

PMC-SX35 User-configurable Virtex-4 FPGA Modules with plug-in I/O

Description

Acromag's PMC-SX boards use a high-performance Xilinx® Virtex-4™ FPGA, but maintain a relatively low price point. They are optimized for high-performance digital signal processing to help you build custom pre/post/co-processing hardware or high-performance filters. You can create more than 40 different functions (MACs, multipliers, adders, and muxes).

Although there is no limit to the uses for Acromag's FPGA boards, typical applications include sonar and radar processing.

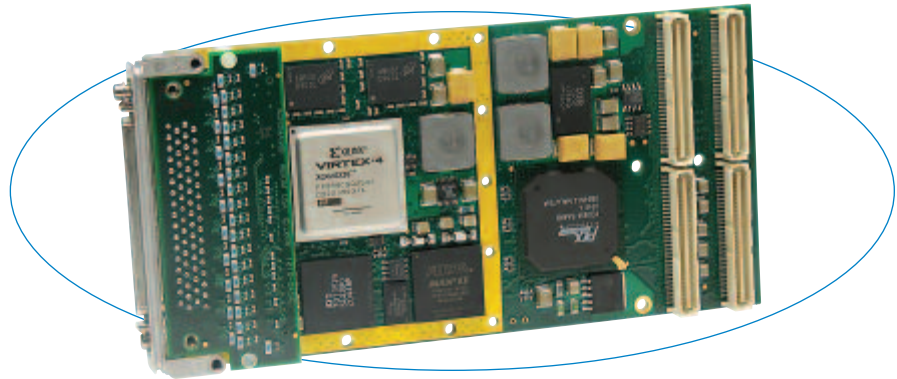
I/O processing is handled on a separate mezzanine card that plugs into the FPGA base board. A variety of these external I/O cards offer an interface for your analog and digital I/O signals. See the AXM I/O Card data sheet ([Bulletin 8400-458](#)) for more details. Additionally, 64 I/O lines are supported via the rear (J4) connector.

Plenty of DRAM memory is available for receipt and transfer of high-speed data from the I/O data ports on the front and rear of the board. Dual Ported SRAM memory is supplied for storage of data to be passed, via DMA transfer, to the PCI bus. One of the dual ports is attached to the FPGA and the other to the local bus.

The PCI bus interface is handled by a PLX® PCI 9656 device which provides 64-bit 66MHz bus mastering with dual-channel DMA support.

Take advantage of the optional conduction cooling for use in hostile environments. Conduction cooling provides efficient heat dissipation in environments where there is inadequate cooling air flow.

Acromag provides software utilities and examples to simplify your programming and get you started quickly. A JTAG interface enables on-board VHDL simulation.



Download your own logic programs into the user-configured FPGA to quickly create a custom I/O module. Shown with optional plug-in I/O module.

Features

- Customizable FPGA (Xilinx Virtex-4 XC4V5X35) with up to 34K logic cells and 192 XtremeDSP™ slices
- Supports both front and rear I/O
- Plug-in I/O modules are available for front mezzanine
- 64 I/O lines supported with direct connection to FPGA via rear (J4) connector
- FPGA code loads from PCI bus or flash memory
- 256K x 36-bit dual-ported SRAM
- 32Mb x 32-bit DDR DRAM
- Supports dual DMA channel data transfer to CPU
- Supports both 5V and 3.3V signalling
- Conduction cooled or 0 to 70°C operating range

Specifications

FPGA

FPGA: Xilinx Virtex-4 FPGA XC4V5X35 with 34,560 logic cells and 192 DSP slices.

FPGA configuration: Downloadable via PCI bus or from flash memory.

Example FPGA program: VHDL provided implements interface to PCI bus IC, interface to dual port SRAM, PLL control, ADC, and DAC control. Program requires user proficiency with Xilinx software tools. See [Engineering Design Kit](#).

I/O Processing

AXM modules: for front mezzanine:

Acromag AXM modules attach to the board to provide I/O. A variety of modules are available and are sold separately.

Rear I/O:

32 LVDS I/O 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 PMC-SX module. (see [Design Kit for details](#))

PMC Compliance

Conforms to PCI Local Bus Specification, Revision 2.2 and CMC/PMC Specification, P1386.1.

Electrical/Mechanical Interface: Single-Width Module.

PCI bus clock frequency: 66MHz.

32-bit PCI Master: Implemented by PLX PCI 9056 device.

Signaling: 5V and 3.3V compliant.

Interrupts (INTA#): Interrupt A is used to request an interrupt.

