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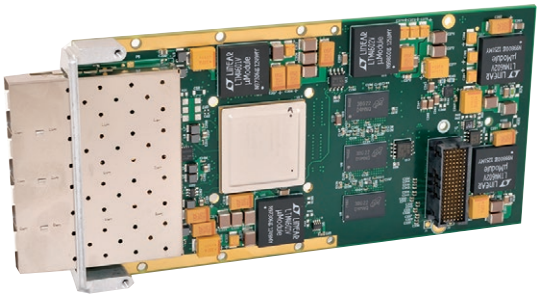
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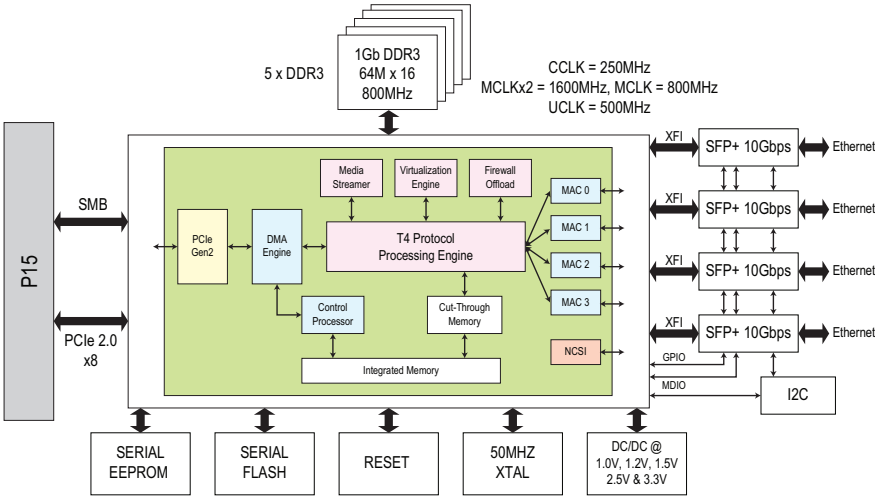
Find the *Acromag XMC-6280-LF* at our website: *Click HERE*

XMC Modules

XMC-6280 10-Gigabit Ethernet Interface Module with Quad SFP+ Ports

RoHS Compliant 2 YEAR WARRANTY





XMC module with TCP/IP offload engine ASIC ◆ Quad SFP+ fibre/copper ports ◆ PCIe x8 Gen2

Description

Acromag's XMC-6280 provides a 10-gigabit Ethernet (10GbE) interface solution for data-intensive real-time embedded computing systems. Ultra-high performance is achieved using an ASIC-based TCP/IP offload engine (TOE).

Typical applications include high-speed data storage, image collection/transfer, distributed control networks, and board-to-board interfaces.

Fully Integrated Network Interface Card

With the adoption of 10GbE interfaces and rapidly increasing volumes of data, even the most powerful embedded processors can no longer manage data flow without a significant reduction in performance. To solve this problem, Acromag's XMC-6280 pairs a high-performance Chelsio T4 purpose-built multi-protocol processor with four channels of 10GbE connectivity. This combination maintains maximum 10GbE performance to meet the needs of data-intensive real-time applications.

High Performance Protocol Offload Engine

A PCI Express v2.0 ×8 host interface provides a high-speed connection to the system processor. With support for 5Gbps data rates, the PCIe interface delivers up to 32Gbps of bandwidth to the server. This connection accommodates stateless offloads, packet filtering (firewall offload), and traffic shaping (media streaming).

Complete and Flexible TCP Offload

The XMC-6280's TOE ASIC has hundreds of programmable registers for protocol configuration and offload control. As a result, the XMC-6280 can offload TCP processing per connection, per server, per interface. It can also globally and simultaneously tunnel traffic from non-offloaded connections to the host processor for the native TCP/IP stack to process. Additionally, the XMC-6280 provides a flexible zero-copy capability for regular TCP connections, requiring no changes to the sender, to deliver line rate performance with minimal CPU usage.

Packet Switching and Routing

The XMC-6280 integrates a high-performance packet switch, which allows switching of traffic from any of the input ports to any of the output ports (wire-to-wire), and from any of the output ports to any of the input ports (host-to-host).

Compatibility

Acromag's XMC-6280 provides guaranteed interoperability and compatibility with the full Ethernet standard.

Extensive Software Support

The XMC-6280 offers a full suite of protocol software and drivers. Linux software tools support all offload (TOE) and network interface (NIC) operations. Windows software supports NIC operations.

