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CY5682

PRoC™ BLE Touch Mouse Reference Design Kit Guide

Doc. No. 001-94177 Rev. *D

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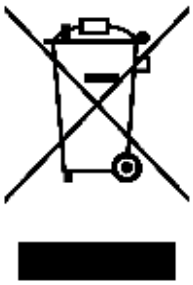
Safety Information

The CY5682 PRoC™ BLE Touch Mouse Reference Design Kit (RDK) is intended for use as a development, demonstration, and evaluation platform for hardware or software in a laboratory environment. The kit is not intended for general consumer use. It generates, uses, and can radiate radio frequency energy. It has not been tested for compliance with the limits applicable under any standard. Operation of the equipment may cause interference with radio communications, in which case users, at their own expense, will be required to take whatever measures may be required to correct this interference. Cypress recommends that the kit be used only in a shielded room.

	The CY5682 PRoC™ BLE Touch Mouse RDK boards contain electrostatic discharge (ESD)-sensitive devices. Electrostatic charges readily accumulate on the human body and any equipment, which can cause a discharge without detection. Permanent damage may occur to devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Store unused CY5682 PRoC™ BLE Touch Mouse RDK boards in the protective shipping package.
	End-of-Life/Product Recycling The end-of-life cycle for this kit is five years from the date of manufacture mentioned on the back of the box. Contact the nearest recycler to discard the kit.

General Safety Instructions

ESD Protection

ESD can damage boards and associated components. Cypress recommends that the user perform procedures only at an ESD workstation. If an ESD workstation is not available, use appropriate ESD protection by wearing an antistatic wrist strap attached to the chassis ground (any unpainted metal surface) on the board when handling parts.

Handling Boards

The boards provided with CY5682 are sensitive to ESD. This also applies to the boards that are provided with a plastic casing when they are removed from the casing. Hold the boards only by the edges. After removing a board from the box/casing, place it on a grounded, static-free surface. Use a conductive foam pad, if available. Do not slide the board over any surface.

Battery Care and Use

- Use the correct size and type of battery specified in this guide.
- Keep battery contact surfaces and battery compartment contacts clean by rubbing them with a clean pencil eraser or a rough cloth each time you replace batteries.
- Remove the battery from a device when it is not expected to be in use for several months.
- Make sure that you insert the battery into your device properly, with the + (plus) and – (minus) terminals aligned correctly.
- Do not place the battery next to metallic objects such as keys and coins.
- Never throw the battery into fire.
- Do not open up the battery.
- Do not short the battery.
- Do not subject the battery to high temperatures or high humidity.
- Store the battery in a dry place.
- Do not recharge a battery unless it is marked "rechargeable."

Battery Disposal

Batteries can be safely disposed off with normal household waste. Never dispose off batteries in fire because they can explode.

It is important not to dispose off large amounts of batteries in a group. Used batteries are often not completely "dead." Grouping used batteries together can bring these "live" batteries into contact with one another, creating safety risks.

Regulatory Compliance Information

This kit contains devices that transmit and receive radio signals in accordance with the spectrum regulations for the 2.4-GHz unlicensed frequency range. This kit has passed precompliance tests for the following regulatory standards:

- CE
- FCC Part 15
- Canadian RSS-210
- EU EN 300 328

Contact Cypress technical support at bleapps@cypress.com for further details.

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1. Introduction

Thank you for your interest in the CY5682 PRoC™ BLE Touch Mouse Reference Design Kit (RDK). This kit provides an implementation of a Bluetooth LE (low energy), or Bluetooth Smart, touch mouse using Cypress's PRoC BLE single-chip solution. PRoC BLE is a true single-chip solution that integrates Cypress's industry-leading capacitive touch sensing, an energy-efficient ARM® Cortex®-M0 CPU core, Bluetooth 4.1–compliant Bluetooth Smart connectivity, and a balun to minimize external components for a wide variety of applications.

The kit includes a CySmart™ USB dongle, which can be used to connect the touch mouse to devices such as PCs, laptops, tablets, and smartphones. Both the touch mouse and the dongle can be programmed, enabling users to customize and evaluate firmware per their requirements. Schematics, layout files, ready-to-use firmware, and source code are provided with the kit to enable PC peripheral designers to build their own touch mouse designs.

1.1 Kit Contents

The CY5682 PRoC BLE Touch Mouse RDK includes the following items, as shown in Figure 1-1:

1. PRoC BLE touch mouse
2. CySmart USB dongle
3. MiniProg3 programmer/debugger
4. 10-pin ribbon cable
5. Two AAA batteries
6. USB 2.0 standard A to mini-B cable
7. Tweezers

The kit also includes a quick start guide to enable users to connect the PRoC BLE touch mouse to a PC using the CySmart USB dongle.

Figure 1-1. Kit Contents

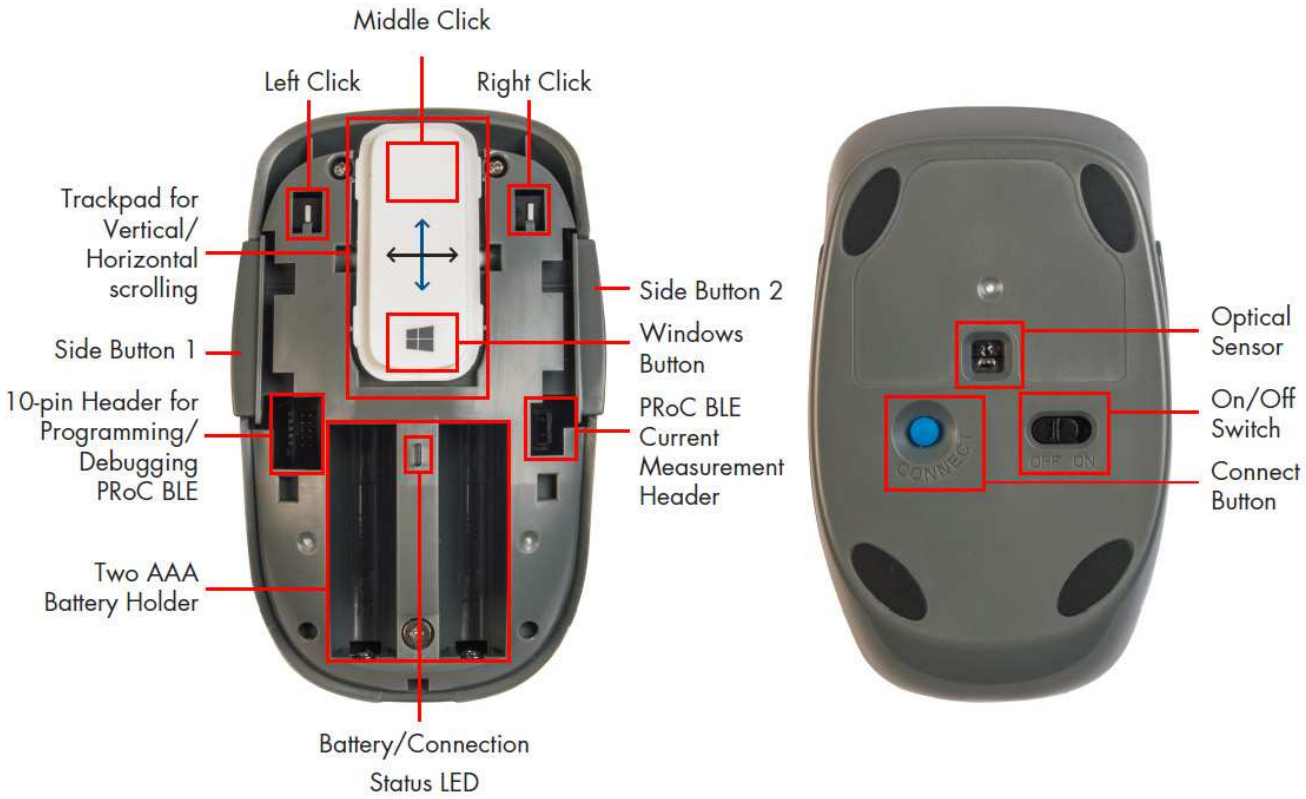
If any part of the kit is missing, contact your nearest Cypress sales office for help: www.cypress.com/go/support.

