EMCOMO

EM-AM4140
Processor AMC based on Freescale™ QorIQ Technology

High-throughput processing with low latency

❈ Freescale™ QorIQ P4080 – 8-core CPU @ 1.5GHz

❈ Serial Rapid IO, PCIe and 1/10GbE fabrics

❈ Fast dual-channel memory (8 GB RAM with ECC)

Easy implementation

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

Target Applications

❈ Communications (packet processing, RNC, LTE, Test Equipment)

❈ Industrial and Medical Image Processing

EM-AM4140

High-performance processing

The EM-AM4140 is a data plane CPU board implemented as Single Mid-Size Advanced Mezzanine Card (AMC) for MicroTCA applications. The design is based on the Freescale ™ QorIQ P4080 8-Core processor, with cores based on the e500 Power Architecture®. Due to the P4080 processor, the EM-AM4140 meets highest demands in multi-threaded processing: in combination with high-speed fabrics and frame handlers, the multi-core architecture allows high throughputs, as well as low latencies. To match demands on high-performance, the AM4140 provides a high-speed dual-channel memory with 8 GB ECC-RAM. In order to grant reliability of the application, the EM-AM4140 features redundant Boot Flashes.

High-speed fabrics

The EM-AM4140 provides flexible configuration of highspeed fabrics. On AMC ports 4-7, 4x SERDES lines can be configured either as PCIe (root complex or end point) or sRIO ports (host or agent). SRIO and PCIe target applications which require close programming to the chip without extensive overhead and minimum latencies. AMC ports 8-11 may be configured either with sRIO x4, PCIe x4, 10GbE over XAUI, respectively 4x GbE over SGMII. In addition, the EM-AM4140 supports up to 3 GbE channels: AMC port 0 + 2x Front or port 0,1 + 1x Front. Depending on the application, the EM-AM4140 supports usage in systems with MCH or without MCH in order to reduce costs and speed up system development.
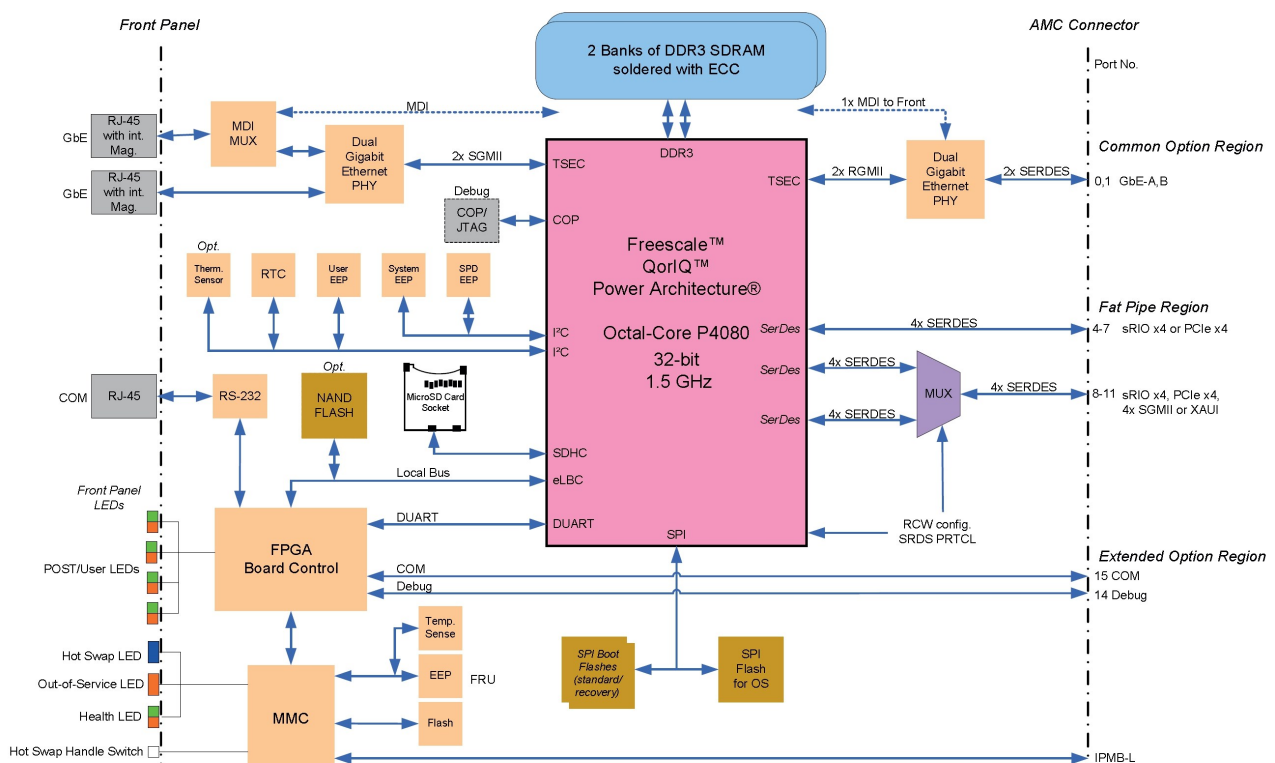
Longevity

