FLASH MCU

A JUMP AHEAD

The Competitive Edge of Motorola's Flash Microcontrollers.

MOTOROLA

Semiconductor Products Sector

Win the Race to Market.

In the race to market, Motorola microcontrollers with on-chip Flash EEPROM do more than just get you there; they get you there first.

Our 16- and 32-bit Flash Microcontrollers are single-chip solutions that provide the flexibility you need to get your designs into production quickly and efficiently. These cost-effective, off-the-shelf devices eliminate the need for custom masked ROM code and are less costly than external solutions.

Flash MCUs enable easy reprogramming during final design and debug, end-of-line customization, and field upgrades. So, no matter what design changes or other obstacles arise, you'll always stay on track.

And with Motorola, the flexibility of on-chip flash memory goes beyond reprogramming; it also means a range of Flash EEPROM sizes on a variety of cores to meet your application's specific needs and a wide selection of development tools from Motorola and dozens of independent suppliers.

Our modular design methodology has made Motorola the preferred source for cost-effective microcontroller solutions. Proven memory and peripheral modules can be quickly and easily integrated with our advanced microcontroller cores to meet specific market and application needs.

Add to that our complete development tools portfolio, worldwide manufacturing capabilities, and comprehensive applications support, and you've got everything you need to keep your product ahead of the pack.
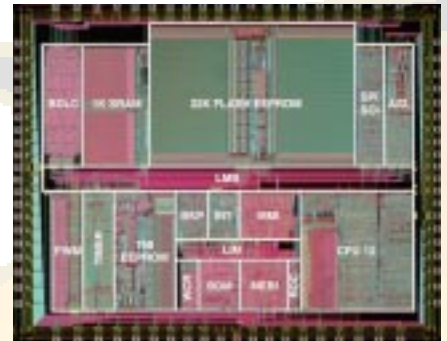
FLASH MCU

Make Your Move and Make It Fast.

Our 16- and 32-bit microcontrollers with on-chip Flash EEPROM offer faster access times than off-chip flash memory — up to 50% faster. Our exclusive Background Debug™ Mode allows faster time-to-market by enabling in-circuit programming of the on-chip flash memory at the last possible moment in your production process. And because it's field-programmable, you can update application software after the product leaves your factory.
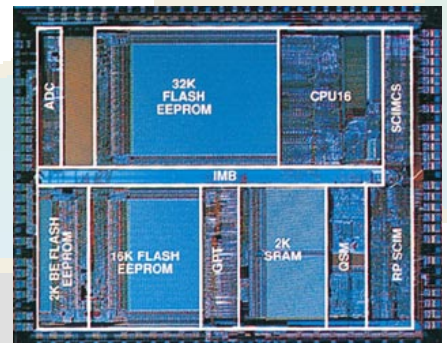
Motorola Flash Microcontrollers offer on-chip, submicron flash memory technology, available from 2K to 100K bytes, so you can choose the optimal device for your application. And larger memory sizes on new Flash MCU derivatives are on the way. With Motorola's modular design methodology, we can develop new derivatives in less time by re-using existing, proven on-chip peripherals.

Available in volume production, Motorola's Flash MCUs are optimally suited for a variety of industrial, automotive, and consumer applications, from field instrumentation to video equipment. Their ability to operate across a wide range of temperatures also make Motorola Flash MCUs ideal for automotive applications such as engine control and body electronics.

Members of the 68HC12 Family are based on the CPU12, a high speed, low power, 16-bit CPU. The 68HC16 derivatives have at their core a true 16-bit CPU with DSP capabilities. The 68F333, based on the 32-bit CPU32, combines high-performance data manipulation with a sophisticated Time Processor Unit (TPU) and a powerful set of on-chip peripherals. Key technical features of each device are listed in the accompanying chart.
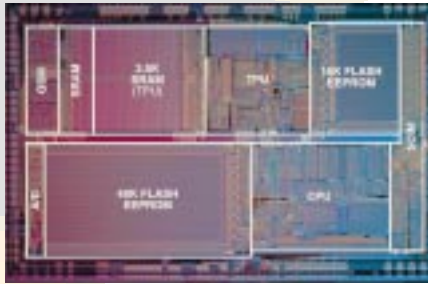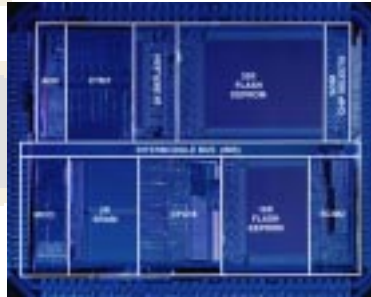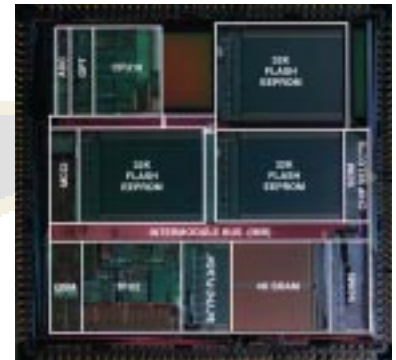

