CYPRESS

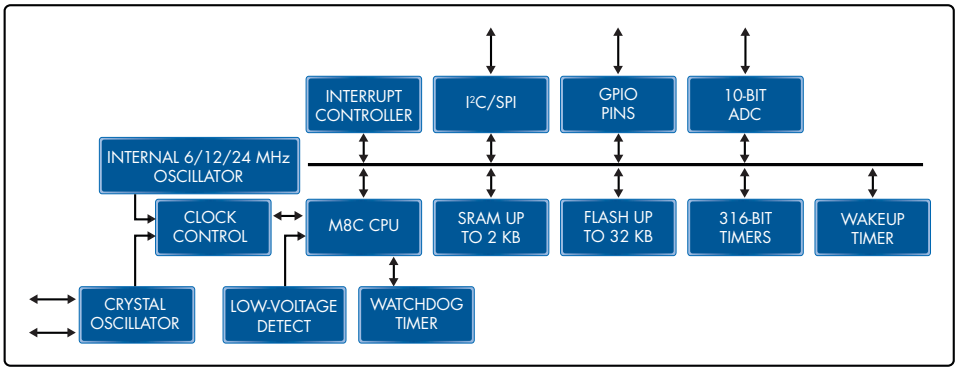
# enCoRe™ V LV (Low Voltage) Microcontrollers (CY7C60413, CY7C60445, CY7C6045x)


PRODUCT OVERVIEW

## ULTRA LOW-POWER MICROCONTROLLERS FOR BATTERY POWERED APPLICATIONS

enCoRe™ V LV (Low Voltage) is Cypress's next generation low-power microcontrollers (MCUs) designed for wireless peripheral applications. The enCoRe V LV family offers a 10-bit ADC, three 16-bit timers and up to 32 KB of Flash memory, which provides a highly integrated and cost-effective solution for Human Interface Devices (HID). These features, along with Cypress's best-in-class quality, tools and design support, make enCoRe V LV devices the ideal choice for wireless peripheral applications.

### enCoRe V Low Voltage block diagram




## A COMPLETE PORTFOLIO FOR YOUR HUMAN INTERFACE DEVICE (HID) APPLICATIONS

Cypress provides a complete line of value-added products for developing any HID applications.

| TITLE | FEATURES |
|---|---|
| WirelessUSB™ LP | A low-power, low-cost 2.4 GHz transceiver, based on Cypress's patented and award winning WirelessUSB technology. Provides best-in-class interference immunity and co-location properties |
| enCoRe™ II LV | An MCU with 8 KB of Flash and up to 28 general purpose I/Os for cost effective wireless HID applications |
| enCoRe™ V LV | A low power MCU with up to 32 KB of Flash and 36 general purpose I/Os for feature-rich wireless HID applications |

## ADVANTAGES

### LOW-POWER

- 1.71V $V_{DD}$ designed for battery powered applications
- 6/12/24 MHz selectable CPU speeds to optimize battery life and performance
- <1.45 mA operating at 12 MHz for most applications, <1.5 µA at sleep

### DESIGN FLEXIBILITY

- Up to 32 KB of Flash memory with EEPROM emulation
- Up to 2 KB of SRAM
- In-system reprogrammability

### REDUCED BOM COST

- enhanced Component Reduction (enCoRe)
- Integrated crystal-less oscillator
- Flash memory eliminates the need for EEPROM

### POWERFUL CPU PERFORMANCE

- Enhanced third-generation M8C microcontroller core
- Up to 24 MHz CPU speed for $V_{DD}$ between 1.71 to 3.6V
- Internal wake-up and watchdog timers
- Brown-out detection and low voltage reset

### SMALL FORM-FACTOR PACKAGES

- Two choices of 28 and 36 general purpose I/O ports
- 16-pin, 32-pin and 48-pin QFN packages
- Small form factor that enables innovative industrial design



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## APPLICATIONS

• Wireless mice • Wireless presenter tool • Wireless toys • Wireless keyboard • Remote controller

## THREE 16-BIT TIMERS

Three programmable timers support resource-intensive applications that need the CPU to perform different tasks at different intervals – can also be implemented as PWMs to control blinking LED.

