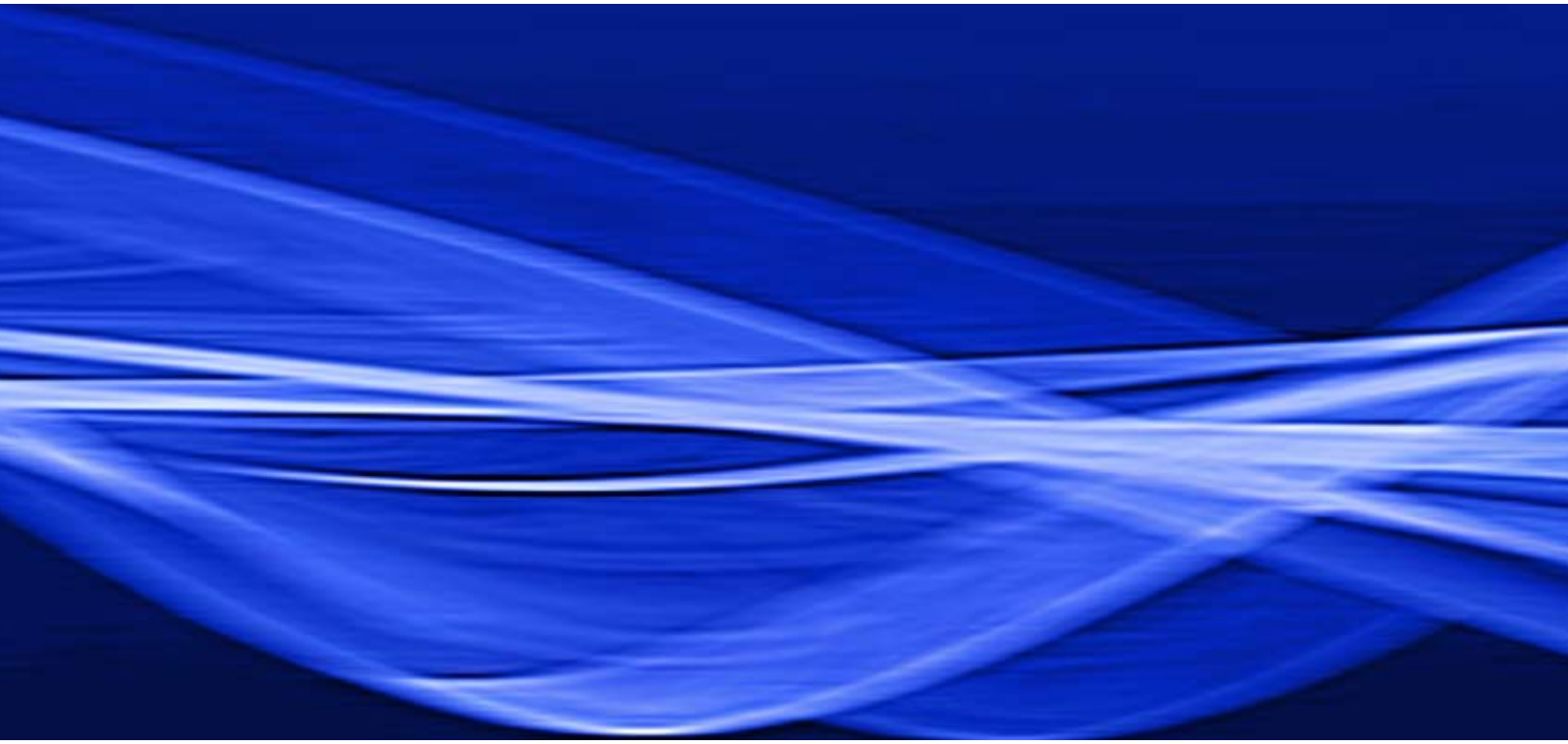
CYPRESS PRODUCT SELECTOR GUIDE
PSoC PROGRAMMABLE SYSTEM-ON-CHIP

SEPTEMBER 2009



AUTOMOTIVE • CapSense™ CAPACITIVE TOUCH SENSING • CLOCKS AND BUFFERS • LIGHTING AND POWER CONTROL • MEMORIES • OPTICAL AND IMAGE SENSING • PHYSICAL LAYER DEVICE • PSoC® PROGRAMMABLE SYSTEM-ON-CHIP • TrueTouch™ TOUCH SCREEN SOLUTIONS • USB SOLUTIONS • WEST BRIDGE® PERIPHERAL CONTROLLERS • WIRELESS/RF

