enCoRe and PRoC Family
Development Tool Selector Guide

Overview

Cypress offers Development kits for every need – from entry level evaluation and prototyping, to real time emulation and debugging, to high volume manufacturing a processing.

Where to Find Our Tools

All development kits and tools are generally available at the Cypress online store. Be aware quantities are limited!

CYPRESS Online Store: www.onfulfillment.com/cypressstore/

We want to make it as easy as possible for you to order your development kits, if tools you are need are not in stock please contact a Cypress Sales Rep or Distributor and we will do our best to find you the tools you need

Basic Development Kit
CY3215-DK ICE Cube Kit

Kit Contains

- PSoC designer software
- iMAGEcraft C compiler (registration required)
- ICE Cube In-circuit Emulator
- Ice Flex-Pod for CY8C29x66
- Cat-5 Adapter (for connecting to legacy Pods)
- MiniEval socket programming and evaluation board
- Universal 110/220 power supply (12V) , Euro adapter
- ISSP Cable
- USB 2.0 Cable
- 28 pin PDIP Emulation Pod for CY8C29466-24PXI
- 28 pin CY8C29466-24PXI PDIP PSoC Device Samples (2)

ICE-Cube

The ICE-Cube (available in the CY3215-DK) is driven by the debugger subsystem of PSoC Designer. This software interface allows users to run, halt and single step the processor and view the contents of specific memory locations. It also allows the user to set complex event points that can start and stop the trace memory on the ICE, as well as break the program execution.

CY3202-C iMAGEcraft C Compiler

The C compiler is included in the CY3215-DK. For use with other kits, the CY32020C is available as a separate purchase. It is fully integrated into PSoC Designer. PSoC Designer provides source-level debugging to round out its 'C' language support. (No C compiler purchase is necessary for using PSoC Express.)

- ANSI C compiler
- Inline assembly and interface with assembly modules
- Modern stack-based architecture
- 7 basic data types including IEEE 32-bit floating point
- Assembler and linker
- Math and string libraries
- 'C' interrupt service routines

Development Kits

	enCoRe II	enCoRe II LV	enCoRe III	enCoRe III LV	PRoC	PRoC LP
Part #	CY7C63823-SXC CY7C63823-QXC CY7C63813-PXC CY7C63813-SXC CY7C63803-SXC CY7C63801-PXC CY7C63801-SXC CY7C63310-PXC CY7C63310-SXC	CY7C60123-PVXC CY7C60123-PXC CY7C60113-PVXC CY7C60223-PXC CY7C60223-SXC CY7C60223-QXC	CY7C64215-56LFXC CY7C64215-28PVXC	CY7C60333-LFXC CY7C60323-PVXC CY7C60323-LFXC	CYWUSB6953-48LFC	CYRF6913--LFXC CYRF60103-LFXC
Base Kit Needed for in-circuit emulation	CY3215-DK ICE-Cube Kit					
Extension Kit	CY3655-EXT	CY3655-EXT	CY3664-EXT	CY3656-EXT	CY3653	N/A
Full Kit Base + Extension	CY3655-DK	CY3655-DK	CY3656-DK	CY3664-DK	N/A	N/A

The table above is a quick reference to find the appropriate development kit for your part. Parts change frequently so please check our website for the most up to date information. Notice that the full kits are comprised of a CY3125-DK ICE kit and an extension kit. In the case that you have already purchased a kit that included the CY3215-DK you would only have to purchase the EXT kit. It is possible to program Cypress Low/Full speed devices without the CY3215-DK but you will need it to run in-circuit emulation during testing

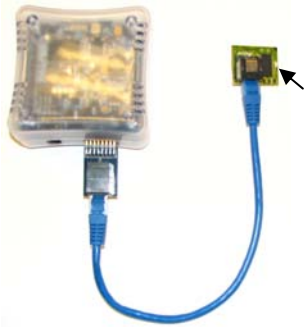
Emulation Kit and Accessories

Flex-pod

Flex-pods are used with enCoRe III, enCoRe III LV, PRoC and PRoC LP family of chips to connect from the ICE to the application board. Each flex-pod needs to be ordered depending on the product family of the chip and the specific chip packaging. A look up table is below to find the right cable for you needs.

