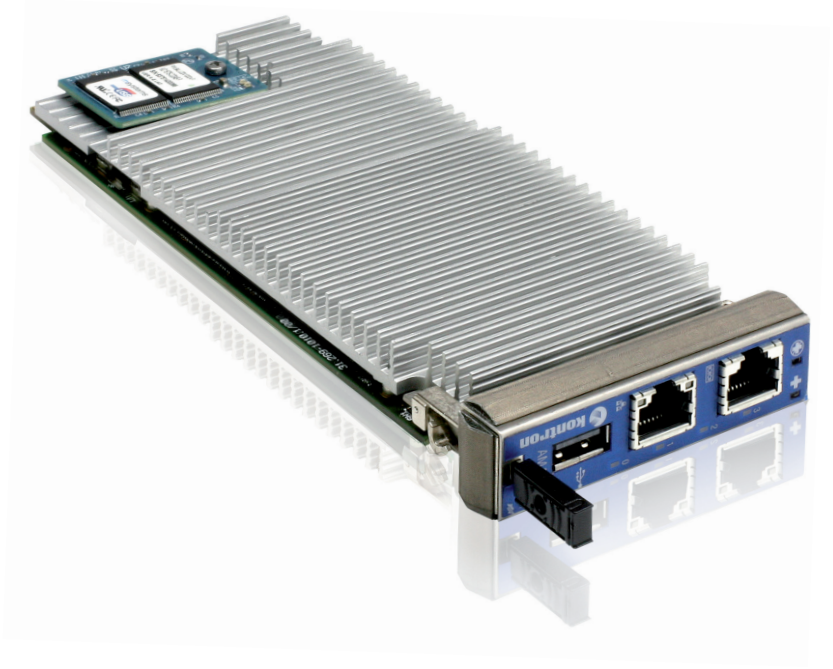
» AM4010# «



Ultra Performance

» Intel® Core™2 Duo with 1.5 GHz

Ultra Capacity

» Up to 4 GB memory DDR2 400 MHz
» Up to 8 GB NAND Flash

Ultra Flexibility

» Flexible Gigabit and PCI Express® fabric interface

First class performance AMC module

High performance and comprehensive AMC interconnect capabilities

Ultra Performance

The AM4010 is a highly integrated CPU board implemented as a Single Mid-size or Full-size Advanced Mezzanine Card (AMC) Module. The design is based on the Intel® Core™ Duo and the Intel® Core™2 Duo processors combined with the Intel® 3100 server-class chipset. The board is capable of supporting the Intel® Core™ Duo and the Intel® Core™2 Duo processor versions in 65 nm technology with 64 kB L1 and up to 4 MB L2 cache in a 479 FCBGA package with frequencies ranging from 1.2 GHz up to 1.66 GHz providing up to 667 MHz front side bus (FSB) speed.

Ultra Capacity

The board includes up to 4 GB registered Double Data Rate (DDR2) memory with Error Checking and Correcting (ECC) running at 400 MHz. Two dual Gigabit Ethernet controllers each utilizing a x4 lane PCI Express interconnection to the Intel® 3100 chipset ensure maximum data throughput between processor and memory. The AM4010 further provides up to 8 GB Flash memory via an USB 2.0 NAND Flash Controller.

