

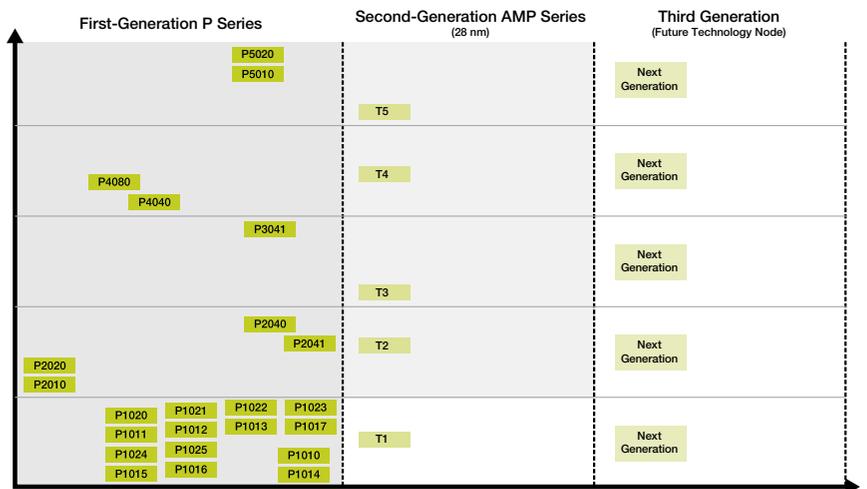
Code-Compatible, Scalable Portfolio

Power Architecture® Portfolio and Scalability

With a large number of solutions available for various applications in embedded systems, the embedded processor market requires scale and expertise. Freescale has a long history of high levels of integration inside the Power Architecture® family. Freescale currently has Power Architecture based offerings that scale from 100 to 30,000 DMIPS with a rich mixture of cores, accelerators and virtualization options. This enables you to design a series of scalable solutions with multiple feature, performance, price and power envelopes within a common architectural platform.

Freescale makes significant investments in R&D, allowing multiple products to be developed in parallel while simultaneously helping to ensure that each new product is code-compatible with the previous one—leading to hardware and software reuse across your next-generation design. With over 200 code-compatible Power Architecture products, Freescale's processors are an unmatched portfolio of embedded communication processors. While scalability makes it extremely easy for users to migrate from low- to high-end devices, code compatibility can save a significant amount of R&D investment and time as you develop future products.

QorIQ Communications Platform Roadmap



A Smarter Approach to Multicore

Freescale introduced the first QorIQ P series products in 2008. Today, we have more than twenty P1–P5 products in the market. The next generation of processors, the Advanced Multiprocessing (AMP) series was recently announced with expected sample product availability in mid-2012. These processors will be designated as T1-T5.

QorIQ platforms are PowerQUICC evolved, meaning Freescale is leveraging our embedded processing heritage into the next era of networking. PowerQUICC and QorIQ product lines will coexist in the marketplace for a long time, offering a cohesive roadmap to the future. This helps Freescale's customers who have billions of dollars invested in previous generations of our Power Architecture CPU-based products to make an easy shift to QorIQ or AMP series products without affecting their roadmaps.

Power Architecture Processing Platforms

QorIQ AMP Series

The QorIQ AMP series will consist of T1–T5 families with processors at varying levels of performance and integration. The series introduces the advanced e6500 multi-threaded 64-bit core at frequencies up to 2.5 GHz. The e6500 incorporates an enhanced version of the proven, high-performance and widely adopted AltiVec vector processing unit. AltiVec technology addresses high-bandwidth data processing and algorithmic-intensive computations, delivering DSP-level performance and distinct performance benefits for Freescale customers.

QorIQ P Series

The QorIQ P series families help enable you to easily move to multicore, starting with pin- and software-compatible P1 and P2 families that offer single- and dual-core options. Applications at this level demand performance and extensive integration at very low power and cost. Together, the two QorIQ families deliver 4.5x aggregate frequency range, scaling from a single core starting at 533 MHz (P1011) to a dual core at 1.2 GHz (P2020).

