

KEY BENEFITS

- Delivers high-precision control over the cooking process using microcontrollers' intelligent management programs
- Offers intelligence in the appliance that results in improved energy efficiency and reduced energy costs

OVERVIEW

Home appliance controls are changing from purely mechanical to fully electronic as microcontrollers are incorporated into the designs.

The migration in the industry from mechanical to electromechanical control, then to full electronic control has been ongoing for several years.

Today, microcontrollers provide the intelligence to every electronic solution. The primary reasons driving the adoption of electronics are reliability, cost, and improved energy efficiency.

The functionality of the oven/cooker/range has been changing gradually over the last five years and is driven by consumer demand for new features.

Microcontrollers support these new, innovative cooking appliance features.

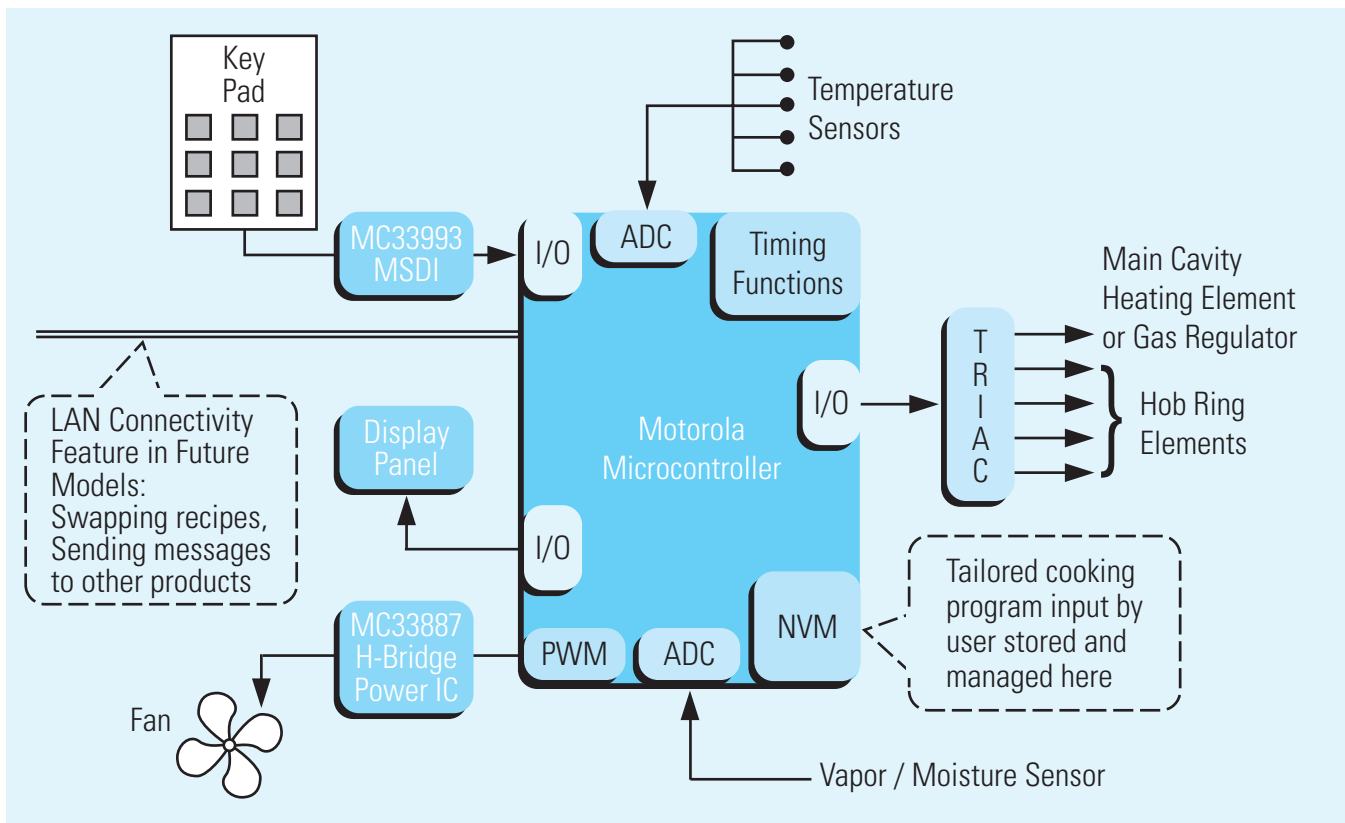


Figure 1. Typical Microprocessor Application Diagram

MOTOROLA ORDERING INFORMATION

Part Number	Product Highlights	Additional Information	
MC68HC(9)08AZxx	ADC, SCI, SPI, CAN, EEPROM	www.motorola.com/semiconductors ^{NOTE}	
MC68HC908MRxx	ADC, PWM, SCI, SPI		
MC68HC(9)08ABxx	ADC, SCI, SPI, EEPROM		
MC68HC(9)08GPxx	ADC, SCI, SPI		
MC68HC(9)08GTxx	ADC, SCI, SPI, ICG		
MC68HC(9)08SRxx	ADC, SCI, I ² C, temp sensor		
MC68HC908GRxx	ADC, SCI, SPI		
MC68HC(9)08JLxx	ADC		
MC68HC(9)08JKxx	ADC		
MC68HC908KXxx	ADC, SCI		
MC68HC908QXxx	Low pin count, low cost		
MC33887	130 mΩ at 25°C		www.motorola.com/semiconductors/analog
MC33993	Switch detection interface 22 inputs		

NOTE: Search on the listed part number.

DESIGN CHALLENGES

Cost

The appliance market is highly competitive and cost sensitive. Eliminating just a few cents from the cost of a solution can save thousands of dollars in this high-volume market.

Flexibility

A new model can be introduced every year, with products having a relatively short life cycle. This means software problems must be eliminated quickly, which requires professional development tools and faster, more efficient development cycles.

Legislation

Energy regulations and consumer demand for efficient appliances that use less energy are driving manufacturers to design products to meet these requirements.

Regional Variation

The White Goods market is dominated by global companies who are trying to minimize development costs by introducing common platforms with the capability to be used around the world. These platforms must be flexible enough to accommodate regional variations in such areas as the user interface, where visual displays are required to support different language options.

Measurement Accuracy

Measuring temperatures in different zones is critical to the performance of the appliance.

MOTOROLA SOLUTION

Motorola is the industry leader in Flash microcontrollers. Flash memory is a nonvolatile memory (NVM) technology that provides access to the following features:

