

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®), 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 a 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. Options to operate in temperatures from -25°C to +70°C are available. 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
- 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® 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
- 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
 - 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

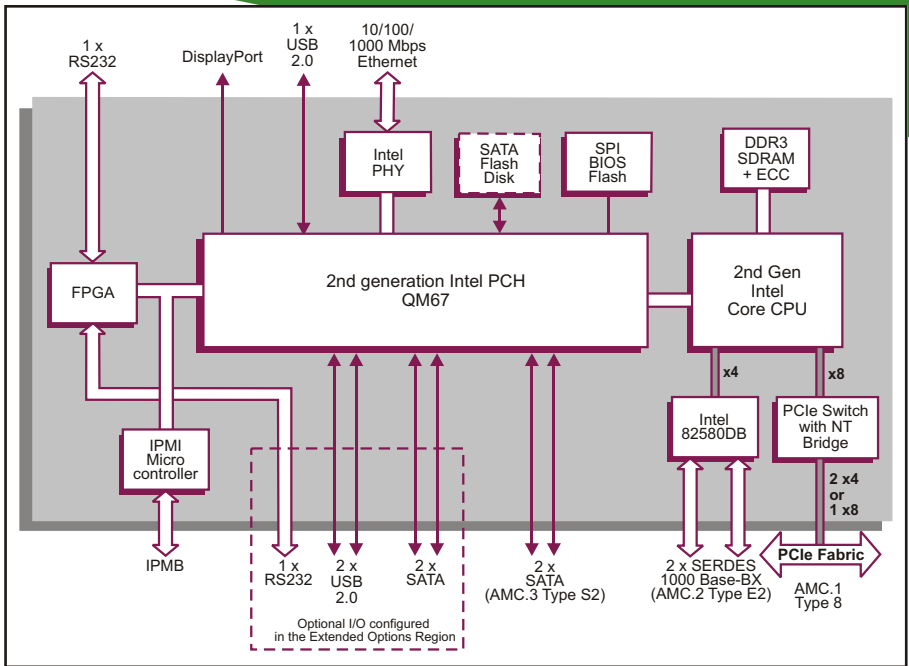
- up to 5 x Serial ATA interfaces:-
 - AMC.3 Type S2
 - optionally two additional interfaces in AMC connector extended options region
 - supports up to 8 Gbytes optional SATA Flash Disk Module

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

- 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 (Estimated)

- +12V @ 3.5A (typical current figure with 2.2 GHz Intel Core i7-2655LE processor, 4 Gbytes SDRAM), voltage ±2V
- +3.3V @ less than 0.15A, voltage ±5%

Safety

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

Environmental Specification

- operating temperature:-
 - 0°C to +55°C (N-Series, all processors 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.

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