COMX-P40x0- ENP2 Modules
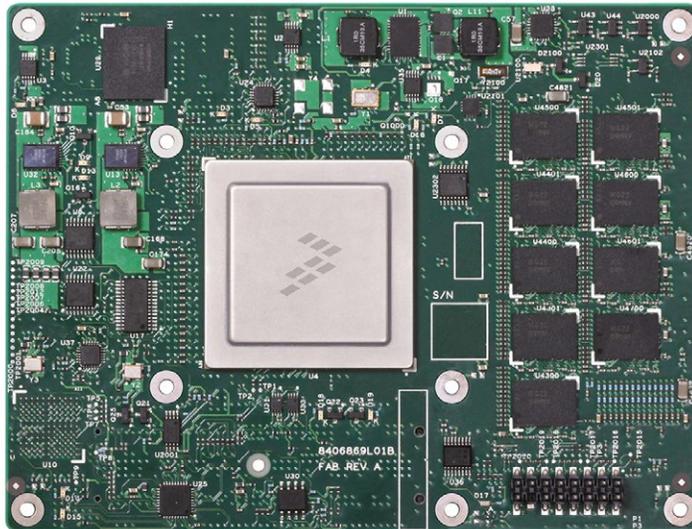
Ruggedized QorIQ™ Modules

PRELIMINARY DATA SHEET

Ruggedized and extended temperature COM Express modules with Freescale QorIQ processing power

- Freescale QorIQ P4040 or P4080 processor at 1.2GHz

- 2 or 4 GB of soldered-down DDR3-1333 ECC memory

- 95 mm x 125 mm COM Express Basic footprint

- -40 °C to +71 °C operating temperature range

- Shock and vibration hardened

- 16 configurable SERDES lanes available for maximum flexibility

The COMX-P40x0-ENP2 modules from Emerson Network Power provide the performance and features of the Freescale QorIQ™ processors on ready-to-go pluggable mezzanine modules that is suitable for use in extended temperature, rugged environments. By incorporating and leveraging the mechanical features and dimensions of the COM Express® specification, the COMX-P40x0-ENP2 modules exhibit all the best attributes of the COM Express open standard enabling shorter development schedules and faster time-to-market. Emerson has a range of QorIQ based COM Express form factor modules to enable scalable product strategies with multiple performance levels.

The COMX-P40x0-ENP2 modules are 95 mm x125 mm which enable them to fit within a very wide range of enclosures when mounted on a customer carrier. COMX-P40x0-ENP2 modules are off-the-shelf processor solutions that isolate you from the complexities of high speed processor and memory system design, allowing you to concentrate on your carrier and application, lowering risk and improving your development schedules.
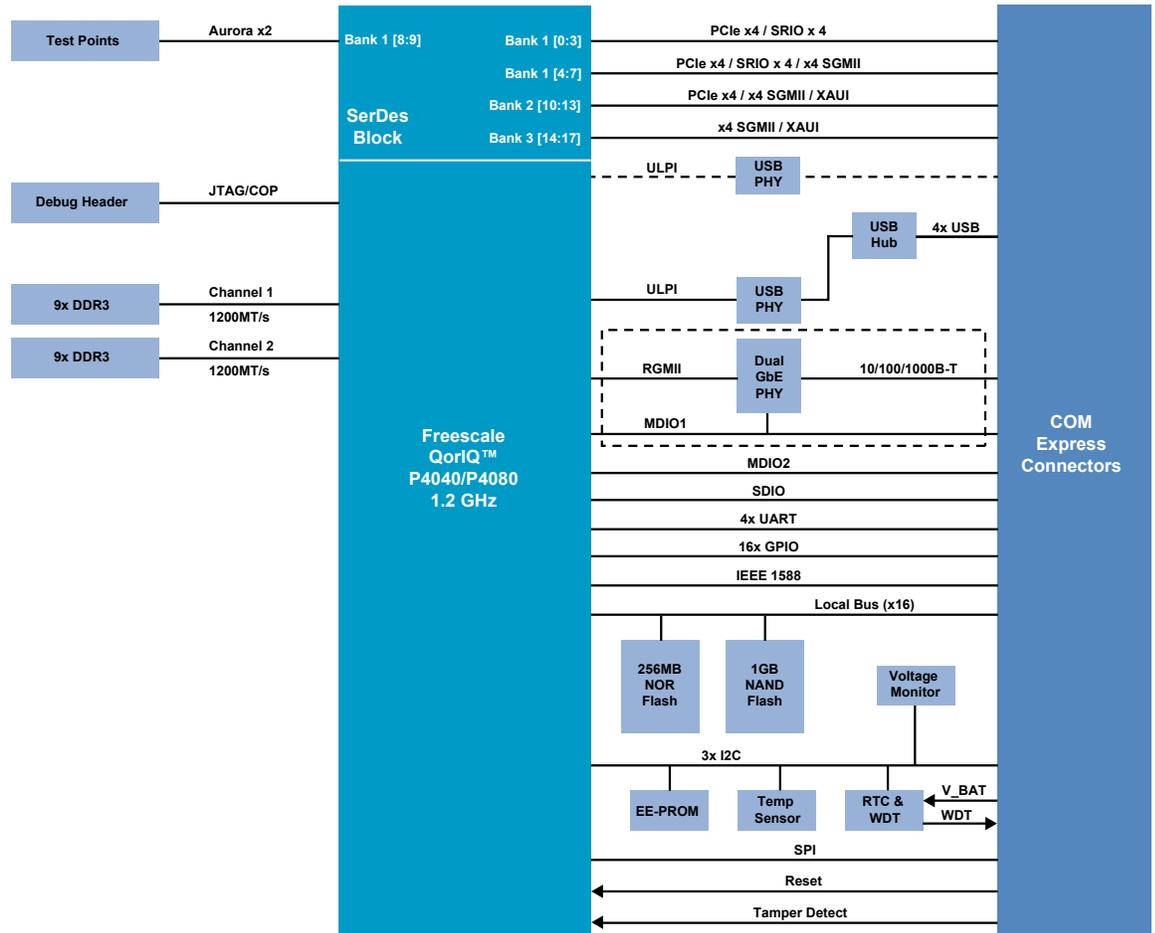
By combining the tried and tested Power Architecture processor cores along with a considerable range of on-module I/O, the COMX-P40x0-ENP2 series is suitable for a range of applications including 4G base-station controllers, in flight entertainment, transport control and signaling, vehicle instrumentation and other applications that need high performance, low latency control in a rugged package.

