



Flexis 8-bit Microcontrollers

# MC9S08JE128/64

## Low-cost, ultra-low-power MCU with USB connectivity



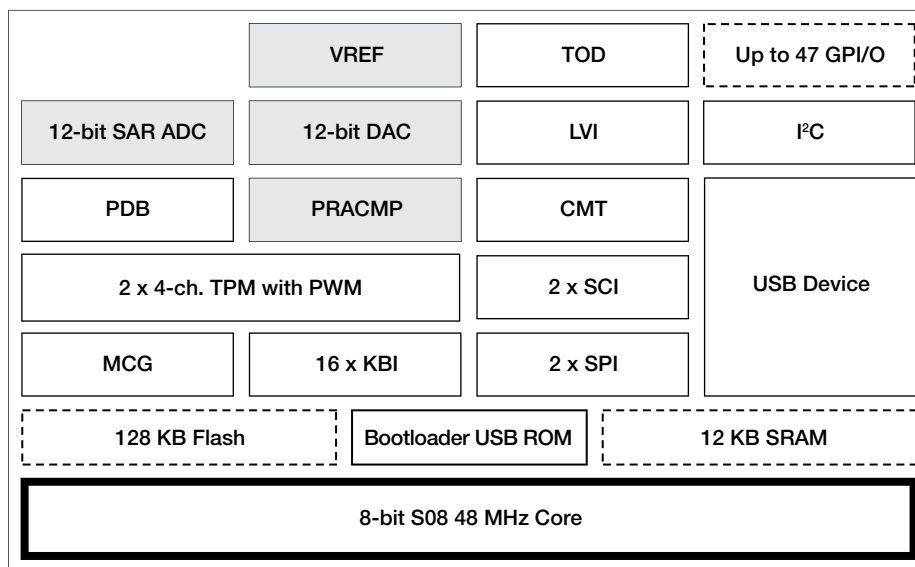
### Target Applications

- HVAC building control systems
- PC peripherals
- Lighting control systems
- Industrial networking products
- Portable medical devices

### Overview

The MC9S08JE128/64 (JE128/64) provides ultra-low-power operation, USB connectivity and high measurement accuracy, all in a single 8-bit microcontroller, allowing designers to develop a more fully featured system at a lower cost. The JE128/64 integrates high-resolution ADC and DAC modules and a rich peripheral set including a USB 2.0 device controller and multiple serial interfaces.

The JE128/64 is part of the Freescale Flexis microcontroller series, which includes both 8-bit S08 and 32-bit V1 ColdFire microcontrollers that have a common set of peripherals and development tools to deliver migration flexibility. The JE128/64 family is also easy to use. Freescale provides a comprehensive suite of development tools and software to help developers design quickly and easily.

**MC9S08JE128 Block Diagram**


### Modular Tower Development System TWR-S08JE128-KIT (\$119 USD\*) TWR-S08JE128 (\$69 USD\*)

The Freescale Tower development system provides the user with a modular, reconfigurable demonstration and development platform.

The TWR-S08JE128-KIT soldered with 80LQFP MC9S08JE128 consists of:

- TWR-S08JE128 stand-alone development board
- TWR-SER serial boards that support USB and RS232
- TWR-ELEV elevator board that connects the MCU and serial boards
- USB cable

The TWR-S08JE128 can also be ordered independently. A getting-started DVD included with the board includes necessary software, documents and resources to jumpstart new product development.

### CodeWarrior Development Studio for Microcontrollers v6.3/10.x

#### Special Edition (Complimentary\*\*)

CodeWarrior Development Studio for Microcontrollers is an integrated tool suite that supports software development for Freescale's microcontrollers. Designers can further accelerate application development with the help of the award-winning Processor Expert tool in the CodeWarrior tool suite.

#### USB Software Stack (Complimentary\*\*)

As other USB MCUs from Freescale, the JE128/64 devices are supported by USB stack with MSD, HID, CDC and PHDC classes. This USB stack can also be used for medical applications.

