

CYPRESS P_{RO}C™ BLE

LIMITLESS POSSIBILITIES: EASY-TO-USE BLUETOOTH
LOW ENERGY CONNECTIVITY AND WORLD-CLASS
CAPACITIVE TOUCH SENSING



PRODUCT OVERVIEW

INTRODUCTION

P_{RO}C™ BLE is an easy-to-use, ARM® Cortex®-M0 based connectivity MCU that integrates peripherals like CapSense® for touch-sensing, a high-performance ADC, serial interfaces and a Bluetooth® Low Energy (BLE) or Bluetooth Smart radio. It includes a royalty-free BLE Protocol Stack compatible with Bluetooth 4.2. The P_{RO}C™ BLE single-chip solution is ideal for applications that need BLE connectivity, sophisticated touch-based user interfaces and interfaces to communicate with sensors.

BLUETOOTH LOW ENERGY MADE EASY



BLE Component in PSoC Creator simplifies the BLE Protocol Stack with GUI-based configuration tool and easy-to-use APIs

Integrated Balun simplifies Antenna Matching Network design and reduces BOM cost

Arduino-compatible development kit with examples for common BLE Profiles and an iOS/Android app (with source code) enables quick prototyping

INDUSTRY'S BEST CAPACITIVE TOUCH SENSING

CapSense, the industry's leading capacitive touch-sensing algorithm with best-in-class SNR (>100:1) delivers superior noise immunity, water rejection, and proximity detection

CapSense provides on-chip gestures for trackpad implementation

SmartSense™ Auto-Tuning eliminates manual tuning reducing time-to-market, and optimizes touch performance at run-time



LOW POWER MODES, ON-CHIP PERIPHERALS AND MUCH MORE

Five flexible power modes, including best-in-class Hibernate and Stop modes consuming nano-amps of current, enable ultra-low system power consumption

Peripherals like a high performance ADC and Serial Communication Blocks (SCBs) for SPI/I²C/UART to interface with analog or digital sensors

Low-power, segment LCD drive eliminates the need for display-driver ICs

Small-footprint packages for space constrained designs and ample GPIOs (up to 36) to meet the needs of any application

APPLICATIONS

Wireless touch mice, Wireless keyboards with trackpads, Remote Controls, BLE connectivity, Wireless toys

www.cypress.com/P_{RO}CBLE

FEATURES

BLUETOOTH LOW ENERGY RADIO:

- -92 dBm Rx sensitivity, +3 dBm Tx output power
- Bluetooth 4.2 compliant
- Integrated Balun

32-BIT ARM® CORTEX™-M0 CPU

- Up-to 48-MHz
- Five flexible power modes
- 8-channel DMA
- 256 KB Flash and 32 KB SRAM

CAPACITIVE TOUCH SENSING

- CapSense touch controller with SmartSense™ Auto-Tuning
- Integrated library support for one- and two-finger gestures

ANALOG AND DIGITAL PERIPHERALS:

- One 12-bit, 1-Msps SAR ADC
- Four 16-bit timer/counter/PWMs
- Two SCBs, configurable as I²C, SPI or UART
- I2S for audio input/output
- Flexible mapping onto GPIOs

36 GPIOs (CAPSENSE® SUPPORTED ON ALL I/Os)

EASY-TO-USE SOFTWARE

- PSoC Creator IDE
- CySmart PC tool and iOS/Android apps with source code

SEGMENT LCD DRIVE

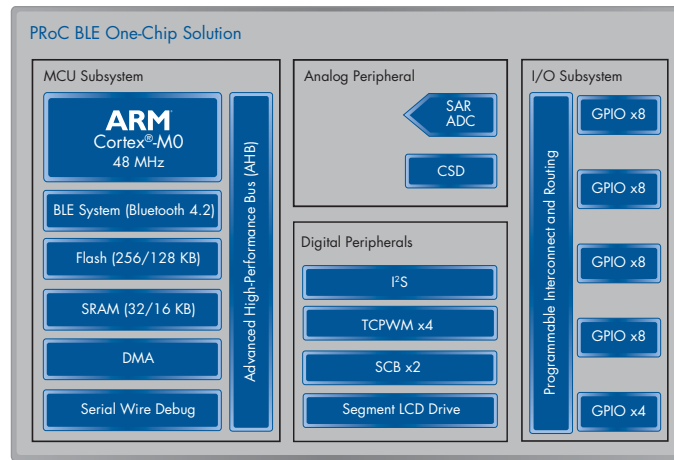
WIDE OPERATING VOLTAGE: 1.9 V TO 5.5 V

-40°C TO 105°C EXTENDED INDUSTRIAL TEMPERATURE GRADE

MULTIPLE PACKAGE OPTIONS:

- 56 QFN (7 x 7 x 0.6 mm)
- 68-ball CSP (3.9 x 3.5 x 0.55 mm)
- 68-ball Thin CSP (3.9 x 3.5 x 0.4 mm)
- 76-ball CSP (3.9 x 4.0 x 0.55mm)
- 76-ball Thin CSP (3.9 x 4.0 x 0.4 mm)





PRoC BLE Block Diagram

PRoC BLE DEVICE PORTFOLIO

| Part Number ¹ | CPU Speed (MHz) | Flash Size (KB) | SRAM (KB) | CapSense | SCB ² | TCPWM ³ | 12-bit ADC | I2S | PWM | LCD | Package | Bluetooth Version |
|--------------------------|-----------------|-----------------|-----------|----------------|------------------|--------------------|------------|-----|-----|-----|---------------|-------------------|
| CYBL10563-56LQXI | 48 | 128 | 16 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | Yes | 56-QFN | 4.1 |
| CYBL10563-68FNXI | 48 | 128 | 16 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | Yes | 68-WLCSP | 4.1 |
| CYBL11171-56LQXI | 48 | 256 | 32 | No | 1 | 2 | 1 Msps | No | 0 | No | 56-QFN | 4.2 |
| CYBL11172-56LQXI | 48 | 256 | 32 | No | 2 | 4 | 1 Msps | No | 4 | No | 56-QFN | 4.2 |
| CYBL11173-56LQXI | 48 | 256 | 32 | No | 2 | 4 | 1 Msps | Yes | 0 | No | 56-QFN | 4.2 |
| CYBL11471-56LQXI | 48 | 256 | 32 | Yes | 2 | 4 | 1 Msps | No | 0 | No | 56-QFN | 4.2 |
| CYBL11472-56LQXI | 48 | 256 | 32 | Yes | 2 | 4 | 1 Msps | Yes | 0 | No | 56-QFN | 4.2 |
| CYBL11473-56LQXI | 48 | 256 | 32 | Yes | 2 | 4 | 1 Msps | No | 0 | Yes | 56-QFN | 4.2 |
| CYBL11571-56LQXI | 48 | 256 | 32 | Yes (Gestures) | 2 | 4 | 1 Msps | No | 0 | No | 56-QFN | 4.2 |
| CYBL11572-56LQXI | 48 | 256 | 32 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | No | 56-QFN | 4.2 |
| CYBL11573-56LQXI | 48 | 256 | 32 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | Yes | 56-QFN | 4.2 |
| CYBL11573-56LQXQ | 48 | 256 | 32 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | Yes | 56-QFN | 4.2 |
| CYBL11573-76FNXI | 48 | 256 | 32 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | Yes | 76-WLCSP | 4.2 |
| CYBL11573-76FNXQ | 48 | 256 | 32 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | Yes | 76-WLCSP | 4.2 |
| CYBL11573-76FLXI | 48 | 256 | 32 | Yes (Gestures) | 2 | 4 | 1 Msps | Yes | 1 | Yes | 76-Thin WLCSP | 4.2 |

¹All part numbers support input voltage range from 1.71 V to 5.5 V ² SCB = Serial communication block; ³ TCPWM = Timer/counter/PWM block;

Download the complete datasheet for PRoC BLE at www.cypress.com/PRoCBLE

GET STARTED NOW



- 1) Buy the BLE Pioneer Kit to evaluate the solution's features including easy-to-use BLE connectivity and configurability www.cypress.com/go/cy8ckit-042ble
- 2) Download the PSoC Creator IDE and get started with example projects for common BLE profiles www.cypress.com/go/PSocCreator
- 3) Download CySmart tool for testing and debugging - www.cypress.com/CySmart
- 4) Download the Getting Started guide www.cypress.com/go/an94020
- 5) Register for a PSoC 4 BLE workshop in your area www.cypress.com/go/bleworkshop

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