- Faster programming and erase times of the Flash memory with reprogram capability
- In-application programming, which reduces time to market
- Improved write/erase and data retention performance for Flash
- Flexible block protection and security
- Emulation of EEPROM by Flash

Embedded Flash brings new flexibility to your designs:

- Provides end-of-line customizing for regional variations in consumer demands
- Enables changing legislation to be satisfied with software-enabled intelligence
- Supports remote diagnostics and preventative maintenance
- Minimizes programming costs while increasing code flexibility with production line programming
- Reduces code obsolescence, which saves on scrapped product costs
- Improves time to market, which reduces lead times
- Standardizes platforms, which reduces product variability
- Eliminates sockets and rework with in-system programmable Flash
- Provides field upgrade capability while allowing remote reprogramming of the microcontroller
- Eliminates the need for external EEPROM with 10,000 write/erase cycles because Flash can emulate EEPROM

DEVELOPMENT TOOLS

Tool Type	Product Name	Vendor	Description
Software	CWHC08ASM	Metrowerks	CW ASM tools for HC08
Software	CWHC08	Metrowerks	CW full package for HC08
Software	CWHC08CC	Metrowerks	Stand-alone C/C++/cC++/EC++ compiler for HC08
Software	CWHC08MIG	Metrowerks	CW full package for HC08 migration
Hardware	68HC08 emulators, cables, and adapters	Motorola	Emulation modules, flex cables, and target head adapters in support of 68HC08 MCUs
Hardware	68HC08 programmers	Motorola	Programmer boards in support of 68HC08 MCUs
Development	MON08 Cyclone	Motorola	Provides all the capabilities of the MON08 Multilink plus the ability to function as a stand-alone programmer with push buttons and LED user interface
Development	MON08 Multilink	Motorola	Low-cost development tool for 68HC08 Flash MCUs
Development	In-Circuit Simulator (ICS) Kits	Motorola	Low-cost tools for developing and debugging target systems incorporating 68HC08 MCUs
Development	Modular Evaluation System (MMEVS) Kits	Motorola	Economical, two-board emulator for the 68HC(9)08 MCUs
Development	Modular Development System (MMDS) Kits	Motorola	Full-featured emulator system for developing embedded systems using 68HC(9)08 MCUs

For detailed information, refer to the "Microcontrollers" section of SG1011/D, *Software and Development Tools*.

RELATED INFORMATION

For inquiries about Motorola products, contact the Technical Information Center at 800-521-6247, or visit us online at www.motorola.com/semiconductors.

Document Number	Description
APDPAK/D	Analog ICs Integrated Solutions Pitch Pack
SG1002/D	Analog Product Selector Guide
8-16BITPAK/D	MCU 8- and 16-Bit Sales Binder
BR68HC08FAMAM/D	68HC08 Family: High Performance and Flexibility
CWDEVSTUDFACT/D	CodeWarrior™ Development Studio for 68HC08, Special Edition Brochure
FLYREMBEDFLASH/D	Embedded Flash: Changing the Technology World for the Better

NOTES

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