1.2 PRoC BLE Touch Mouse Details

This section details the blocks and explains the features supported by the PRoC BLE touch mouse.

Note: Figure 1-2 shows the PRoC BLE touch mouse without the top cover, so you can see all its features.

Figure 1-2. PRoC BLE Touch Mouse Features



The quick start guide provided with the kit details the procedure to connect the PRoC BLE touch mouse to a PC using the CySmart USB dongle. You can also connect the PRoC BLE touch mouse directly to any Bluetooth Smart Ready device. Details for this procedure are available in the Connecting PRoC BLE Touch Mouse with Bluetooth Smart Ready Device section.

Once connected to a PC, the PRoC BLE touch mouse provides standard mouse functionality as well as advanced Windows 8.0/8.1–specific functionality, as follows.

Standard mouse features:

- Cursor tracking on PC
- Mouse left-click
- Mouse right-click
- Mouse middle-click
- Moving the finger vertically on the trackpad maps to vertical scrolling
- Moving the finger vertically on the trackpad followed by a liftoff maps to vertical inertial scrolling
- Moving the finger horizontally on the trackpad maps to horizontal scrolling

Advanced features for Windows 8.0/8.1:

- Pressing and releasing the Windows button takes you to the Windows Start screen (opens Start menu on Windows 7 and earlier).
- Pressing the Side button 1 maps to toggling across open apps
- Pressing the Side button 2 maps to the Windows Charms bar

Note: When using the CySmart USB dongle, these features are dependent upon the operating system supporting the generic desktop usage page of the human interface device (HID) class over USB. When the PRoC BLE touch mouse is directly connected to a Bluetooth Smart Ready PC, these features depend on support available for the HID Over GATT Profile (HOGP) over Bluetooth Smart.

The touch mouse also provides LED-based notifications as follows.

- The orange LED shows a slow-breathing effect when the touch mouse is advertising over Bluetooth Smart. It stays on for five seconds and then switches off after a successful connection.
- The orange LED blinks three times on user activity when the touch mouse is doing directed advertisement to re-establish the connection because the existing connection has been lost. The connection can fail due to the mouse being out of range or the host being turned OFF.
- The red LED shows a breathing effect on a low battery level (that is, battery voltage below 1.1 V).

Moreover, the touch mouse offers these features:

- Ability to debug and program the onboard PRoC BLE device using the 10-pin header
- Ability to measure current consumption for PRoC BLE using the current measurement header

1.3 PSoC Creator

PSoC Creator™ is a state-of-the-art, easy-to-use integrated design environment (IDE). It introduces revolutionary hardware and software co-design, powered by a library of verified and characterized PSoC Components™.

With PSoC Creator, you can:

- Drag and drop PSoC Components to build a schematic of your custom design
- Automatically place and route Components and configure GPIOs
- Develop and debug firmware using the included Component APIs

PSoC Creator also enables you to tap into an entire tool ecosystem, including integrated compiler chains and production programmers for PSoC® devices. For more information, visit www.cypress.com/creator.

1.4 Getting Started

This kit guide will help you get fully acquainted with the CY5682 PRoC BLE Touch Mouse RDK.

- The Kit Contents section details the contents of the kit.
- The quick start guide shipped with the kit provides instructions on how to start using the PRoC BLE touch mouse with the CySmart USB dongle.
- The PRoC BLE Touch Mouse Details section covers the features of the touch mouse.
- The Installation chapter describes the installation of the kit software. This includes the PSoC Creator IDE for development, programming, and debugging; PSoC Programmer for programming hex files; and the CySmart tool for Bluetooth LE host emulation.
- The Kit Operation chapter describes common procedures such as programming and debugging the PRoC BLE touch mouse and the CySmart USB dongle. It also introduces the CySmart tool for Bluetooth LE host emulation.
- The Hardware chapter describes the hardware contents of the kit.
- The Firmware chapter describes the firmware on the PRoC BLE touch mouse and the CySmart USB dongle.
- The Advanced Topics chapter explains topics such as connecting the touch mouse to Bluetooth Smart Ready devices, assembling and disassembling the touch mouse, and measuring current/voltage on the touch mouse.
- A. Appendix: Schematics and FAQ provides schematics and a list of frequently asked questions (FAQs) for troubleshooting.

1.5 Additional Learning Resources

Visit www.cypress.com/PRoCBLE for additional learning resources in the form of datasheets, technical reference manuals, and application notes.

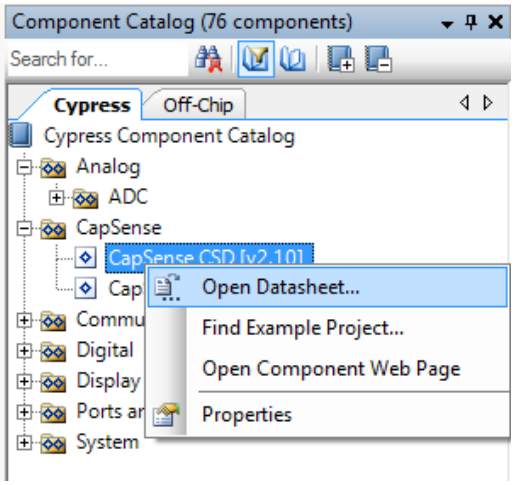
1.5.1 Beginner Resources

PSoC Creator Training: www.cypress.com/go/creatorstart/creatortraining

1.5.2 Component Datasheets

To view the datasheet of a Component from inside PSoC Creator, right-click on the Component and select **Open Datasheet** (see Figure 1-3).