The chip on the Flexcable is actually the device the developer is emulating

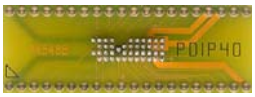
NOTE: *A flex-pod is a flex-cable with an emulation chip on the cable.*



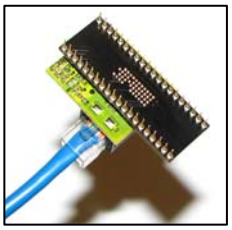
Pods

Pod Kits are used for enCoRe II and enCoRe II LV and are used same way as flex-pods. Rather than needing a unique flex-pod cable for each product family, only one end of the cable (pod) is replaced. A picture of a cable setup with a pod kit is shown below. Two pod kit are currently available one for each supported family.

Pod Feet Kits



Feet are used in conjunction with the pods to connect the to the target board. Through-hole feet (1 for each pin-out) are included in the base development kit, but additional units are available for order. Surface mount feet are only available through order of separate kits.



Family		Chip part number	Package	Pod/ Flex-pod part number	Feet order part number	Feet qty
enCoRe II	CY7C638xx	CY7C63833-LFXC	32-QFN	CY3655-PODUSB	X	X
		CY7C63823-SXC	24-SOIC	CY3655-PODUSB	CY3655-05	5
		CY7C63823-QXC	24-QSOP	CY3655-PODUSB	CY3655-06	5
		CY7C63813-PXC	18-PDIP	CY3655-PODUSB	CY3655-07	2
		CY7C63813-SXC	18-SOIC	CY3655-PODUSB	CY3655-08	5
		CY7C63803-SXC	16-SOIC	CY3655-PODUSB	CY3655-10	5
		CY7C63801-PXC	16-PDIP	CY3655-PODUSB	CY3655-09	2
		CY7C63801-SXC	16-SOIC	CY3655-PODUSB	CY3655-10	5
	CY7C633xx	CY7C63310-PXC	16-PDIP	CY3655-PODUSB	CY3655-09	2
		CY7C63310-SXC	16-SOIC	CY3655-PODUSB	CY3655-10	5
enCoRe II LV	CY7C601xx	CY7C60123-PVXC	48-SSOP	CY3655-PODWIR	CY3655-01	5
		CY7C60123-PXC	40-PDIP	CY3655-PODWIR	CY3655-02	2
		CY7C60113-PVXC	28-SSOP	CY3655-PODWIR	CY3655-03	5
	CY7C602xx	CY7C60223-PXC	24-PDIP	CY3655-PODWIR	CY3655-04	2
		CY7C60223-SXC	24-SOIC	CY3655-PODWIR	CY3655-05	5
		CY7C60223-QXC	24-QSOP	CY3655-PODWIR	CY3655-06	5
enCoRe III	CY7C64215	CY7C64215-56LFXC	56-MLF	CY3664-56MLF (2 Flex-pods + 2 feet)	CY3230-56MLF-AK	2
		CY7C64215-28PVXC	28-SSOP	CY3664-28SSOP (2 Flex-pods + 2 feet)	CY3230-28SSOP-AK	2
enCoRe III LV	CY7C603xx	CY7C60323-LFXC	32-MLF	CY3656-32MLF (2 Flex-pods + 4 feet)	CY3230-32MLF-AK	2
		CY7C60323-PVXC	28-SSOP	CY3656-28SSOP (2 Flex-pods + 4 feet)	CY3230-28SSOP-AK	2
PRoC	CYWUSB6953	CYWUSB6953-48LFC	40-MLF	CY3250-21x34QFN	CY3250-32QFN-FK	2
PRoC LP	CYRF69xx3	CYRF69213-LFXC	40-QFN	CY4672-69213 (1 pod + 2 feet)	CY4672-40QFN-FK	4
		CYRF69103-LFXC	40-QFN	CY4672-69103 (1 pod + 2 feet)		

