kontron

» AM4101 «



AdvancedMC™ AdvancedTCA® µTCA®

Superior Performance

» 1.5 GHz Freescale dual-core MPC8641D with Altivec

Unparalleled Networking

» 4 Gigabit Ethernet channels

Excellent Interconnect Capabilities

» PCI Express, serialRapidIO and Gigabit Ethernet concurrently

Power Architecture performance on AMC module

Dual-Core PowerPC module, AMC.0, AMC.1, AMC.2 and AMC.4

» Superior Performance

The AM4101 is a sophisticated AdvancedMC module designed for performance demanding applications such as protocol processing or data management in ATCA or TCA systems. Built around the state-of-the-art Freescale dual-core PowerPC MPC8641D, the board addresses the ever-increasing need of equipment manufacturers for cost-effective and modular processing capabilities. The integrated AltiVec technology offers DSP-like computing power demanded by telecommunication switches, speech processing systems, IP telephony gateways or image and video processing systems.

» Unparalleled Networking

Four Gigabit Ethernet channels provide unparalleled networking capabilities. Two channels are routed to the AMC ports 0 and 1, two are available at the front panel. The integrated 10/100/1000 Ethernet controllers feature advanced apabilities for TCP and UDP checksum acceleration, QoS support and packet header manipulation making the board an ideal platform to run a communication intense client or control application.

» Excellent Interconnect Capabilities

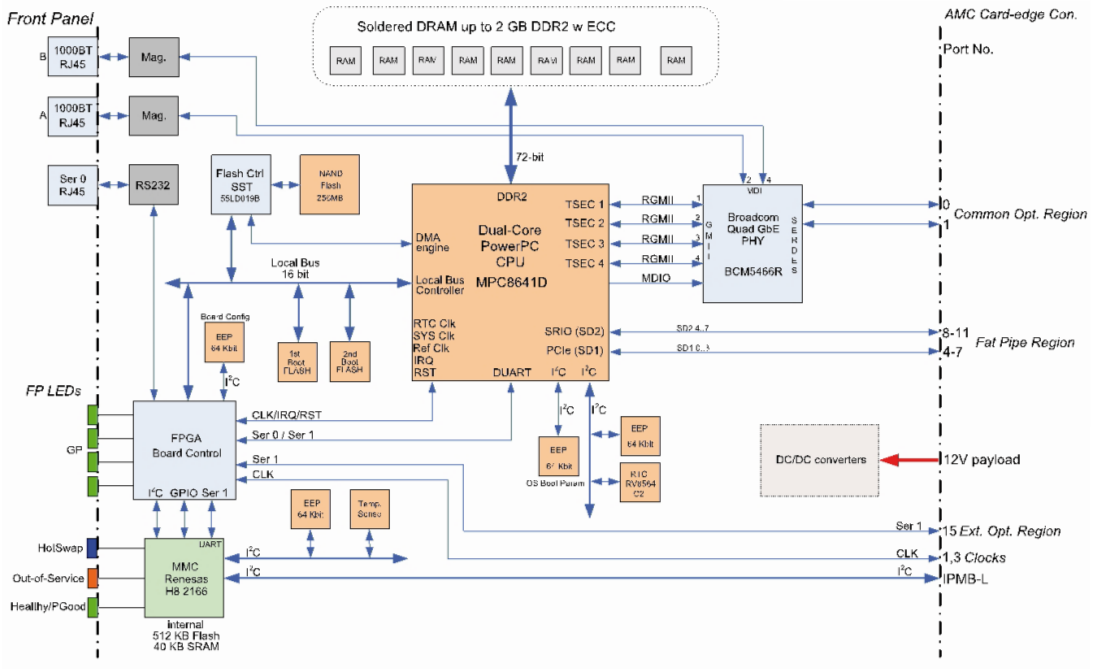
Supporting the PICMG subspecifications AMC.1 (PCI Express) and AMC.2 (Gigabit Ethernet) and AMC.4 (SerialRapidIO) concurrently for fabric connections, the AM4101 provides most flexible interconnecting capabilities to the AMC carrier or backplane. The PCI Express x4 interface assures highest data throughput for I/O intensive applications. The Serial RapidIO x4 interface provides high-speed interconnect technology with minimal latency. By offering this comprehensive set of interconnect capabilities the AM4101 is an ideal platform to solve a wide range of 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 AM4101 module.Optimized on packet-throughput and computing performance, the AM4101 perfectly fits to the needs of telecom applications such as VoIP solutions and 3Gwireless basestations based on ATCA system technology. Moreover, the AM4101 is perfectly suited to drive a system used for cost optimized communication or general-purpose computing applications.