Figure 1-3. Opening Component Datasheet



1.5.3 Learning From Peers: Cypress Developer Community Forums

Visit www.cypress.com/forums to interact with Cypress applications support teams.

1.5.4 Other Kits

Other kits available for PRoC BLE include the following:

- CY8CKIT-042-BLE Bluetooth Low Energy Pioneer Kit (www.cypress.com/CY8CKIT-042-BLE)
- CY5672 PRoC BLE Remote Control RDK (www.cypress.com/CY5672)
- CY5671 PRoC BLE Module (www.cypress.com/CY5671)

1.6 Technical Support

For assistance, visit Cypress Support or contact customer support at +1 (800) 541-4736 Ext. 2 (in the USA) or +1 (408) 943-2600 Ext. 2 (International).

1.7 Document Conventions

Table 1-1. Document Conventions for Guides

Convention	Usage
`Courier New`	Displays file locations, user-entered text, and source code: `C:\ ...cd\icc\`
Italics	Displays file names and reference documentation: Read about the *sourcefile.hex* file in the *PSoC Designer User Guide*.
[**Bracketed, Bold**]	Displays keyboard commands in procedures: [**Enter**] or [**Ctrl**] [**C**]
File > Open	Represents menu paths: File > Open > New Project
Bold	Displays commands, menu paths, and icon names in procedures: Click the **File** icon and then click **Open**.
Times New Roman	Displays an equation: 2 + 2 = 4
Text in gray boxes	Describes Cautions or unique functionality of the product.

1.8 Acronyms

Table 1-2. Acronyms Used in this Document

Acronym	Definition
ADC	Analog-to-Digital Converter
API	Application Programming Interface
BD address	Bluetooth Device address
BLE	Bluetooth Low Energy
CDC	Communications Device Class
ESD	Electrostatic Discharge
GAP	Generic Access Profile
GATT	Generic Attribute
GUI	Graphical User Interface
GPIO	General Purpose Input/Output
HID	Human Interface Device
HOGP	HID (Human Interface Device) over GATT (Generic Attribute) Profile
I^2C	Inter-Integrated Circuit
IAS	Immediate Alert Service
IDAC	Interconnecting Digital-Analog Converter
IDE	Integrated Development Environment
LED	Light-Emitting Diode
MTU	Maximum Transmission Unit
PHY	Physical Layer
PrISM	Precise Illumination Signal Modulation
PRoC	Programmable Radio-on-Chip
PSoC	Programmable Systems-on-Chip
PWM	Pulse-Width Modulation
QFN	Quad Flat No-lead (package)
SAR	Successive Approximation Register
SWD	Serial Wire Debug
UART	Universal Asynchronous Receiver Transmitter
UUID	Universally Unique Identifier

2. Installation

This chapter describes the steps to install the software tools and packages on a PC for the CY5682 PRoC BLE Touch Mouse RDK. The kit installer will install the following software tools and associated documentation on your PC:

- PSoC Creator: IDE used to view, develop, and build firmware for PRoC BLE–based devices
- PSoC Programmer: Software used to download a hex file to the PRoC BLE device
- CySmart: A Bluetooth LE host emulation tool for Windows PCs. The tool works with the CySmart USB dongle and provides an easy-to-use GUI that enables customers to evaluate and debug Bluetooth LE peripheral applications. Refer to the section Using CySmart USB Dongle with CySmart Tool for more details on how to use the CySmart tool.
- Documentation: Includes kit documentation files, hardware schematics, layout, and BOM

2.1 Before You Begin

All Cypress software installations require administrator privileges. Administrator privileges are not required to execute the software after installation. Before you install the kit software, close any other Cypress software that is currently running.

2.2 Install Software

Follow these steps to install the CY5682 PRoC BLE Touch Mouse RDK software.

1. Download the CY5682 PRoC BLE Touch Mouse RDK software from www.cypress.com/CY5682. The kit software is available in three different formats for download:
   a. **CY5682 Kit Setup:** This installation package contains all files related to the kit as well as PSoC Creator, PSoC Programmer, and CySmart software. However, it does not include the Windows Installer or Microsoft .NET framework packages. If these packages are not on your computer, the installer directs you to download and install them from the internet.
   b. **CY5682 Kit Only:** This executable file installs only the kit contents, which include the kit source code and firmware, hardware files, and user documents. This package can be used if all the software prerequisites (PSoC Creator, PSoC Programmer, and CySmart) are already installed on your PC.
   c. **CY5682 DVD ISO:** This file is a complete package, stored in a DVD-ROM image format that can be used to create a DVD or extract using an ISO extraction program such as WinZip or WinRAR. The file can also be mounted as a virtual DVD using virtual drive programs such as Virtual CloneDrive and MagicISO. This file includes all the required software, utilities, drivers, hardware files, and user documents.
2. If you have downloaded the ISO file, mount it as a virtual drive. Extract the ISO contents if you do not have a virtual drive to mount. Double-click *cyautorun.exe* in the root directory of the extracted content or mounted ISO if “Autorun from CD/DVD” is not enabled on the PC. The installation window will appear automatically.

   If you are using the CY5682 Kit Setup or CY5682 Kit Only file, then double-click on the file and go to step 4.
3. Click **Install CY5682 PRoC BLE Mouse RDK**, as shown in Figure 2-1, to start the kit installation.

