



32-bit Microprocessors

# MCF5441x

## MCU peripherals with MPU performance

### Overview

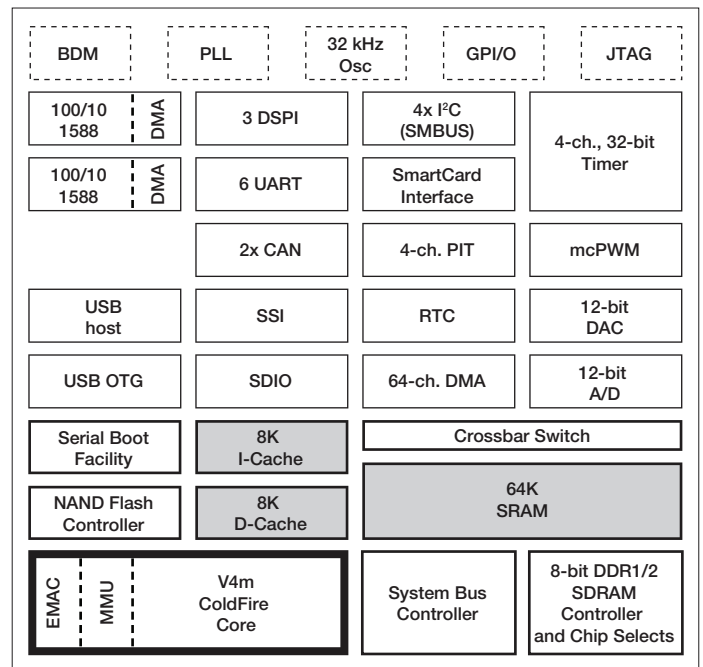
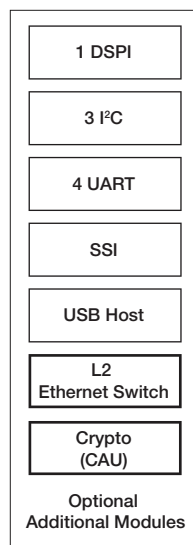
The MCF5441x offers MCU peripherals with MPU performance, including integrated analog, an L2 switch and dual Ethernet. Add Linux® and MQX® RTOS, plus Eclipse-based CodeWarrior IDE and you've got a powerful development package for network-connected industrial applications.

Key connectivity peripherals and security features make complex network environments cost effective and easy to design in.

- Daisy chain over Ethernet with an embedded 3-port L2 switch to reduce system cost by an average of \$4 (in high volume applications).
- Get increased flexibility in meeting current and future needs with up to 10 serial ports.
- Enable more sophisticated network topology with dual Ethernet. Bring an added level of precision to your application with IEEE® 1588 time stamping.

Lower your system cost with multiple analog peripherals built in, simplifying system architecture.

### MCF5441x



LEGEND   Debugging/Interfaces   Peripherals   Cache/RAM   Core Plus Features

- DAC/ADC: 12-bit resolution for interfacing to sensors and audio codecs, simplifying system architecture.
- PWMs/motor control: Easily incorporate motor control into your application, adding versatility and flexibility to your product path.

With both Linux and MQX OS options along with CodeWarrior v10.0, the cycle of coding, debugging and prototyping is faster and easier.

- Get two complete operating system packages out-of-the-box, with Linux and a complimentary Freescale MQX RTOS to save months on development time.
- Get up and running quickly with the newest Eclipse based CodeWarrior for Microcontrollers, v10.0. Designed for rapid prototyping, coding and debugging needs.

### Target Applications

- Building control
  - Access panels, elevators, security, HVAC
  - Backend, real-time processing
- Industrial control and networking
  - Ethernet to serial connectivity devices
  - Networked control power grid controller
- Medical diagnostics
  - Non-portable data analysis and processing
- Motor control
  - Up to two motors, low voltage
- Other
  - VoIP phones

### Development Tools

#### TWR-MCF5441X 32-bit MPU Module \$139 MPU card only

- MPU module features:
  - MCF54418 V4 ColdFire processor with MMU and EMAC
  - Dual Ethernet with L2 Switch
  - High-speed dual-role USB
  - Access to DDR2, NAND, serial memories
  - Extensive I/Os available up to:
    - 2x SPIs    - 2x I<sup>2</sup>Cs
    - 1x SSI    - 6x PWMs
    - 5x UARTs   - 1x eSDHC
    - 1x CAN
- Enablement support includes:
  - Freescale Linux BSP
  - Eclipse based CodeWarrior for Microcontrollers v10.0
  - Complimentary Freescale MQX RTOS
  - VoIP support through audio codec
  - IEEE 1588 Support
- Integrated USB-to-BDM interface (OSBDM)
  - No USBMULTILINKBDME required (\$99 savings)
  - In-circuit debugging and flash programming
  - No serial monitor emulation or other debugging techniques required
  - Tower System board can be powered by the USB circuit
  - No need for external power supply
- Out-of-box experience includes Quick Start Guide, two one-pager demos and multiple labs (two MQX labs and two Linux labs)

### Features and Benefits

Features	Benefits
L2 Switch	Boosts network performance while allocating bandwidth efficiently
1588 Time Stamping	Allows any device of any performance to participate in high precision synchronized networks
Serial Connectivity	Gives the designer multiple options on which set of serial I/Os are best suited per application
Integrated Analog	Enables a smaller and simpler overall design footprint
Low Power	Provides energy savings while maintaining performance

#### TWR-MCF5441X-KIT \$259

- Prototype kit includes:
  - TWR-MCF5441X MPU module
  - TWR-SER2 serial module
  - TWR-ELEV elevator cards

#### CodeWarrior Development Studio for Microcontrollers v10.0

- Special Edition Complimentary
- Eclipse Based CodeWarrior Development Studio for Microcontrollers v10.0 is a single tool suite that supports software development whether it is targeted at Freescale's 8-bit or 32-bit microcontrollers.

### Modelo Feature Matrix

Part Number	Package	Temp Ranges	ADC + DAC	Ethernet	Ethernet L2 Switch	Encryption	USB OTG	SDHC	DSPi	SSI	UART	I <sup>2</sup> C
MCF54410	196 pin MAPBGA	-40°C to +85°C		1					3		6	4
MCF54415	256 pin MAPBGA	-40°C to +85°C		2					4	2	10	6
MCF54416	256 pin MAPBGA	-40°C to +85°C		2					4	2	10	6
MCF54417	256 pin MAPBGA	-40°C to +85°C		2					4	2	10	6
MCF54418	256 pin MAPBGA	-40°C to +85°C		2					4	2	10	6

### Learn More:

For more information, visit [freescale.com/mcf5441x](http://freescale.com/mcf5441x).