Ultra Flexibility

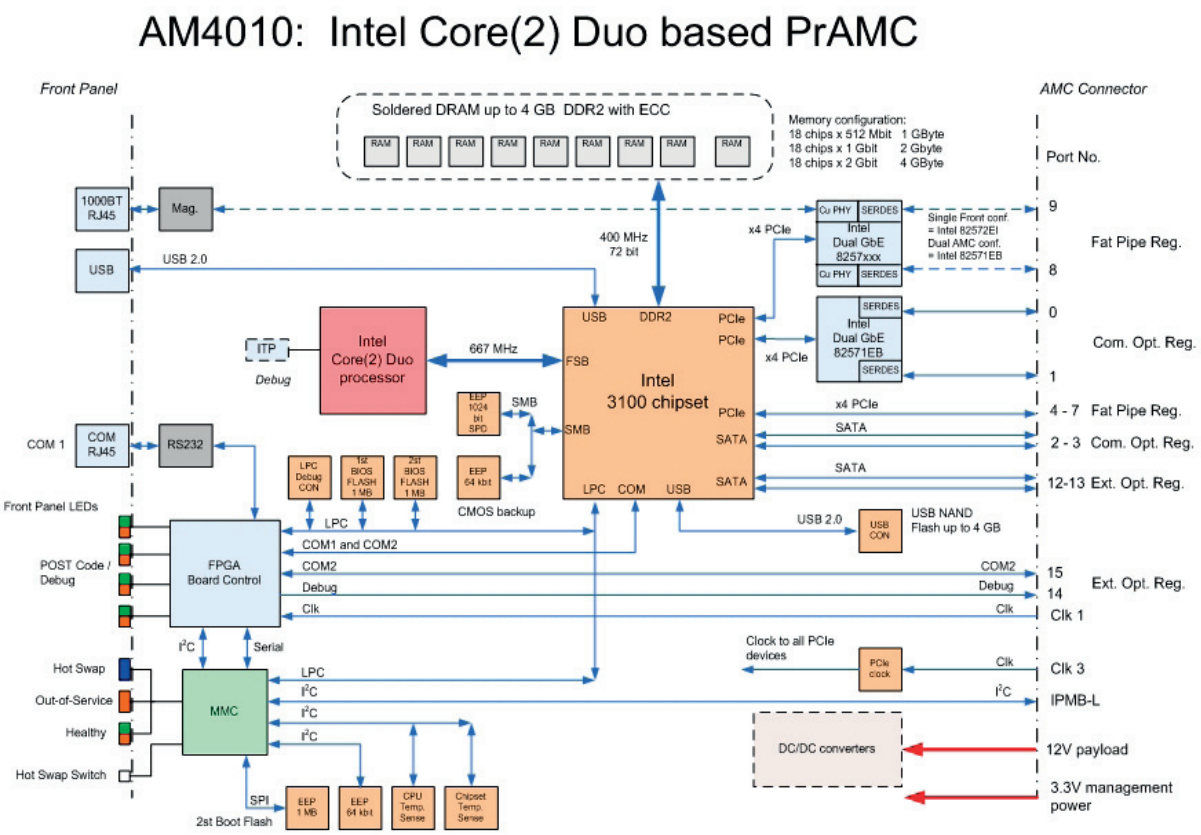
Supporting the PICMG sub-specifications AMC.1/.2/.3 the AM4010 ensures a comprehensive set of interconnecting capabilities to the AMC Carrier. A x4 PCI Express® lane according to AMC.1 guarantees high throughput for I/O intensive applications. The dual Gigabit Ethernet controller realizing the AMC.2 interconnect utilizes a x4 lane PCI Express® interface to the 3100 chipset ensuring maximum packet performance. Two SATA ports compliant to AMC.3 allow flexible usage models of the AM4010 depending on the application requirements.

AMC everywhere

A comprehensive range of 'AMC everywhere' ATCA boards, such as ATCA carrier boards, CPU and hub boards are complementing Kontron's AMC product portfolio including the AM4010 module. Optimized for high-performance, packetbased telecom systems, the AM4010 is targeted towards, but not limited to telecom applications such as radio network controllers, storage control, routing and switching solutions in ATCA systems. Beyond the usage in ATCA systems the AM4010 complies to the MicroTCA standard dedicated for cost optimized communication applications.

Reliability

The careful design and selection of high temperature resistant components together with the elaborated heat sink construction ensures a high product availability. This, along with a high level of scalability, reliability, and stability, makes this state-of-the-art product a perfect core technology for long-life embedded applications.