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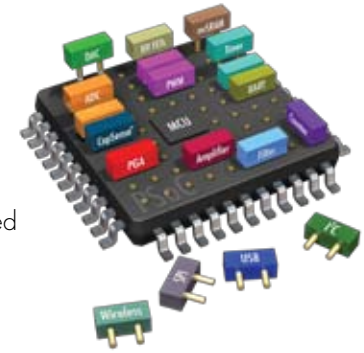
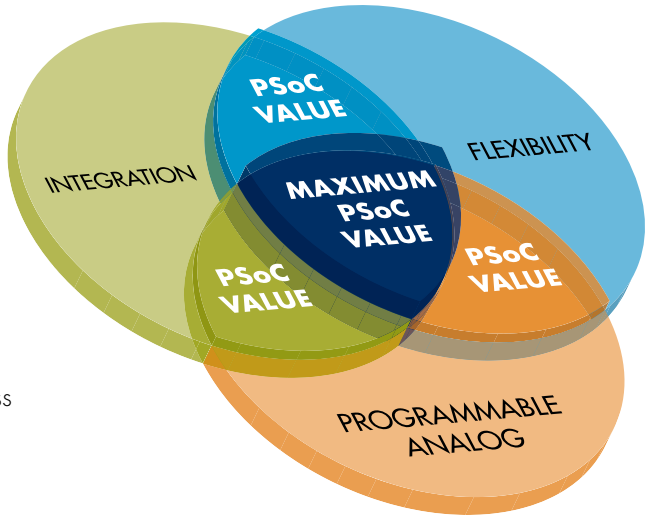
PSoC PROGRAMMABLE SYSTEM-ON-CHIP



Cypress's PSoC Programmable System-on-Chip is a true programmable embedded SoC integrating configurable analog and digital peripheral functions, memory and a microcontroller on a single chip. With an extremely flexible visual embedded design methodology that includes preconfigured, user-defined peripherals and hierarchical design entry, you can change your mind as often as you want and stay on schedule. No more restarting projects from scratch. No more catalogs. No more limitations.

FEATURES

- Programmable Analog:
  - Up to 14-bit ADCs (Incremental and Delta Sigma)
  - Up to 9-bit DACs
  - Programmable Gain Amplifiers, filters and comparators
  - Capacitive Touch Sensing for buttons, sliders and trackpads (including gesturing)
- Programmable Digital:
  - 8-bit to 32-bit timers, counters and PWMs
  - CRC and PRS modules
- Communication Interfaces:
  - Hardware and software I^2C slaves and masters
  - Full-speed USB 2.0
  - Up to 4 full-duplex UARTs, SPI master and slave, and Wireless
- Up to 32 kbytes flash memory
- Up to 2 kbytes SRAM
- Internal 24 MHz crystal
- Up to 2 8x8 multiply, 32-bit accumulator



TOOLS—SOFTWARE AND KITS

Discover how to leverage the PSoC solution to save and make money in your designs through the use of the free PSoC Designer development software and inexpensive hardware design tools and kits available.

PSoC Designer software accelerates system bring-up and time-to-market. Develop your applications using a library of pre-characterized analog and digital peripherals in a drag-and-drop design environment. Then customize your design leveraging the dynamically generated API libraries of code, automatically included by your selection of peripherals, to complete your design with C or Assembly language code. Finally, debug and test your designs with the integrated debug environment including in-circuit emulation and standard software debug features.