## UP TO 32 KB FLASH

More room to store application features – more unique productivity or differentiation features for business or leisure entertainment applications.

## 10-BIT ADC

Enables the wireless device to provide battery power level information to the user for peace of mind. Cypress's Low-Power WirelessUSB™ LP radio and enCoRe LV MCU are extremely power efficient.

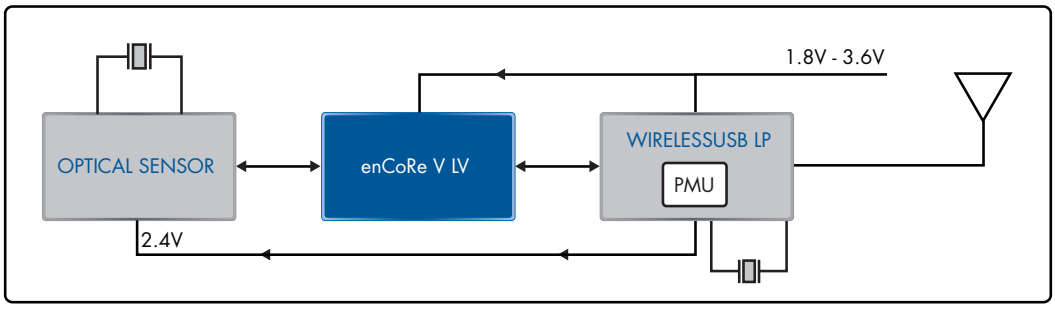
## UNIFIED DEVELOPMENT ENVIRONMENT

PSoC Designer™ tool offers a GUI-based integrated development environment with device editor, application editor, compiler, assembler, debugger and device library supporting the full range of microcontrollers offered by Cypress.

## A COMPLETE SUITE OF DEVELOPMENT TOOLS

Cypress provides a complete line of value-added kits to simplify design and reduce time to market for enCoRe V LV applications:

- CY3660 enCoRe V and enCoRe V LV Development Kit (DVK) – This DVK includes out-of-box examples to help customers get started with enCoRe V and enCoRe V LV products development. It also includes Cypress's WirelessUSB™ modules that demonstrate the radio frequency performance of Cypress's 2.4 GHz radio.
- PSoC Designer™ and PSoC Programmer – This powerful easy-to-use (drag and drop) Integrated Development Environment (IDE) comes with pre-configured, pre-characterized embedded peripheral function called user modules and extensive user assistance in the form of help dialog boxes, pull-down menus and other GUI aids. PSoC Programmer is a GUI based application used to program enCoRe V LV using Cypress's development tool hardware.




Typical wireless mouse block diagram using enCoRe V LV and WirelessUSB LP

| PART NUMBER | TYPICAL APPLICATION | FLASH | SRAM | PACKAGE | GPIO |
|---|---|---|---|---|---|
| CY7C60413-16LKXC | Wireless mouse, Remote control | 8K | 1K | 16 QFN | 11 |
| CY7C60445-32LQXC | Wireless mouse | 16K | 1K | 32 QFN | 28 |
| CY7C60455-48LTXC | Wireless keyboard | 16K | 1K | 48 QFN | 36 |
| CY7C60456-48LTXC | Hi-end wireless keyboard | 32K | 2K | 48 QFN | 36 |

## GET STARTED NOW.

Go to www.cypress.com for more information on enCoRe V Low Voltage products. To purchase enCoRe V Low Voltage parts or kits, visit us at www.cypress.com/go/shop.

**Cypress Semiconductor Corporation**
198 Champion Court, San Jose CA 95134
Phone +1 408.943.2600 Fax +1 408.943.6848
Toll free +1 800.858.1810 (U.S. only)

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