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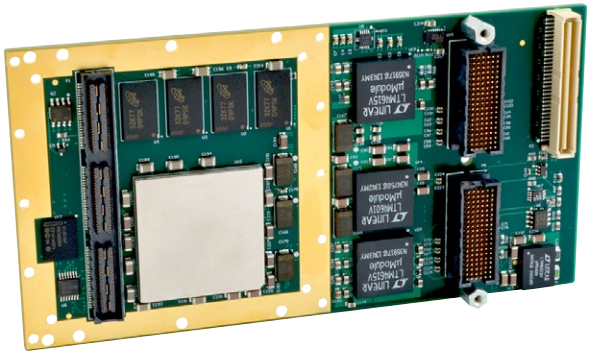
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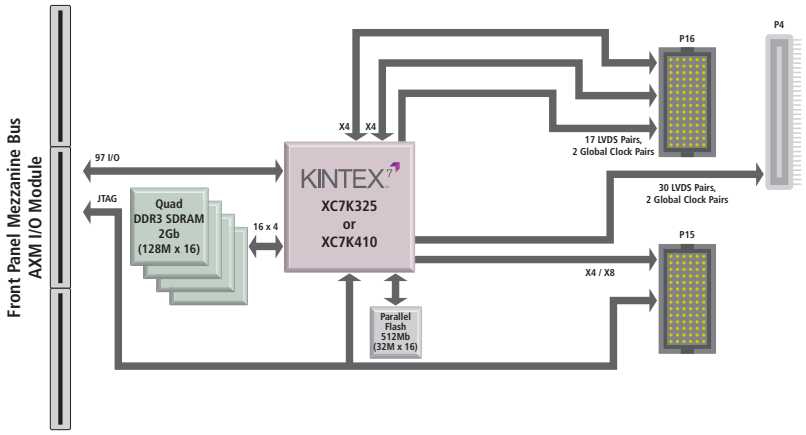
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Find the *Acromag XMC-7K325AX-LF* at our website: ***Click HERE***

XMC Modules

XMC-7K AX User-Configurable Kintex-7 FPGA Modules with Plug-In I/O





KINTEX 7™

XMC module with PCIe interface ◆ Logic-optimized Kintex-7 FPGA ◆ I/O Extension Mezzanine Modules

Description

Acromag's XMC-7K modules feature a high-performance user-configurable Xilinx® Kintex®-7 FPGA enhanced with high-speed memory and a high-throughput serial bus interface. The result is a powerful and flexible I/O processor module that is capable of executing custom instruction sets and algorithms.

The logic-optimized FPGA is well-suited for a broad range of applications. Typical uses include hardware simulation, communications, in-circuit diagnostics, military servers, signal intelligence, and image processing.

Both front and rear I/O is supported. Front I/O processing is supported with plug-in AXM mezzanine cards. A variety of AXM I/O cards are available to add the flexibility of a wide range of analog and digital I/O to your design.

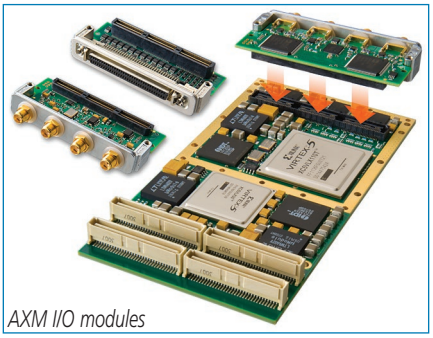
The rear I/O provides an 8-lane high-speed serial interface on the P16 XMC port for customer-installed soft cores. P16 also supports 34 SelectIO channels. The P4 port adds another 60 SelectIO and global clock lines. SelectI/O signals are Kintex-7 FPGA I/O pins that support single-ended I/O (LVCMOS, HSTL, SSTL) and differential I/O standards (LVDS, HT, LVPECL, BLVDS, HSTL, SSTL)

Two versions of the Kintex-7 are available, offering a choice of an FPGA device with 325k or 410k logic cells.

With Acromag's Kintex-7 FPGA modules, you can greatly increase DSP algorithm performance for faster throughput using multiple channels and parallel hardware architectures. Free up CPU cycles by offloading algorithmic-intensive tasks to the FPGA co-processor.

These modules are ideal for high-performance customized embedded systems. Optimize your system performance by integrating high-speed programmable logic with the flexibility of software running on MicroBlaze™ soft processors.