The EM-AM4140 meets highest demands regarding longevity due to the availability of the processor at least until 2018, the careful component selection and a Micro SDHC card socket to be not affected by regular flash discontinuation. With 8 GbE DDR-3 ECC memory the EM-AM4140 is well equipped for future demands. This QorIQ processor module is therefore suitable for telecommunication, military communications, as well as image processing in industrial and medical environments. The EM-AM4140 supports different options of booting the OS, either from the Micro SDHC card, the NOR or the NAND Flash (for rugged applications). In terms of operating systems, the EM-AM4140 supports VxWorks 6.9, WindRiver Linux, as well as the WindRiver Hypervisor.

AMC systems

EMCOMO also offers a choice of AMC systems for the EM-AM4140. In these systems the EM-AM4140 can be combined with I/O cards, DSP cards and different processor boards.

EM-AM4140 single-width, mid-size AMC module

Technical Information

Form Factor		Single width, mid-size module (full size on project request)
CPU		Freescale P4080 @ 1.5GHz
Memory		2x 2 GByte and 2x 4 GByte RAM with ECC standard 2x 2 MByte SPI NOR (for Bootloader, fallback confi guration) 1x 8 MByte NOR (for VxWorks) 1 GByte NAND Flash MicroSD card socket
System Interconnection		Port 0: 1x GbE Port 1: 1x GbE (routable to front plate, software selectable) Ports 4-7: sRIO x4 or PCIe x4 Ports 8-11: SRIO x4 or PCIe x4 or XAUI or 4x SGMII (1 GbE) Port 14: Debug Port 15: COM2, 3.3 V TTL FCLKA: bidirectional PCIe clock configuration Power supply: 3.3 V management power, 12 V payload power
Front Panel Interfaces		1x GbE 1x GbE (routable to Port 1, software selectable, default port 1) 1x COM1, RS232 4x LEDs: control and status, bi-color (red/green LEDs) 3x LEDs: connected to MMC (healthy, hot swap, out of service)
Miscellaneous		Watchdog, timeout 125 ms to 4096 s, RTC (not buffered)
Software		Bootloader U-Boot IPMI VxWorks BSP WindRiver Linux BSP
Compliancy	**MICROTCA** **PCI EXPRESS®** **SERIAL RAPID IO** **AMC** **IPMI**	PICMG MTCA.0 Micro Telecommunications Comp. Architecture R1.0 PCI Express® Base Specifi cation Revision 1.0a sRIO 3.125G, … PICMG AMC.0: Advanced Mezzanine Card Specifi cation 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 IPMI Intelligent Platform Management Interface Spec. V2.0, 1.5
Environmental	**OPERATING TEMP.** **HUMIDITY OPERATING** **VIBRATION (SINUSOIDAL)** **SHOCK** **EMC** **SAFETY**	-5 °C to +55 °C (Acc. IEC60068-2-1/2) 93 % RH at 40 °C, non condensing (Acc. IEC60068-2-78) 5 Hz to 150 Hz, 1 g (Acc. to IEC 60068-2-6) 15 g / 11 ms (Acc. to IEC 60068-2-27) Immunity: acc. to EN 55024 and 61000-6-2 Emission: acc. to EN 55022, class B and FCC47, part 15, subpart B IEC 60950-1

Ordering Information

Configuration	Description	Order Code
EM-AM4140	Freescale P4080 @ 1.5GHz, 8GB RAM, 2x COM	**A01313**

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