

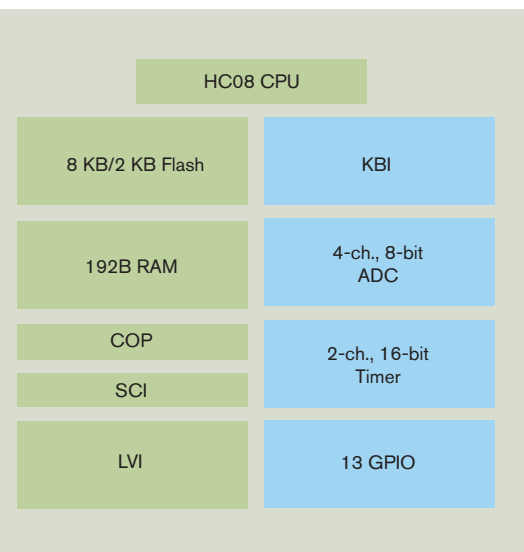
MC68HC908KX8/2

Target Applications

- > Networked and control systems
- > Home and industrial security systems
- > Building control systems
- > Interconnected home appliances
- > Fluorescent light ballasts

Overview

The MC68HC908KX8 and the MC68HC908KX2 maximize efficiency and reduce system costs with an internal clock generator, which eliminates the need for an external clock source. Other valuable features include a serial communications interface (SCI) enabling high-speed communication, an analog-to-digital converter (ADC) and a timebase module (TBM) for more cost-effective processing.



Features

High-Performance 68HC08 CPU Core

- > 8 MHz bus operation at 5V operation for 125 ns minimum instruction cycle time
- > 4 MHz bus operation at 3V for 250 ns minimum instruction cycle time
- > Efficient instruction set, including multiply and divide
- > 16 flexible addressing modes, including stack relative with 16-bit stack pointer
- > Fully static, low-voltage, low-power design with wait and stop modes

Benefits

- > Object code compatible with the 68HC05
- > Easy to learn and use architecture
- > C-optimized architecture provides compact code

Integrated Second-Generation Flash Memory

- > In-application reprogrammable
- > Extremely fast programming, encoding 64B in as fast as 2 ms
- > Flash programming across the 68HC08's full operating supply voltage with no extra programming voltage
- > 10K write/erase cycles minimum over temperature
- > Flexible block protection and security

- > Cost-effective programming changes and field software upgrades via in-application programmability and reprogrammability
- > Reduces production programming costs through ultra-fast programming
- > Allows reprogrammable battery-powered applications
- > Byte-writable for data as well as program memory
- > Protects code from unauthorized reading and guards against unintentional writing/erasing of user-programmable segments of code

Internal Clock Generator

- > Software-selectable bus frequencies
- > Two percent accurate with trim capability
- > Clock monitor
- > Option to allow use of external clock source or external crystal/ceramic resonator

- > Eliminates the need and cost for an external clock source
- > Improved accuracy across temperature and voltage

8-bit Analog-to-Digital Converter (ADC)

- > Four channels
- > Single conversion in 17 μ s

- > Fast, easy conversion from analog inputs, such as temperature, pressure and fluid levels, to digital values for CPU processing

Two Programmable 16-bit Timer Channels

- > 125 ns resolution at 8 MHz bus
- > Free-running counter or modulo up-counter

- > Each channel independently programmable for input capture, output compare or unbuffered pulse-width modulation (PWM)
- > Pairing timer channels provides a buffered PWM function

Features	Benefits
Serial Communications Interface (SCI)	
<ul style="list-style-type: none"> > UART asynchronous communications system > Flexible baud rate generator > Double-buffered transmit and receive > Optional hardware parity checking and generation 	<ul style="list-style-type: none"> > Asynchronous communication between the MCU and a terminal, computer or a network of microcontrollers
Computer Operating Properly (COP) Watchdog Timer	
	<ul style="list-style-type: none"> > Provides system protection in the event of runaway code by resetting the MCU to a known state
Selectable Trip Point Low-Voltage Inhibit (LVI)	
	<ul style="list-style-type: none"> > Improves reliability by resetting the MCU when voltage drops below trip point > Two trip points allow optimum operation in both 5V and 3V nominal systems > Integration reduces system cost
13 Bidirectional Input/Output (I/O) Lines	
<ul style="list-style-type: none"> > 10 mA sink/source capability on all I/O pins > 15 mA sink capability on five I/O pins > Keyboard scan with selectable interrupts on five I/O pins > Software programmable pull-ups on five I/O pins 	<ul style="list-style-type: none"> > High-current I/O allows direct drive of LED and other circuits to eliminate external drivers and reduce system costs > Keyboard scan with programmable pull-ups eliminates external glue logic when interfacing to simple keypads

