AXIe Embedded Host - mA-3011

2.4 GHz Quad Core, 8 GB

Preliminary Quick Sheet

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Overview

The Cobham mA-3011 provides a compact and integrated solution for AXIe-based deployments by eliminating the need for an external host processor for module control. The mA-3011 provides a high-performance Intel i7 quad-core processor in a single module form-factor.

The mA-3011 is the first AXIe embedded host module to support the AXIe-1 Revision 3.0 Specification for Wide PCI Express® Fabric Extensions. Additionally, the mA-3011 supports Gen3 PCIe data rates, delivering four times the backplane throughout capacity of competing solutions.

A rich variety of front-panel interconnect options are provided, including DisplayPort video, quad USB 3.0 SS ports, RJ45 Gigabit Ethernet, and HD audio microphone and speaker. Additionally, the mA-3011 provides the unique capability to install standard 3/4-length PCIe cards for applications that may require DAQ cards, 10/40 GbE adapters, or GP-GPU accelerators.

The mA-3011 provides storage for operating systems and applications via a user-accessible solid-state drive for security, expandability, and increased reliability.

Hardware

The mA-3011 provides powerful quad-core processing with its Intel i7 4700EQ chipset. Utilizing Hyper-Threading Technology allows simultaneous execution of up to eight threads. Additionally, 8 GB of DDR3-1600 RAM is provided standard, upgradable to 16 GB for the most demanding applications. Non-volatile storage is provided by a 128 GB SATA-III solid-state drive, conveniently located on the bottom side of the mA-3011 for user-accessibility.

The mA-3011 interfaces to the AXIe backplane with 8-lanes of Gen3 PCIe, making it the first embedded host to support the AXIe Wide PCI Express Fabric Extensions and the first Gen3 embedded controller with up to 8 DB/s backplane throughput. The mA-3011 also interfaces to the backplane Gigabit Ethernet.

External interfaces include a RJ45 Gigabit Ethernet port networked to the backplane base fabric, four USB 3.0 SS ports for external device connec-

tions, high-definition audio microphone and speaker jacks, and DisplayPort connection driven by the embedded Intel HD Graphics 4600 accelerator capable of resolutions up to 3840 x 2160. The mA-3011 also provides the capability to install a standard form-factor 3/4 length x16 PCIe card to expand your system processing and I/O functionality.

Software

The mA-3011 provides general purpose processing capability in an AXIe format. The mA-3011 can run any standard OS applicable to x86-64 architecture (Microsoft Windows® 7, Linux, VxWorks, etc). Using installed Cobham drivers allows for the orderly startup, shutdown, reboot, and thermal management of the mA-3011 via the standard AXIe Intelligent Platform Management Interface.

mA-3011 PRODUCT SPECIFICATIONS

Standard Compliance	
AXIe-1 Base Architecture Specification, Revision 3.0	
AdvanceTCA PICMG 3.0 R3.0 Specification	
Processor	
CPU model number	Intel i7 4700EQ
CPU architecture	x86-64
CPU cores	4
Concurrent threads	8 (Hyper-Threading Technology)
CPU clock frequency	2.4 GHz (3.4 GHz Turbo)
L2 cache capacity	6 MB
Integrated graphics	Intel HD4600
PCH chipset	Intel QM87
Volatile Memory	
DRAM controllers	2
DRAM type	DDR3L-1600
DRAM capacity	8 GB, 2x 4 GB SO-DIMMs (16 GB optional)
DRAM bandwidth	25.6 GB/s
Non-Volatile Memory	
Storage type	SATA-111 (6 Gbps)
Storage capacity	128 GB
Form factor	M.2 2280
Backplane Interfaces - Ethernet Base Fabric Channel	
Link speed	10/100/1000 Mbps
VLAN support	Yes

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Backplane Interfaces - PCI Express Fabric Channels	
Fabric channels	1 and 2
Link width	x8
Link speed	8 GT/s
Root complex/Endpoint	Root complex
Auxiliary PCI Express Card Slot	
Connector width	x16
Link width	x8
Link speed	8 GT/s
Form factor	3/4-length, standard height
Power dissipation	75 W via card edge, additional 75 W via auxiliary power connector
Front-Panel Connections	
Video	DisplayPort++, (dual-mode, version 1.2)
Max Resolution	3840 x 2160 at 60 Hz
USB	4x 3.0 SuperSpeed
Ethernet	10/100/1000 Mbps (RJ45)
Audio	HD Audio microphone and speaker (3.5 mm jack)
Environmental	
Operating temperature	0˚ - +50˚ C
Storage temperature	-40˚ - +71˚ C
Humidity	50% at 40˚ C (in accordance with MIL-PRF-28800F)
Altitude	4600 m
Functional shock	30 G (in accordance with MIL-PRF-28800F)
Random vibration	5 Hz - 500 Hz (in accordance with MIL-PRF-28800F)
Regulatory	
Safety compliance	IEC/EN 61010-1
EMC compliance	IEC/EN 61326-1 IEC/EN 61000-3-2 IEC/EN 61000-3-3 MIL-PRF-28800F
Electrical	
Operating voltage range	36 - 48 VDC
Power dissipation	100 W
Mechanical	
Form factor	1 slot AXIe
Dimensions	30 mm (W) x 322.5 mm (H) x 280 mm (D)
Weight	1.9 kg

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