kontron

» AM5010 «



» **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 I/O Capability**
2x GbE, DVI, 2x USB, onboard SATA, onboard USB Flash
PCIe (AMC.1), 2x GbE (AMC.2)

First class performance AMC module

Double-width high performance, numerous I/Os & AMC interconnections

Ultra Performance

The AM5010 is a highly integrated CPU board implemented as a double-width, mid-size Advanced Mezzanine Card (AMC) Module. The design is based on the Intel® Core™2 Duo LV 1.5 GHz processor with 4 MB L2 cache providing 667 MHz front side bus (FSB) speed combined with the Intel® 3100 server-class chipset.

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. The AM5010 provides up to 8 GB Flash memory via an USB 2.0 NAND Flash Controller and offers further the capability for an onboard 2.5" SATA HDD.

Ultra Connectivity

Supporting the PICMG sub-specifications AMC.1/.2 the AM5010 ensures a comprehensive set of interconnecting capabilities. A x4 PCI Express lane (supporting 4 x1 PCI Express as well) 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. Furthermore the integration of a graphic controller with an DVI-I interface to the front, combined with 2x USB, 2x GbE and a serial port via RJ45 provides a rich set of front I/O capabilities enabling the AM5010 for new application implementations beside the communication segment.

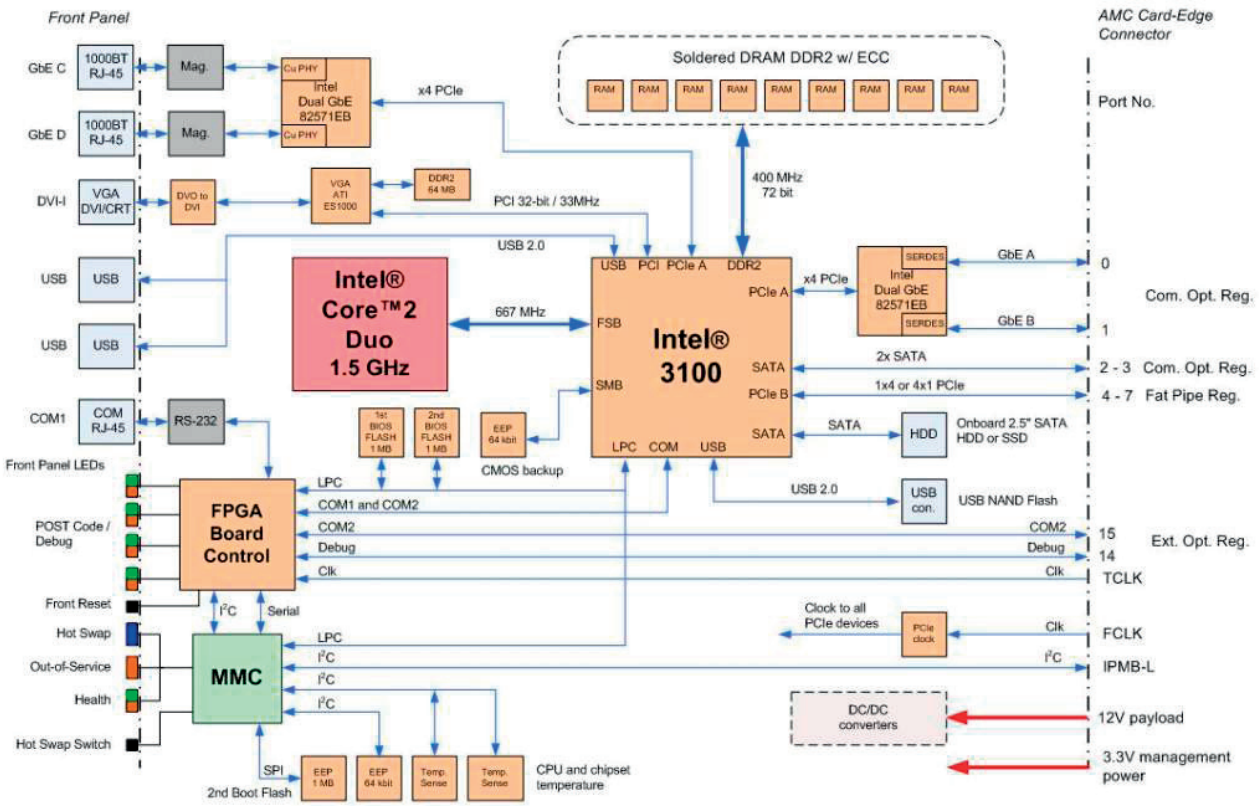
Reliability

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.

