CYPRESS

PSoC® 4 Bluetooth® Low Energy

Easily Design Your Next-Generation Smart Device With The Industry's Most Integrated One-Chip Bluetooth® Low Energy Solution

INTRODUCTION

PSoC 4 BLE enables system designers to create smart and connected devices with 256 KB Flash, 32 KB SRAM, integrated programmable analog front ends, programmable digital peripherals, industry-leading CapSense™ user interfaces and the Bluetooth Low Energy radio in an ARM® Cortex™-M0 one-chip system.

BLUETOOTH LOW ENERGY MADE EASY

Adding Bluetooth Low Energy connectivity to PSoC systems is as easy as a drag-and-drop Component in PSoC® Creator™, including the full BLE Protocol Stack and easy-to-use APIs.

Design of an Antenna Matching Network is made simple with an integrated Balun reducing the complexity of adding and tuning with external passives.

Get up and running in no time with the PSoC 4 BLE Pioneer Kit with included examples for common BLE profiles and iOS/Android mobile apps with full source code.

LOWEST SYSTEM COST FOR AN INTEGRATED BLE SOLUTION

PSoC 4 BLE is the industry's most-integrated BLE solution enabling system designers to add custom analog front ends and programmable digital peripherals around the high performance ARM Cortex-M0 CPU core.

Design reliable and sophisticated user interfaces with Cypress's industry-leading CapSense touch-sensing technology delivering superior noise immunity, water tolerance and proximity sensing.

PSoC Creator IDE makes designing complete BLE systems easy, quick and cost effective with a vast catalog of pre-characterized, production-ready PSoC Components enabling concurrent co-design of hardware and firmware

LOWEST SYSTEM POWER FOR AN INTEGRATED BLE SOLUTION

PSoC 4 BLE enables system designers to reduce overall power consumption by offering five flexible power modes, including best-in-class Hibernate and Stop modes consuming just nano-amps of current.

PSoC 4 BLE offers the industry's widest operating voltage range from 1.9 V - 5.5 V including full analog operation across the range, making it ideal for coin-cell battery powered applications.

FEATURES

- Bluetooth Low Energy Radio
  – 92dBm RX sensitivity
  – Bluetooth LE 4.2 compliant
- 32-bit ARM® Cortex™-M0 CPU
  – up to 48 MHz
  – DMA
  – up to 256 KB Flash and 32 KB SRAM
- Programmable Analog to interface with wide range of sensors:
  – 12-bit, 1Msps SAR ADC
  – Four opamps
  – Two low-power comparators
  – 7-bit current DAC
  – 8-bit current DAC
  – Temperature sensor
- Two Serial Communication Blocks (SCBs)
  – configurable as UART/SPI/I²C
- Four 16-bit Timers/Counter/PWMs
- Four Universal Digital Blocks (UDBs)
- CapSense Touch-Sensing on all I/Os
- Segment LCD drive
- Wide operating voltage: 1.9 V - 5.5 V
- Industrial temperature grade
  – −40°C to +85°C
- Small package sizes
  – 7x7 mm² 56-pin QFN
  – 3.9x3.5 mm² 68-ball CSP
  – 3.9x4.0 mm² 76-ball CSP

APPLICATIONS

- Sports and fitness
- Medical, healthcare and wellness
- Portable devices
- Remote controls
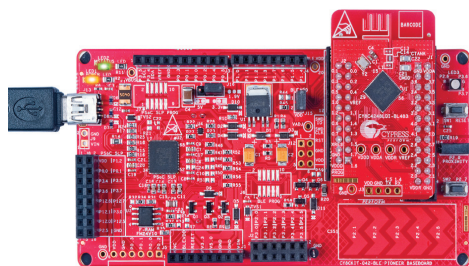- Home Automation
- Consumer electronics
- Wearables