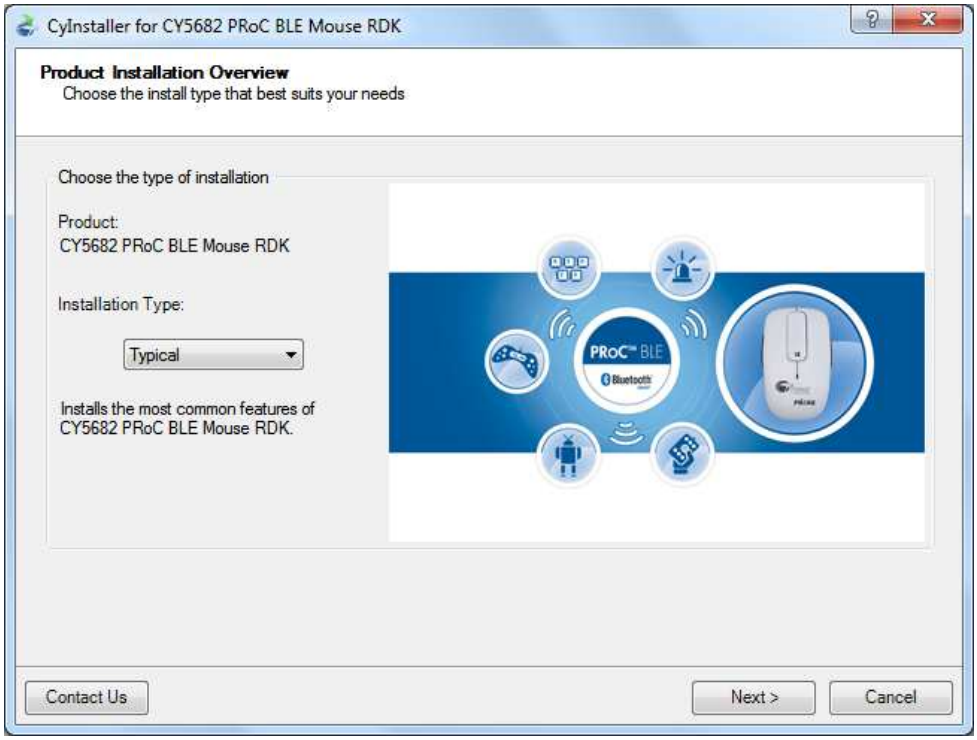
Figure 2-1. Kit Installer Screen

4. If desired, you may select the folder in which you want to install the kit-related files by clicking **Change** as shown in Figure 2-2. Choose the directory and click **Next.**

Figure 2-2. PRoC BLE RDK – InstallShield Wizard

5. Select the “Typical,” “Custom,” or “Complete” installation type in the **Product Installation Overview** window, as shown in Figure 2-3. Click **Next** after you select the installation type.

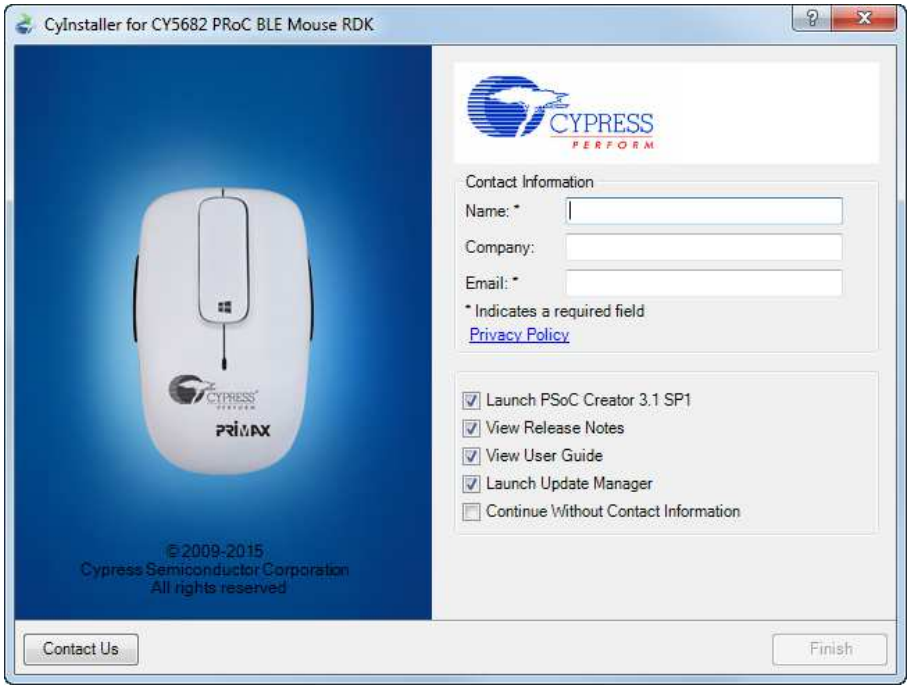
Figure 2-3. Product Installation Overview



6. Read the license agreement and select **I accept the terms in the license agreement** to continue with the installation. Click **Next**. When you click **Next**, the installer automatically installs the required software, if it is not present on your computer. Following is the required software:
   - PSoC Creator 3.1 or later: Download from www.cypress.com/psoccreator.
   - PSoC Programmer 3.21 or later: Download from www.cypress.com/programmer.
   - CySmart 1.0 or later: Download from www.cypress.com/CySmart.

   Note: If you are using the CY5682 Kit Only package, you must download and install this software manually.
7. The installation begins by presenting the list of packages (selected in the previous step) on the installation page. A green check mark appears next to each package after it is installed successfully.
8. Enter your contact information or select the option **Continue Without Contact Information,** as shown in Figure 2-4. Click **Finish** to complete the kit installation.

Figure 2-4. Installer Asking for Contact Information



Note: The PSoC Creator version number displayed in Figure 2-4 may vary depending upon the latest PSoC Creator packaged in the installer.

9. After the installation is complete, the kit contents are available at this location:

   <Install_Directory>\CY5682 PRoC BLE Mouse RDK

   Default location:

   Windows 7 (64-bit):

   C:\Program Files (x86)\Cypress\CY5682 PRoC BLE Mouse RDK

   Windows 7 (32-bit):

   C:\Program Files\Cypress\CY5682 PRoC BLE Mouse RDK

   Note: For Windows 7/8/8.1 users, the installed files and the folder are read-only.

2.3 Uninstall Software

The software can be uninstalled using one of the following methods:

- Go to **Start** > **All Programs** > **Cypress** > **Cypress Update Manager** > **Cypress Update Manager**; click the **Uninstall** button for the appropriate software package.
- Go to **Start** > **Control Panel** > **Programs and Features**; click the **Uninstall/Change** button for the appropriate software package.

3. Kit Operation

This chapter introduces the features of the CY5682 PRoC BLE Touch Mouse RDK that will be used as part of the kit operation. Topics include:

- Connecting PRoC BLE Touch Mouse with CySmart USB Dongle
- Programming and Debugging
- Using CySmart USB Dongle with CySmart Tool

3.1 Connecting PRoC BLE Touch Mouse with CySmart USB Dongle

In this document, “connecting” refers to establishing a Bluetooth Smart wireless link between the PRoC BLE touch mouse and the CySmart USB dongle. The process of establishing the connection for the first time involves “bonding,” which refers to the storage of encryption information from the mouse in the nonvolatile memory of the CySmart USB dongle. This stored information forms the “whitelist,” which is used by a Bluetooth Smart and Bluetooth Smart Ready devices to scan and search for subsequent connections.

The PRoC BLE touch mouse is factory-bonded with the CySmart USB dongle. Therefore, when the dongle is plugged in, it begins to search for a bonded mouse (that is, mouse unit that is present in the dongle’s whitelist). After both AAA batteries are inserted and the ON/OFF switch is set to the ON position, any user activity on the PRoC BLE touch mouse connects it to the dongle. Refer to step 1 in the Accessing Debug Interfaces of the Touch Mouse section for instructions on removing the top cover to insert the two AAA batteries.

The touch mouse needs to be reconnected to the CySmart USB dongle when the Bluetooth device address in the touch mouse firmware is changed or when the dongle is reprogrammed. The steps to reconnect the PRoC BLE touch mouse with the CySmart USB dongle are as follows.

