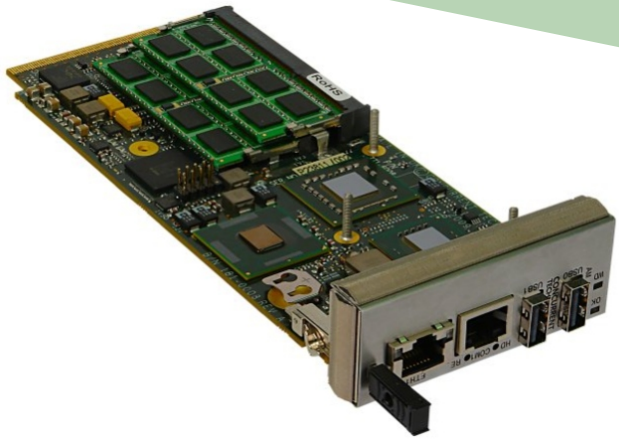
AMC Module

# AM 210/x0x

## N, E - Series

## Intel® Core™ 2 Duo Processor AdvancedMC™ Module



## APPLICATIONS

The AM 210/x0x is a high performance single-width, full or mid-height, AdvancedMC™ processor module. The module supports the 2.26 GHz Intel® Core™ 2 Duo processor SP9300 or the 1.86 GHz Intel® Core™ 2 Duo processor SL9400, with an Intel® GS45 and ICH9M-E chipset and up to 8 Gbytes DDR3-1066 memory. The AM 210/x0x is designed in compliance to AMC.0, AMC.1 Type 8 (x8 PCI Express®), AMC.2 Type E2 (2x Gigabit Ethernet) and AMC.3 Type S2 (2x SATA ports). The module also features four USB 2.0 ports, two RS232 ports, two additional SATA ports and one additional Gigabit Ethernet interface. Supporting full hot swap and IPMI capabilities with a range of industry standard operating systems, the AM 210/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
- 2.26 GHz or 1.86 GHz Intel Core 2 Duo processor:
  - 32 Kbytes L1 cache
  - 6 Mbytes L2 cache
  - Intel® 64 (or Intel® EM64T) 64-bit computing support
- Up to 8 Gbytes of DDR3-1066 SDRAM
- 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 4 x external USB 2.0 ports:
  - 2 front and optionally 2 rear
- Support for onboard USB 2.0 Flash Drive 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
- 4 Mbyte 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
  - full-height front panel only
- Support for Linux®, Windows® Server 2008, Windows® Server 2003, Windows® 7, Windows® Embedded Standard 7, Windows® XP, Windows® XP Embedded, QNX® and VxWorks®

CONCURRENT TECHNOLOGIES

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# Specification

## Central Processor

- 2.26 GHz Intel® Core™ 2 Duo processor SP9300 or 1.86 GHz Intel® Core™ 2 Duo processor SL9400:
  - 32 Kbytes of primary (L1) on-die cache
  - 6 Mbytes of shared Last-Level on-die cache
  - 1066 MHz Front Side Bus (FSB)
  - Intel 64 technology (64-bit computing)
- utilizes 64-bit Intel® GS45 and ICH9M-E chipset

## DRAM

- AMC module supports up to 8 Gbytes DDR3-1066 SDRAM:
  - via two SODIMM sockets
  - peak bandwidth of 16 Gbytes/s
- 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

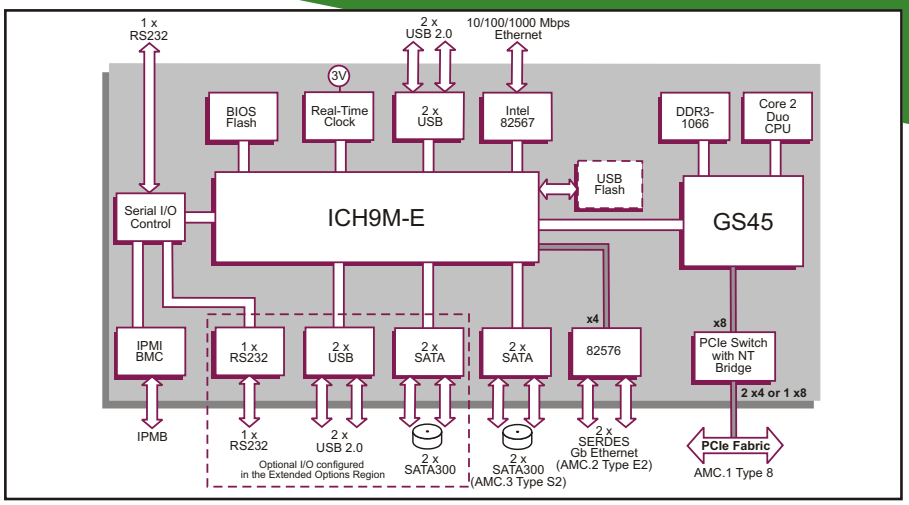
- up to 4 x Serial ATA300 interfaces:
  - AMC.3 Type S2
  - optionally two additional interfaces in AMC connector extended options region
  - transfer rate up to 300 Mbytes/s
- supports up to 8 Gbytes optional USB 2.0 Flash Drive Module

## Ethernet Interfaces

- dual Gigabit Ethernet interfaces via AMC connector:
  - AMC.2 Type E2
  - supporting Serdes type 1000BX
  - implemented by Intel® 82576EB LAN Controller via x4 PCI Express port
- 1 x front panel 10/100/1000 Mbps interface accessed via RJ45 connector:
  - implemented by an Intel® 82567LM LAN PHY

## Serial Interfaces

- up to 2 x RS232 serial channels:
  - 1 channel via RJ45 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, RTS, DSR, DTR and DCD
  - rear channel supports TxD, RxD, CTS and RTS only




## 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 5 x USB 2.0 (Universal Serial Bus) interfaces:
  - 2 channel via front panel
  - optionally 2 channels in AMC connector extended options region
  - 1 channel supports optional USB Flash Drive Module

## Software Support

- support for Linux®, Windows® Server 2008, Windows® Server 2003, Windows® 7, Windows® Embedded Standard 7, Windows® XP, Windows® XP Embedded, QNX® and VxWorks®

## Firmware Support

- Phoenix® TrustedCore™ Server
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

## Flash EPROM

- 4 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 @ 3.2A (typical at 2.26 GHz with 8 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 configurations)
  - -25°C to +70°C (E-Series, 1.86 GHz, full-height front panel. 2.26 GHz full-height front panel)
- -40°C to +85°C (storage)
- 5% to 95% Relative Humidity, non-condensing (operating and 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 210/10x-xy | Core 2 Duo processor, full-height AMC |
| AM 210/30x-xy | Core 2 Duo processor, mid-height AMC |

**For the order number suffix (xy) options please contact your local sales office:**

**Where x = rear I/O configurations**
x - rear I/O options

**Where y = SDRAM size**
y - up to 8 Gbytes

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



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