The P204x, P3 and P4 families are built on the e500mc core and feature four to eight cores running up to 1.5 GHz. The P5 family consists of single and dual e5500 64-bit cores with frequencies up to 2 GHz. These pin-compatible devices have a performance-boosting architecture with a tri-level cache hierarchy and advanced DPAA.

PowerQUICC Series

PowerQUICC platforms scale from 66 MHz to 1.5 GHz dual-core processors with a capacity to deliver up to 2.4 DMIPS to MHz of processing performance at a starting power of <1W. Highly integrated, this system-on-chip offers the broadest range of embedded communication processing options. The latest additions to the PowerQUICC family, the MPC830x portfolio features an array of performance-enhancing features including DDR2 memory controller with ECC, dual Gigabit Ethernet ports with support for IEEE® 1588 time stamping, PCI Express®, FlexCAN ports and a High-Speed USB 2.0 controller.

QorIQ Qonverge Platform

The QorIQ Qonverge platform offers heterogeneous cores consisting of Power Architecture and StarCore DSP technologies. In addition, the QorIQ Qonverge platform integrates wireless acceleration technologies to form base station-on-chip products optimized for next generation femtocell, picocell, metrocell and macrocell base stations.

PX Series Power Architecture Microcontrollers

PX series microcontrollers are designed to meet the needs of real-time, complex industrial control applications, including grid-tied solar inverters, motor drives, motion control, power generation, clinical medical, aerospace and defense, robotics and safety shutdown applications.

Freescale's PX series of MCUs, based on e200 Power Architecture cores, virtually outpaces all other MCU solutions.

High-performance single and multicore offerings with up to 4 MB embedded flash memory make these processors ideal for a variety of complex single-chip industrial applications. The PX Series is comprised of four families: PXS, PXR, PXN and PXR.

Scalable Processing

Power Architecture cores scale from 50 MHz to 2 GHz of performance, with additional scalability in the future with the AMP series of processors based on 28 nm process technology. Freescale's Power Architecture cores are software-compatible and ship with a similar level of ecosystem support from Freescale and our third-party software and tool vendors. This enables you to create a series of products with differentiated feature sets from a single board design.

- e200 32-bit core operates up to 266 MHz for PX series processors
- e300 32-bit core operates up to 800 MHz for MPC83xx processors
- e500 32-bit core operates up to 1.5 GHz for MPC85xx, P1 and P2 processors
- e500mc 32-bit core operates up to 1.5 GHz for P2, P3 and P4 processors
- e5500 64-bit core operates at up to 2 GHz for P5 processors
- e6500 64-bit multi-threaded core with AltiVec technology operates up to 2.5 GHz for the AMP series of processors

With a scalable and powerful product portfolio, Freescale has the potential to remain your long-term partner for embedded communications. Freescale's expertise and ecosystem engagement further help to make your next-generation products a success.

How to Reach Us:

Home Page:

freescale.com

Power Architecture

Portfolio Information:

freescale.com/power

e-mail:

support@freescale.com

USA/Europe or Locations Not Listed:

Freescale Semiconductor
Technical Information Center, CH370
1300 N. Alma School Road
Chandler, Arizona 85224
1-800-521-6274
480-768-2130
support@freescale.com

Europe, Middle East, and Africa:

Freescale Halbleiter Deutschland GmbH
Technical Information Center
Schatzbogen 7
81829 Muenchen, Germany
+44 1296 380 456 (English)
+46 8 52200080 (English)
+49 89 92103 559 (German)
+33 1 69 35 48 48 (French)
support@freescale.com

Japan:

Freescale Semiconductor Japan Ltd.
Headquarters
ARCO Tower 15F
1-8-1, Shimo-Meguro, Meguro-ku,
Tokyo 153-0064, Japan
0120 191014
+81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:

Freescale Semiconductor Hong Kong Ltd.
Technical Information Center
2 Dai King Street
Tai Po Industrial Estate,
Tai Po, N.T., Hong Kong
+800 2666 8080
support.asia@freescale.com

For Literature Requests Only:

Freescale Semiconductor
Literature Distribution Center
P.O. Box 5405
Denver, Colorado 80217
1-800-441-2447
303-675-2140
Fax: 303-675 2150
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