Note: Making changes to the touch mouse firmware or CySmart USB dongle firmware that impact the connection establishment behavior may invalidate the following steps.

1. Insert the dongle into a USB port on the PC. The red power LED on the dongle glows to show that the dongle is powered on, and the green status LED on the dongle glows to show that enumeration is complete on the dongle side. The blue user LED on the dongle shows a slow-breathing effect to indicate that the dongle is scanning for preconnected devices.

   Notes:

   - The time to complete enumeration on the PC side for the first time can vary based on driver installation time.
   - The blue user LED on the CySmart USB dongle does not show a slow-breathing effect if the dongle is reprogrammed. In this case, press the user button on the CySmart USB dongle to start scanning. The blue LED shows the fast breathing effect.

2. Plug the two AAA batteries provided with the kit into the battery holder on the touch mouse.

   Note: The touch mouse can also work with a single AAA battery; however, using two AAA batteries is recommended to prolong the battery life.

3. Set the ON/OFF switch on the touch mouse to the ON position.

4. Press the user button (SW2) on the dongle to start scanning for Bluetooth Smart devices. The blue user LED on the dongle shows a fast-breathing effect to indicate that the dongle is scanning for new devices. Skip this step if the dongle is already in prebond mode, as indicated by the slow-breathing blue user LED.

5. Press the connect button on the touch mouse. The orange LED on the touch mouse shows a slow-breathing effect to indicate that the touch mouse is now in advertising mode. The touch mouse remains in the advertising mode for a maximum interval of 30 seconds.
6. When a successful connection is established, the orange LED on the touch mouse stays on for five seconds and then switches off, while the blue user LED on the CySmart USB dongle glows continuously. If the connection is unsuccessful, the orange LED on the touch mouse stops blinking after a 30-second timeout. In this event, repeat the sequence starting from step 2 to establish a connection.

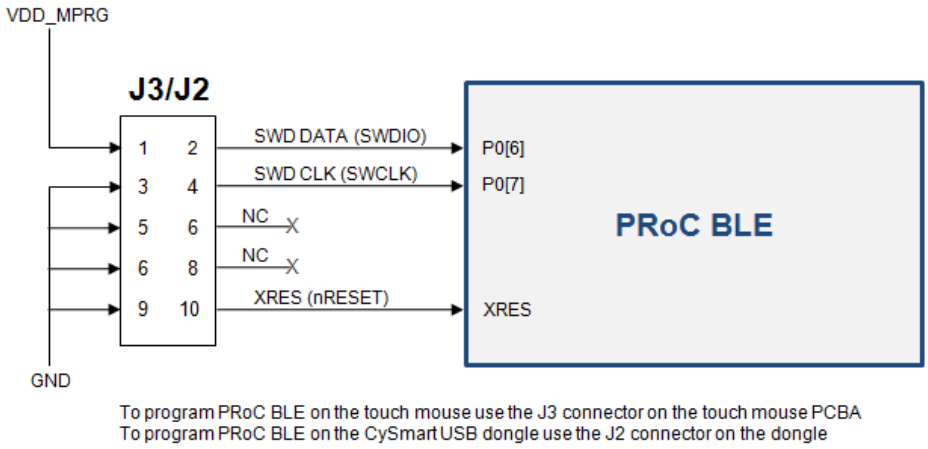
   Note: Do not turn off the mouse while the orange LED is in the ON state for five seconds after successful connection.
7. Place the touch mouse on a flat surface and move it around. If the connection is successful, the mouse cursor on the PC will follow the movement of the touch mouse.

3.2 Programming and Debugging

3.2.1 Programming and Debugging PRoC BLE on Touch Mouse and CySmart USB Dongle

The PRoC BLE touch mouse and the CySmart USB dongle support programming and debugging using the MiniProg3 programmer/debugger provided with the kit. Both expose a 10-pin connector. Figure 3-1 is a block diagram showing the header and associated connections.

Figure 3-1. Programming/Debugging PRoC BLE



Notes:

- Remove the warning sticker before using MiniProg3.
- Before trying to program or debug the device, make sure that PSoC Creator and PSoC Programmer are installed on the PC.

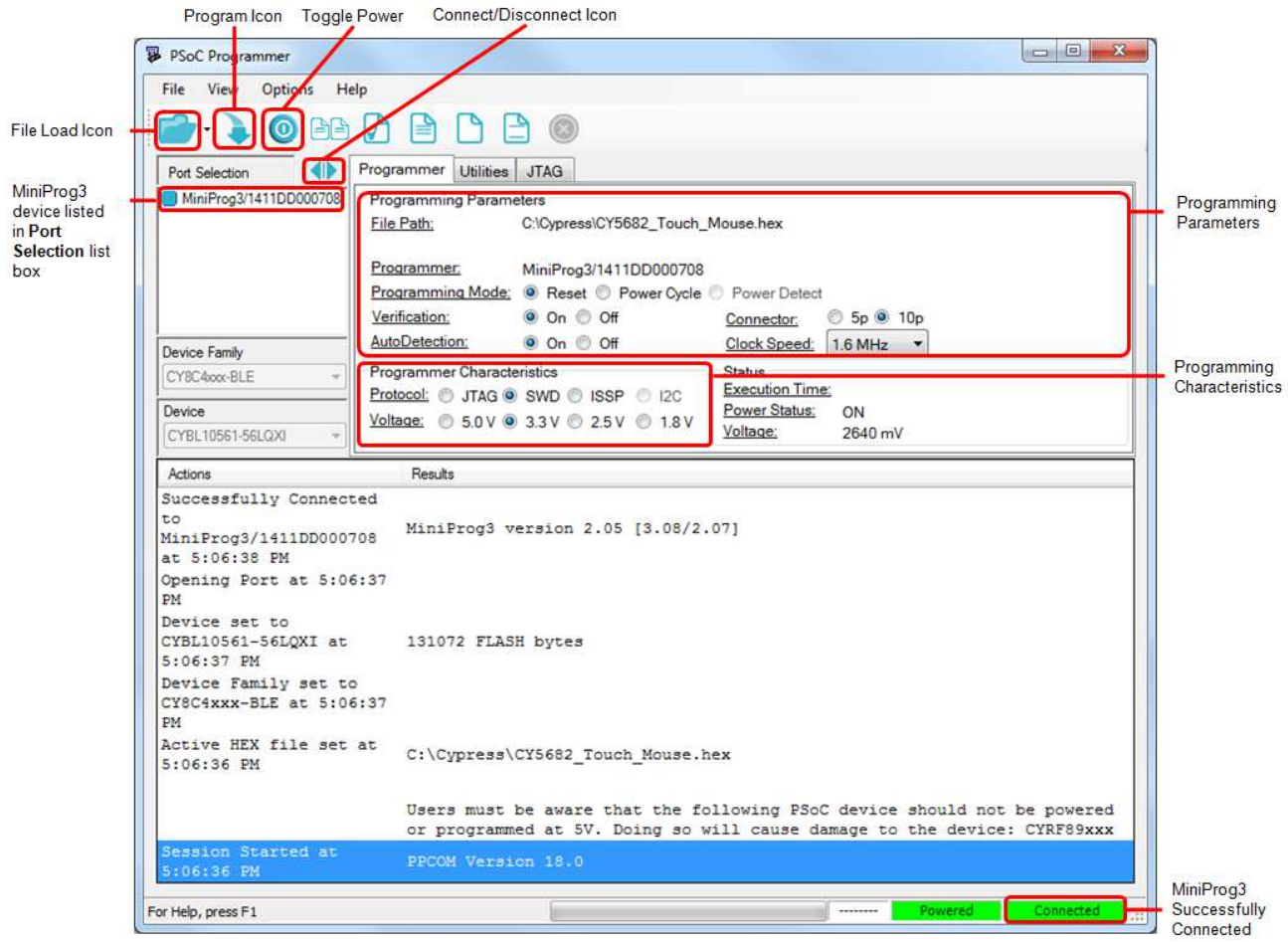
You can program the touch mouse either with PSoC Programmer or directly from PSoC Creator.