Application Notes and Engineering Bulletins

AN1853	Embedding Microcontrollers in Domestic Refrigeration Appliances
AN1831	Using MC68HC908 On-Chip Flash Programming Routines
AN1843	Vacuum Cleaner Reference Platform
AN2093	Creating Efficient C Code for the MC68HC08
AN1219	M68HC08 Integer Math Routines
AN1218	HC05 to HC08 Optimization
AN1837	Non-Volatile Memory Technology Review
AN1752	Data Structures for 8-bit MCUs
AN1259	System Design and Layout Techniques for Noise Reduction in MCU-Based Systems
AN1263	Designing for Electromagnetic Compatibility with Single-Chip Microcontrollers
AN1050	Designing for Electromagnetic Compatibility (EMC) with HCMOS Microcontrollers
AN1705	Noise Reduction Techniques for Microcontroller-Based Systems
EB369	In-Circuit Programming of 68HC908KX Flash Memory

And many more—see our Web site at www.freescale.com/mcu.

Learn More: For more information about Freescale's products, please visit www.freescale.com.

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Cost-Effective Development Tools

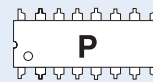
For more information on development tools, please refer to the Freescale Development Tool Selector Guide (SG1011).

FSICEKITKX \$2,195	Complete FSICE high-performance emulator kit; includes emulator module, cables, head adapters and programming adapters
M68EML08KX \$495	Emulation module for FSICE system
M68CYCLONEPRO \$499	HC08/HCS08/HC12/HCS12 stand-alone Flash programmer or in-circuit emulator, debugger, Flash programmer; USB, serial or Ethernet interface options
USBMULTILINK08 \$99	Universal HC08 in-circuit debugger and Flash programmer; USB PC interface
M68CPA08W1628T20 \$149	Programming adapter for MON08 cables and single MCU: 7.5 mm SOIC packages up to 28 pins, 5.3 mm SOIC packages up to 16 pins and TSSOP packages up to 20 pins
M68CPA08P40B56 \$99	Programming adapter for MON08 cables and single MCU: DIP packages up to 40 pins and SDIP packages up to 56 pins
CWX-H08-SE Free	CodeWarrior™ Special Edition for HC(S)08 MCUs; includes integrated development environment (IDE), linker, debugger, unlimited assembler, Processor Expert™ auto-code generator, full-chip simulation and 16 KB C compiler

Package Options

Part Number	Package	Flash Size	Temp. Range
MC68HC908KX8CP	16 DIP	8 KB	-40°C to +85°C
MC68HC908KX8CDW	16 SOIC	8 KB	-40°C to +85°C
MC68HC908KX2CP	16 DIP	2 KB	-40°C to +85°C
MC68HC908KX2CDW	16 SOIC	2 KB	-40°C to +85°C
MC68HC908KX8VP	16 DIP	8 KB	-40°C to +105°C
MC68HC908KX8VDW	16 SOIC	8 KB	-40°C to +105°C
MC68HC908KX2VP	16 DIP	2 KB	-40°C to +105°C
MC68HC908KX2VDW	16 SOIC	2 KB	-40°C to +105°C
MC68HC908KX8MP	16 DIP	8 KB	-40°C to +125°C
MC68HC908KX8MDW	16 SOIC	8 KB	-40°C to +125°C
MC68HC908KX2MP	16 DIP	2 KB	-40°C to +125°C
MC68HC908KX2MDW	16 SOIC	2 KB	-40°C to +125°C

16-Pin Plastic DIP



16-Lead SOIC

