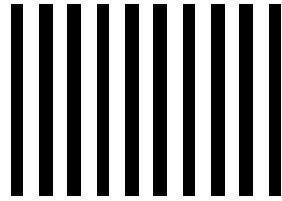


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# Digital Signal Controllers



**DSP Performance  
MCU Functionality**

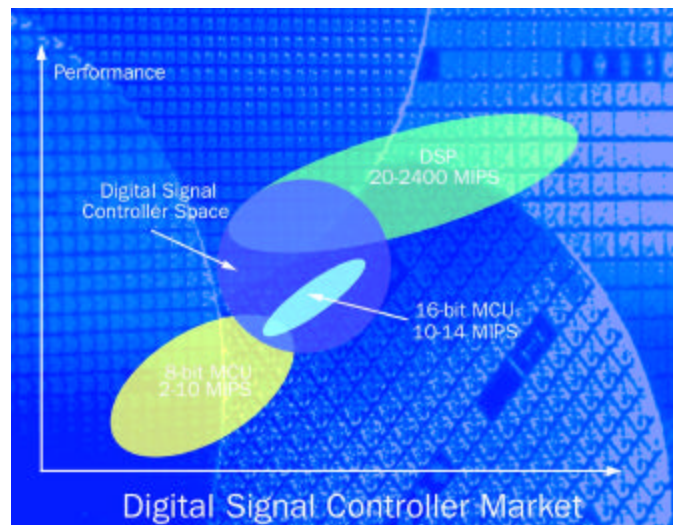


**MICROCHIP**

## WHAT IS A DIGITAL SIGNAL CONTROLLER?

### High Performance 16-bit Microcontroller + DSP functionality

A digital signal controller is a device that combines the attributes of a microcontroller (MCU) with the capability of a digital signal processor (DSP). It features robust DSP performance while providing asynchronous event handling capability, rigorous emulation, familiar software development environment, and a peripheral mix common to many MCU families.



*Microchip's dsPIC30FXXX single-chip, digital signal controllers bridge the gap between DSP performance and MCU functionality.*

### dsPIC™ BRIDGING THE PERFORMANCE GAP

Microchip dsPIC30FXXX family of products help to close the performance gap by providing easy migration from MCUs to DSP performance. Addressing the inherent differences between DSPs and MCUs, the dsPIC devices combine the control advantages of a MCU with the high computation speed of a DSP to create a single-chip solution for embedded system designs. This eliminates additional components that would be required for a similar design today, resulting in reduced board space and system cost.

The dsPIC30FXXX high performance MCU family targets thousands of applications including:

Applications		
Tapeless answering machines	Hands-free cellular accessories	Modems
Internet appliances	Automotive ABS	Meters
Feature phones	Automotive air bag/occupant detection	Printers
Motor control	Biometric access devices	Pagers
Uninterruptible power supplies	Consumer audio device	Security
POS terminals	Security glass break detection	Sensor processing
Bar code readers	Wireless baseband processing	
Noise reduction system	Speech recognition/synthesis equipped products	
Telephone echo cancellers	Automotive and industrial vibration detection/cancellation	

#### Fact:

More than 50 percent of microcontroller users plan to use DSP technology in the future. Prior to Microchip's digital signal controller solution, the options were to migrate to a DSP, which can be intimidating, or attempt to use a microcontroller with partial DSP augmentation, which can be performance-limiting. Today's digital signal controllers maintain the MCU look and feel while adding full-featured DSP performance. It's a perfect solution for MCU users wishing to add DSP capability.

#### Fact:

Engineers designing with 8-bit MCUs consider using 16-bit MCUs in future designs. In fact, digital signal controllers may be a good alternative. Microchip's first generation digital signal controller offers cost-effective, best-in-class 16-bit MCU performance and DSP functionality for FREE.

#### Fact:

More than 75 percent of embedded developers use or plan to use C program language. The majority of low-to-moderate performance DSP users program with assembly language, not C, out of necessity, not desire. Digital signal controllers will permit more widespread use of C, due to a decrease in specialization that is common to most DSPs. Microchip's dsPIC30FXXX family of devices was designed from the ground up to optimize compiler efficiency.

### dsPIC DEVICES OFFER THE BEST OF BOTH WORLDS

DSP Features	MCU Features
Flow-centric	State-centric
Interrupt averse	Interrupt intensive
Performance driven	Cost/performance optimized
FLASH is emerging	FLASH capability
Limited peripherals	Robust peripherals
HLL infrequently used	HLL frequently used

- Rich peripheral options for a wide range of applications
- DSP performance
- Advanced interrupt capability
- FLASH memory, flexible reprogrammability
- Robust development environment
- Low pin-count options
- Optimized for high level languages
- Clean upgrade for PICmicro users
- Familiar MCU design environment

**YES! KEEP ME INFORMED ABOUT dsPIC™ DIGITAL SIGNAL CONTROLLERS.**

- Please add me to the mailing list for the latest information on the dsPIC controller as information becomes available in the future.
- I would like immediate information! Please have a Field Applications Engineer or sales person contact me.
- I would like information on the dsPIC controller Early Adopter Program. (available to customers with volume production).

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