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PSoC 4 BLE BLOCK DIAGRAM
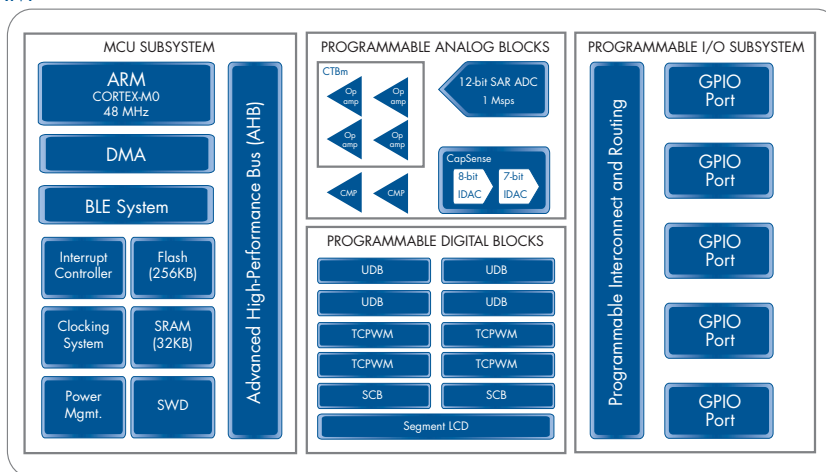
PSoC 4 BLE DEVICE PORTFOLIO

MPN	Package	CPU Speed (MHz)	Flash (KB)	SRAM (KB)	UDB	Opamp (CTBm)	CapSense	12-bit SAR ADC	LCD	LP Comp	TCPWM Block	SCB	GPIO
CY8C4127LQI-BL473	56QFN	24	128	16	0	2	N	Y	N	2	4	2	36
CY8C4127LQI-BL483	56QFN	24	128	16	0	2	Y	Y	Y	2	4	2	36
CY8C4127FNI-BL483	68CSP	24	128	16	0	2	Y	Y	Y	2	4	2	36
CY8C4247LQI-BL473	56QFN	48	128	16	4	4	N	Y	N	2	4	2	36
CY8C4247LQI-BL483	56QFN	48	128	16	4	4	Y	Y	Y	2	4	2	36
CY8C4247FNI-BL483	68CSP	48	128	16	4	4	Y	Y	Y	2	4	2	36
CY8C4247LQI-BL493	56QFN	48	128	16	4	4	Y w/ Gestures	Y	Y	2	4	2	36
CY8C4247FNI-BL493	68CSP	48	128	16	4	4	Y w/ Gestures	Y	Y	2	4	2	36
CY8C4128LQI-BL573	56QFN	24	256	32	0	2	N	Y	N	2	4	2	36
CY8C4128LQI-BL583	56QFN	24	256	32	0	2	Y	Y	Y	2	4	2	36
CY8C4128FNI-BL583	76CSP	24	256	32	0	2	Y	Y	Y	2	4	2	36
CY8C4248LQI-BL573	56QFN	48	256	32	4	4	N	Y	N	2	4	2	36
CY8C4248LQI-BL583	56QFN	48	256	32	4	4	Y	Y	Y	2	4	2	36
CY8C4248FNI-BL583	76CSP	48	256	32	4	4	Y	Y	Y	2	4	2	36
CY8C4248LQI-BL593	56QFN	48	256	32	4	4	Y w/ Gestures	Y	Y	2	4	2	36
CY8C4248FNI-BL593	76CSP	48	256	32	4	4	Y w/ Gestures	Y	Y	2	4	2	36

GET STARTED NOW

1) Buy the PSoC 4 BLE Pioneer Kit to evaluate the solution's features including easy-to-use BLE connectivity and configurability www.cypress.com/cy8ckit-042ble/

2) Download the PSoC Creator 3.3 IDE and get started with example projects for common BLE profiles www.cypress.com/PSoCCreator

3) Download CySmart tool to easily test and debug BLE application www.cypress.com/CySmart

4) Download the PSoC 4 BLE Design Guide for tips on designing with your BLE solution www.cypress.com/go/AN91267

5) Register for a PSoC 4 BLE workshop in your area www.cypress.com/go/bleworkshop

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