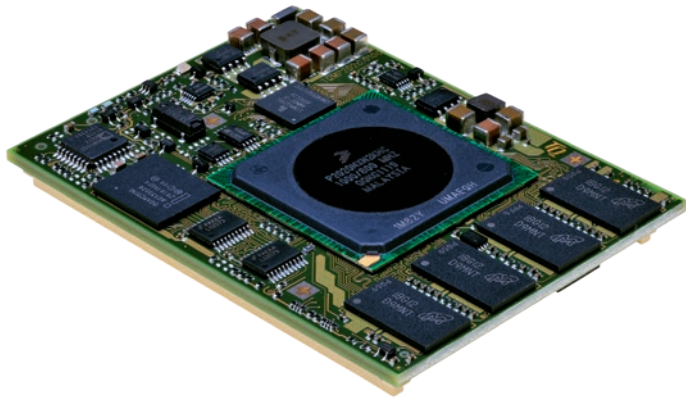# TQMP2020/TQMP1020

Power Architecture®

HIGHLIGHTS

▶ Easiest migration of Power QUICC III on QorIQ by approved e500v2 Core

▶ Single- and MultiCore(s) of 400 up to 1200 MHz in 45nm SOI for best Performance/Watt ratio

▶ High-Speed communication via 3x Gbit Ethernet, 3x PCIe and one USB 2.0 interface

▶ Simple function extension via PCIe, SPI, I²C and flexible local bus

▶ IEEE 1588 synchronization on time in Hardware
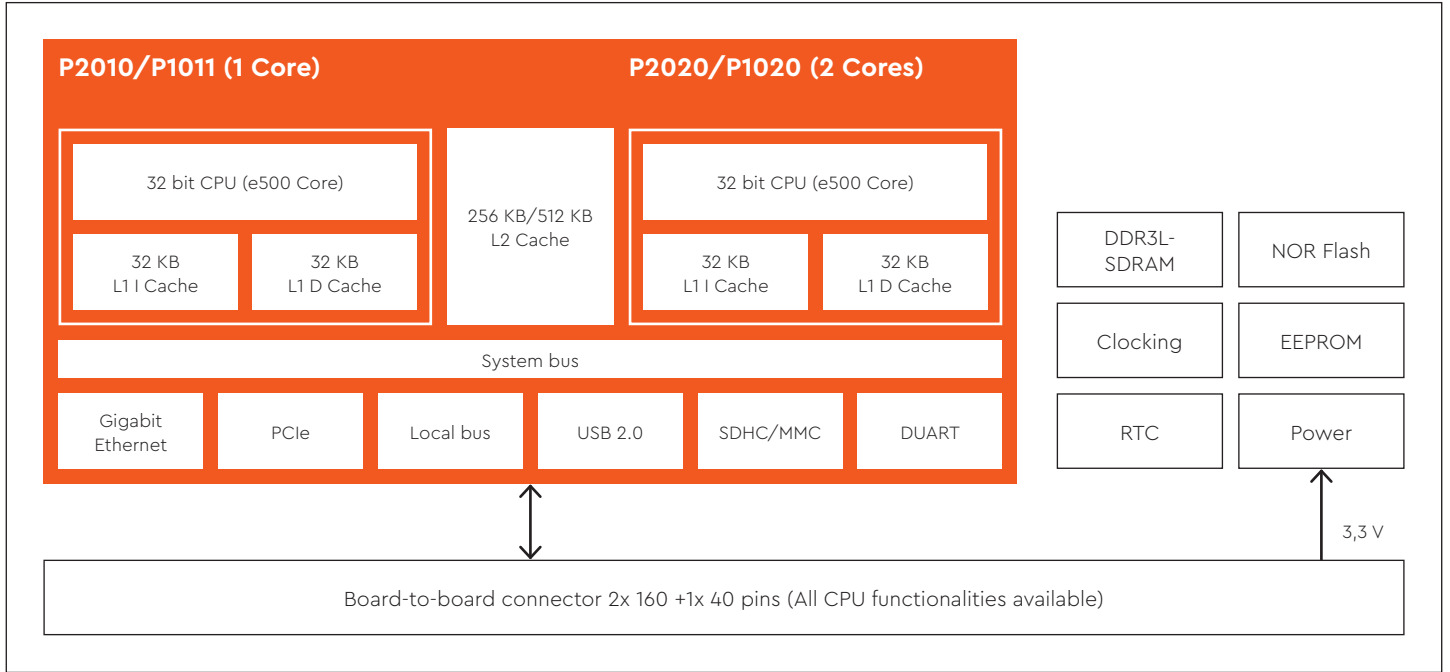
▶ Extremely compact with only 74 x 54 mm

