

# » AM4120 «



## Universal Processor AMC based on Freescale™ QorIQ™ Technology

- » **Universal and cost effective solution**

  - Freescale™ QorIQ™ P2020 – dual core @1.2GHz

- » **Low power consumption**

  - Useable in rugged environment - extended temperature range

- » **Easy implementation**

  - Useable in managed (with MCH) and unmanaged (without MCH) systems

## AM4120

### Universal cost effective processor AMC module

#### » Universal

The AM4120 is a universal CPU board implemented as Single Mid-Size Advanced Mezzanine Card (AMC) for MicroTCA applications. The cost optimized design is based on the Freescale™ QorIQ™ P2020 Dual Core processor, based on e500 Power Architecture®. The features of the AM4120 grant reliability of the application, for example through redundant U-Boot. The persistent memory for cyclic data store work even when they are powered down.

#### » Flexible

The AM4120 is a flexible solution. The 4x SERDES lines are routed to AMC ports 4 – 7, configurable either as PCIe (root complex or end point) or SRIO ports (host or agent), for those applications which require close programming to the chip without extensive overhead. As well flexibility is achieved through different options of booting the OS, either from the Micro SDHC card, the NOR or the NAND Flash (for rugged applications). The AM4120 supports up to 3 GbE channels: AMC port 0 + 2x Front or port 0,1 + 1x Front. Depending on the application, the AM4120 supports usage in systems with MCH or without MCH in order to reduce costs and speed up system development. Depending on application requirements the AM4120 is available with Freescale™ P2020 for regular and extended temperature range on project request.

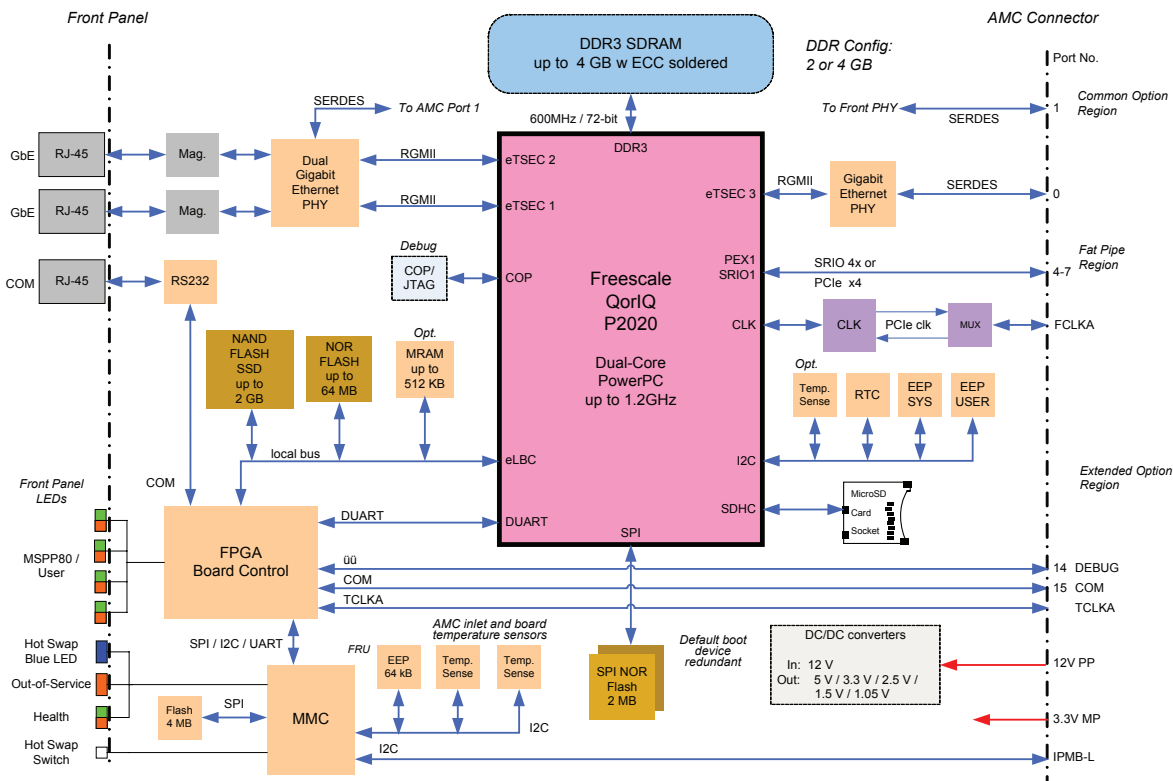
#### » Longevity

The AM4120 meets highest demands regarding longevity due to a careful component selection and a Micro SDHC card socket to be not affected by regular flash discontinuation. This QorIQ™ processor module is therefore suitable for industrial automation, medical, networking, telecom and military applications.