Furthermore the AM5010 front panel is designed according MicroTCA.1 providing the possibility to fix the AM5010 module to the MicroTCA system via screws achieving higher robustness and shock and vibration resistance.

AMC systems

With the OM6062 AMC system Kontron offers the corresponding system solution for the AM5010. The OM6062 is a fully featured compact AMC system for up to 6 double-width, mid-size AMCs. It applies to entry level designs and compact system designs including an MCH with unmanaged GbE switching capabilities. Target applications include, but are not limited to, image processing, data processing, motion control, process control, as well as test and measurement.



Technical Information

Memory	Intel® Core™2 Duo L7400 (LV), 1.5 GHz, 667 MHz FSB, 4 MB L2 cache 479-pin µFCBGA package, 2x 32KB L1 cache and 4 MB L2 cache The processor is passive cooled with a fanless heatsink Forced air cooling at a specific flow rate is required
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	Two Intel® 82571EB dual Gigabit Ethernet PCI Express bus controller
Graphic	ATI ES1000 graphic controller with PCI 32-bit / 33MHz interface, maximum resolution of 1600x1200 pixels, external 64 MB DDR2 memory
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
RTC	Integrated in 3100 and CMOS RAM with backup, battery replaceable.
AMC System Interconnect	
PCI Express®	1 x4 or 4 x1 PCI Express interface AMC fat pipes region port 4-7
Gigabit Ethernet	2x 1000BASE-BX (SerDes) on AMC ports 0-1 (Common Options Region)
Serial Interface	1x Serial Port (COM2) on AMC port 15 (Extended Options Region)
Debug Interface	1x Debug Port one AMC port 14 (Extended Options Region)
Front Panel	
Gigabit Ethernet	2x 1000BASE-TX on RJ45 connector
Serial Port	1x RS232 UART interface on RJ45 connector
USB interface	2x USB 2.0 port on 4-pin standard USB connector
DVI-I	1x 29-pin VGA DVI I connector for analog or digital monitor
LEDs	Four control and status bi color (red/green) LEDs
Compliancy	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)
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 Extension for Storage
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	
With Core 2 Duo, 1.5 GHz, 2 GB	max. 37 W
General	
Dimensions	181.5 mm x 148,8 mm x 18.96 mm (mid-size/double-width)
MTBF	195,000h 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 Linux CGL
Environmental	
Operating temperature	-5°C to +55°C (depending on system environment)
Storage temperature	-40°C to +70°C
Humidity	Operational: 5%-90% (non-condensing) Non-Operating: 5%-95% (non-condensing)

Ordering Information

Article	Description
AMC	
AM5010MR-1.5D-2GS	Intel® Core™2 Duo 1.5 GHz, 2GByte Memory, Front panel with screws
AM5010MR-1.5D-4GS	Intel® Core™2 Duo 1.5 GHz, 4GByte Memory, Front panel with screws
Accessories	
AM5010M-MK2.5SATA	Assembly-KIT for onboard 2.5" SATA device, HDD or SSD to be ordered separately
CP-HDD-2.5-SATA-*	Various SATA HDD models, needs AM5010M-MK2.5SATA assembly kit
FLASH-*	Various USB NAND Flash modules, no extra assembly kit required
Software	
KIT-BSP-AM5010	Windows BSP for Windows BSP Professional SP3
LIN-BSP-AM5010	LIN-BSP,CD-R based on kernel 2.6.xx, incl. AM5010 hardware docu
LIN-BSP-WR-AM5010	LIN-BSP WindRiver PNE, incl. AM5010 hardware docu Please contact your local support address for latest available version number
VXW-BSP-AM5010	VxWorks BSP with SMP support, incl. AM5010 hardware docu Please contact your local support address for latest available version number

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