MPC860FACT/D
REV. 4

MOTOROLA'S MPC860 POWERQUICC™ PROCESSOR

The MPC860 PowerQUICC™ is a versatile one-chip integrated microprocessor and peripheral combination that can be used in a variety of controller applications, excelling particularly in communications and networking products. The PowerQUICC can be described as a next-generation MC68360 QUICC for network and data communication applications, providing higher performance in all areas of device operation including flexibility, extensions in capability, and integration. The MPC860 PowerQUICC, like the MC68360 QUICC integrates two processing blocks. One block is the Embedded PowerPC Core and the second block is a Communication Processor Module (CPM) that closely resembles the MC68360 CPM. The CPM supports four serial communications controllers (SCCs) on the device; however, there are actually eight serial channels: four SCCs, two serial management controllers (SMCs), one serial peripheral interface (SPI) and one I^2C interface. This dual-processor architecture provides lower power consumption than traditional architectures because the CPM off-loads peripheral tasks from the Embedded PowerPC Core.

Product Highlights

- Embedded PowerPC Core
- 4-Kbyte instruction cache and 4-Kbyte data cache (16-Kbyte instruction cache and 8-Kbyte data cache available in MPC860P and 8600P)
- Powerful Memory Controller and System Functions
- Efficient architecture involves a separate RISC processor for handling communications
- Up to Four Serial Communication Controllers
- Support for Ethernet, Fast Ethernet, HDLC, ATM and more
- Two SMC's, one SPI and one I^2C
- Many other features - timers, baud rate generators,
- 8K dual-port RAM
- Available at 50, 66 and 80 MHz in a 357-pin BGA package
- Strong 3rd party tools support

MPC860 POWERQUICC PROCESSOR

Typical Applications

- SOHO and low-end routers
- Remote access servers
- Enterprise routers
- Wireless base stations
- ISDN equipment
- xDSL equipment
- ATM switches
- Telecom switching and transmission devices including T1/E1 equipment
- LAN switches

MPC860 Derivatives

	855T	860DE	860DT	860DP	860EN	860SAR	860T	860P
Serial Communications Controllers (SCCs)	1	2	2	2	4	4	4	4
I-Cache (Kbyte)	4	4	4	16	4	4	4	16
D-Cache (Kbyte)	4	4	4	8	4	4	4	8
Ethernet	10/100	Yes	10/100	10/100	Yes	Yes	10/100	10/100
ATM	Yes	—	Yes	Yes	—	Yes	Yes	Yes
Multi Channel HDLC	Yes	—	Yes	Yes	—	Yes	Yes	Yes

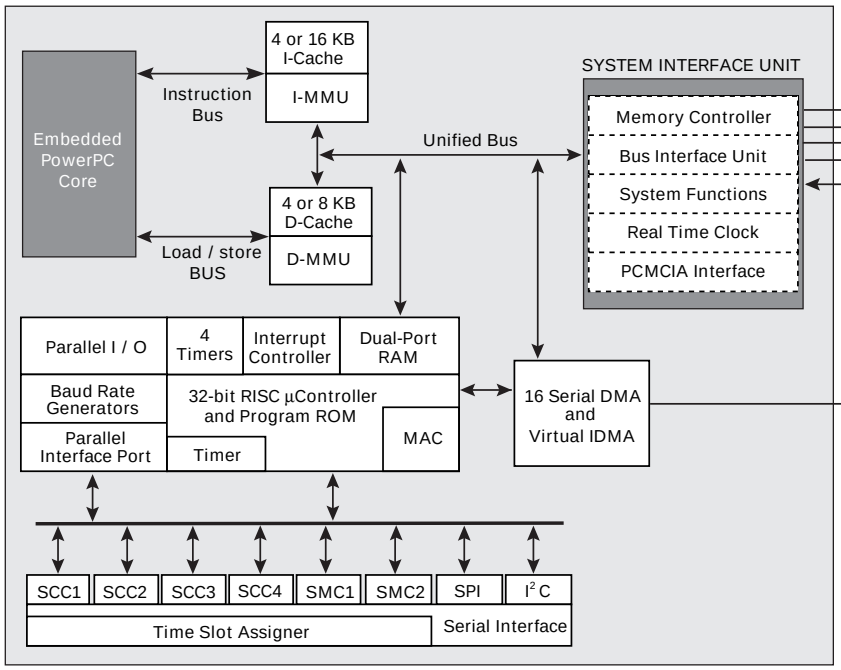
PowerPC™

Digital DNA™ from Motorola

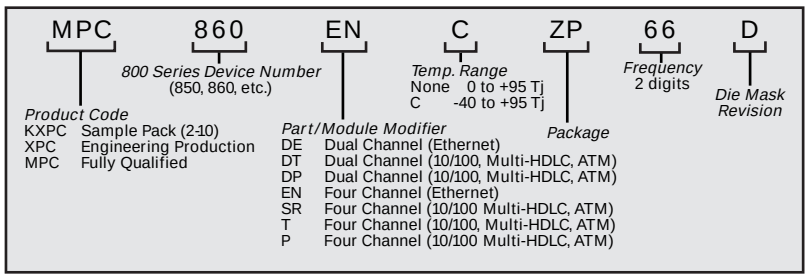
Technical Specifications

- Embedded PowerPC Core providing 105 MIPS (using Drhystone 2.1) at 80 MHz
  - Single-issue, 32-bit version of the PowerPC core with 32x32-bit fixed point registers
  - 4-Kbyte instruction cache and 4-Kbyte data cache (16-Kbyte instruction cache and 8-Kbyte data cache available in 860P)
  - 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
- Completely static low-power design
- Communication Processor Module
  - 8-Kbyte dual port RAM
  - 32-bit scalar RISC controller
  - Sixteen Serial DMA (SDMA) channels
  - One serial peripheral interface
  - Time slot assigner
  - Four baud rate generators
  - Protocols supported
    - Ethernet IEEE 802.3 and Fast Ethernet
    - Asynchronous Transfer Mode (ATM)
    - HDLC
    - Asynchronous HDLC
    - Channelized HDLC
    - Multi-channel HDLC
    - Appletalk
    - UART
    - IrDA
    - Basic Rate ISDN (BRI)
    - Primary Rate ISDN (PRI)
    - Totally transparent mode with/ without CRC
- System Integration Unit
  - Memory Controller
  - Real time clock
  - PCMCIA interface
  - System functions
  - Bus Interface Unit
  - Up to four serial communication controllers (SCCs)
  - Two serial management controllers
  - One I^2C port
  - Four general purpose timers
  - Interrupts

MPC860 Processor Block Diagram



MPC860 Series Part Numbering Key



Contact Information

- Motorola offers user's manuals, application notes and sample code for all of its communications processors. In addition, local support for these products is also provided. This information can be found at: http://motorola.com/netcomm/

- For all other inquiries about Motorola products, please contact the Motorola Customer Response Center at: Phone: 800-521-6274 or http://motorola.com/semiconductors

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