Environmental

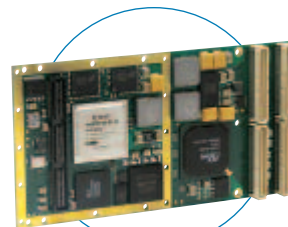
Operating temperature: 0 to 70°C

Storage temperature: -55 to 105°C.

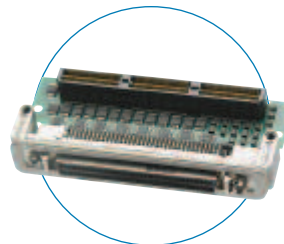
Relative humidity: 5 to 95% non-condensing.

Power: Consult factory. Operates from 3.3V supply.

MTBF: 869,686 hrs. at 25°C, MIL-HDBK-217F, Notice 2.

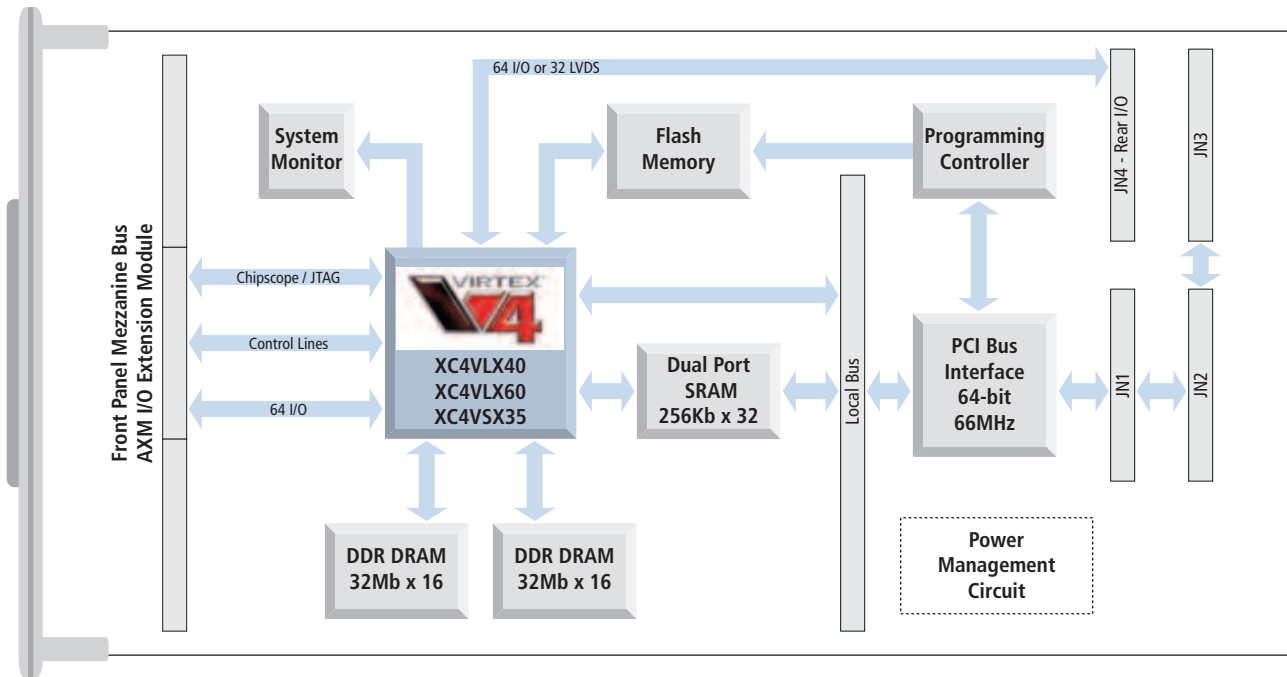


The base board is ready for conduction-cooled applications.



Plug-in AXM modules sold separately for analog and digital I/O.

All trademarks are the property of their respective owners.



PMC Modules

PMC Modules

Ordering Information

PMC Modules

PMC-SX35

User-configurable Virtex-4 FPGA with 34,560 logic cells

PMC-SX-EDK

Engineering Design Kit (one kit required)

AXM Plug-In I/O Modules

For more information, see *AXM data sheet 8400-458*.

AXM-A30

2 16-bit 100MHz 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 (see [software documentation](#) for details)

PMCSW-API-VXW

VxWorks[®] software support package

PCISW-API-QNX

QNX[®] software support package

PCISW-API-WIN

Windows[®] DLL software support

PCISW-LINUX

Linux[™] support (website download only)

 **RedLinX**[™]
Embedded Solutions
www.redlinx.co.za