\* Prices indicated are MSRP

\*\* Subject to license agreement

#### Package Options

Part Number	Temp Ranges (Ta)	Package
MC9S08JE128CMB	-40°C to +85°C	81 MAPBGA
MC9S08JE128CLK	-40°C to +85°C	80 LQFP
MC9S08JE128CLH	-40°C to +85°C	64 LQFP
MC9S08JE64CLH	-40°C to +85°C	64 LQFP
MC9S08JE128VMB	-40°C to +105°C	81 MAPBGA
MC9S08JE128VLK	-40°C to +105°C	80 LQFP
MC9S08JE128VLH	-40°C to +105°C	64 LQFP
MC9S08JE64VLH	-40°C to +105°C	64 LQFP

Features	Benefits
<b>CPU and System Configuration</b>	
<ul style="list-style-type: none"> <li>8-bit S08 CPU operating at 48 MHz</li> <li>1.8V to 3.6V single supply</li> </ul>	<ul style="list-style-type: none"> <li>Offers high performance across the entire voltage range</li> </ul>
<b>On-Chip Memory</b>	
<ul style="list-style-type: none"> <li>Up to 128 KB flash</li> <li>Up to 12 KB SRAM</li> </ul>	<ul style="list-style-type: none"> <li>Allows the user to take full advantage of in-application re-programmability benefits in any environment</li> <li>Security circuitry helps to prevent unauthorized RAM access</li> </ul>
<b>Power Management</b>	
<ul style="list-style-type: none"> <li>Low-power operation modes</li> </ul>	<ul style="list-style-type: none"> <li>Low-power Stop 2 current—450 nA with 12K of SRAM enabled and active POR</li> <li>6 uS wake-up time from Stop 3</li> <li>32 KHz oscillator for low-power time keeping</li> <li>Rapid response to interrupts from the low-power sleep mode</li> </ul>
<b>Analog Related Peripherals</b>	
<ul style="list-style-type: none"> <li>12-bit ADC</li> <li>12-bit DAC</li> <li>Programmable delay block</li> <li>VREF (voltage reference)</li> </ul>	<ul style="list-style-type: none"> <li>High-resolution and high-accuracy ADC provides accurate signal acquisition.</li> <li>Digital to analog converter with clock gating optimized for low power usage</li> <li>PDB precisely triggers ADC and DAC blocks to complete sensor biasing and measurement (i.e. glucometry strips)</li> <li>VREF accuracy is 33 ppm /°C</li> </ul>
<b>Communication Peripherals</b>	
<ul style="list-style-type: none"> <li>USB 2.0 controller</li> <li>Dual asynchronous SCIs</li> <li>Inter IC-BUS (I<sup>2</sup>C)</li> <li>Dual synchronous SPI               <ul style="list-style-type: none"> <li>(1 x 32-bit FIFO SPI)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>USB device controller</li> <li>On-chip transceiver and 3.3 volt regulator reduce system cost</li> <li>Serial communication interface provides a simple, efficient method of data exchange between devices. Option to connect analog comparator to SCI for opto isolation applications</li> <li>I<sup>2</sup>C port enables increased system memory by using an additional I<sup>2</sup>C EEPROM</li> <li>Having two SPI allows two separate dedicated devices, for example, one SPI dedicated to a ZigBee transceiver and the other to MCUs or peripherals, SPI FIFO allows better performance to drive a graphic LCD</li> </ul>
<b>Software and Tools</b>	
<ul style="list-style-type: none"> <li>Background debug mode (BDM) for in-circuit debugging</li> <li>Medical applications USB stack</li> <li>Tower development system</li> </ul>	<ul style="list-style-type: none"> <li>Real-time trace and debug support</li> <li>Standardize with the "Continua Ready" personal health care device (PHDC) USB solution</li> <li>Tower System is a modular, reconfigurable demonstration and development platform</li> </ul>

#### Learn More:

For current information about Freescale products and documentation, please visit [freescale.com/S08JE](http://freescale.com/S08JE).