With one or two e500 cores and a clock speed ranging from 400 MHz to 2×1200 MHz, the TQ modules with its QorIQ™ processor offers an optimal balance between data processing speed and power dissipation.

TECHNICAL SPECIFICATION

CPU	Dual (P1020/P1021/P2020) or single (P1011/P1012/P2010) high-performance Power Architecture e500v2 Cores
Interfaces	3x Gigabit Ethernet
	1 USB 2.0 HOST
	3x PCIe (2x), 1.0a Controller up to 2.5 Gbit/s
	according to PCI Express specification 1.0a as
	Root-Complex or Endpoint
	1x Enhanced Local Bus 16 bit, max. 66 MHz
	2x I²C, max. 400 kHz
	1x SPI
	DUART, max. 115 kBaud (RS232)
	Up to 16 GPIOs
	2x Serial Rapid I/O (SRIO)
	1x TDM
Memory	DDR3-SDRAM: up to 2 GB (higher memory sizes on request)
	NOR flash: 128 MB (higher memory sizes on request)
	EEPROM: 32 KByte
	Simple expansion for example via MMC, SDHC, USB

Other	Real Time Clock (RTC)
	Watchdog
	JTAG Interface
Power supply	3,3 V
Ambient conditions	Standard temperature range: 0°C...+70°C
	Extended temperature range: -40°C...+85°C
Dimensions	74 mm x 54 mm
Plug-in system	Board-to-board plug-in system 360 Pins
Operating systems	Linux, QNX
Operating systems on request	VxWorks and more

BLOCK DIAGRAM TQMP2020/TQMP1020

P2010/P1011 (1 Core)	P2020/P1020 (2 Cores)

32 bit CPU (e500 Core)	256 KB/512 KB L2 Cache	32 bit CPU (e500 Core)
32 KB L1 I Cache / 32 KB L1 D Cache		32 KB L1 I Cache / 32 KB L1 D Cache

System bus

Gigabit Ethernet	PCIe	Local bus	USB 2.0	SDHC/MMC	DUART

DDR3L-SDRAM	NOR Flash
Clocking	EEPROM
RTC	Power

3,3 V

Board-to-board connector 2x 160 +1x 40 pins (All CPU functionalities available)

ORDERING INFORMATION

TQMP2020-AA	TQ minimodule with P2020 Dual Core CPU with 2x 1000 MHz, 512 MB DDR3 SDRAM, 128 MB NOR flash, 32 KByte EEPROM, -40°C...+85°C
TQMP2020-AC	TQ minimodule with P2020 Dual Core CPU with 2x 1000 MHz, 2 GB DDR3 SDRAM, 128 MB NOR-Flash, 32 KByte EEPROM, -40°C...+85°C
TQMP1020-AA	TQ minimodule with P1020 Dual Core CPU with 2x 800 MHz, 1 GB DDR3 SDRAM, 128 MB NOR flash, 32 KByte EEPROM, -40°C...+85°C
STKP2020-SET/ STKP1020-SET	Starter kit with TQ mini module TQMP2020 or TQMP1020, accessories, heat spreader, module extractor and documentation.
Baseboard: Design support Production	At TQ you not only get first-class embedded systems – we also provide a series of benefits around the embedded module:

▶ Support in writing a technical specification for gathering the requirements of your application

▶ Support in selection of components up to Obsolescence management

▶ Circuit diagram review

▶ Software, especially Board Support Packages and Hardware-close driver

▶ Starting-up of your baseboard

As system service provider TQ is able to take over the development, production and test of your baseboard. Therefore you get the whole tested unit from one hand.