High-End Quad Core Processor AMC based on Intel® XEON LC5518

Server-Class Performance
» Intel® XEON Quad Core LC5518 1.73 GHz

Massive Data Throughput
» Up to 24 GB ECC Memory DDR3 1066 MHz via 3-channel access

Comprehensive Connectivity
» 2x 10 GbE (XAUI) 4x GbE, 4x SATA, 1x PCIe x4 and more
AM5030
High-End Quad Core Processor AMC based on Intel® XEON LC5518

» Server-Class Performance and Data Throughput
The AM5030 AdvancedMC processor module is equipped with the next generation Intel® Xeon® processor LC5518 which provides outstanding server-class processing power and maximum performance per Watt for MicroTCA system designs. The AM5030 is highly integrated and available in double-width, full-size form factor. The Intel® Xeon™ Quad-Core processor LC5518, in tandem with the Intel® 3420 server-class chipset, takes full advantage of processor performance and the high-speed FSB. The 45nm socket processor LC5518 offers 8MB shared Last Level Cache, Hyper-Threading support and Intel Turbo Mode technology.

Supporting a three-channel memory interface for up to 24 GB of ECC memory (DDR3) running at 1066 MHz the AM5030 ensures highest memory bandwidth for maximum data throughput.

» Connectivity
Two 10GbE (XAUI) interfaces in accordance with AMC.2 – provide comprehensive networking capabilities. In combination with a 10GbE MicroTCA Carrier Hub, like the Kontron AM4910, high performance multi-core MicroTCA platforms with massive data throughput are possible. Four GbE interfaces – two available on the front panel, two in accordance with AMC.2 – provide additional networking capabilities.

Furthermore, the Kontron AM5030 offers connectivity in accordance with AMC.1 (PCIe x4) and AMC.3 (2x SATA). Two USB 2.0 ports, one VGA (D-SUB) and one COM (RJ45) port accessible on the front panel round the extensive feature set out.

The AM5030 can be equipped optionally with an up to 32 GB SATA NAND Flash memory module which can be screwed to the board.

» Applications
Designed for compute-intensive applications the versatile AM5030 may be used as a main controller, data server, traffic processor or media processor in any double-width MicroTCA platform deployed for applications in the 3GSM, triple play, military, police, defense, medical, transportation and avionics market segments. Carrier-grade telecommunications, as well as image and video processing applications in the medical, industrial quality management and simulation markets also benefit from the processing power and communication capabilities of the AM5030 processor module.
## Technical Information

### Form Factor
- Double full-size AMC module

### CPU and PCH
- **Processor**: The AM5030 supports the following microprocessors:
  - Intel XEON LC5518 processor with integrated memory controller supporting ECC Quad Core 1.73 GHz, 48W TDP (thermal design power) with 3-channel memory access
  - Available on project request:
    - Dual Core 1.73 GHz LC3528 35W TDP
    - Single Core 1.73 GHz LC3518 23W TDP
  - Both versions support 2-channel memory access
    - Intel Turbo Mode technology
    - Up to 8 MB Shared Last Level Cache
    - Three channel DDR3 controller (800/1066 MHz) with ECC support
    - 4x16, 2x8, or 4x4 PCI Express 2.0 port configuration with 2.5 GT/s or 5 GT/s
    - Direct Media Interface (DMI) to Ibex Peak

### Platform Controller Hub
- Intel Platform Controller Hub Ibex Peak 3420. Used interfaces on the AM5030:
- Five SATA ports, three USB 2.0 ports, one PCI-Express x1 port, LPC Interface, SPI Interface, SMBus

### Memory
- **System Memory**: Up to three channels DDR3 memory for a maximum of 24 GB (3x 8GB) DDR3 DRAM memory with ECC running at 1066 MHz
- Supported are Unbuffered ECC or Registered DDR3 VLP DIMM modules

