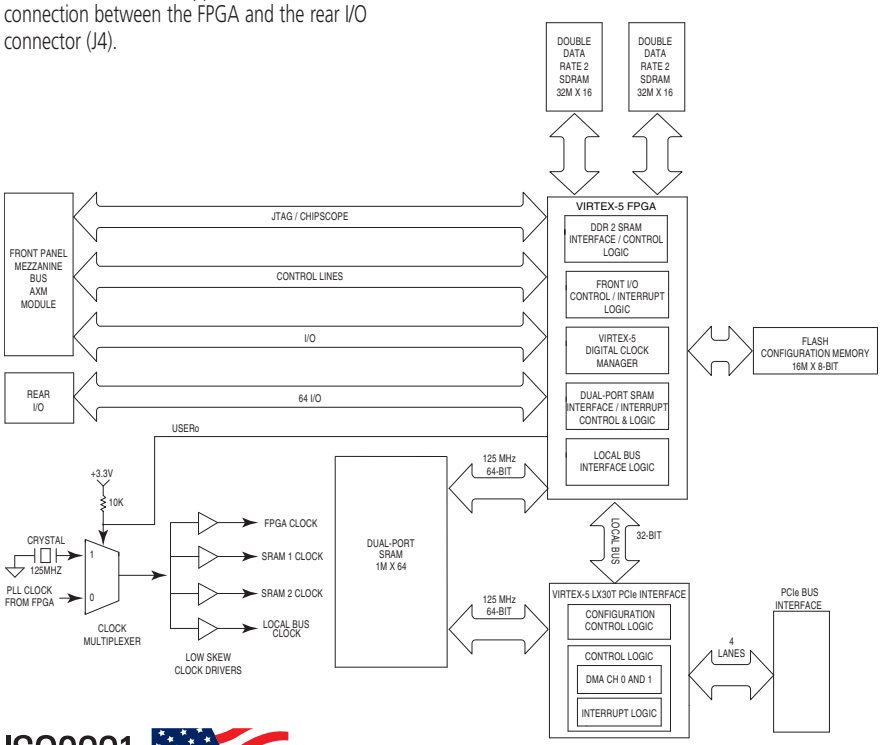
Operating temperature
-0 to 70°C or -40 to 85°C (E versions).

Storage temperature
-55 to 125°C.

Relative humidity
5 to 95% non-condensing.

Power
3.3V (±5%): 700mA typical, 840mA maximum
+12V (±5%): 820mA typical, 984mA maximum

MTBF
Contact the factory.



Ordering Information

XMC Modules

XMC-VLX85
User-configurable Virtex-5 FPGA, 85k logic cells

XMC-VLX85E
Same as XMC-VLX85 with extended temp. range

XMC-VLX110
User-configurable Virtex-5 FPGA, 110k logic cells

XMC-VLX110E
Same as XMC-VLX110 with extended temp. range

XMC-VLX155
User-configurable Virtex-5 FPGA, 155k logic cells

XMC-VLX155E
Same as XMC-VLX155 with extended temp. range

XMC-VLX-EDK
Engineering Design Kit (one kit required)

AXM Plug-In I/O Extension Modules

For more information, see www.acromag.com.

AXM-A30
2 analog input 100MHz 16-bit A/D channels

AXM-D02
30 RS485 differential I/O channels

AXM-D03
16 CMOS and 22 RS485 differential I/O channels

AXM-D04
30 LVDS I/O channels

AXM-??
Custom I/O configurations available, call factory.

Software

For more information, see www.acromag.com.

PMCSW-API-VXW
VxWorks® software support package

PCISW-API-WIN
Windows® DLL software support package

PCISW-API-LNX
Linux™ support (website download only)

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