To program the touch mouse using PSoC Programmer, follow these steps.

1. Connect MiniProg3 to the PC using the USB A to mini-B cable provided with the kit. When it is properly connected, the four LEDs on the MiniProg3 turn on for a few seconds.
2. Connect one end of the 10-pin ribbon cable, provided with the kit, to the 10-pin header on MiniProg3.
3. Connect the other end of the 10-pin ribbon cable to the 10-pin header (J3 on the touch mouse or J2 on the CySmart USB dongle). Programming headers on both the mouse and the CySmart USB dongle (J3 and J2 respectively) are polarized. Do not apply excessive force; instead, ensure that the connectors are plugged in the correct orientation.
4. Run PSoC Programmer by choosing **Start** > **All Programs** > **Cypress** > **PSoC Programmer**.

   Note: Ensure that only one instance of PSoC Programmer is running on the PC..
5. To establish the connection with the programmer, select either the “MiniProg3” device in the **Port Selection** list box or the **Connect/Disconnect** icon, as shown in Figure 3-2.

Figure 3-2. PSoC Programmer



6. If the connection is successful, the green status LED on MiniProg3 lights up. A blue square with rounded corners appears next to “MiniProg3” in the **Port Selection** list box. Also, the status in the lower right corner of the PSoC Programmer window turns green and shows **Connected**.
7. Ensure that the settings under **Programming Parameters** in the **Programmer** tab are set to the values specified in Table 3-1.

Table 3-1. Programming Parameters

Programming Parameter	Setting
Programming Mode	Touch mouse: Reset (only if batteries are inserted and the ON/OFF switch is in ON position) or Power Cycle Dongle: Reset (when plugged into and powered via USB port) or Power Cycle (when unplugged from USB port)
Verification	On
AutoDetection	On
Connector	10p
Clock Speed	1.6 MHz

Note: Reset mode can be used even when batteries are not inserted if the **Toggle Power** button shown in Figure 3-2 is pressed before step 9.

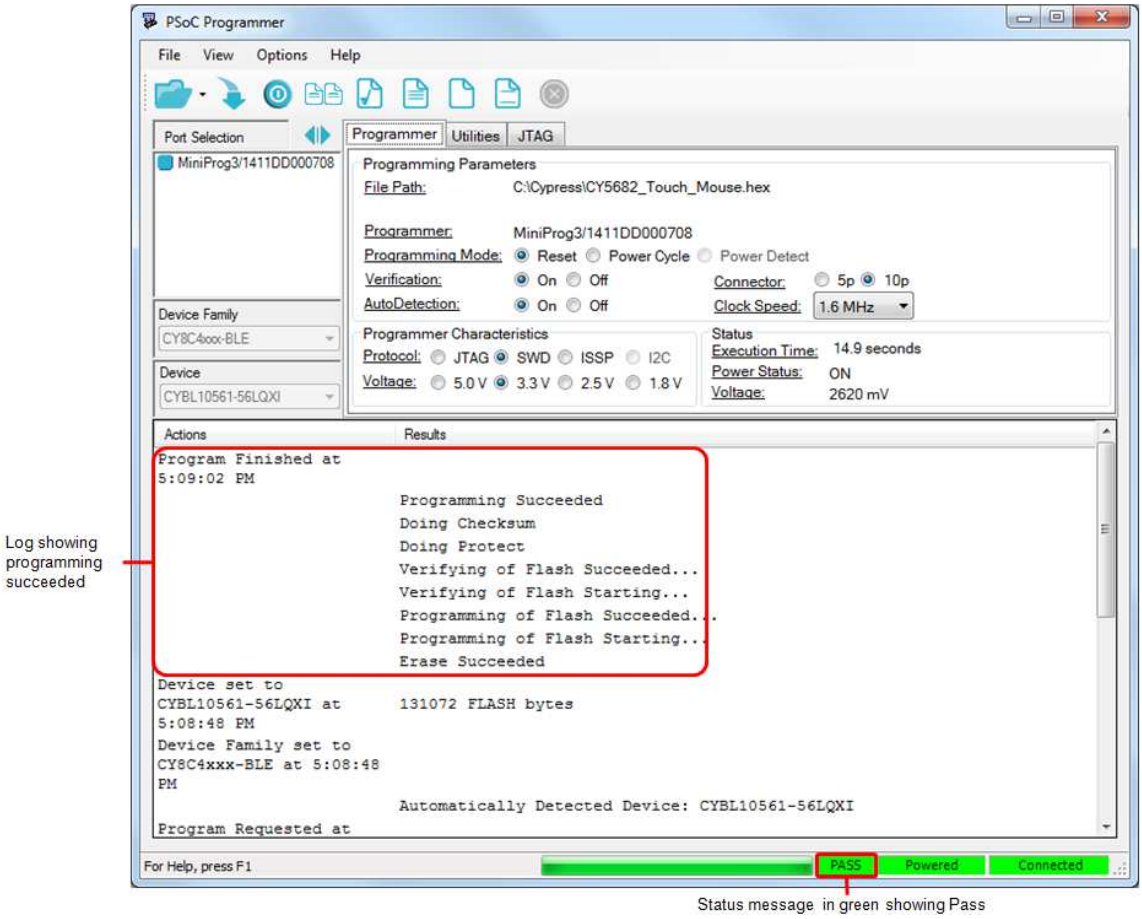
8. Ensure that the parameters under **Programmer Characteristics** are set to the values specified in Table 3-2.

