

2nd Generation Intel® Core™ Processor AdvancedMC™ Module



APPLICATIONS

The AM 31x/x0x is a high performance single-width, full or mid-height, AdvancedMC™ processor module supporting the 2nd generation Intel® Core™ processor and the Intel® Series 6 mobile class chipset with up to 8 Gbytes of DDR3-1333 ECC SDRAM. The AM 31x/x0x is designed in compliance to AMC.0, AMC.1 Type 8 (x8 PCI Express®, Gen 1 or Gen 2), 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, one additional Gigabit Ethernet interface and an optional DisplayPort interface. Supporting full hot swap and IPMI capabilities with a range of industry standard operating systems, the AM 31x/x0x is designed for use in AdvancedTCA® or MicroTCA™ applications in the telecommunications, scientific, and defense markets. Application examples include media-servers or blade-servers. Options to operate in temperatures from -25°C to +70°C are available.

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
- 2nd generation Intel® Core™ processor:
 - 4-core 2.1 GHz Intel Core i7-2715QE processor
 - 2-core 1.5 GHz Intel Core i7-2610UE processor
 - 2-core 2.2 GHz Intel Core i7-2655LE processor
 - 2-core 2.5 GHz Intel Core i5-2515E processor
- Up to 8 Gbytes of DDR3-1333 SDRAM with ECC
- 3 x Gigabit Ethernet interfaces:
 - AMC.2 Type E2 (2 interfaces, SerDes type)
 - 1 additional interface via front panel RJ45 connector
- x8 PCI Express® (Gen 1 or Gen 2) fabric port:
 - AMC.1 Type 8
- 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
- Optional DisplayPort interface on front panel
- 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
- Extended temperature version (E-Series):
 - E: -25°C to +70°C, air-cooled
- Support for Linux®, Windows® Server 2008, Windows® 7, Windows® Embedded Standard 7, Windows® XP, Windows® XP Embedded, QNX® and VxWorks®

Central Processor

- 4-core 2.1 GHz Intel® Core™ i7-2715QE processor
- 2-core 1.5 GHz Intel® Core™ i7-2610UE processor, 2.2 GHz Intel® Core™ i7-2655LE processor or 2.5 GHz Intel® Core™ i5-2515E processor
- common processor features are:
 - 32nm process technology
 - 1333 MHz memory bus
 - Intel 64 technology (64-bit computing)
- shared Last-Level on-die cache:
 - 2.1 GHz Intel Core i7-2715QE - 6 Mbytes
 - 1.5 GHz Intel Core i7-2610UE - 4 Mbytes
 - 2.2 GHz Intel Core i7-2655LE - 4 Mbytes
 - 2.5 GHz Intel Core i5-2515E - 3 Mbytes
- utilizes Intel® Series 6 mobile class chipset:
 - Intel® QM67 Platform Controller Hub (PCH)

SDRAM

- supports up to 8 Gbytes DDR3-1333 ECC SDRAM:
 - up to 8 Gbytes soldered
 - peak bandwidth of 20 Gbytes/s
 - dual channel architecture
- accessible from processor and AMC connector

PICMG AdvancedMC™ Interfaces

- hot swap compliant to AMC.0
- single x8 or dual x4 PCI Express® fabric connection:
 - AMC.1 Type 8
 - support for Gen 1 or Gen 2
 - transfer rate up to 4 Gbytes/s
 - supported by a DMA engine in the PCI Express switch
 - can be used as two x4 interfaces in dual redundant fabric systems
 - external or on-board fabric clock support
- rear I/O compliant to AMC.1 specification
- can be configured for compliance with the requirements of the SCOPE Alliance