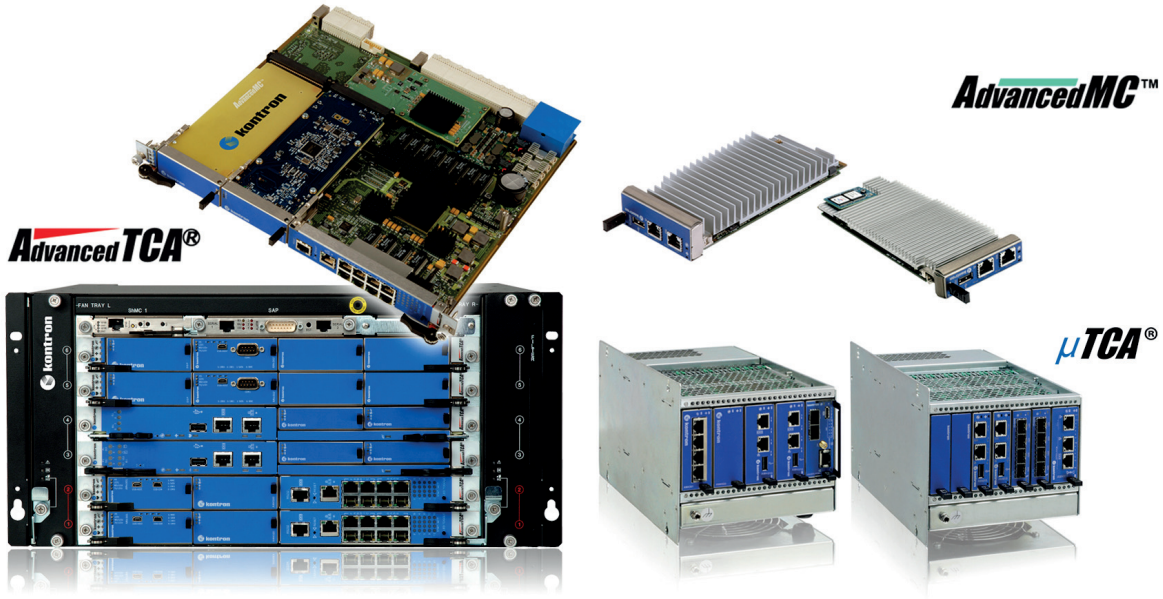
Technical Information

System Processor	
AM4010 (Full-size or Mid-size)	Intel® Core™2 Duo Processor (65 nm), 479-pin FCBGA package, 2x 32 KB L1 cache and 2/4 MB L2 cache, 533 or 667 MHz processor system bus Intel® Core™2 Duo L7400 (LV), 1.5 GHz, 667 MHz FSB, 4 MB L2 cache The processor is passive cooled with a fanless heatsink Forced air cooling at a specific flow rate is required Other processor frequencies are available on request
Memory	
System memory	Up to 4 GByte (soldered) registered DDR2 400 MHz with ECC
NAND Flash	Up to 8 GByte NAND Flash via onboard USB 2.0 Flash controller
Flash (BIOS)	Two redundant 1 MB Firmware hubs (FWH)
EPROM	Serial EEPROM (24LC64) 64 kbit
Onboard Controller	
Intel® 3100 chipset with integrated Memory and I/O Controller Hub	Three x4 PCI Express® ports, DDR2 SDRAM memory controller with ECC, six SATA 150 ports, four USB 2.0 ports, two UARTs,RTC, Interrupt Controller, Timer
Gigabit Ethernet	Intel® 82572 single GbE and 82571EB dual GbE PCI Express® device; Optional: two Intel® 82571EB dual GbE PCI Express® devices
Watchdog	FPGA based, software configurable, two-stage Watchdog with programmable timeout ranging from 125 msec to 256 sec in 12 steps.
MMC	Microcontroller with on-chip 512 kB Flash and 40 kB RAM, ext. 1 MB SPI Flash, 64 kbit EEPROM
AMC System Interconnect	
PCI Express	One x4 PCI Express interface AMC fat pipes region port 4-7
Gigabit Ethernet	2x 1000BASE-BX (SerDes) on AMC ports 0-1 (Common Options Region); Optional: in addition 2x 1000BASE-BX (SerDes) on AMC ports 8-9 (Fat Pipe Region)
Front Panel	
	One USB 2.0 port One serial port (COM1) with RS-232 signal level on RJ-45 connector One Gigabit Ethernet port on RJ-45 connector Three Module Management LEDs Four User-Specific LEDs
MMC Module Management Controller	
	Microcontroller with 40 kB RAM and redundant 512 kB Firmware Flash with automatic roll-back strategy The MMC carries out IPMI commands such as monitoring several onboard temperature conditions, board voltages and the power supply status, and managing hot swap operations The MMC is accessible via a local IPMB (IPMB-L) and two host Keyboard Style Interfaces (KCS)
Compliancy	
ATCA	PICMG 3.0 AdvancedTCA Base Specification R2.0
MicroTCA	PICMG MTCA.0 Micro Telecommunications Comp. Architecture R1.0
AMC	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 - Platform Management FRU Information Definition V1.0
PCI Express®	PCI Express® Base Specification Revision 1.0a
Serial ATA	Serial ATA 2.5 Specification
CE	EN55022, EN55024, EN61000-6-2/-6-3, EN300386, EN60950-1
Vibration/Shock	IEC60068-2-6 / IEC60068-2-27
Climatic Himidity	IEC60068-2-78
WEEE	Directive 2002/96/EC
RoHS	Directive 2002/95/EC
Power Consumption	
AM4010 with Core 2 Duo, 1.5 GHz, 2 GB	max. 36 W
General	
Dimensions	181.5 mm x 73.5 mm x 18.96 mm (Mid-size/Single-width), 181.5 mm x 73.5 mm x 28.95 mm (Full-size/Single-width)
MTBF	221,055 h acc. Bellcore Issue 6, Ground Benign, Controlled, 30°C
Software Support	
	AMI BIOS, BIOS parameters saved in EEPROM, Boot order defined via MMC Serial over Lan, Support for Redhat Linux, WRLinux PNE 2.0 (Q2/2008), VxWorks 6.6 SMP (Q3/2008)
Environmental	
Operating temp.	-5°C to +55°C (depending on system environment)
Storage temp.	-40°C to +70°C
Humidity	Operational: 5%-90% (non-condensing) Non-Operating: 5%-95% (non-condensing)

Ordering Information

Article	Part No.	Description
AM4010-1.5GHz-2M-full or -mid	Full- or Mid-size	PrAMC, Intel® Core™2 Duo (LV), 1.5 GHz, 677 MHz FSB, 2 GB memory
AM4010-1.5GHz-4M-full or -mid	Full- or Mid-size	PrAMC, Intel® Core™2 Duo (LV), 1.5 GHz, 667 MHz FSB, 4 GB memory
LIN-BSP-AM4010		Linux Board Support Package
LIN-BSP-WR-AM4010-PNE2.0		WindRiver Linux PNE2.0 Board Support Package
FLASH-USB-xxx		NAND-Flash in various capacities
AM-EVAL1		AM40xx Evaluation Kit, incl. graphic card, HDD, cables, installed Linux s/w on HDD

AM4010 PLATFORMS



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