Table 3-2. Programmer Characteristics

Programmer Characteristics	Setting
Protocol	SWD (Serial Wire Debug)
Voltage	3.3 V

9. Click the **File Load** icon. A dialog box appears. Browse to the location of the hex file to be programmed and select the hex file. The selected file appears next to the "File Path" in the **Programmer** tab. The following hex files for the firmware are provided with the kit:
   - PRoC BLE touch mouse:
     <Install_Directory>\CY5682 PRoC BLE Mouse RDK\1.0\Firmware\Hex Files\Touch Mouse\CY5682_Touch_Mouse.hex
   - CySmart USB dongle:
     <Install_Directory>\CY5682 PRoC BLE Mouse RDK\1.0\Firmware\Hex Files\Dongle\BLE_HID_CySmart_Dongle.hex
10. Click the **Program** icon to program the PRoC BLE device on the touch mouse or the CySmart USB dongle with the selected hex file. After successful programming, a "Programming Succeeded" message is displayed in the log area, as shown in Figure 3-3. Also, the status in the lower right corner of the PSoC Programmer window turns green and shows **PASS**.

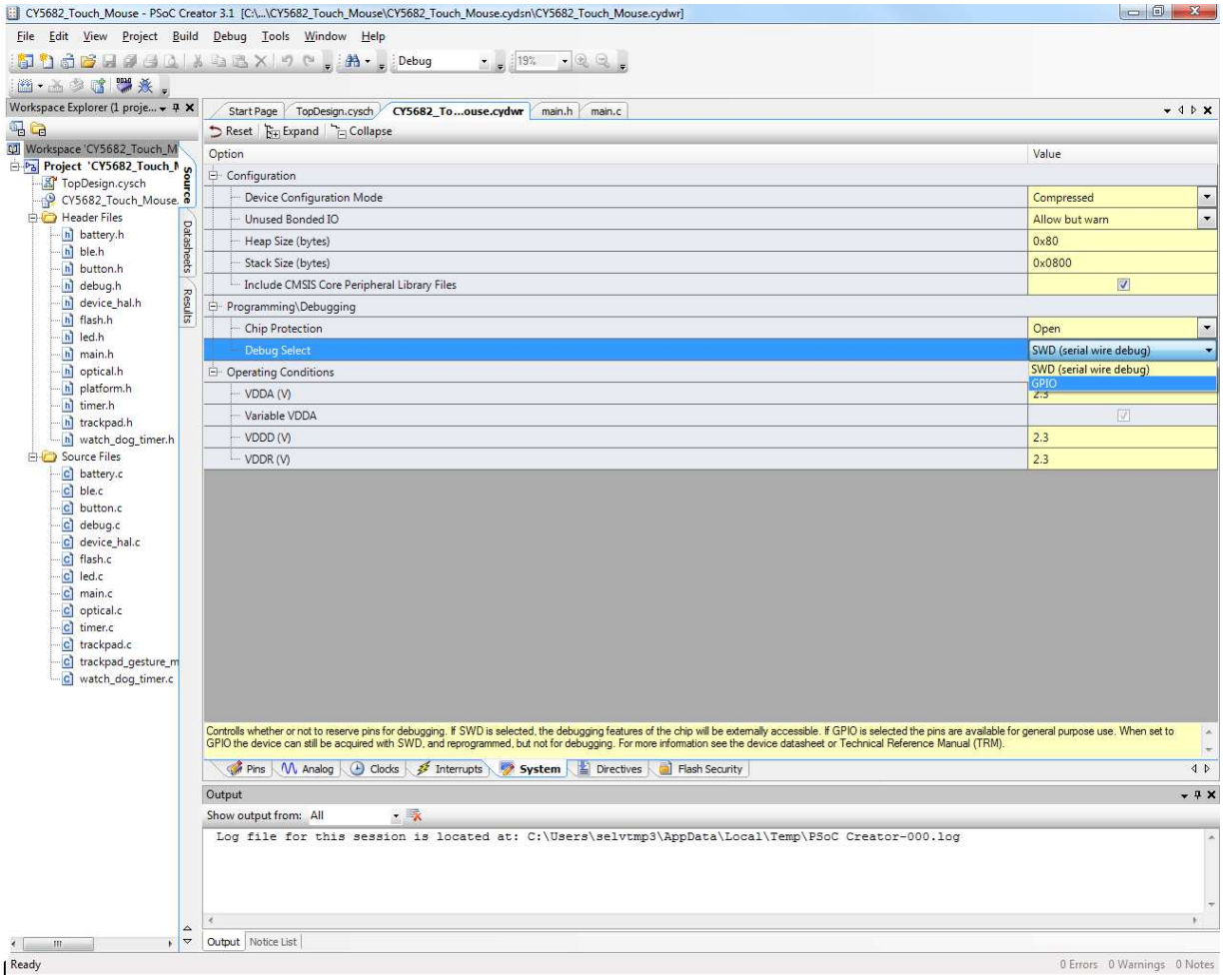
Figure 3-3. Programmer Window after Successful Programming



To program and debug PRoC BLE on the touch mouse or CySmart USB dongle using PSoC Creator, follow these steps.

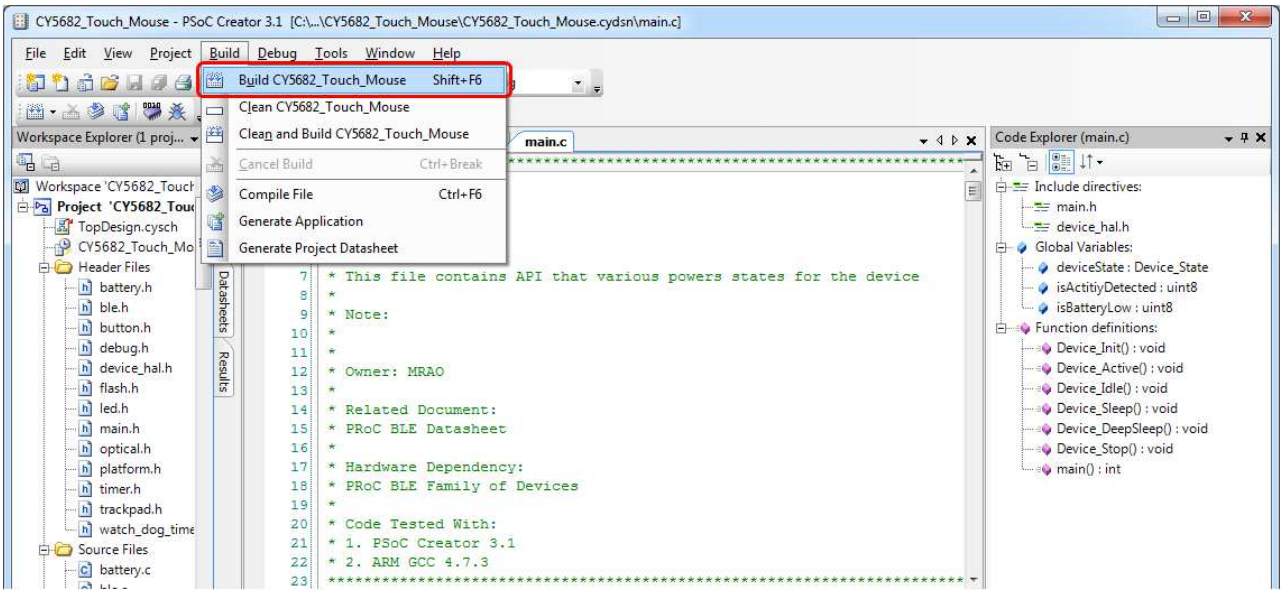
1. Run PSoC Creator by choosing **Start** > **All Programs** > **Cypress** > **PSoC Creator**.
2. Go to the Start Page, expand **Kits** > **CY5682 Touch Mouse RDK**, and then click on the project that you want to open. This allows you to save an editable copy the project to the location of your choice. After you have saved the copy, you can open it using **File** > **Open** > **Project/Workspace**.
3. Note that the debug option is disabled by default in the touch mouse firmware to minimize power consumption. You can enable the debug option using the following procedure:
   - Open *CY5682_Touch_Mouse.cydwr* from Workspace Explorer.
   - Click the **System** tab.
   - Choose the SWD option under **Debug Select,** as shown in Figure 3-4.