Programming Tools

CY3217 "MiniProg" USB Programmer

The MiniProg provides a simple to use and cost effective programming solution that is superb for a development environment. It consists of a USB interface to the development PC and a 5-pin header that is used to connect to the target board. It works in conjunction with the PSoC Programmer software available through download as part of the PSoC Designer tools on the Cypress website. The MiniProg can also be used in conjunction with the CY3216 to program devices out-of-system, or with the CY3655-PLG to program enCoRe II devices in system through the USB connector.The CY3217 kit consists of a single item: the MiniProg programmer. It is the same programmer that is available in the PSoC CY3210-MiniProg1, but provided as a stand-alone item without the PSoC eval board. This kit is an ideal item to enable quick turn programming at multiple development/test sites.

CY3655-PLG 5-pin header to USB Std-A Receptacle programming adapter

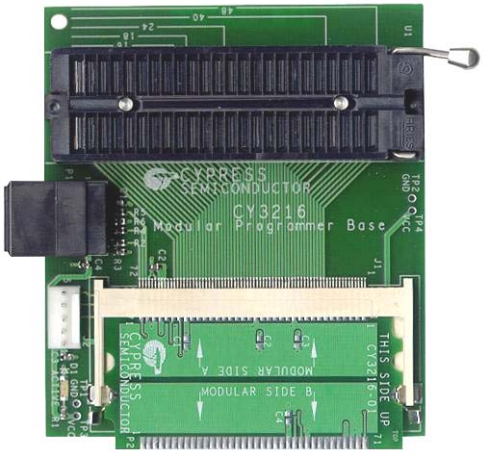
enCoRe II has the unique capability of programming through the USB connector. Programming pins coexist with the USB power, ground, D+, and D- pins. Programming does not require use of the USB protocol. This powerful feature allows factory programming or field upgrade of a finished device without disassembling enclosures. enCoRe III devices can also make use of this feature in a development environment by connecting the ISSP pins to the USB pins (see the enCoRe III Knowledge Base for more details)

Existing PSoC programming hardware, such as the ICE-Cube and MiniProg, use a standard 5-pin programming header. In order to make use of the USB connector programming method in conjunction with existing 5-pin programming hardware, a simple adapter board is provided.

The CY3655-PLG kit consists of a single item: the 5-pin to USB adapter board. These inexpensive adapters can be ordered in conjunction with the CY3217 MiniProgs to allow quick and easy update of units in the field or at multiple development/test sites.

CY3216 Modular Programmer

The Modular programmer provides the ability to program individual chips out-of-system. A selection of dual sided “matrix cards” that can be inserted into the base unit allows routing of the programming signals to the appropriate pins based on the device. The programmer has direct support for DIP packages. Straight-through adapters, available from 3rd party vendors, can be used for programming surface mount packages.



The modular programmer kit consists of:

- Modular Programmer base-board
- Collection of 3 matrix cards (CY3216-01, CY3216-02, CY3216-03)

The Table below shows 3rd party surface mount adapters that have been tested with the CY3216 Modular Programmer. Other adapters with straight-through pin-outs should also work, but have not been tested.