68HC912B32

68HC916X1

68F333

68HC916R1

68HC916Y3

FLASH MICROCONTROLLERS

Device	Processor Module	On-chip Flash EEPROM	Other On-chip Memory	Timer	Other On-chip Peripheral Modules	Package
68HC912B32	16-bit CPU	32K bytes	1K SRAM, 768 EEPROM	16-bit	A/D, 4 PWM, SCI, SPI	80 QFP
68HC916R1	16-bit CPU	50K bytes	2K SRAM	CTM7	2 SCI, SPI	132 PQFP
68HC916X1	16-bit CPU	50K bytes	2K SRAM	GPT	A/D, 2 PWM, SCI, SPI	120 QFP
68HC916Y1	16-bit CPU	48K bytes	4K SRAM	TPU, GPT	A/D, 2 PWM, 2 SCI, SPI	160 QFP
68HC916Y3	16-bit CPU	100 bytes	4K SRAM	TPU2, GPT	A/D, 2 PWM, 2 SCI, QSPI	160 QFP
68F333	32-bit CPU	64K bytes	4K SRAM	TPU	A/D, SCI, QSPI	160 QFP

Relax. You're on Motorola's Team.

Development support for Flash MCUs is provided by Motorola and third party development tool suppliers. Motorola offers its Modular Evaluation Board (MEVB1632), Modular Development System (MMDS1632), SDI™ serial interface, and the RTEK embedded kernel. Motorola's M68EVB912B32 is also available for designs based on the 68HC912B32 microcontroller.

The MEVB1632 is a convenient platform used to create, develop and debug application code. It is a two-board system consisting of a modular platform board and a microcontroller (MCU) personality board which is specific to the MCU being evaluated.

The MMDS1632 provides real-time in-circuit emulation of hardware and software for embedded applications based on 68HC16 microcontrollers. This full-featured modular evaluation system consists of a station module, device-specific

microcontroller personality board, package-specific personality and target boards as well as emulation software, HIWARE HI-LITE™ debugging software and the necessary interfaces.

The SDI interface is a serial in-circuit debugger that uses Motorola's Background Debug™ Mode on 68HC16 devices. It allows quick verification and updating of embedded software.

The RTEK kernel is scalable real-time operating system that supports 68HC16 microcontrollers and several other Motorola microcontroller families. Benefits include reduced software development costs, increased software integrity, and software re-use.

The M68EVB912B32 Evaluation Board (EVB) is an economical tool for designing and debugging systems based on the 68HC912B32 microcontroller. A prototype area on the EVB enables custom interfaces to the microcontroller's I/O and bus lines.

These connections are supported

by on-board headers directly adjacent to the microcontroller. The EVB simplifies user evaluation of prototype hardware and software by providing the essential micro-controller timing and circuitry.

Third Party Development Tool Suppliers

2500A.D.

Applied Microsystems

Ashling Microsystems

ByteCraft

COSMIC Software

Embedded System Products

Hitex Development Tools

HIWARE/Archimedes

Huntsville Microsystems

IAR Systems

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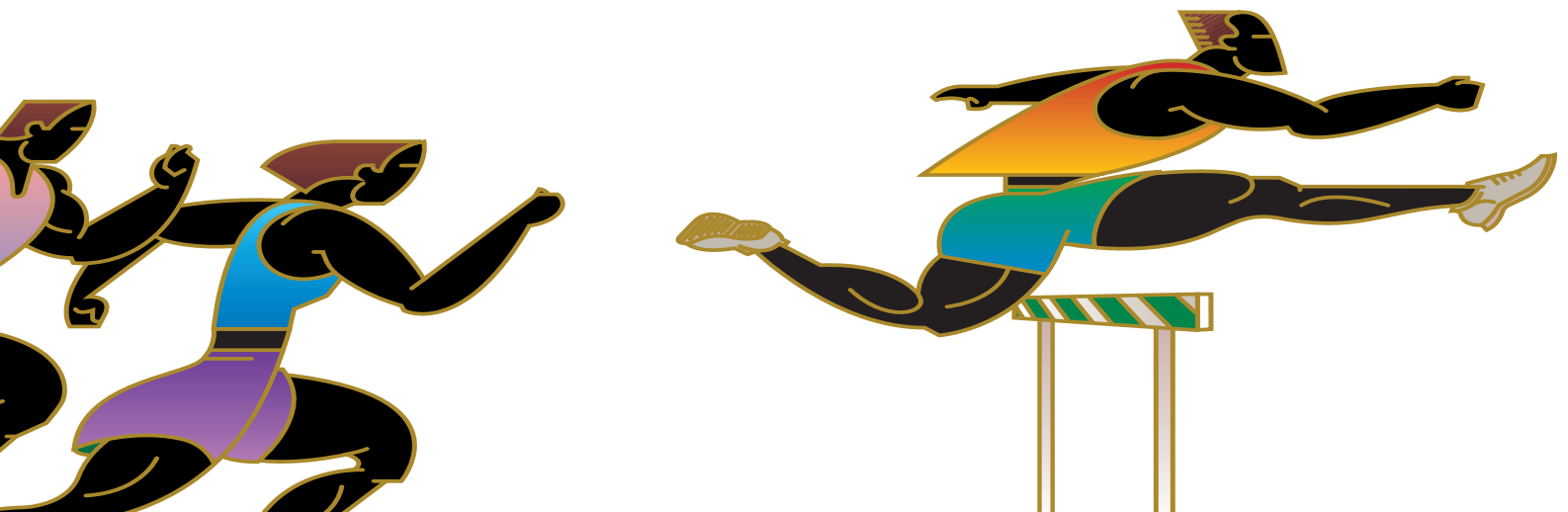Nohau Corporation

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