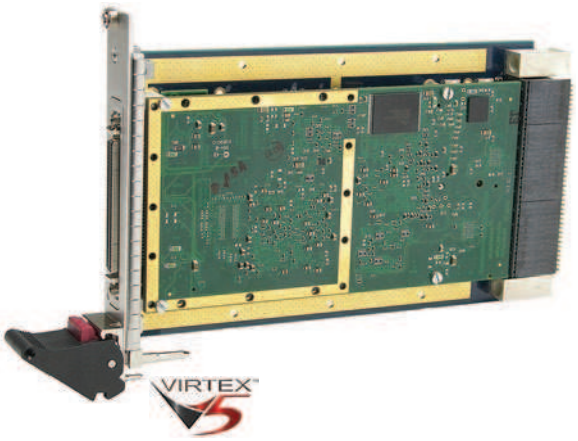
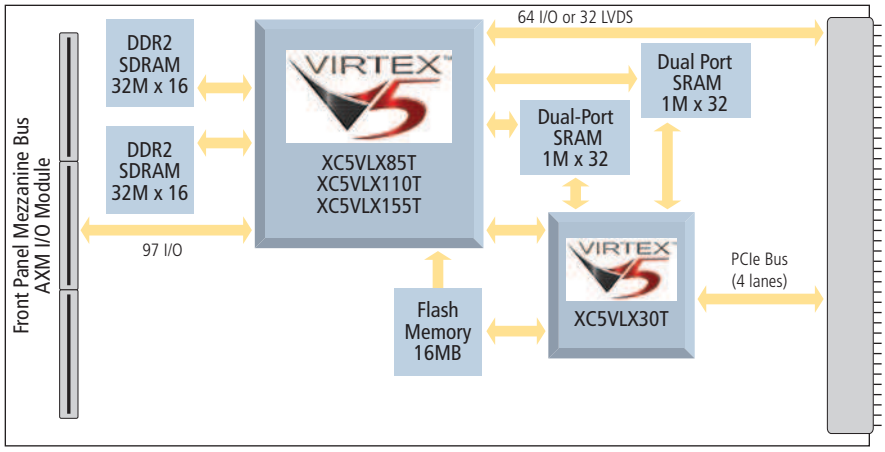
VPX Boards

VPX-VLX VPX Board with User-Configurable Virtex-5 FPGA

24 HOUR STOCK ITEM — 2 YEAR WARRANTY





VPX 3U card with PCIe interface ◆ Logic-optimized Virtex-5 FPGA ◆ Air and conduction-cooled models

Description

VPX-VLX85: 85k logic cells
VPX-VLX110: 110k logic cells
VP**X-VLX155:** 155k logic cells

Acromag's VPX-VLX 3U VPX boards feature a configurable Xilinx® Virtex®-5 FPGA enhanced with multiple high-speed memory buffers and a high-throughput PCIe interface. The result is a powerful and flexible logic 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.

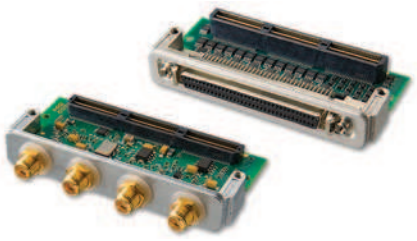
Large, high-speed memory banks provide efficient data handling. Generous DDR2 SDRAM buffers store captured data prior to FPGA processing. Afterward, data is moved to dual-port SRAM for high-speed DMA transfer to/from the rest of the system. A high-bandwidth PCIe interface ensures fast data throughput.

64 I/O lines are accessible through the rear (P2) connector. Additional I/O processing is supported on a separate mezzanine card that plugs into the FPGA base board. A variety of these external AXM I/O cards are available to interface your analog and digital I/O signals.

Take advantage of the conduction-cooled version for use in hostile environments. Conduction efficiently dissipates heat if there is inadequate cooling air flow.

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.

Conduction-cooled version



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 (P2) connector
- Plug-in I/O extension modules are available for the front mezzanine
- FPGA code loads from the PCIe bus or from on-board 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
- Supports dual DMA channel data transfer to/from the rest of the system
- 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

Tel 248-295-0310 ■ Fax 248-624-9234 ■ solutions@acromag.com ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA

VPX Boards

VPX-VLX VPX Board with User-Configurable Virtex-5 FPGA

Performance Specifications

General

Form Factor
3U VPX bus 6.299″ (160mm) x 3.937″ (100.0mm).

