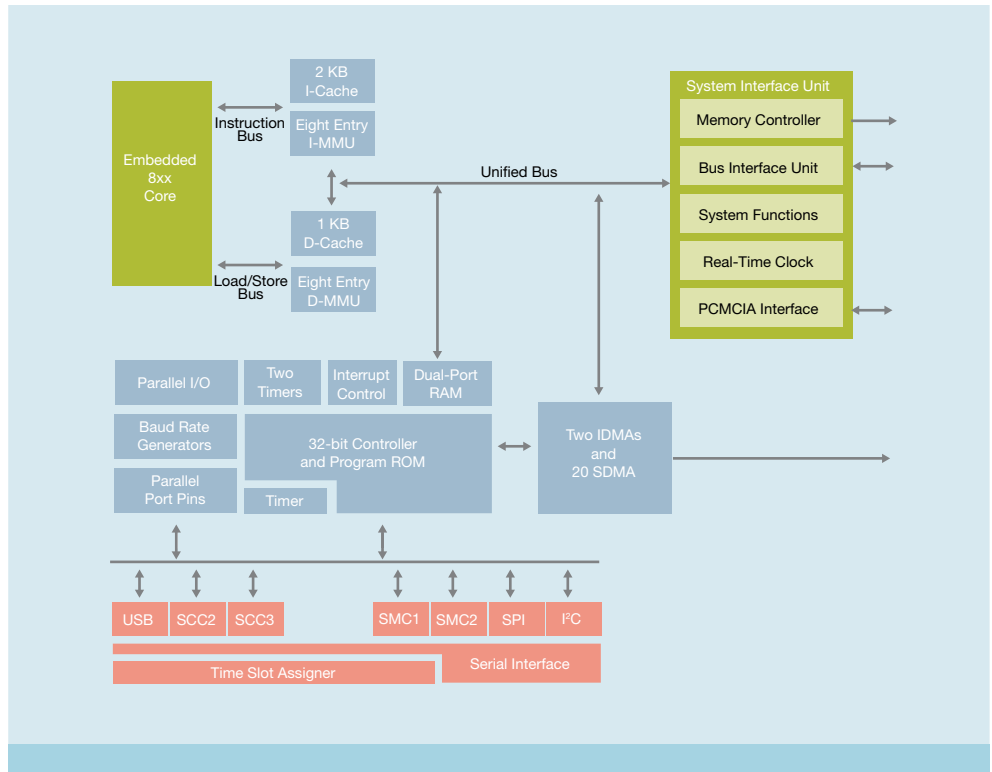


MPC850 PowerQUICC™ Family

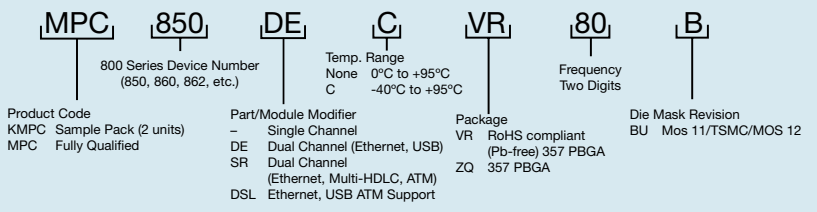
Freescale Semiconductor's PowerQUICC™ MPC850 family is designed to deliver a versatile one-chip, integrated processor and peripheral combination that can be used in a variety of controller applications—excelling particularly in communications and networking products. Offering similar integration to the MPC860 family, the MPC850 family's economical implementation further contributes to the PowerQUICC family's cost-effective mix of performance and integration. The MPC850 is powered by a high-performance embedded 8xx core compatible with the Power Architecture™ technology instruction-set architecture and includes extensive communications and system integration support, helping to simplify development efforts and decrease time to market. The communications processor module (CPM) of the MPC850, which offloads tasks from the embedded 8xx processor core, is engineered to provide increased performance and efficiency over more traditional CPU architectures. Furthermore, the CPM of the MPC850 is designed to support up to seven serial channels: two serial communications controllers (SCCs), one I²C interface, one universal serial bus (USB) channel, two serial management controllers (SMCs) and one serial peripheral interface (SPI).

MPC850 Family Block Diagram



Key Features

- Power Architecture technology
 - Embedded 8xx core
- 2 KB instruction cache and 1 KB data cache
- Powerful memory controller and system functions
- Efficient architecture that involves a separate RISC processor CPM for handling communications
- Two SCCs
- Support for Ethernet, ATM, UTOPIA and HDLC
- USB interface supporting host and slave mode
- Includes: timers, baud rate generators and 8K dual-port RAM
- Available at 50, 66 and 80 MHz in a 256-pin, RoHS-compliant BGA package
- Strong third-party tool support through Freescale's Design Alliance Program



	850	850DSL	850DE	850SR
Serial Communications Controllers (SCCs)	1	2	2	2
Ethernet	Yes	Yes	Yes	Yes
Asynchronous Transfer Mode (ATM)	-	Yes	-	Yes
Universal Serial Bus (USB)	Yes	Yes	Yes	Yes
Multi-Channel HDLC	-	-	-	Yes
PCMCIA	1	1	1	1

Networking and Computing Systems

To learn more about Freescale's embedded networking and communications solutions, visit www.freescale.com/networking.

Typical Applications

- DSL modems
- Cable modems
- Telecom switching and transmission devices
- T1/E1 termination equipment
- LAN switches
- SOHO routers
- Remote access servers and modems
- ISDN equipment
- Central office equipment

Technical Specifications

- Embedded microprocessor core that provides 106 MIPS (using Dhrystone 2.1) at 80 MHz
 - Single-issue, 32-bit version of the G2 core with 32- x 32-bit fixed point
 - 2 KB instruction cache and 1 KB data cache
 - Memory management units with 8-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
 - 32-bit scaler RISC controller
 - One serial peripheral interface
 - Time slot assigner
 - Four baud rate generators
 - Protocols supported
 - Ethernet IEEE® 802.3
 - Asynchronous Transfer Mode (ATM)
 - High-level data link control (HLDC)

- Asynchronous HDLC
- Channelized HDLC
- Multi-channel HDLC
- AppleTalk®
- Universal asynchronous receiver/transmitter (UART)
- IrDA
- Basic rate ISDN (BRI)
- Primary rate ISDN (PRI)
- Totally transparent mode with/without CRC
 - Two SCCs
 - USB interface
 - Two serial management controllers
 - One I²C port
 - SPI
 - Four general-purpose timers
 - Interrupts
- System integration unit
 - Memory controller
 - Real-time clock
 - PCMCIA interface
 - System functions
 - Bus interface unit

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



Freescale™ and the Freescale logo are trademarks of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners. The Power Architecture and Power.org word marks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org.
© Freescale Semiconductor, Inc. 2007

Document Number: MPC850FACT
REV 10