Package Type	Matrix Card	Chip Part Numbers	Suggested Surface-Mount to DIP Adapter	
			Emulation Technology	Logical systems
48-SSOP	CY3216-01 A side	CY7C60123-PVXC	AS-48-48-01SS-6-GANG	PA48QS-1387-6
40-PDIP	CY3216-01 A side	CY7C60123-PXC	None Required	
28-SSOP	CY3216-01 A side	CY7C60113-PVXC	AS-28-28-02SS-6ENP-GANG	PA28SS-OT-3
24-PDIP	CY3216-02 B side	CY7C60223-PXC	None Required	
24-SOIC	CY3216-01 A side	CY7C63823-SXC CY7C60223-SXC	AS-24-24-02S-3-GANG	PA24SO1-08H-3
24-QSOP	CY3216-02 A side	CY7C63823-QXC CY7C60223-QXC	-	24QS-OT
18-PDIP	CY3216-01 B side	CY7C63813-PXC	None Required	
18-SOIC	CY3216-01 A side	CY7C63813-SXC	AS-18-18-01S-3-GANG	-
16-PDIP	CY3216-03 A side	CY7C63801-PXC CY7C63310-PXC	None Required	
16-SOIC	CY3216-01 A side	CY7C63803-SXC CY7C63801-SXC CY7C63310-SXC	AS-16-16-04S-3-MS-CY3079	PA16SO1-03-3
32-QFN	x	x	x	x

3rd Party Tools

Several tools have been specially designed to accompany PSoC, PRoC and enCoRe family devices during development and production by the following 3rd-party vendors.

Device Programmer Leap Electronic CO., LTD.
http://www.leap.com.tw/

3rd-Party ISSP Programmer SONmicro
http://www.sonmicro.com

3rd-Party Programmer Xeltek Inc.
http://www.xeltek.com

PSoC ISP, Arista Systems
http://www.aristasystems.com/psocisp.htm or sales@aristasystems.com

3rd-Party Development Tool mikroElektronika PSoC System
http://www.mikroelektronika.co.yu/english/product/tools/psocds.htm

In-System Programming/PSoC Development System, MikroElektronika
http://www.mikroelektronika.co.yu/english/product/tools/psocprog.htm

PSoC Evaluation Kit, McGilvra Engineering
http://www.mcgilvra.com/

Device Programmer System General Corporation
http://www.systemgeneral.com/

Device Programmer Hi-Lo Systems
http://www.hilosystems.com.tw/

Device Programmer BP Microsystems
http://www.bpmicro.com

Device Programmer Data I/O
http://www.data-io.com/default.asp

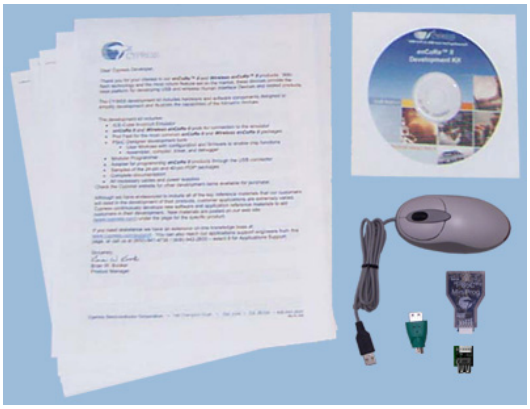
3rd-Party ISSP Programmer MPQ Manufacturing
http://www.rpmsys.com/

Reference Design Kits

Reference designs offer production read solution for specific market applications.

CY4623

KIT SUPPORTS:
enCoRe II



Description:
The CY4623 reference design kit offers a complete production-ready solution for a USB or PS/2 optical mouse. The design showcases the revolutionary enCoRe II device family for an overall reduction in system cost.

Kit Includes:

- Evaluation 3-button optical mouse
- PS/2 adapter
- "MiniProg" programmer and USB receptacle programming adapter
- Firmware source and object code
- Complete hardware design files
- Comprehensive design documentation

CY4636

KIT SUPPORTS:
enCoRe II LV, enCoRe III LV, enCoRe II, WirelessUSB LP

Description:
The CY4636 provides an exemplary implementation of a low-power, 2.4 GHz bi-directional wireless keyboard, mouse, and USB bridge based on Cypress's enCoRe family of flash MCUs and WirelessUSB LP 2.4 GHz transceiver. Schematics, source code, firmware and RF gerber files are provided as an accelerated starting point for PC Human Interface Devices (HID) designers wishing to cut the cord on their HID applications.