PSoC kits allow for low-risk evaluation and development of your end applications. Boards and other hardware tools are provided for evaluation, prototyping and emulation. Cypress offers starter kits as a quick introduction, solution kits for evaluating performance in specific applications and development kits that enable you to quickly evaluate and prototype your designs.

Key Applications: Environmental sensing, fan/motor control, communications interfaces, power control, magnetic card read/write, mechanical buttons or other inputs, LCD display control, LED control, etc.

Visit psoc.cypress.com for additional information.

PSoC FIRSTTOUCH STARTER KIT

Quickly and easily evaluate:

- PSoC Programmable System-on-Chip
- CapSense capacitive touch and proximity sensing
- Temperature and light sensing

Get more information at www.cypress.com/go/FTK

PSoC Programmable System-on-Chip

Part Number[1]	Voltage (VDD)	GPIO	Digital I/O	Analog Input	Analog Output	Analog Blocks[2]	Digital Blocks[3]	Flash (Bytes)	RAM (Bytes)	CapSense Enabled	Comm. I/F	Package
CY8C20246-24LKXI	1.71V to 5.5V	13	13	10	—	0	0	16K	2K	Y	I²C, SPI	16 QFN
CY8C20346-24LQXI	1.71V to 5.5V	20	20	17	—	0	0	16K	2K	Y	I²C, SPI	24 QFN
CY8C20396-24LQXI	1.71V to 5.5V	18	18	15	—	0	0	16K	2K	Y	I²C, SPI, USB	24 QFN
CY8C20446-24LQXI	1.71V to 5.5V	28	28	25	—	0	0	16K	2K	Y	I²C, SPI	32 QFN
CY8C20466-24LQXI	1.71V to 5.5V	28	28	25	—	0	0	32K	2K	Y	I²C, SPI	32 QFN
CY8C20566-24PVXI	1.71V to 5.5V	36	36	33	—	0	0	32K	2K	Y	I²C, SPI	48 SSOP
CY8C20666-24LTXI	1.71V to 5.5V	36	36	33	—	0	0	32K	2K	Y	I²C, SPI, USB	48 QFN
CY8C21123-24SXI	2.4V to 5.25V	6	6	4	—	4[4]	4	4K	256	—	I²C, SPI, UART	8 SOIC
CY8C21223-24LGXI	2.4V to 5.25V	12	12	8	—	4[4]	4	4K	256	—	I²C, SPI, UART	16 QFN
CY8C21223-24SXI	2.4V to 5.25V	12	12	8	—	4[4]	4	4K	256	—	I²C, SPI, UART	16 SOIC
CY8C21234-24SXI	2.4V to 5.25V	12	12	12	—	4[4]	4	8K	512	Y	I²C, SPI, UART	16 SOIC
CY8C21323-24LFXI	2.4V to 5.25	16	16	8	—	4[4]	4	4K	256	—	I²C, SPI, UART	24 QFN
CY8C21323-24PVXI	2.4V to 5.25V	16	16	8	—	4[4]	4	4K	256	—	I²C, SPI, UART	20 SSOP
CY8C21334-24PVXI[5]	2.4V to 5.25V	16	16	16	—	4[4]	4	8K	512	Y	I²C, SPI, UART	20 SSOP
CY8C21345-24SXI	3.0V to 5.25V	24	24	10	—	6[4]	4	8K	512	Y	I²C, SPI, UART	28 SOIC
CY8C21434-24LCXI	2.4V to 5.25V	28	28	28	—	4	4	8K	512	Y	I²C, SPI, UART	32 QFN (0.4 mm sawn)
CY8C21434-24LFXI	2.4V to 5.25V	28	28	28	—	4[4]	4	8K	512	Y	I²C, SPI, UART	32 QFN (0.93 mm thin)