Key Features & Benefits

- Quad port 10 GbE via SFP+
- XMC PCI Express Gen2 x8
- Supports up to 1M connections
- Full offload support for:
  - TCP
  - UDP
  - iSCSI,
  - FCoE (Fibre Channel over Ethernet)
- Low processor overhead
- Very low Ethernet latency
- High-level determinism
- Zero-copy direct data placement
- Traffic filtering and management
- 5Gb DDR3 memory to enhance the number of virtual connections

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XMC Modules

XMC-6280 10-Gigabit Ethernet Interface Module with Front SFP+ Ports

RoHS Compliant 2 YEAR WARRANTY

Performance Specifications

Communication

Ethernet interface
Quad SFP+ ports.

Throughput
2500Mbytes per second, per port, full-duplex.

Latency
2µS end-to-end.

PCI Express
PCIe 8-lane (x8) Gen 2.0 interface.

Determinism
±1µs.

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.

TCP/IP Offload Engine (TOE)

TOE processor
The ASIC incorporates four XGMAC (10GbE) interfaces. These interfaces are labeled MAC0, MAC1, MAC2 and MAC3. These ports will support the 10GbE standard's SFP+ limited mode. They contain one lane (one differential TX pair and one differential RX pair) of high speed SERDES.

The SFP+ limited mode allows a maximum drive of 5m of twin ax cable and a maximum of 300m of fiber.

Software Support

Linux operating systems
Drivers available with support for all TOE and NIC functions. Please contact factory for details.

Windows operating systems
Drivers available with support for NIC functions. Please contact factory for details.

Comparison of TCP/IP Offload Engines (TOE): ASIC vs. Software Stack		
	Acromag ASIC TOE 10GbE Interface	Software Stack TOE 10GbE Interface
Throughput per Port, Full-Duplex	2500MBps (full-duplex)	40MBps (limited by CPU)
Host Overhead	very low	very high
User-to-User Latency	2µs	250µs
Determinism	±1µs	±200µs
Reliability Under Load	Excellent (any load condition)	Variable (dependent on load)

Electrical

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

P15 primary XMC connector
8 differential TX pairs (PCIe) and
8 differential RX pairs (PCIe).

Optional JTAG: 6 JTAG signals
(TDI, TDO, TMS, TCK, 3.3V, and ground).
JTAG interface follows IEEE Standard 1149.1, which defines a test access port (TAP) and boundary-scan architecture. 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 for system management.
Variable power (5V or 12V): 8 pins at 1A per pin.

SFP+ connectors
Four SFP+ module front I/O ports. SFP+ transceiver signals routed directly to the TOE device are capable of a maximum data rate of 10 Gb/sec

20 signals (transmit pair, receive pair, TX_Fault, TX_ disable, MOD_DEF(0), MOD_DEF(1), MOD_DEF(2), rate select, LOS, 3.3 Vdc, and ground)

Environmental

Operating temperature
-40 to 70°C.

Storage temperature
-55 to 125°C.

Relative humidity
5 to 95% non-condensing.

Power requirements
3.3V (±5%): Consult factory.
5V (±5%): Consult factory.
12V (±5%): Consult factory.

MTBF
Contact the factory.

Ordering Information

XMC Modules

XMC-6280-LF
10-Gigabit Ethernet interface module, lead-free

Accessories

For more information, see www.acromag.com.

5028-449
SFP cable, SFP-to-SFP (male-male) connectors, 1 meter

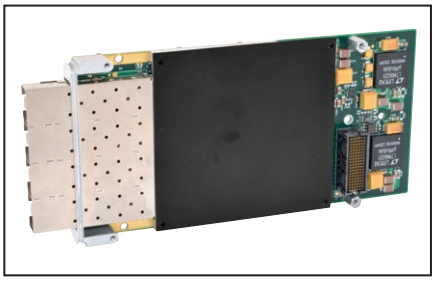
TAPCABLE1M
SFP+ cable, SFP+-to-SFP+ (male-male) connectors, 1 meter

5028-452
Optical module SFP transceiver, MSA, 1000Base-SX, Fiber

5028-455
Optical module SFP transceiver, MSA, 1000Base-T RJ45 copper

SM10G-LR
10-Gigabit long reach single-mode optical module

SM10G-SR
10-Gigabit short reach multi-mode optical module



Model XMC-6280 shown as it ships with pre-installed heat sink.

ISO9001
AS9100
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