Kit Includes:

- enCoRe III LV and WirelessUSB LP-based mouse with ADNS 3040 optical sensor
- enCoRe II LV and WirelessUSB LP-based 101 multimedia keyboard
- enCoRe II and WirelessUSB LP-based small form-factor USB bridge
- Batteries
- CD-ROM containing the following:
  - Design Guide
  - Signal strength/battery life indicator software utility
  - Firmware source code
  - Cypress and Avago data sheets
  - Hardware Bill of Materials
  - Hardware Gerber files
  - Hardware schematics

CY4672

KIT SUPPORTS:
PRoC LP, WirelessUSB LP
enCoRe II LV, enCoRe II

Description:
The CY4672 provides an exemplary implementation of a low-power, 2.4 GHz bi-directional wireless keyboard, mouse, and USB bridge based on Cypress's PRoC LP single-chip MCU + 2.4 GHz transceiver. Schematics, source code, firmware and RF gerber files are provided as an accelerated starting point for PC Human Interface Devices (HID) designers wishing to cut the cord on their HID applications.

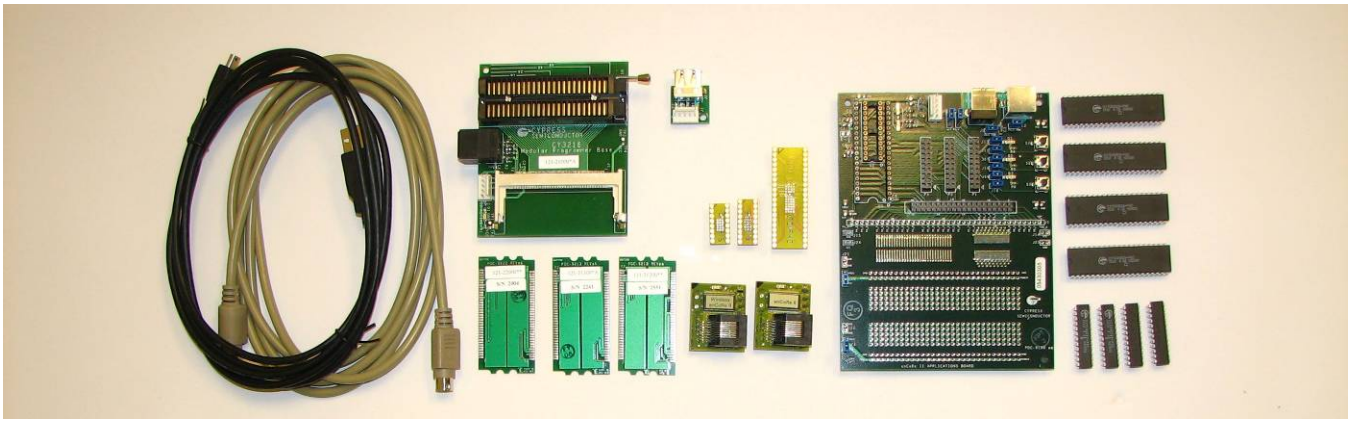
Kit Includes:

- PRoC LP-based mouse with ADNS 3040 optical sensor
- WirelessUSB LP 101 multimedia keyboard
- PRoC LP-based small form-factor USB bridge
- Batteries
- CD-ROM containing the following:
  - Signal strength/battery life indicator software utility
  - Firmware source code
  - Firmware design notes
  - Cypress and Avago data sheets
  - Application notes
  - Hardware Bill of Materials
  - Hardware Gerber files
  - Hardware schematics