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 debugging. Additional Xilinx tools help finish your system faster. Maximize FPGA performance with Vivado® or ISE® Design Suite. And with ChipScope™ Pro tools, you can rapidly debug logic and serial interfaces



AXM I/O modules

Key Features & Benefits

- Reconfigurable Xilinx Kintex-7 FPGA with 325k or 410k logic cells
- 128M x 64-bit DDR3 SDRAM
- 32M x 16-bit parallel flash memory for MicroBlaze FPGA program code storage
- 8-lane high-speed serial interface on rear P15 connector for PCIe Gen 1/2 (standard), Serial RapidI/O, 10Gb Ethernet, Xilinx Aurora
- 8-lane high-speed interfaces on rear P16 connector for customer-installed soft cores
- 60 SelectI/O or 30 LVDS pairs plus 2 global clock pairs direct to FPGA via rear P4 port
- 34 SelectI/O or 17 LVDS pairs plus 2 global clock pairs direct to FPGA via rear P16 port
- DMA support provides data transfer between system memory and the on-board memory
- Support for Xilinx ChipScope™ Pro interface

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

XMC Modules

XMC-7K AX User-Configurable Kintex-7 FPGA Modules w Plug-In I/O

Performance Specifications

FPGA

FPGA device
Xilinx Kintex-7 FPGA.

Model XC7K325T FPGA with 326,080 logic cells and 840 DSP48E1 slices or Model XC7K410T with 406,720 logic cells and 1540 DSP48E1 slices.

FPGA configuration
Download via JTAG or flash memory.

Example FPGA program
IP integrator block diagram provided for bus interface, front & rear I/O control, 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 high-speed I/O
12 high-speed serial lanes.
x8 lanes via P15 and x4 lanes via P16.

Rear user I/O
P16: 17 LVDS pairs (34 LVCMOS), 2 global clock pairs.
P4: 30 LVDS pairs (60 LVCMOS), 2 global clock pairs.

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-7K module (see www.acromag.com for more information).

XMC Compliance

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.

Electrical

XMC PCIe bus interface (P15 and P16)
One 114-pin male connector
(Samtec ASP-103614-05 or equivalent).

P15 primary XMC connector
8 differential pairs (PCIe standard, Serial RapidIO, 10-Gigabit Ethernet, or Xilinx Aurora). JTAG.

System Management (XMC provides hardware definition information read by an external controller using IPMI commands and I2C serial bus transactions.)

3.3V power: 4 pins at 1A/pin.
3.3V auxiliary power: 1 pin, powers volatile memory to store the bitstream encryption key.
Variable power (5V or 12V): 8 pins at 1A per pin.

P16 XMC connector
4 differential pairs (PCIe, Serial RapidIO, or Xilinx Aurora).

17 LVDS pairs or 34 SelectI/O signals (differential pairs grouped per VITA 46.0 X38s).

2 global clock pairs.

Vcco pins are powered by 2.5V and support the 2.5V I/O standards.

P4 PMC rear I/O connector
64-pin female receptacle header
(AMP 120527-1 or equivalent).

64 I/O connections (30 LVDS pairs plus two global clocks).

Vcco pins powered by 2.5V and support the 2.5V I/O standards.

Environmental

Operating temperature
XMC-7K325AX-LF: -40 to 45°C.
XMC-7K410AX-LF: -40 to 40°C

Storage temperature
-55 to 125°C.

Relative humidity
5 to 95% non-condensing.

Power
3.3V (±5%): 7.8W typical.
12V (±5%): 2.7W typical
3.3V AUX (±5%): 57µW

MTBF
Contact the factory.

Ordering Information

NOTE: XMC-7K-EDK is required to configure FPGA.

XMC Modules

XMC-7K325AX-LF
User-configurable Kintex-7 FPGA, 325k logic cells with AXM support

XMC-7K410AX-LF
User-configurable Kintex-7 FPGA, 410k logic cells with AXM support

Accessories

AXM-A75
16 analog inputs, 8 analog outputs, and 16 digital I/O

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

XMC-7KA-EDK
Engineering Design Kit (one kit required)

PMCSW-API-VXW
VxWorks® 32-bit software support package

PCISW-API-WIN
Windows® DLL software support package

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

XMC-7K325AX-LF shown with optional AXM-A75



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