» Reliability

A well thought-out design, careful selection of high-quality components in combination with a sophisticated heat sink ensures highest reliability in a wide operating temperature range. Durable components, first of all the Freescale MPC8641D Power Architecture processor, secure superior long-term availability for all applications, where longevity and reliability counts.



Technical Information

System Processor

	Freescale MPC8641D dual-core Power Architecture processor (e600 core) with 128-bit vector processing unit (Altivec)
	1 MB L2 cache per core
	Freescale MPC8641D processor, 1.32 GHz, 528 MHz platform frequency
	Freescale MPC8641D processor, 1.5 GHz, 600 MHz platform frequency
	The processor is passively cooled with a fanless heatsink. Forced air cooling at a specific flow rate is required.

Memory

System memory:	0.5/1/2 GB soldered DDR2 (up to 600 MHz) memory with ECC
Flash:	2 GByte NAND Flash with onboard controller for application code and data (up to 4 GB possible)
Bootflash:	Two redundant 4 MB NOR Flash devices, used by the NetBootLoader.
EPROM:	Four serial EEPROMs, 64 kbit for system/MMC/application data.

Onboard Controller

Memory:	DDR2 controller with ECC support, up to 600 MHz, 72 bit
Gigabit Ethernet:	Four triple-speed Ethernet controllers integrated in MPC8641D
Watchdog:	FPGA based Software configurable two-stage Watchdog with programmable timeout ranging from 125 msec to 256 sec in 12 steps.
MMC:	Microcontroller with dual 512 kB Flash and 40 kB RAM

AMC System Interconnect

PCI Express:	One x4 PCI Express interface
	AMC fat pipes region port 4-7
Gigabit Ethernet:	Two Gigabit Ethernet 1000BASE-BX (SerDes) ports
	AMC common options region port 0-1
Serial Rapid IO:	One x4 sRIO interface
	AMC fat pipes region port 8-11
Debug Port:	AMC extended options region, port 14
Com Port:	AMC extended options region, port 15

Front Panel Interfaces

Gigabit Ethernet:	Two Gigabit Ethernet 1000BASE-TX, RJ45 connector
Serial:	RS232 UART interface, RJ45 connector
LEDs:	Four control and status bi color (red/green LEDs)

MMC Module Management Controller

	Microcontroller with 40 kB RAM and redundant 512 kB Firmware Flash chips with roll-back functionality.
	The MMC carries out IPMI commands such as monitoring onboard temperature sensors, board voltages, power supply status and manages hot swap operations.
	The MMC is accessible via a local IPMB (IPMB-L) and a host Keyboard Style Interface (KCS).

Compliancy

ATCA:	PICMG 3.0 AdvancedTCA Base Specification R2.0
µTCA:	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.4: Serial RapidIO
IPMI:	Intelligent Platform Management Interface Specification, V2.0
PCI Express:	PCI Express Base Specification Revision 1.0a
CE:	EB55022, EN55024, EN61000-6-2/-6-3, EN300386, EN60950-1
Vibration/Shock:	IEC60068-2-6 / EIC60068-2-27
Climatic Humidity:	IEC60068-2-78
WEEE:	Directive 2002/96/EC
RoHS:	Directive 2002/95/EC

Power Consumption

1.0 GHz, 512 MB mem:	max. 27 W at 2m/s airflow
1.33 GHz, 1 GB mem:	max. 27 W at 2m/s airflow
1.5 GHz, 2 GB mem:	max. 39 W at 2m/s airflow

Technical Information

General

Dimensions:	181.5 mm x 73.5 mm
MTBF:	223,861h acc. Bellcore Issue 6, Ground Benign, Controlled, 30°C
Weight:	145 g (Mid-Size) 188 g (Full-Size)

Software Support

	Netbootloader, configuration stored in EEPROM, Boot order defined via MMC Serial over Lan, Support for Linux, VxWorks

Environmental

Operating temp.:	-5°C to +55°C (depending on system environment)
Storage temp.:	-55°C to +70°C
Humidity:	Operational: 5%-90% (non-condensing) Non-Operating: 5%-95% (non-condensing)

Ordering Information

Article	Description
AM4101-1.5D-2G	AMC processor module, Freescale MPC8641D 1.5 GHz, 2 GB memory, 2 GB flash, full-size, AMC.1/AMC.2/AMC.4
AM4101M-1.5D-2G	AMC processor module, Freescale MPC8641D 1.5 GHz, 2 GB memory, 2 GB flash, mid-size, AMC.1/AMC.2/AMC.4
LIN-BSP-AM4101	Linux BSP based on Freescale Linux package
LIN-BSP-WR-AM4101-PNE2.0	WindRiver Linux BSP PNE 2.0
VXW-BSP-AM4101-V6.6	WindRiver VxWorks V6.6, supporting SMP

AM4101 PLATFORMS



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