CY8C21434-24LKXI	2.4V to 5.25V	28	28	28	—	4[4]	4	8K	512	Y	I²C, SPI, UART	32 QFN (0.6 mm thin)
CY8C21434-24LTXI	2.4V to 5.25V	28	28	28	—	4	4	8K	512	Y	I²C, SPI, UART	32 QFN (1.0 mm sawn)
CY8C21534-24PVXII[5]	2.4V to 5.25V	24	24	24	—	4[4]	4	8K	512	Y	I²C, SPI, UART	28 SSOP
CY8C21634-24LFXI	2.4V to 5.25V	26	26	26	—	4[4]	4	8K	512	Y	I²C, SPI, UART	32 QFN
CY8C21634-24LTXI	2.4V to 5.25V	26	26	26	—	4	4	8K	512	Y	I²C, SPI, UART	32 QFN (1.0 mm sawn)
CY8C22345-24SXI	3.0V to 5.25V	24	24	10	—	6[4]	8	16K	1K	Y	I²C, SPI, UART	28 SOIC
CY8C22545-24AXI	3.0V to 5.25V	38	38	10	—	6[4]	8	16K	1K	Y	I²C, SPI, UART	44 TQFP
CY8C24633-24PVXI	3.0V to 5.25V	25	25	12	2	4	4	8K	256	—	I²C, SPI, UART	28 SSOP
CY8C23533-24LQXI	3.0V to 5.25V	26	26	12	2	4	4	8K	256	—	I²C, SPI, UART	32 QFN
CY8C24123A-24PXI	2.4V to 5.25V	6	6	4	2	6	4	4K	256	—	I²C, SPI, UART	8 PDIP
CY8C24123A-24SXI	2.4V to 5.25V	6	6	4	2	6	4	4K	256	—	I²C, SPI, UART	8 SOIC
CY8C24223A-24PVXI[5]	2.4V to 5.25V	16	16	8	2	6	4	4K	256	—	I²C, SPI, UART	20 SSOP
CY8C24223A-24PXI	2.4V to 5.25V	16	16	8	2	6	4	4K	256	—	I²C, SPI, UART	20 PDIP
CY8C24223A-24SXI	2.4V to 5.25V	16	16	8	2	6	4	4K	256	—	I²C, SPI, UART	20 SOIC
CY8C24423A-24LFXI	2.4V to 5.25V	24	24	10	2	6	4	4K	256	—	I²C, SPI, UART	32 QFN
CY8C24423A-24PVXI[5]	2.4V to 5.25V	24	24	10	2	6	4	4K	256	—	I²C, SPI, UART	28 SSOP
CY8C24423A-24PXI	2.4V to 5.25V	24	24	10	2	6	4	4K	256	—	I²C, SPI, UART	28 PDIP
CY8C24423A-24SXI	2.4V to 5.25V	24	24	10	2	6	4	4K	256	—	I²C, SPI, UART	28 SOIC
CY8C24794-24LFXI	3.0V to 5.25V	50	50	48	2	6	4	16K	1K	Y	I²C, SPI, UART, USB	56 QFN
CY8C24894-24LFXI	3.0V to 5.25V	49	49	47	2	6	4	16K	1K	Y	I²C, SPI, UART, USB	56 QFN
CY8C24994-24BVXI	3.0V to 5.25	56	56	48	2	6	4	16K	1K	Y	I²C, SPI, UART, USB	100 VFBGA
CY8C24994-24LFXI	3.0V to 5.25V	56	56	48	2	6	4	16K	1K	Y	I²C, SPI, UART, USB	68 QFN
CY8C27143-24PXI	3.0V to 5.25V	6	6	4	4	12	8	16K	256	—	I²C, SPI, UART	8 PDIP
CY8C27243-24PVXI[5]	3.0V to 5.25V	16	16	8	4	12	8	16K	256	—	I²C, SPI, UART	20 SSOP
CY8C27243-24SXI	3.0V to 5.25V	16	16	8	4	12	8	16K	256	—	I²C, SPI, UART	20 SOIC
CY8C27443-24PVXI[5]	3.0V to 5.25V	24	24	12	4	12	8	16K	256	—	I²C, SPI, UART	28 SSOP
CY8C27443-24PXI	3.0V to 5.25V	24	24	12	4	12	8	16K	256	—	I²C, SPI, UART	28 PDIP
CY8C27443-24SXI	3.0V to 5.25V	24	24	12	4	12	8	16K	256	—	I²C, SPI, UART	28 SOIC
CY8C27543-24AXI	3.0V to 5.25V	40	40	12	4	12	8	16K	256	—	I²C, SPI, UART	44 TQFP
CY8C27643-24LFXI	3.0V to 5.25V	44	44	12	4	12	8	16K	256	—	I²C, SPI, UART	48 QFN

