Description

Acromag's cost-effective XMC-SLX modules feature a user-configurable Xilinx® Spartan®-6 FPGA enhanced with high-speed memory 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 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.

Large, high-speed memory banks enable efficient data handling. The dual-port SRAM facilitates high-speed DMA transfers to the bus or CPU. A high-bandwidth PCIe interface ensures fast data throughput.

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 AXM I/O cards are available to interface your analog and digital I/O signals.

Key Features & Benefits

- Reconfigurable Xilinx Spartan-6 FPGA with 147,433 logic cells
- PCIe bus 4-lane Gen 1 interface
- 256k x 64-bit dual-ported SRAM provides direct links from the PCIe bus and to the FPGA (optional 1M x 64-bit)
- 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
- 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
XMC Modules

XMC-SLX User-Configurable Spartan-6 FPGA Modules with Plug-In I/O

Performance Specifications

- FPGA
  - FPGA Device
    - Xilinx Spartan-6 FPGA.
    - Model XC6SLX150-3FG676 FPGA with 147,433 logic cells and 180 DSP48A1 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-SLX 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.

- 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%): 640mA typical, 804mA maximum.
  - MTBF
    - Contact the factory.

Ordering Information

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

- XMC Modules
  - XMC-SLX150
    - User-configurable Spartan-6 FPGA, 150k logic cells,
    - 256 x 64-bit dual-port SRAM
  - XMC-SLX150E
    - Same as XMC-SLX150 with extended temp. range
  - XMC-SLX150-1M
    - User-configurable Spartan-6 FPGA, 150k logic cells,
    - 1M x 64-bit dual-port SRAM
  - XMC-SLX150E-1M
    - Same as XMC-SLX150-1M with extended temp. range

- VPX Boards
  - For more information, see www.acromag.com.
  - VPX-SLX150
    - VPX board with integrated XMC-SLX150-1M module
      - (see VPX4810 carrier data sheet #8400-626)
  - VPX-SLX150REDI
    - VPX REDI board with integrated XMC-SLX150E-1M module
      - (see VPX4810 carrier data sheet #8400-626)

- 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-SLX-EDK
    - Engineering Design Kit (one kit required)
  - PMCSW-API-VXW
    - VxWorks® software support package
  - PCISW-API-WIN
    - Windows® DLL software support package
  - PCISW-API-LNX
    - Linux™ support (website download only)