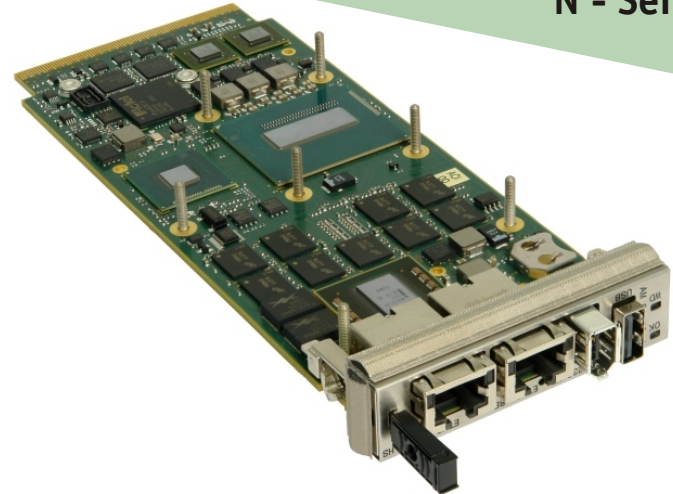


## 4<sup>th</sup> Generation Intel® Core™ Processor AdvancedMC™ Module, with Serial RapidIO®



### APPLICATIONS

The AM C1x/msd is a high performance single-width, full or mid-height, AdvancedMC™ processor module supporting a 4<sup>th</sup> generation Intel® Core™ processor (2-core or 4-core) and the Intel® QM87 PCH with up to 16 Gbytes of DDR3L-1600 ECC DRAM. The AM C1x/msd is designed in compliance to AMC.0, AMC.4 Type 5 and Type 10 (single or dual x4 Serial RapidIO®), AMC.2 Type E2 (2 x Gigabit Ethernet) and AMC.3 Type S2 (2 x SATA ports). The module also features up to three

USB 2.0 ports, two RS232 ports, two additional SATA ports, a x2 PCIe Gen 2 port, and two 10 Gigabit Ethernet interfaces. Supporting full hot swap and IPMI capabilities with a range of industry standard operating systems, the AM C1x/msd is designed for use in AdvancedTCA® or MicroTCA™ applications in the telecommunications, scientific, and defense markets. Application examples include media-servers or blade-servers.

### HIGHLIGHTS

- Single-width, full-height or mid-height, AdvancedMC™ processor module:
  - compliant to AMC.0
- Can be configured for compliance with the requirements of the SCOPE Alliance
- 4th generation Intel® Core™ processor:
  - 4-core Intel Core i7-4700EQ
  - 2-core Intel Core i5-4410E
  - includes Intel® Advanced Vector Extensions 2 (AVX2)
  - includes Intel® AES New Instructions (AES-NI)
- Up to 16 Gbytes of DDR3L-1600 DRAM with ECC
- Up to two x4 Serial RapidIO® fabric ports:
  - AMC.4 Type 5 or AMC.4 Type 5 and Type 10
  - Gen 1 and Gen 2
- 4 x Ethernet interfaces:
  - AMC.2 Type E2 (2 x Gigabit interfaces, SerDes type)
  - 2 x 10GBase-T interfaces via front panel
- Up to 3 x external USB 2.0 ports:
  - 1 front and optionally 2 rear
- Support for onboard SATA Flash Disk Module
- Up to 4 x Serial ATA interfaces on rear I/O:
  - AMC.3 Type S2
  - optionally two additional interfaces
- 2 x RS232 serial channel interfaces:
  - 1 front and optionally 1 rear
- Dual 8 Mbytes of BIOS Flash EPROM
- Hot swap compliant:
  - compliant to AMC.0
- IPMI (Intelligent Platform Management Interface):
  - IPMI Version 1.5 according to AMC.0
- Watchdog timer and Long Duration Timer
- Support for Linux® and VxWorks®

## Central Processor

- 4<sup>th</sup> generation Intel® Core™ processor:
  - 4-core Intel® Core™ i7-4700EQ processor (two performance levels, build options)
  - 2-core Intel® Core™ i5-4410E processor
  - Intel® Advanced Vector Extensions 2 (AVX2)
  - Intel® AES New Instructions (AES-NI)
- utilizes the Intel® QM87 Platform Controller Hub

## DRAM

- up to 16 Gbytes soldered DDR3L-1600 ECC DRAM:
  - single bit error correction
  - peak bandwidth of 25 Gbytes/s
  - dual channel architecture

## PICMG AdvancedMC™ Interfaces

- hot swap compliant to AMC.0
- factory build options for single or dual x4 Serial RapidIO® (Gen 1 and Gen 2) fabric connection:
  - AMC.4 Type 5 or AMC.4 Type 5 and Type 10
- rear I/O compliant to AMC.4 specification
- can be configured for compliance with the requirements of the SCOPE Alliance

