

# MPC8313E PowerQUICC™ II Pro Processor

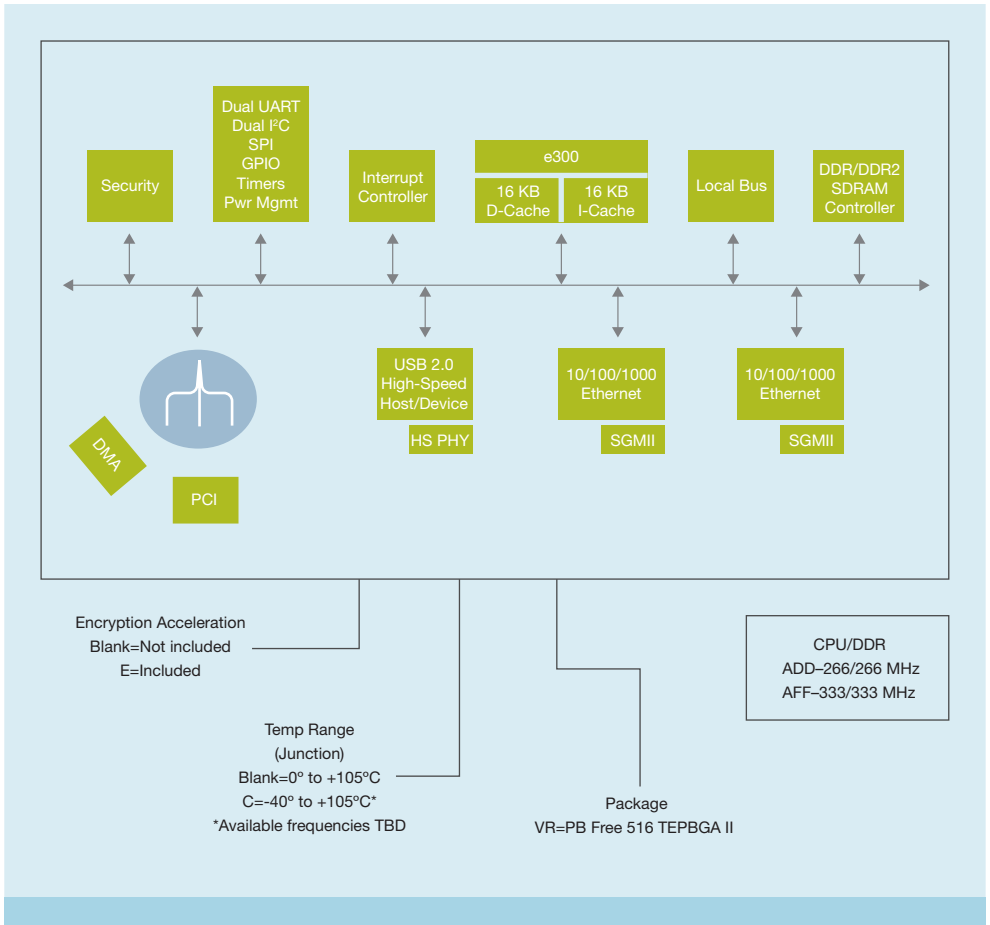
## Overview

Rapid growth of personal and premium content has created a need for deploying more interactive multimedia services inside the home. The MPC8313E processor family enables feature rich applications that enhance the digital home experience. The cost-effective MPC8313E communications processor family meets the requirements of several small office/home office (SOHO), printing, IP services and industrial control applications. It provides more CPU performance, additional functionality and faster interfaces while addressing important time to market, price, power consumption and board real estate requirements. The introduction of Gigabit Ethernet (SGMII), High-Speed USB 2.0, and low-power management makes it unique in the marketplace. For extremely precise clock synchronization for applications such as time-sensitive telecommunications services, industrial network switches, powerline networks and test/measurement devices, the MPC8313E features integrated IEEE® 1588 time synchronization, the leading-edge standard.

## Core Complex

The MPC8313E family incorporates a unique configuration of the e300 (MPC603E based) core. This configuration has been designed to include dual integer units as well as a modified multiply instruction. These architectural enhancements enable more efficient operations to be executed in parallel, resulting in a significant performance improvement. The e300 core complex also includes 16 KB of L1 instruction and data caches and on-chip memory management units (MMUs).

MPC8313E Block Diagram



## Peripheral Interfaces

The MPC8313E family also includes a 32-bit double data rate (DDR1/DDR2) memory controller, a 32-bit peripheral component interconnect (PCI) controller, a 16-bit local bus and four direct memory access (DMA) channels.

## Hardware Security Engine

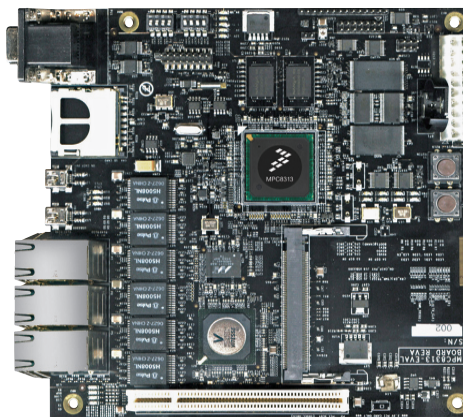
The security engine (SEC 2.2) on the MPC8313E allows CPU-intensive cryptographic operations to be off-loaded from the main CPU core. The security processing accelerator provides hardware acceleration for the DES, 3DES, Advanced Encryption Standard (AES), Secure Hash Algorithm (SHA)-1 and MD-5 algorithms.

	MPC8313E	MPC8313
Core	e300c3, 2-IU, w/FPU, up to 333 MHz	e300c3, 2-IU, w/FPU, up to 333 MHz
L1 I/D Cache	16 KI/16 KD	16 KI/16 KD
Memory Controller	16/32-bit DDR2-333	16/32-bit DDR2-333
Local Bus Controller	25b/8b dedicated or 25b/16b mux add/data, up to 66 MHz	25b/8b dedicated or 25b/16b mux add/data, up to 66 MHz
PCI	1 32-bit up to 66 MHz wake-on-PME	1 32-bit up to 66 MHz wake-on-PME
Ethernet	2 10/100/1000 MACs, SGMII, 98145.452	2 10/100/1000 MACs, SGMII, 98145.452
98145.452	1 High-Speed USB 2.0 host/device+HS PHY, wake-on-USB	1 High-Speed USB 2.0 host/device+HS PHY, wake-on-USB
Security	SEC 2.2	NONE
UART	Dual	Dual
I <sup>2</sup> C	Dual	Dual
SPI	1	1
Boot options	NOR, NAND, CF, MMC	NOR, NAND, CF, MMC
Int. Controller	PIC	PIC
Mux/Dedicated GPIO	10/16	10/16
DMA	4 channels	4 channels
Est. Core Power	~ 2.4W	~ 2.4W
Power Management	Standby power <300 mW	Standby power <300 mW



### MPC8313E Family Derivative Optimized for Printing Markets

Freescale also introduces an MPC8313E derivative optimized for printing and imaging markets. The SC8311 is a cost-effective SoC for printing customers only that helps manufacturers offer highly advanced, full-featured laser printers at low price points. The SC8311 features advanced low-power capabilities that help manufacturers meet emerging power regulations in European and Japanese markets.



### Cost-Effective Evaluation Board

MPC8313E-RDB (Evaluation Board) is available to customers for US\$299\*. The kit includes Linux® 2.6 BSP with optimized drivers to support all peripherals, and a six-month CodeWarrior® development tools evaluation license.

\*Manufacturer Suggested Resale Price

### Learn More:

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