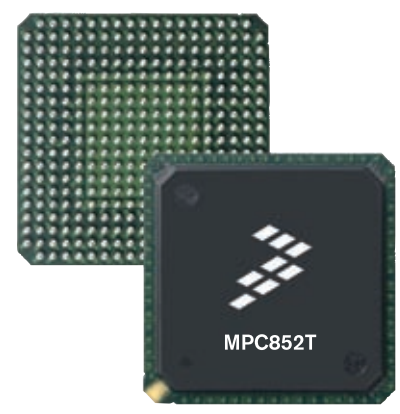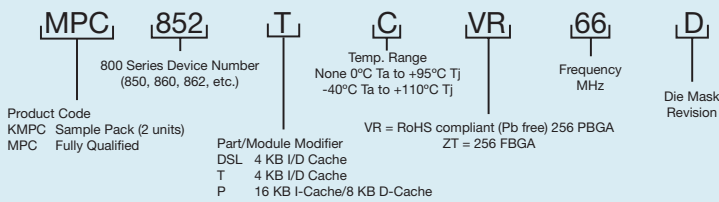# MPC852T PowerQUICC™ Processor Family

The MPC852T is designed to deliver a versatile, one-chip integrated processor and peripheral combination that can be used in a variety of controller applications, excelling particularly in communications and networking products. Freescale's leading PowerQUICC™ architecture integrates two processing blocks. One block is an embedded core, built on Power Architecture™ technology, and the second block is the communications processor module (CPM). The CPM is a dedicated RISC-based communications engine designed to support two serial communications controllers (SCCs), providing a total of four serial channels: two SCCs, one serial management controller (SMC) and one serial peripheral interface (SPI). This dual-processor architecture is designed to provide superior performance over traditional architectures because the CPM offloads communications intensive processing from the embedded 8xx core. This partitioning frees up the 8xx core to perform other system functions.

MPC852T Block Diagram
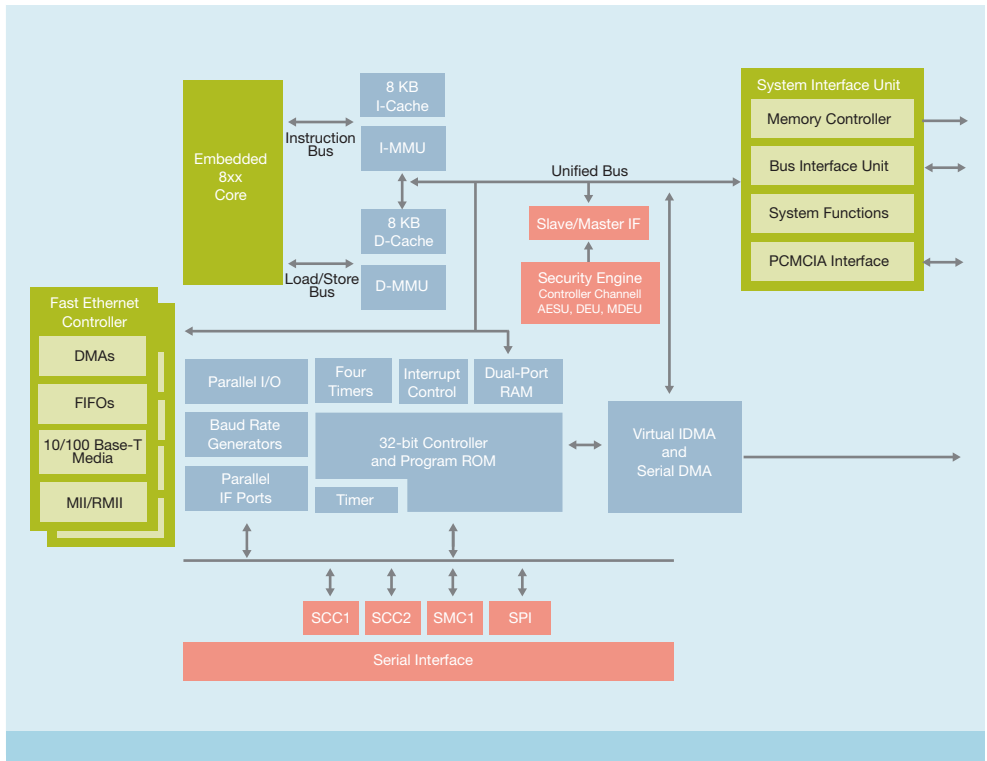
Product Highlights

- Power Architecture technology
  - Embedded 8xx core
- 4 KB instruction cache
- 4 KB data cache
- Powerful memory controller and system functions
- Efficient architecture that involves a separate RISC processor CPM for handling communications
- PCMIA interface for 802.11b connectivity
- Up to two SCCs

- Support for Ethernet, Fast Ethernet, HDLC
- One SMC and one SPI
- 8K dual-port RAM
- Available in a 256-pin RoHS-compliant PBGA package
- Strong third-party tools support through Freescale's Design Alliance Program
- 0.18µ technology
- 1.8V core, 3.3V I/O

freescale ™
semiconductor

800 Series Device Number
(850, 860, 862, etc.)

Temp. Range
None 0°C Ta to +95°C Tj
-40°C Ta to +110°C Tj

Frequency
MHz

Die Mask
Revision

Product Code
KMPC Sample Pack (2 units)
MPC Fully Qualified

Part/Module Modifier
DSL 4 KB I/D Cache
T 4 KB I/D Cache
P 16 KB I-Cache/8 KB D-Cache

VR = RoHS compliant (Pb free) 256 PBGA
ZT = 256 FBGA

MPC852T

	852T	859DSL	859T	866T	866P
Serial Communications Controllers (SCCs)	2	1	1	4	4
I-Cache (KB)	4	4	4	4	16
D-Cache (KB)	4	4	4	4	8
Ethernet (10T)	Up to 2	1	1	Up to 4	Up to 4
Ethernet (10/100)	Yes	Yes	Yes	Yes	Yes
ATM	Yes	Yes	Yes	Yes	Yes
Multi-Channel HDLC	-	-	Up to 32	Up to 64	Up to 64

Contact Information

Freescale offers user's manuals, application notes and sample code for select communications processors. Check **www.freescale.com** for latest updates. Local support for these products is also provided.

Typical Applications

- Ethernet routers
- Low-end routers
- Line cards
- Wireless LAN
- LAN switches

Technical Specifications

- Embedded 8xx microprocessor core providing 132 MIPS (using Dhrystone 2.1) at 100 MHz
  - Single-issue, 32-bit version of the embedded 8xx core with 32-bit x 32-bit fixed point registers
  - 4 KB instruction cache and 4 KB data cache
  - Memory management units with 32-entry TLBs and fully associative instruction and data TLBs
- Advanced on-chip emulation debug mode
- Data bus dynamic bus sizing for 8-, 16- and 32-bit buses
- Communications processor module
  - 8 KB dual-port RAM
  - Up to two SCCs

- 32-bit scalar RISC controller
- One serial management controller for UART
- Eight serial DMA (SDMA) channels
- One serial peripheral interface
- Two general-purpose timers
- Interrupts
- Two baud rate generators
- Protocols supported
  - Ethernet IEEE® 802.3 and Fast Ethernet
  - HDLC/SDLC
  - UART
  - IrDA
  - Totally transparent mode with/without CRC
- System integration unit
  - Memory controller
  - PCMCIA interface
  - System functions

Learn More: For current information about Freescale products and documentation, please visit **www.freescale.com**.

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