

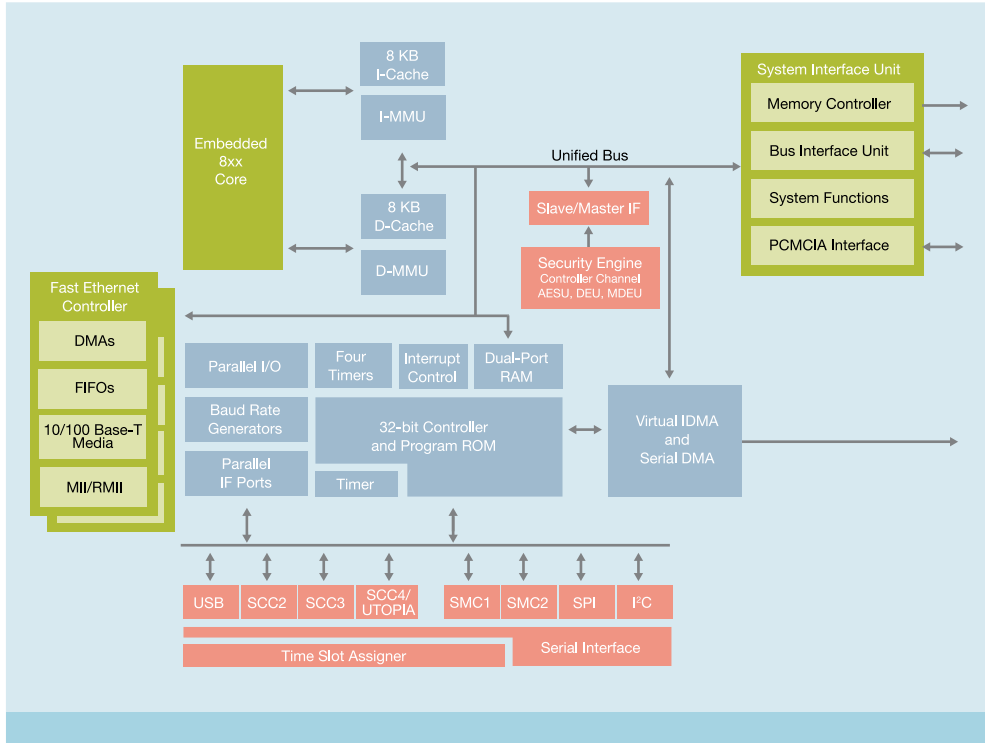
MPC885 PowerQUICC™ Processor Family

Overview

Freescale's PowerQUICC™ processor family, built on Power Architecture™ technology, provides a combination of price, performance and functionality for networking and communications applications. The Freescale MPC885 family takes the price/performance benefits, features and functionality of PowerQUICC communications processors to the next level. Advanced and feature-rich PowerQUICC devices, the MPC885 family of processors are engineered to deliver on-chip security, dual Fast Ethernet (MII and RMII) ports, USB and bus speeds scaling to 80 MHz for higher system throughput.

The MPC885 family includes the MPC885, MPC880, MPC875 and MPC870 processors. These highly integrated PowerQUICC devices are designed to deliver a versatile, single-chip communications processor and peripheral solution that can be used in a variety of controller applications, excelling particularly in communications and networking products. Ideal applications include low-end routers, VPN routers with integrated security features, home networking equipment, cost-effective WLAN access points and xDSL gateway boxes.

MPC885 Communications Processor



Product Highlights

- Dual processor architecture that integrates an embedded 8xx core and RISC-based Communications Processor Module (CPM)
- Available in CPU frequencies of 66 MHz, 80 MHz and 133 MHz
- 8 KB instruction cache and 8 KB data cache
- Powerful memory controller and system functions
- On-chip security engine to help support AES, DES/3DES, SHA/MD5/HMAC (available on the MPC875 and MPC885 devices)
- Support for PCMCIA (for connecting to wireless modules, e.g 802.11 a/b/g)
- Support for dual Fast Ethernet (10/100 Mbps), UART, HDLC, ATM and more, depending on MPC885 family device
- USB host/device (USB 2.0 full/low-speed compatible)
- Up to three SCCs and up to two SMCs, depending on MPC885 family device
- Many other features: timers, baud rate generators, etc.
- MPC885/880 available in a 357-pin RoHS-compliant PBGA package; MPC870/875 available in a 256-pin RoHS-compliant PBGA package
- Strong third-party tools support through Freescale's Design Alliance Program
- 0.18µ process technology
- 1.8V core, 3.3V I/O, with power consumption below 1W

| | MPC870 | MPC875 | MPC880 | MPC885 |
|--|--------|--------|---------|---------|
| I-Cache/D-Cache (KB) | 8/8 | 8/8 | 8/8 | 8/8 |
| Fast Ethernet (10/100) Ports | 2 | 2 | 2 | 2 |
| USB 2.0 Full/Low-speed | Yes | Yes | Yes | Yes |
| Serial Communications Controllers (SCCs) | - | 1 | Up to 2 | Up to 3 |
| Serial Management Controllers (SMCs) | 1 | 1 | 2 | 2 |
| I ² C/SPI | Yes | Yes | Yes | Yes |
| ATM Support | - | - | Yes | Yes |
| Multi-Channel HDLC Support | - | 32-ch. | 64-ch. | 64-ch. |
| On-Chip Security | - | Yes | - | Yes |



Typical Applications

- Low-end routers, including VPN routers
- SOHO and enterprise routers
- Home networking equipment
- Wireless LAN, including cost-effective WLAN access points
- ADSL gateway boxes
- xDSL equipment
- Telecom switching and transmission devices
- Integrated access devices (IADs)
- T1/E1 termination equipment
- General-purpose controller
- Factory automation
- Industrial control
- Embedded control

MPC885 Full Feature List

- Power Architecture technology
 - Embedded 8xx core designed to provide 158 MIPS (using Dhrystone 2.1) at 120 MHz
 - Single-issue, 32-bit version of the embedded 8xx core with 32-bit x 32-bit fixed point registers
 - Memory management units with 32 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
- On-chip security engine
- Communications Processor Module
 - 8 KB dual-port RAM
 - 32-bit scalar RISC controller
 - 16 serial DMA (SDMA) channels
 - One I²C port
 - One serial peripheral interface (SPI)
 - Four general-purpose timers
 - Time slot assigner
 - Interrupts
 - Four baud rate generators
 - Enhanced ATM functionality
 - · Simultaneous Fast Ethernet and UTOPIA operation
 - · UTOPIA II Multi-PHY
 - · AAL2 and VBR microcode in ROM
 - · ATM port-to-port switching
 - Protocols supported
 - · Ethernet (802.3)
 - · Asynchronous Transfer Mode (ATM)
 - · HDLC
 - · Asynchronous HDLC
 - · Channelized HDLC
 - · Multi-channel HDLC (T1/E1)
 - · AppleTalk[®] network system
 - · UART
 - · IrDA
 - · Basic Rate ISDN (BRI) and Primary Rate ISDN (PRI)
 - Totally transparent mode with/without CRC
- System interface unit (SIU)
 - Memory controller
 - PCMCIA interface
 - System functions

PowerQUICC II Processor Family

PowerQUICC, Freescale's PowerQUICC family of integrated communications processors is the ideal choice for your embedded networking and communication system needs.

Learn More:

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



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