Figure 3-4. Enabling Debug Option Using PSoC Creator



4. Build the project by choosing **Build** > **Build <*project name*>**, as shown in Figure 3-5.

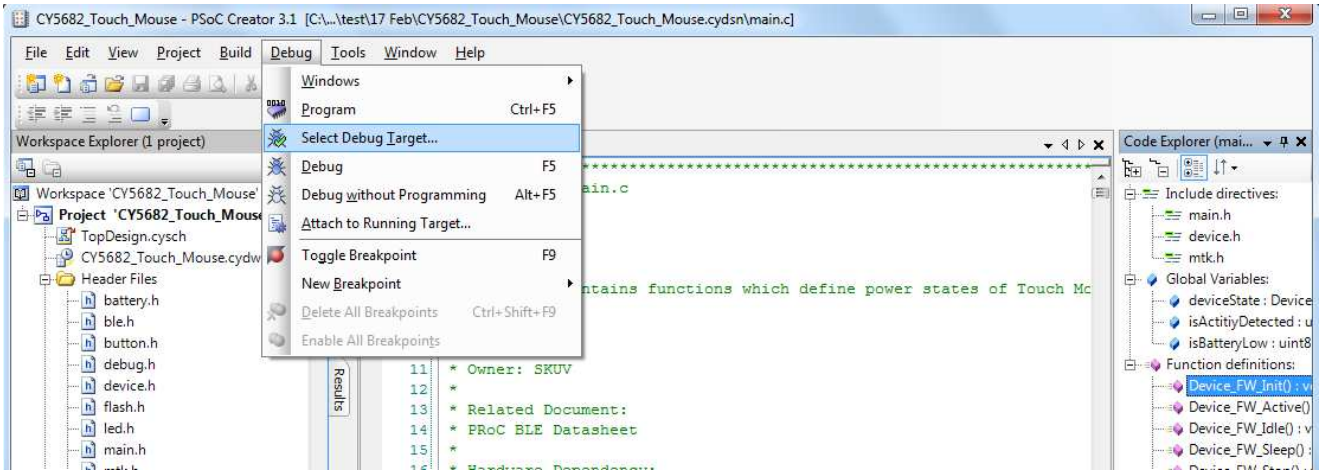
Figure 3-5. Building a Project in PSoC Creator



The **Output** window in PSoC Creator and the status bar display any errors encountered during the build process. Ensure that the project builds without any errors.

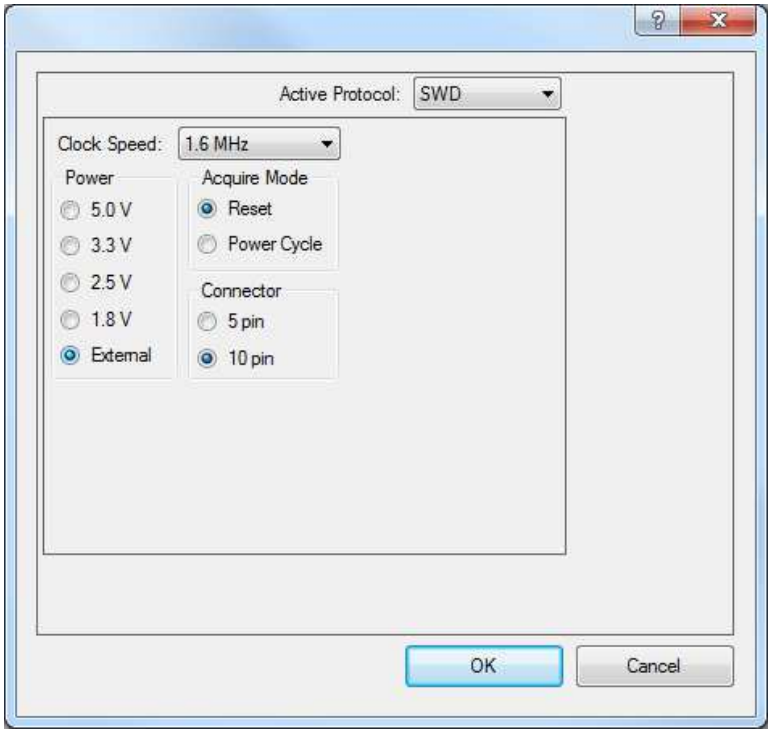
5. Connect the MiniProg3 to the PC using the USB A to mini-B cable provided with the kit. When it is properly connected, the four LEDs on the MiniProg3 turn on for a few seconds.
6. Connect one end of the 10-pin ribbon cable, provided with the kit, to the 10-pin header on the MiniProg3.
7. Connect the other end of the 10-pin ribbon cable to the 10-pin connector on the touch mouse (J3) or on the CySmart USB dongle (J2).
8. Start programming by choosing **Debug** > **Select Debug Target,** as shown in Figure 3-6. This will bring up the **Select Debug Target** window.

Figure 3-6. Programming via PSoC Creator



9. In the **Select Debug Target** window, click the **Port Setting** button and set the configuration options as shown in Figure 3-7.

Figure 3-7. Port Settings



Notes:

- **Acquire Mode** can be set to “Reset” only if batteries are inserted and the ON/OFF switch is in the ON position. Otherwise, set it to “Power Cycle” and choose the Power setting as 1.8 V, 2.5 V, or 3.3 V.
- The “External” selection for the **Power** setting works only if batteries are inserted and the ON/OFF switch is in the ON postion, regardless of the **Acquire Mode** selection.

10. In the **Select Debug Target** window, select the PRoC BLE device and click **Connect**, as shown in Figure 3-8 and click **OK**.

Figure 3-8. Select Debug Target Window