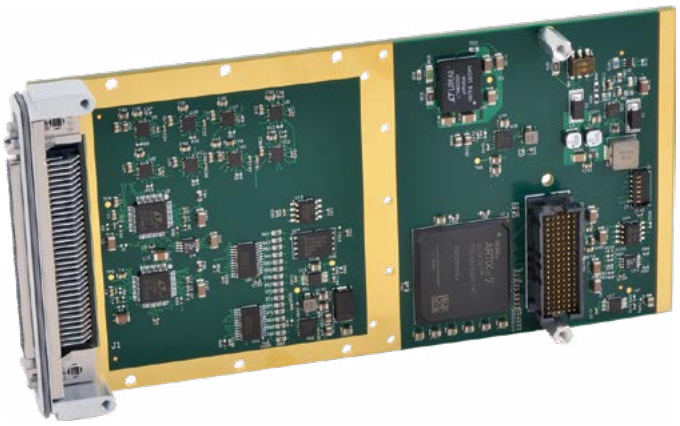
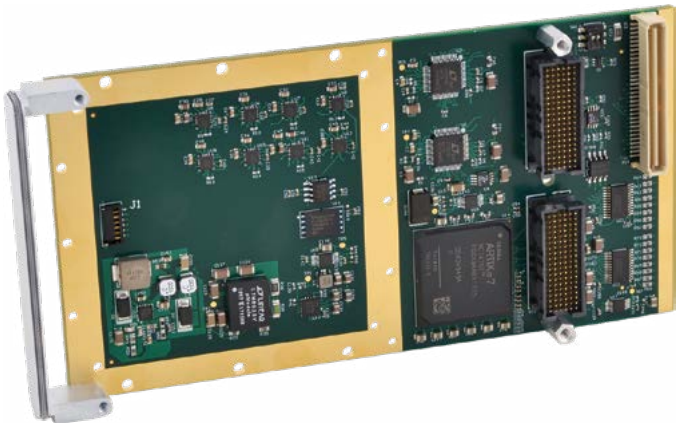
XMC Modules

XMC730 Multi-function I/O

CE RoHS Compliant 2 YEAR WARRANTY





Analog input ◆ Analog output ◆ Digital I/O ◆ Counter/timers ◆ Conduction-cooled option

Models

XMC730: Front I/O
XMC730E: Front I/O, extended temperature
XMC730CC: Rear I/O, conduction-cooled

Description

XMC730 mezzanine modules provide a variety of I/O functions on a single plug-in card. These new high-density modules perform both high-speed and high resolution A/D and D/A conversion and also handle digital I/O and counter/timer functions.

Now you can conserve your precious XMC slots and still get all the I/O functionality you need. The XMC730 is designed for extreme versatility with many deluxe features to meet most applications. However, the XMC730 is still very budget-friendly. A conduction-cooled version is also available.

Key Features & Benefits

Analog Inputs

- 16 differential (±10.24V, ±10.0V, ±5.12V, ±5.0V, 0 to 10.24V, 0 to 10.0V, 0 to 5.12V ranges)
- 16-bit ADC with integral sample-and-hold and reference
- 1.264µS conversion time (791KHz rate)
- 1026 sample FIFO buffer
- Programmable FIFO threshold conditions for interrupts, DMA transfers, and flags
- User-programmable channel conversion sequence and timing
- External trigger input or output
- Factory calibration constants stored in on-board flash memory for error correction

Analog Outputs

- Eight analog output channels (±3V, ±5V, ±10V, -2.5 to +7.5V, 0-5V, and 0-10V ranges)
- Individual 16-bit DACs per channel with 7.5µS settling time
- Flexible operating mode, trigger, and memory allocation
- Configurable for direct access, single burst, continuous, or streaming (FIFO) output
- Reliable software calibration with coefficients stored on-board
- FIFO for waveform generation
- Interrupt on user-programmable FIFO threshold
- Shared 64K x 16-bit sample memory

Digital I/O

- 16 bidirectional input/output channels (direction configured in 8-channel groups)
- TTL-compatible thresholds
- Programmable change-of-state/level interrupts
- Failsafe power-up and system reset

Counter/Timers

- Multi-function 32-bit counter/timer
  - Quadrature Position measurement
  - Pulse Width modulation
  - Watchdog timer
  - Event counter
  - Frequency measurement
  - Pulse-width or period measurement
- One-shot and repetitive one-shot pulse waveform generation
- Programmable interface polarity
- Internal or external triggering
- CMOS compatible thresholds

General

- DMA transfer support to move data between module memory and PCIe bus
- Software development tools for VxWorks®, Linux®, and Windows® environments

Acromag® THE LEADER IN INDUSTRIAL I/O

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Bulletin #8400-960

XMC Modules

ISO9001
AS9100
MADE IN USA

Performance Specifications

Analog Input

Input channels:
16 differential, voltage (non-isolated).

Resolution: 16 bits.

Conversion rate: 791,139.24Hz maximum.

Settling time:
Full-scale step 420 ns to 0.005% of FSR.

Input ranges:
Software-selectable on a per channel basis.
Bipolar: ±10.24V, ±10.0V ±5.12V, ±5.0V.
Unipolar: 0 to 10.24V, 0 to 10.0V, 0 to 5.12V.

Calibrated error:
±3.125 LSB max. (0 to 5.12V).
±2.125 LSB max. (all other ranges).

Analog Output

Output channels:
8 single-ended voltage (non-isolated).

Resolution: 16 bits.

Settling Time:
12.5 µs 20 V step to 1 LSB maximum.
8.5 µs 10 V step to 1 LSB maximum.
7.5 µs typical.