Pitch
VPX-VLXxxx (air-cooled): 0.80″ pitch.
VPX-VLXxxx-CC (conduction-cooled): 0.85″ pitch.

Chassis Compatibility
Compatible VITA 65 module / slot profiles:
MOD3-PER-2F-16.3.1-3 / SLT3-PER-2F-14.3.1
MOD3-PER-1F-16.3.2-2 / SLT3-PER-1F-14.3.2
MOD3-PAY-1D-16.2.6-1[1] / SLT3-PAY-1D-14.2.6
MOD3-PAY-2F-16.2.7-1[1] / SLT3-PAY-2F-14.2.7
Note 1: Board is compatible with payload profiles but has no hosting capabilities.

FRU EEPROM with temperature monitor.

PCI Express Interface
VITA 46.4 fat pipe (x4) PCIe Gen 1 interface.

FPGA

VPX Model	Virtex-5 FPGA Device	Logic Cells	DSP48E Slices
VPX-VLX85	XC5VLX85T	82,944	48
VPX-VLX110	XC5VLX110T	110,592	64
VPX-VLX155	XC5VLX155T	155,648	128

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 FPGA board'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 (P2).

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 VPX-VLX module (see www.acromag.com for more information).

Environmental

Air-Cooled Operating Temperature
0 to 70°C (air flow requirement as measured to be greater than 200 LFM).

Conduction-Cooled Operating Temperature Range
-40 to 85°C (board must operate in a fully-installed conduction-cooled rack).

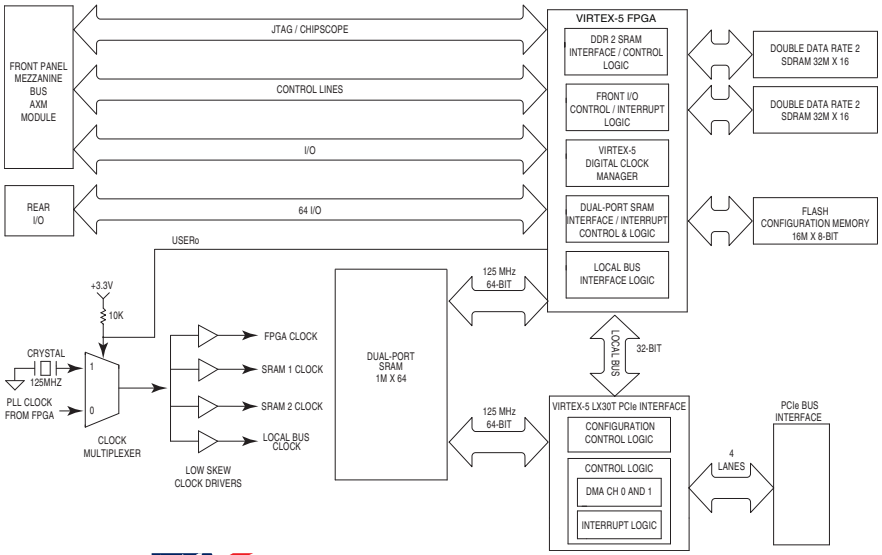
Storage Temperature Range
-55 to 100°C.

Relative Humidity
5 to 95% non-condensing.

Vibration
0.05g RMS (20 - 2000Hz) random, operating 6g RMS per Hz spectrum.

Shock
30g each axis, 11ms.

MTBF
Consult factory.



Power Requirements

Carrier-Only Power Requirements
+3.3V DC: 0.9A typical plus any additional power consumed by PMC/XMC (4A max).

+5V DC: 0.9A typical plus any additional power consumed by PMC/XMC (4A max).

+12V DC and –12V DC provided to PMC site from VPX backplane.

Ordering Information

NOTE: XMC-VLX-EDK is required to configure FPGA.

VPX Boards

VPX-VLX85
3U VPX, Virtex-5 FPGA, 85k logic cells, air-cooled

VPX-VLX85-CC
Same as VPX-VLX85 except conduction-cooled

VPX-VLX110
3U VPX, Virtex-5 FPGA, 110k logic cells, air-cooled

VPX-VLX110-CC
Same as VPX-VLX110 except conduction-cooled

VPX-VLX155
3U VPX, Virtex-5 FPGA, 155k logic cells, air-cooled

VPX-VLX155-CC
Same as VPX-VLX155 except conduction-cooled

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.

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

PMCSW-API-VXW
VxWorks® software support package

PCISW-API-WIN
Windows® DLL software support package

PCISW-LINUX
Linux™ support (website download only)

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