Storage Interfaces

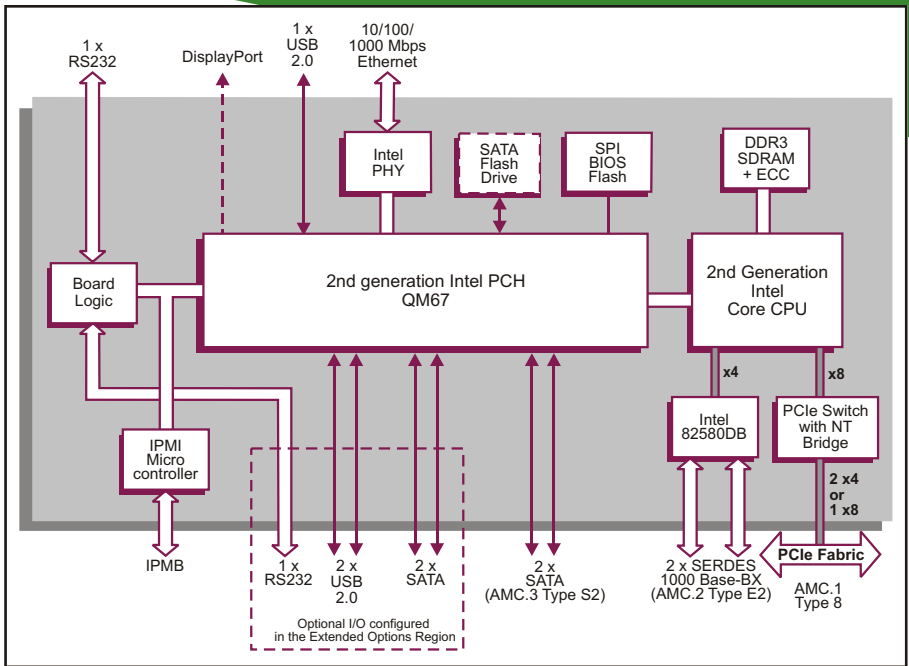
- up to 5 x Serial ATA interfaces:
 - AMC.3 Type S2
 - optionally two additional interfaces in AMC connector extended options region
 - supports up to 8 Gbytes optional SATA Flash Drive Module

Ethernet Interfaces

- dual SerDes interfaces via AMC connector:
 - AMC.2 Type E2
 - supporting 1000Base-BX
 - implemented by Intel® 82580DB LAN Controller via x4 PCI Express port
- 1 x front panel 10/100/1000 Mbps interface accessed via RJ45 connector:
 - implemented by an Intel® 82579LM Gigabit Ethernet PHY

Serial Interfaces

- up to 2 x RS232 serial channels:
 - 1 channel via IEEE1394 front panel connector
 - 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



Display Interface

- optional DisplayPort connector on front panel
- maximum display resolutions up to 2560x1600, 32-bit, 60Hz
- support for Microsoft® DirectX 10
- support for OpenGL 2.0, Windows and Linux

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

Software Support

- support for Linux®, Windows® Server 2008, Windows® 7, Windows® Embedded Standard 7, Windows® XP, Windows® XP Embedded, QNX® and VxWorks®

Firmware Support

- Insyde Software InsydeH20™ BIOS:
 - includes Compatibility Support Module
- based upon Intel® Platform Innovation Framework for EFI
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

Flash EPROM

- 8 Mbytes of BIOS SPI Flash EPROM

IPMI

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

Electrical Specification

- +12V @ 3.5A (typical current figure with 2.2 GHz Intel Core i7-2655LE processor, 4 Gbytes SDRAM), voltage ±2V
- +3.3V @ less than 0.13A, voltage ±5%

Safety

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

Environmental Specification

- operating temperature:
 - 0°C to +55°C (N-Series, contact sales for full-height AMC, contact sales for mid-height AMC)
 - -25°C to +70°C (E-Series, contact sales)
- 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 312/10x-yz	4-core Core i7 processor, full-height AMC
AM 310/10x-yz	2-core Core i7 or Core i5 processor, full-height AMC
AM 310/30x-yz	2-core Core i7 processor, mid-height AMC

For the order number suffix (yz) options please contact your local sales office:
 Where y = rear I/O configurations
 y - rear I/O options
 Where z = SDRAM size
 z - up to 8 Gbytes

For accessories and extended temperature options please contact your local sales office.