Appendix

CY3655-EXT

KIT SUPPORTS:
enCoRe II
enCoRe II LV



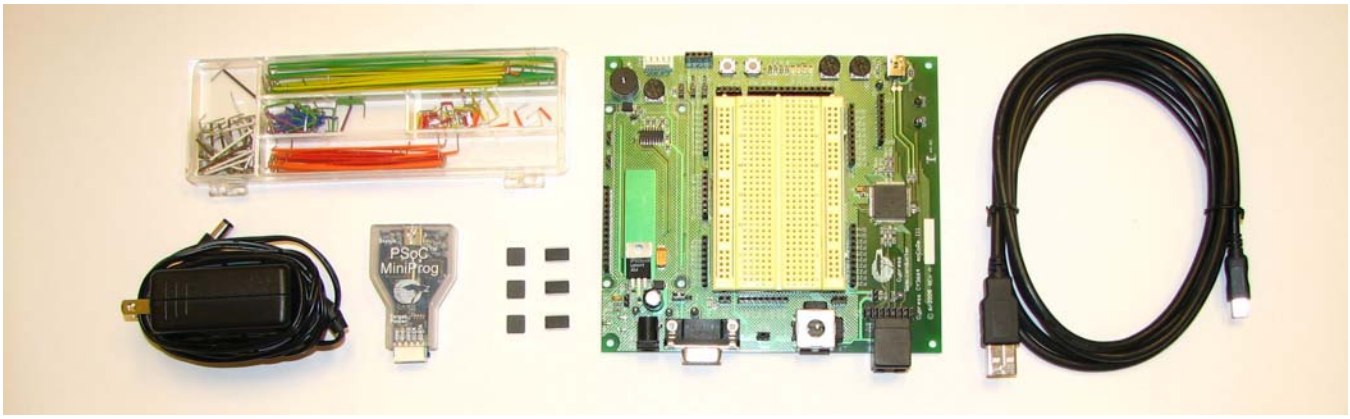
Description:
This kit is intended for customers who have never used the enCoRe II, enCoRe II LV, or PSoC tools, and who want to order everything needed to get started. This kit supports all enCoRe II devices and the enCoRe II LV devices in the CY7C601xx and CY7C602xx families. Ordering this single part number provides everything listed in the CY3655-EXT and CY3215-DK kits.

Kit Includes:

- Application Board
- enCoRe II emulation pod (CY3655-PODUSB)
- Wireless enCoRe II emulation pod (CY3655-PODWIR)
- Collection of PDIP feet
  - 40-PDIP foot
  - 18-PDIP foot
  - 16-PDIP foot
- Modular Programmer (CY3216)
  - Programmer base board
  - 3 matrix cards for various packages
  - 5-pin to USB-A-receptacle programming adaptor (CY3655-PLG)
- Device samples
  - CY7C63913-PXC (2)
  - CY7C63823-PXC (2)
  - CY7C60123-PXC (2)
  - CY7C60223-PXC (2)
- Standard USB cable
- PS/2 male-to-male cable
- PSoC Designer Software CD-ROM
- Various printed document

CY3664-EXT

KIT SUPPORTS:
enCoRe III



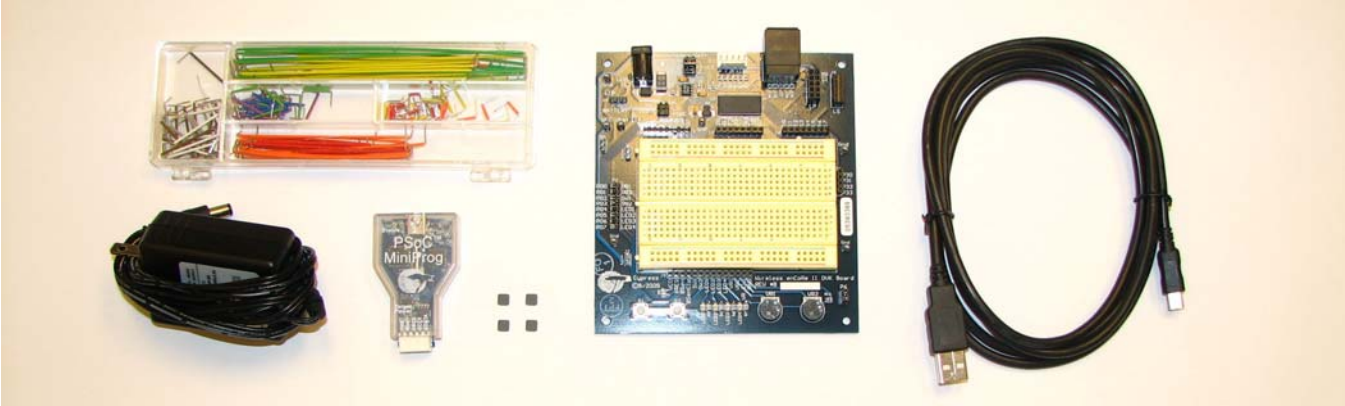
Description:
The CY3664 Development Kit is available in two different packages. The CY3664-EXT provides the enCoRe III application board. When combined with the CY3215-DK, the CY3664-EXT provides a powerful development environment that enables a fast time to market. The CY3664-DK includes both the CY3215-DK and the CY3664-EXT