### NAND Flash
- Up to 32 GB SLC NAND Flash on a dedicated SATA NAND Flash module

### Flash (BIOS)
- Two redundant 8 MB SPI Flash chips (2 x 8 MB) for uEFI BIOS controlled by the MMC

### EEPROM
- Serial EEPROM (24LC64) 64 kbit

### Onboard Controllers
- **10Gb Ethernet**: One Intel R2998EB Dual 10 GbE x8 PCI Express bus controller (Code name Niantic)
- **Gigabit Ethernet**: One Intel R2580EB Quad Gigabit Ethernet PCI Express bus controller
- **Graphic**: Silicon Motion SM750 via PCI Express x1, maximum resolution of 1920 x 1440 pixels and embedded 16 MB DDR on-chip memory
- **UART**: EXAR XR16L580IL single UART, 16550 compatible
- **TPM**: Infineon SLB9635TT TPM 1.2 controller (on request)
- **MMC**: NXP LPC2368 controller with on-chip 512 kB Flash and 56 kB RAM
- **Watchdog**: FPGA-based, software-configurable, two-stage Watchdog w. programmable timeout ranging from 125 ms to 256 s in 12 steps

### System Interconnection
- **10Gb Ethernet**: One 10Gb XAUI interface on AMC ports 8-11 (Fat Pipes Region)
  - One 10Gb XAUI interface on AMC ports 17-20 (Extended Options Region)
- **Gigabit Ethernet**: Two 1000BASE-BX (SerDes) (Common Options Region ports 0-1)
- **Serial ATA**: Two SATA ports (Common Options Region ports 2-3)
- **PCI Express**: One x4 PCI Express interface on AMC ports 4-7 (Fat Pipes Region)
- **Debug Interface**: One Debug port (Extended Options Region port 14)
- **Serial Port**: COM1 (LVTTL) (Extended Options Region port 15)
- **FCLKA**: Bidirectional PCI Express clock configuration

### Front Panel Interfaces
- **Gigabit Ethernet**: Two 1000BASE-TX on RJ45 connector
- **VGA**: 15-pin D-Sub connector
- **USB**: Two USB 2.0 ports on standard type A connectors
- **Serial Port**: One RS232 UART interface on 10-pin mini connector
- **LEDs**: Three Module Management LEDs
  - Four User-Specific LEDs
  - Ethernet LEDs

### Onboard Interfaces
- **Debug Interface**: JTAG port for processor emulation probe connection
- **1/O Extension**: The 1/O extension holds the following interfaces:
  - SATA, USB, LPC interface and some power and control signals, battery input

### Compliancy
- **ATCA**: 12 V payload power, 3.3 V management power
- **MicroTCA**: PICMG MTCA.0 Micro Telecommunications Comp. Architecture R1.0
  - PCI Express: PCI Express Base Specification Revision 1.0a
  - PICMG AMC.0: Advanced Mezzanine Card Specification R2.0
  - PICMG AMC.1: PCI Express and Advanced Switching R1.0
  - PICMG AMC.2: Gigabit Ethernet R1.0
  - PICMG AMC.3: Storage Interfaces R1.0
- **IPMI**: IPMI Intelligent Platform Management Interface Spec. V2.0
- **IPMI**: IPMI - Platform Management FRU Information Definition V1.0
  - SATA: Serial ATA 2.5 Specification
Technical Information

| CE          | EN55022, EN55024, EN61000-6-2/-6-3, EN300386, EN60950-1 |
| Climatic Humidity | IEC60068-2-78                                      |
| WEEE        | Directive 2002/96/EC                               |
| RoHS        | Directive 2002/95/EC                               |

**General**

Dimensions: Dimensions without retention screws on front panel:
- Full-size: 180.6 mm x 148.5 mm x 28.95 mm
- Board Weight: Full-size: approx. 600 grams
- MTBF: For further information please contact our sales team
- Power Supply: 12 V payload power, 3.3 V management power
- Power Consumption: tbd

**Environmental**

- Temperature range: -5°C to +65°C (standard, depending on processor version and airflow in the system)
  - -40°C to +70°C (storage)
- Humidity:
  - Operational: 5%-90% (non-condensing)
  - Non-Operating: 5%-95% (non-condensing)

**Software**

- BIOS: AMI uEFI BIOS
- IPMI: MMC (Module Management Controller) implementation compliant to PICMG AMC.0, Kontron own IP
- Linux: Generic BSP to be used with various Linux derivates; verified for RedHat Fedora 13, RedHat Enterprise 6 Beta 2
- Windows: Windows 7 (64 bit), Windows 2008 Server R2
- WindRiver Linux: PNE 3.x

**Ordering Information**

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