RoHS 6/6 COMPLIANT

COM Express®

EMERSON
Network Power

COMX-P4040 & COMX-P4080 Block Diagram

Test Points	Aurora x2

Bank 1 [8:9]

Bank 1 [0:3] — PCIe x4 / SRIO x 4

Bank 1 [4:7] — PCIe x4 / SRIO x 4 / x4 SGMII

SerDes Block

Bank 2 [10:13] — PCIe x4 / x4 SGMII / XAUI

Bank 3 [14:17] — x4 SGMII / XAUI

ULPI — **USB PHY**

USB Hub — 4x USB

Debug Header	JTAG/COP

ULPI — **USB PHY**

Dual GbE PHY

RGMII — 10/100/1000B-T

9x DDR3	Channel 1 1200MT/s
9x DDR3	Channel 2 1200MT/s

MDIO1

MDIO2

Freescale QorIQ™ P4040/P4080 1.2 GHz

SDIO

4x UART

16x GPIO

IEEE 1588

Local Bus (x16)

256MB NOR Flash

1GB NAND Flash

Voltage Monitor

3x I2C

EE-PROM

Temp Sensor

RTC & WDT — V_BAT

WDT

SPI

Reset

Tamper Detect

COM Express Connectors

Hardware Specifications

PROCESSOR

- Freescale QorIQ P4080, eight cores running at 1.2 GHz
- Freescale QorIQ P4040, four cores running at 1.2 GHz

FORM FACTOR

- 95 mm x 125 mm COM Express Basic size module

BOOTLOADER

- U-boot

MEMORY

- 2GB or 4GB soldered-down DDR3-1333 ECC memory

ON-BOARD STORAGE

- 256MB NOR flash
- 1GB NAND flash
- 2kbit I²C user EEPROM

ON-BOARD I/O

- JTAG Debug

I/O TO THE CARRIER

16 configurable SERDES lanes available for maximum flexibility in customer platform design. Available interfaces include:

- Up to two (2) 10 GbE XAUI – 3.125Gbps
- Up to six (6) 1 GbE SGMII – 1.25Gbps
- Up to two (2) PCI Express x4 – 2.5 or 5Gbps
- Up to two (2) SRIO x4 – 2.5 or 3.125Gbps

OTHER I/O AT THE CONNECTOR

- Four (4) UART ports
- Up to one (1) Gigabit Ethernet interface (10/100/1000Base-T)
- Two (2) MDIO
- Sixteen (16) general purpose I/O (GPIO) ports
- Three (3) I²C bus
- Five (5) IRQ interrupts
- Four (4) or five (5) USB 2.0 ports
- IEEE 1588 control
- Tamper detection
- Real-time clock
- Watchdog timer
- SPI Bus with four (4) chip selects
- 16-bit Enhanced Local Bus
- One (1) SDIO port

ACCESSORIES

- Heatsink, heat spreading plate, development carrier

ENVIRONMENTAL

- -40 °C to +71 °C operating temperature range

VIBRATION

- Sine: 5G (15 to 2000Hz), 10 minutes per axis
- Random: .04g²/Hz (15 to 2000Hz), 1 hour per axis. The profile shall be flat across 15-1000Hz, -6db/octave across 1000Hz - 2000Hz
- Operating shock: 30g for 11ms duration (saw tooth), 3 shocks per axis.

COMPLIANCE AND CERTIFICATION INFORMATION

- RoHS 6/6
- UL/CSA 60950-1, EN55022, FCC Class B

Firmware and Operating System Support

- uBoot
- Linux 2.6.34 BSP
- Other BSPs available directly from ecosystem partners including Green Hills, ENEA, Wind River and Mentor Embedded

Ordering Information

Product	Description
COMX-P4040-4G-ENP2	P4040 extended temp module, 4 GB RAM (4x USB + 1x GbE)
COMX-P4080-2G-ENP2	P4080 extended temp module, 2 GB RAM (5x USB, no GbE)
COMX-P4080-4G-E-ENP2	P4080 extended temp module, 4 GB RAM (4x USB + 1x GbE)
COMX-P4000-ENP-HTSNK	COMX-P40x0-ENP2 active heatsink
COMX-CAR-P1	Carrier card for development

SOLUTION SERVICES

Emerson Network Power provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

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