Kit Includes:

- Application Board
- "MiniProg" USB Programmer
- CY7C64215-28PVXC samples (3)
- CY7C63823-56LFXC samples (3)
- Standard-A to Mini-B USB cable
- Jumper wire kit
- PSoC Designer Software CD-ROM
- 12V power supply
- Printed documents
- (Cover Letter, Release Notes, Getting Started)

CY3656-EXT Development Kit

KIT SUPPORTS:
enCoRe III LV



Description:
This kit has been designed to accelerate your development of a Wireless Human Interface Device using the enCoRe III LV family of products. The enCoRe III LV provides the flexibility and functionality needed for many Wireless devices such as Mice and Gamepads. The CY3656 Development Kit is available in two different packages. The CY3656-EXT provides the Wireless enCoRe III application board. When combined with the CY3215-DK, the CY3656-EXT provides a powerful development environment that enables a fast time to market. The CY3656-DK includes both the CY3215-DK and the CY3656-EXT.

Kit Includes:

- Application Board
- “MiniProg” USB Programmer
- CY7C60323-PVXC samples
- CY7C60323-LFXC samples
- CY7C60333-LFXC samples
- Jumper wire kit
- PSoC Designer Software CD-ROM
- 12V power supply
- Printed documents

CY3653-DK Development Kit

KIT SUPPORTS:
PRoC

Description:
The PRoC (Programmable-Radio-on-a-Chip) Development Kit (CY3653) includes flexible development boards, PRoC modules, LCD modules, schematics, bills-of-materials, source code, and documentation for designers looking for a seamless transition from wired to wireless solutions. Customers can use the kit to achieve faster time to market for single-chip applications like small form-factor wireless keyboards and mice, presenter tools, wireless thermostats including LCD displays, precision remote controls for RC toys and more.
PRoC combines Cypress's WirelessUSB(TM) 2.4-GHz radio-on-a-chip and PSoC(R) (Programmable System-on-Chip(TM)) mixed-signal array in an integrated product. It integrates Cypress's market-leading Direct Sequence Spread Spectrum (DSSS) interference immunity technology with the power and flexibility of the PSoC architecture, offering a complete wireless solution in a single chip.

Kit Includes:

- PSoC Eval 1 Rev B Board (2)
- PRoC SIP Module (2)
- PRoC 6953 Programmer (2)
- Flex Pod cable
- PSoC MiniProg
- LCD Modules (2)
- PRoC Development Module
- Emulation Adapter Foot (2)
- USB Cable
- Wire/Resistor Pack
- Power Supply (2)
- CD-ROM containing schematics, BOM, source code and documentation

Document Revision History

Revision #	Date	Comments
1.0	05/27/2005	Initial release
1.1	01/28/2007	Major update to incorporate enCoRe III CY7C64215, enCoRe III LV CY7C603xx, and PRoC device families. Added CY4623 mouse reference design kit for enCoRe II and CY4672 wireless keyboard and mouse kit for PRoC LP.
1.2	09/10/2007	Added PRoC LP development pods. Added CY4636 keyboard/mouse reference design kit. Updated CY4672 reference design information.