1. *All devices are available in Industrial temperature range (-40°C to +85°C) unless noted otherwise.*
2. *Analog blocks can implement the following peripherals: ADCs (Delta Sigma and SARS), DACs (6, 8, 9-bit), fliters (2 pole low pass, 2 pole band pass, modulators, peak detectors), CapSense touchsensing, ampliifiers (programmable gain, instrumentation, inverting, comparators, hysteresis, zero crossing)*
3. *Digital can implement the following peripherals: Timers/Counters (8, 16, 24 bit), pulse width modulators (8, 16, 24 bit, 8, 16 bit dead band generators, pseudo-random source (PRS), cyclic redundancy check (CRC), communications interfaces (I²C, SPI, UART, full-speed USB 2.0)*
4. *TYPE E reduced functionality analog block.*
5. *These devices are also available in Extended temperature range (-40°C to +105°C/+125°C; refer to datasheet for details) with AEC-Q100 Qualification. Their operating frequency is 12 MHz, voltage range is 4.75V to 5.25V and are marked as CY8Cxxxx-12xxxE.*

PSoC Programmable System-on-Chip (Continued)

Part Number[1]	Voltage (VDD)	GPIO	Digital I/O	Analog Input	Analog Output	Analog Blocks[2]	Digital Blocks[3]	Flash (Bytes)	RAM (Bytes)	CapSense Enabled	Comm. I/F	Package
CY8C27643-24PVXI[5]	3.0V to 5.25V	44	44	12	4	12	8	16K	256	—	I²C, SPI, UART	48 SSOP
CY8C29466-24PVXI[5]	3.0V to 5.25V	24	24	12	4	12	16	32K	2K	—	I²C, SPI, UART	28 SSOP
CY8C29466-24PXI	3.0V to 5.25V	24	24	12	4	12	16	32K	2K	—	I²C, SPI, UART	28 PDIP
CY8C29466-24SXI	3.0V to 5.25V	24	24	12	4	12	16	32K	2K	—	I²C, SPI, UART	28 SOIC
CY8C29566-24AXI	3.0V to 5.25V	40	40	12	4	12	16	32K	2K	—	I²C, SPI, UART	44 TQFP
CY8C29666-24LFXI	3.0V to 5.25V	44	44	12	4	12	16	32K	2K	—	I²C, SPI, UART	48 QFN
CY8C29666-24PVXI[5]	3.0V to 5.25V	44	44	12	4	12	16	32K	2K	—	I²C, SPI, UART	48 SSOP
CY8C29866-24AXI	3.0V to 5.25V	64	64	12	4	12	16	32K	2K	—	I²C, SPI, UART	100 TQFP

1. *All devices are available in Industrial temperature range (-40°C to +85°C) unless noted otherwise.*
2. *Analog blocks can implement the following peripherals: ADCs (Delta Sigma and SARS), DACs (6, 8, 9-bit), fliters (2 pole low pass, 2 pole band pass, modulators, peak detectors), CapSense touchsensing, ampliifiers (programmable gain, instrumentation, inverting, comparators, hysteresis, zero crossing)*
3. *Digital can implement the following peripherals: Timers/Counters (8, 16, 24 bit), pulse width modulators (8, 16, 24 bit, 8, 16 bit dead band generators, pseudo-random source (PRS), cyclic redundancy check (CRC), communications interfaces (I²C, SPI, UART, full-speed USB 2.0)*
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