#### » AMC systems

Kontron also offers a choice of AMC systems for the AM4120. For instance the OM6060 can be used as entry level platform for operating the AM4120 with point to point fabrics PCIe and SRIO in combination with the AM4901 basic MCH which provides Ethernet connectivity to all AMC slots. In this system the AM4120 can be combined with I/O cards, DSP cards and different processor boards. The OM6120 provides multiple 10Gbit performance over SRIO for up to 12 AMCs in combination with the AM4904-SRIO MCH. This system also allows to switch PCIe fabrics in combination with AM4904-PCIe MCH. It can be operated with dual MCHs.

## AM4120 SINGLE WIDTH PRAMC



## AM4120

## Technical Information

<b>Form Factor</b>	Single width, mid-size module (full size on project request)
<b>CPU and PCH</b>	2GB and 4GB RAM with ECC standard 2x2MB SPI NOR (for Bootloader, fallback configuration) 1x8MB NOR (for VxWorks) 128kB persistent memory standard or not assembled, up to 512kB on project request 1GB NAND Flash standard or not assembled, 2GB on project request MicroSD card socket
<b>System Interconnection</b>	Port 0: 1xGbE Port 1: 1xGbE (routable to front plate, software selectable, default: port 1) Ports 4-7: sRIO or PCIe (DIP switch) Port 14: Debug Port15: COM2, 3.3V TTL FCLKA: bidirectional PCIe clock configuration IPMB-L pins: Spec compliant IPMI Power supply: 3.3V management power, 12V payload power
<b>Front Panel Interfaces</b>	1xGbE 1xGbE (routable to Port 1, software selectable, default port 1) COM1, RS232 4xLEDs: control and status, bi-color (red/green LEDs) 3xLEDs: connected to MMC (healthy, hot swap, out of service)
<b>Miscellaneous</b>	Watchdog, timeout 125ms to 4096s in 16 steps RTC (not buffered)
<b>Software</b>	Bootloader U-Boot IPMI VxWorks 6.9 BSP Linux LTIB BSP
<b>Compliance</b>	
<b>MicroTCA</b>	PICMG MTCA.0 Micro Telecommunications Comp. Architecture R1.0
<b>PCI Express</b>	PCI Express Base Specification Revision 1.0
<b>AMC</b>	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 Rapid IO
<b>IPMI</b>	IPMI Intelligent Platform Management Interface Spec. V2.0, 1.5
<b>General</b>	
<b>Dimensions</b>	181.5 x 73.5 mm
<b>Board Weight</b>	~280g
<b>MTBF</b>	AM4120 311426 h MIL-HDBK-217 FN2 Ground Benign 30° AM4120 222859 h Bellcore Issue 6 Ground Benign 30°
<b>Power Supply</b>	12 V payload power, 3.3 V management power
<b>Power Consumption</b>	~17W
<b>Environmental</b>	
<b>Operating Temperature</b>	-5°C to +55°C Acc. IEC60068-2-1/2 Extended temperature version @1GHz on project request (-40°C to +75°C)
<b>Humidity Operating</b>	93% RH at 40°C, non condensing Acc. IEC60068-2-78
<b>Vibration (sinusoidal)</b>	5Hz to 150Hz, 1g Acc. to IEC 60068-2-6
<b>Shock</b>	15g / 11ms Acc. to IEC 60068-2-27
<b>EMC</b>	Immunity: acc. to EN 55024 and 61000-6-2 Emission: acc. to EN 55022, class B and FCC47, part 15, subpart B
<b>Safety</b>	IEC 60950-1

## Ordering Information

Article	Description
<a href="#">AM4120-SA-1.2D-4-M-N1-M128K</a>	P2020 1.2GHz dual core, 4GB RAM with ECC, 1GB NAND Flash, 128kB MRAM
<a href="#">AM4120-SA-1.2D-2-M</a>	P2020 1.2GHz dual core, 2GB RAM with ECC, 0GB NAND Flash, 0kB MRAM
<a href="#">VXW-BSP-AM4120-6.9</a>	WindRiver VxWorks BSP

**Note:**

All AM4120 boards provide a microSD card socket.

**Default delivery state:**

- » sRIO Host (8-bit) on AMC port 4-7
- » GbE on AMC port 1 (i.e. only 1xGbE on front panel)

**Rugged versions on project request:**

- » Extended shock/vibration resistance with specific front panel, acc. MicroTCA.1/XR2
- » Extended temperature range with 1GHz processor, -40°C to +70°C, acc. MicroTCA.1/XT1

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