Output ranges (software-selectable):
Bipolar: ±10V, ±5V, ±3V, -2.5 to +7.5V.
Unipolar: 0 to 10V, 0 to 5V.

Output current: ± 10mA maximum (minimum load resistance of 1KΩ with a 10V output).

Calibrated error: ±2.125 LSB (±0.0032% FSR) max.

Digital I/O

Input/output range: 0 to 5V.

Signal thresholds:
VIH: 2.0V minimum.
VIL: 0.8V maximum.
IOH: 24 mA maximum.
IOL: 24mA maximum.
VOH: 3.7V minimum VCCA.
VOL: 0.55V maximum VCCA.

Minimum pulse: 32nS.

Debounce: Filters signals with duration <2.4 µs.

Counter/Timer

Configuration: 32-bit timer.

Counter input: TTL input port.

Counter output: MOSFET output port.

Counter output pull-up voltage:
+5V or 12V with 1K pull-up, set by DIP switch.

Internal clock: 62.5MHz, 15.625MHz, 7.8125MHz, 3.90625MHz, 1.953125MHz.

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.

PCIE Compliance

Conforms to PCI Express Base Specification, Revision 2.1.

Gen1 PCIe interface.

BAR0 memory size: 1M Byte.

Environmental

Operating temperature:
XMC730: 0 to 70°C (200 LFM airflow).
XMC730E: -40 to 85°C (200 LFM airflow).
XMC730CC: -40 to 85°C (cold plate).

Storage temperature: -55 to 100°C.

Relative humidity: 5 to 95% non-condensing.

Shock, operating:
Designed to comply with VITA 47 Class OS1.

Vibration, random operating:
Designed to comply with VITA 47 Class V1.

Power:
3.3V ±5%: 0.567A typical, 0.7A maximum.
VPWR ±5%: 0.10A typical, 0.11A maximum.
+12V ±5%: 0.03A typical, 0.0374 maximum.

Ordering Information

XMC Modules

XMC730: Multi-function I/O module with front I/O 68-pin SCSI-2 connector. Lead free.

XMC730E: Multi-function I/O module with front I/O 68-pin SCSI-2 connector plus extended temperature. Lead free.

XMC730CC: Multi-function I/O module with rear P16 and P4 connectors. Conduction-cooled and lead free.

Software (see software documentation for details)

PMCSW-API-VXW: VxWorks® software support package

PCISW-API-WIN: Windows® DLL Driver software package

PCISW-API-LNX: Linux® support (website download only)

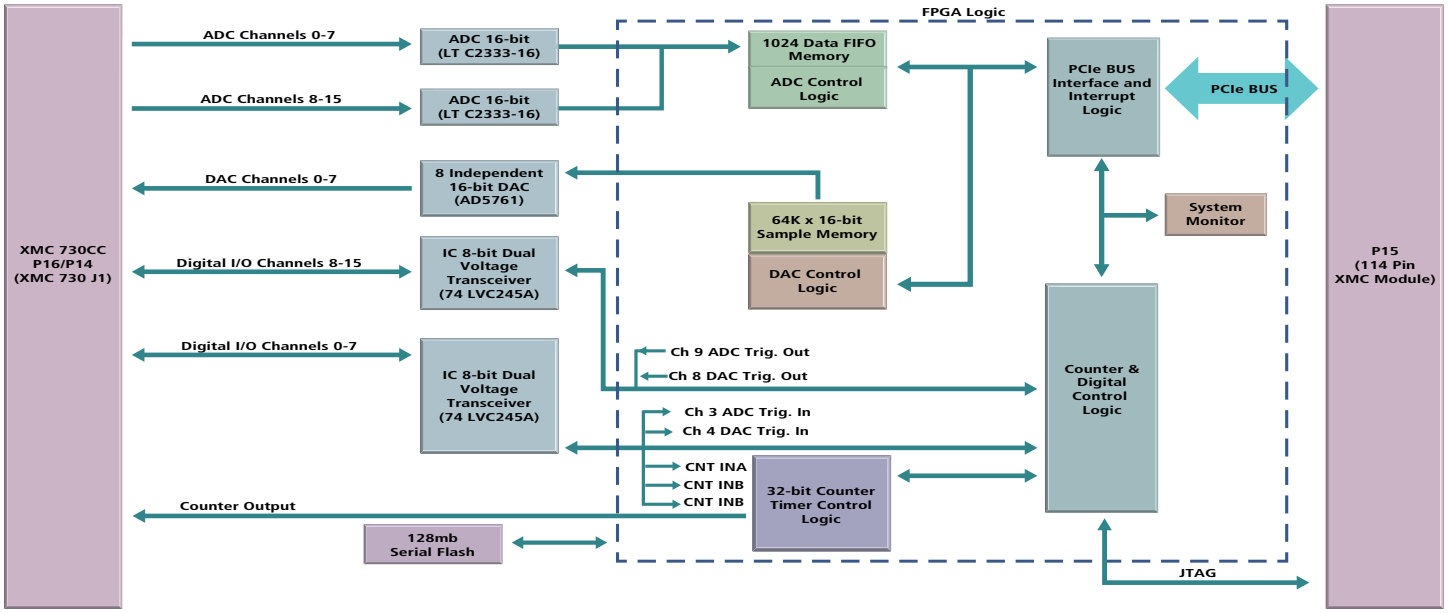
Accessories

5025-288: Termination panel, SCSI-3 connector, 68 screw terminals.

5028-432: Cable, shielded, SCSI-3 connector both ends.

Carrier Cards

VPX Carrier Cards | PCIe Carrier Cards



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