**AdvancedMC® Module based on Intel® Xeon® Processor E3-1500 v5 Product Family**

**Key Features**

AM F5x/msd is an AdvancedMC® Single Module (Mid-size or Full-size) based on an Intel® Skylake microarchitecture processor for long life-cycle, high performance applications. Compatible with legacy AMC modules.

- 4-core Intel® Xeon® processor variants for CPU or GPU intensive processing loads
- Gen 3 PCI Express® fabric interface options for flexible connection to other payloads
- Front panel connections including:
  - 2 x 10GBase-T Ethernet for networking
  - 1 x DisplayPort®, USB and Serial for configuration
- Optional Flash Drive Module for local boot and data storage
- Optional I/O in extended options region
AdvancedMC® Computer Board

AdvancedMC® (AMC) Module utilizing the Intel® Xeon® Processor E3-1500 v5 Product Family

- AMC form factor is a Single Module supporting:
  - Mid-size front panel
  - Full-size front panel
- AMC Fabric Interface supports:
  - PCI Express® (PCIe®)

Central Processor

- Intel Xeon processors supported
- 4-core Intel® Xeon® Processor E3-1515M v5:
  - 8 Mbytes Cache, 2.80 GHz
  - Intel® Iris™ Pro Graphics P580
- 4-core Intel® Xeon® E3-1505M v5:
  - 8 Mbytes Cache, 2.80 GHz
  - Intel® HD Graphics P530
- 4-core Intel® Xeon® E3-1505L v5:
  - 8 Mbytes Cache, 2.00 GHz
  - Intel HD Graphics P530
- utilizes the Intel® CM236 Platform Controller Hub

DRAM

- 16 Gbytes soldered DDR4 ECC DRAM:
  - single bit error correction
  - peak bandwidth of 34.1 Gbytes/s
  - dual channel architecture
  - accessible from processor and AMC connector

PICMG AdvancedMC Interfaces

- PCIe fabric connection (build option):
  - AMC.1 Type 8 or Type 4 (1 x8 or 2 x4 PCIe port)
  - plus user configurable to 4 x2 PCIe port
  - support for Gen 1, Gen 2 and Gen 3
  - transfer rate up to 8 Gbps
  - supported by a DMA engine in the PCIe switch
  - external or on-board fabric clock support
  - hot swap compliant to AMC.0
  - rear I/O compliant to AMC specification

Storage Interfaces

- up to 4 x SATA600 interfaces:
  - AMC.3 Type S2 (2 x SATA)
  - 2 x SATA in AMC connector extended options region (build option)
- optional SATA600 Flash Drive Module

Ethernet Interfaces

- dual SerDes interfaces via AMC connector:
  - AMC.2 Type E2 (2 x 1000BASE-BX)
  - implemented using two Intel® Ethernet Controller I210-1S devices
- 2 x front panel 10 Gigabit Ethernet interfaces via RJ45 connectors:
  - 10GBASE-T
  - 1000BASE-T
  - 100BASE-TX full-duplex
  - implemented using an Intel® Ethernet Controller X540-AT2 device

Serial Interfaces

- 1 x RS232 interface via front panel Micro USB connector:
  - supports TxD and RxD
- 1 x RS232 interface in AMC connector extended options region (build option):
  - TxD, RxD, RTS and CTS
  - 16550 compatible UARTs

Display Interface

- DisplayPort® interface via front panel via USB Type C connector:
  - resolution is dependent on the device driver
  - support for Microsoft® DirectX 12 and 11.x
  - support for OpenGL 4.x under Windows® and Linux®
  - support for OpenCL 2.1

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 ports:
  - 1 x USB 2.0/3.0 via front panel (USB Type C connector)
  - 2 x USB 2.0 in AMC connector extended options region (build option)
  - user selectable option for 2 x USB 3.0 (replaces x2 PCIe port) in AMC connector extended options region (build option)
  - user selectable option for 2x PCIe port (replaces 2 x USB 3.0) in AMC connector extended options region (build option):
  - supports 1 x2 or 2 x1 PCIe ports (up to Gen 2)

Telecom Clock

- TCLKA clock input to board logic:
  - increments 32-bit counter in board logic

Software Support

- supports Linux®, Windows® and VxWorks®
- Fabric Interconnect Networking Software (FIN-S):
  - allows applications on multiple processor boards to efficiently communicate with each other over the fabric
  - optional software, see separate datasheet

Trusted Platform Module

- optional Trusted Platform Module (TPM):
  - compliant to TCG v1.2

Firmware Support

- UEFI boot firmware (BIOS):
  - UEFI 2.4 support
  - EDK II support
  - includes Compatibility Support Module
  - LAN boot firmware included

Non-Volatile Memory

- 16 Mbytes of BIOS Flash EEPROM, dual redundant devices

IPMI

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

Electrical Specification

- typical current consumption for 4-core Intel Xeon E3-1505M v5 processor with 16 Gbytes DRAM:
  - +12V @ 4.8A typical voltage ±2V
  - +3.3V @ less than 0.12A, voltage ±5%

Safety

- PCB (PWB) manufactured with flammability rating of UL94V-0

Environmental Specification

- operating temperature:
  - 0°C to +55°C (N-Series)
  - all processors for Full-size AMC
  - selected processor for Mid-size AMC
  - non-operating temperature: -40°C to +85°C
  - 5% to 95% Relative Humidity, non condensing

Mechanical Specification

- AMC.0 Single Module form-factor
  - 180.6mm x 73.5mm (7.1 inches x 2.9 inches)
  - Full-size panel: 29mm (1.1 inches):
  - Mid-size variants available, contact sales

Compatible with Legacy Modules

- factory build options enable compatibility with legacy AMC processor modules, e.g.:
  - AM 91x/11x and AM 91x/31x
  - AM 92x/11x and AM 92x/31x
  - AM 95x/11x and AM 95x/31x

Please contact your local Concurrent Technologies sales office for further details on board build options and accessories.