## Ethernet Interfaces

- dual SerDes interfaces via AMC connector:
  - AMC.2 Type E2
  - supporting 1000Base-BX
- 2 x front panel 10 Gbit Ethernet interfaces implemented with Intel® X540AT2 controller supporting:
  - 10GBase-T
  - 1000Base-T
  - 100Base-TX full duplex

## Storage Interfaces

- up to 5 x Serial ATA interfaces:
  - AMC.3 Type S2
  - optionally two additional interfaces in AMC connector extended options region
  - supports an optional SATA Flash Disk Module with a minimum capacity of 8 Gbytes

## Serial Interfaces

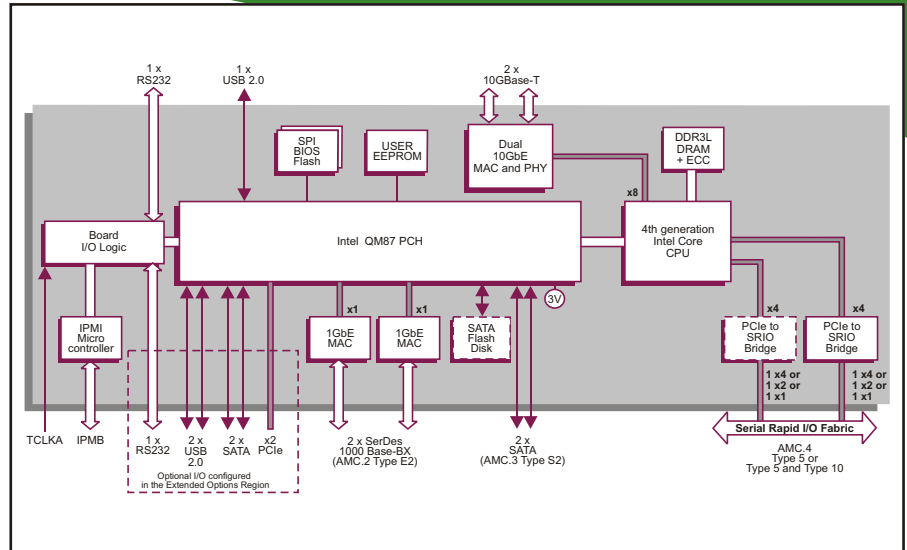
- up to 2 x RS232 serial channels:
  - 1 channel via IEEE1394 front panel connector (adapter cable available)
  - optionally 1 channel in AMC connector extended options region
- 16550 compatible UART
- modem control signals supported:
  - front channel supports TxD, RxD, CTS and RTS
  - rear channel supports TxD, RxD, CTS and RTS

## Other Peripheral Interfaces

- PC-compatible Real Time Clock
- watchdog timer
- 1 x 32-bit Long Duration Timer with processor interrupt capability
- CPU temperature monitor; voltages monitor:
  - all accessible via IPMI
- up to 3 x USB 2.0 ports:
  - 1 port via front panel
  - optionally 2 ports in AMC connector extended options region
- PCI Express Gen 2 x2 port option in AMC connector extended options region

## Software Support

- support for Linux® and VxWorks®



## Firmware Support

- Insyde Software InsydeH20™ BIOS:
  - includes Compatibility Support Module
- Intel® Platform Innovation Framework for EFI
- LAN boot firmware included

## Flash EPROM

- dual 8 Mbytes of BIOS SPI Flash EPROM

## User EEPROM

- 8 Kbytes Flash memory primarily for User data
- storage of OS boot parameters

## Telecoms Clock

- TCLKA clock input to board logic
- up to 19.44MHz LVDS input
- increments 64-bit counter in board logic

## IPMI

- IPMI Version 1.5 according to AMC.0
- on-board BMC (Baseboard Management Controller)
- supports 8 Kbytes of non-volatile memory

## Safety

- PCB (PWB) manufactured with flammability rating of 94V-0

## Electrical Specification

- typical current figures with 4-core processor (2.0 GHz performance level build option), 8 Gbytes DRAM, single Serial RapidIO:
  - +12V @ 3.3A, voltage ±2V
  - +3.3V @ less than 0.15A, voltage ±5%

## Environmental Specification

- operating temperature:
  - 0°C to +55°C (N-Series, all processors for full-height AMC and mid-height AMC)
- storage temperature: -40°C to +85°C
- 5% to 95% Relative Humidity, non condensing (operating or storage)

## Mechanical Specification

- AMC.0 single-width form-factor
- 180.6mm x 73.5mm (7.1 inches x 2.9 inches)
- full-height panel: 29mm (1.1 inches):
  - mid-height version available

## ORDERING INFORMATION

Order Number Product Description (Hardware)

AM C1x/msd-yz 4<sup>th</sup> generation Intel Core processor  
 where x = processor core selection  
 where m = front panel width style  
 where s = processor speed variant

For the order number suffix (d-yz) options please contact your local sales office:  
 where d = DRAM size where yz = I/O Configuration

d = up to 16 Gbytes DRAM

yz = rear I/O configuration