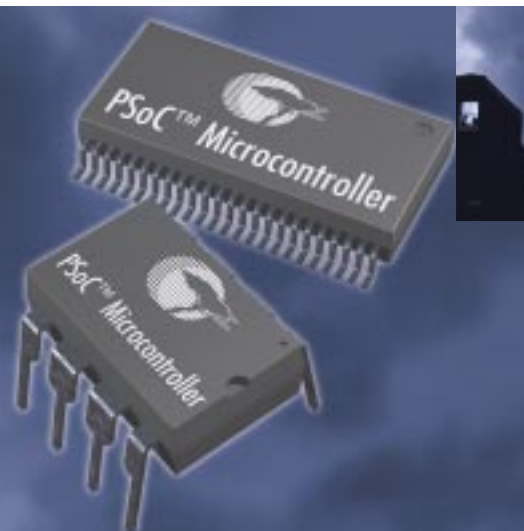


# PSoC™ Microcontroller Family



## Highlights

- **Flexible MCU with user-configurable analog and digital resources**
  - Enables same component choice from fewer part numbers
  - MCU can be reconfigured to the application's requirements
- **Powerful 4 MIPS Harvard architecture core with fast Multiply/Accumulate (MAC)**
  - Supports complex control applications including DSP
- **Large SONOS Flash memory with flexible protection model**
  - Provides full reprogrammability with protection for your intellectual property
  - Emulates EEPROM of any size
- **Integrates analog and digital resources**
  - Reduces overall parts count for MCU designs
  - Reduces system cost

## Programmable System-on-Chip™ MCU

The Cypress MicroSystems™ 8C25xxx/26xxx family is the world's first Programmable System-on-Chip™ and includes both reconfigurable digital and analog resources. This PSoC™ product family brings the cost and time-to-market advantages of programmable technologies such as CPLDs and FPGAs, adds programmable analog functions, and delivers this solution to the system-on-chip marketplace. Cypress MicroSystems provides "point-and-click" system design capability with PSoC Designer™ software and pre-configured, characterized peripheral functions in the form of User Modules, enabling users to easily create a unique solution for their application requirements.

	CY8C25122*	CY8C26233*	CY8C26443*	CY8C26643*
Digital PSoC™ Blocks	8	8	8	8
Analog PSoC Blocks	12	12	12	12
Program Memory (Kbytes)	4	8	16	16
Data Memory (Bytes)	128	256	256	256
I/O Pins	6	16	24	40/44
External Switch Mode Pump	No	Yes	Yes	Yes
Available Packages	8 PDIP	20 PDIP	28 PDIP	48 PDIP
		20 SOIC	28 SOIC	48 SOIC
		20 SSOP	28 SSOP	44 TQFP

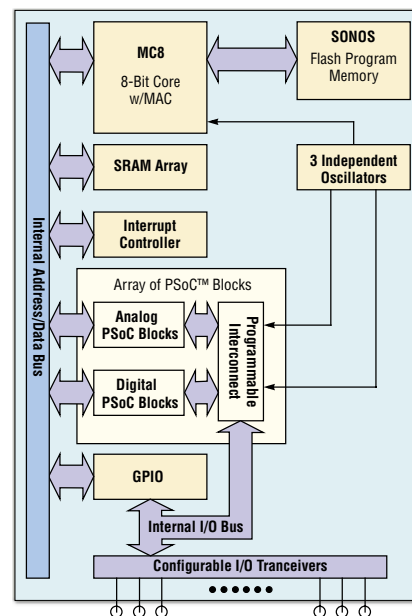
\*Operating Frequency: 96 KHz to 24 MHz; Operating Voltage: 2.7 to 5.5V; Operating Temperature: -40°C to 85°C

## PSoC Blocks – System-on-Chip Technology

PSoC Blocks are user-configurable system resources. Each PSoC Block can be configured to provide a wide variety of functions independently or in combination with other PSoC Blocks.

For the 8C25xxx/26xxx family, Digital PSoC Blocks provide up to eight 8-bit multipurpose timers/counters supporting multiple event timers, real-time clocks, Pulse Width Modulators (PWM), and Cyclical Redundancy Checkers (CRCs). Communications configured PSoC Blocks support full-duplex Universal Asynchronous Receiver Transmitters (UARTs) and Serial Peripheral Interface (SPI) master or slave functions. Digital PSoC Blocks can be configured independently or combined to provide functions with more than 8 bits.

Analog PSoC Blocks in this PSoC microcontroller family are separately configurable or can be combined with the Digital PSoC Blocks. The Analog PSoC Blocks provide ADC and DAC analog functions, programmable gain stages, sample/hold circuits, programmable filters, differential comparators, and a temperature sensor.



**PSoC™ Microcontroller Block Diagram**



Changing the Embedded World™

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## PSoC™ Microcontroller Family

### User Modules vs. Fixed Peripherals

When PSoC™ Blocks are configured, programmed and interconnected, they become User Modules. User Modules appear to the user as peripherals (for example an ADC or a UART). User Modules can be created from a single analog or digital PSoC Block, multiple analog or digital PSoC Blocks, or a combination of one or more analog and digital PSoC Blocks.

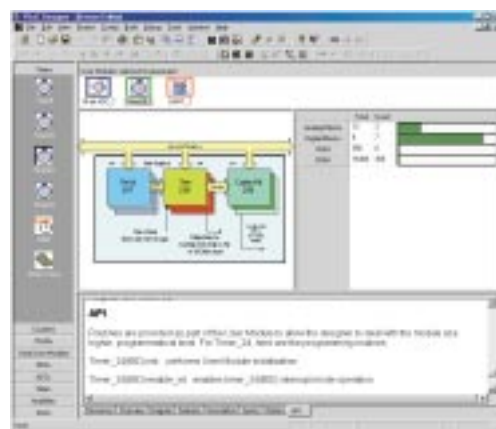
User Modules allow for greater functionality than fixed peripherals because the user selects the specific function, resolution and method for interconnecting multiple functions.

User Modules are easier for a user to work with than fixed peripherals because they include the Application Programming Interfaces (APIs) for the selected functions. User Modules are typically created by Cypress Microsystems™ engineers and are characterized and fully documented.

### World-Class Tools Support – PSoC Designer™ IDE and ICE

To support users in harnessing the power of the PSoC Microcontroller, Cypress Microsystems provides the PSoC Designer™ integrated development environment (IDE) for User Module selection and placement, interconnection of resources, and automatic generation of the device interfaces for the start of application programming.

To fully support the application developer, the PSoC Designer IDE provides editing, assembly, and compilation functions, as well as debugging capability with the PSoC in-circuit emulator (ICE).



### Typical User Modules

#### Digital User Modules

Timers  
Counters  
Pulse Width Modulators  
PWMs with Deadband  
Serial Receivers/Transmitters  
Full UARTs  
CRC Generators  
SPI Masters or Slaves  
And many more...

#### Analog User Modules

6/10 bit SAR ADCs  
10/12/14 bit Incr. ADCs  
8/12 bit  $\Delta\Sigma$  ADCs  
6/10 bit DACs  
Differential Comparators  
Programmable Filters  
Sample and Hold Circuits  
Waveform Generators  
Waveform Detectors  
Modulator/Demodulators  
And many more...

#### Analog + Digital = User Module Applications

Internet-capable  
Industrial Controllers  
Internet-capable  
Consumer Products  
Spread Spectrum Basebands  
Wireless Handsets  
Wireless Headsets  
Modems up to V22  
Process Control  
Failsafe Controllers  
Signal Conditioning