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CY8CKIT-062-WiFi-BT

# PSoC<sup>®</sup> 6 WiFi-BT Pioneer Kit Guide

Doc. # 002-22677 Rev. \*B

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# Safety Information



## Regulatory Compliance

The CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit is intended for use as a development platform for hardware or software in a laboratory environment. The board is an open-system design, which does not include a shielded enclosure. This may cause interference to other electrical or electronic devices in close proximity. In a domestic environment, this product may cause radio interference. In such cases, you may be required to take adequate preventive measures. In addition, this board should not be used near any medical equipment or RF devices.

Attaching additional wiring to this product or modifying the product operation from the factory default may affect its performance and cause interference with other apparatus in the immediate vicinity. If such interference is detected, suitable mitigating measures should be taken.



The PSoC 6 WiFi-BT Pioneer Kit contains electrostatic discharge (ESD) sensitive devices. Electrostatic charges readily accumulate on the human body and any equipment, and can discharge without detection. Permanent damage may occur on devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Store unused PSoC 6 WiFi-BT Pioneer Kits in the protective shipping package.



### End-of-Life/Product Recycling

The end-of life for this kit is five years from the date of manufacture mentioned as a bar code on the back of the kit box. Contact your nearest recycler for information on discarding the kit.

## General Safety Instructions

### ESD Protection

ESD can damage boards and associated components. Cypress recommends that you perform procedures only at an ESD workstation. If an ESD workstation is unavailable, use appropriate ESD protection by wearing an anti-static wrist strap attached to a grounded metal object.

### Handling Boards

The PSoC 6 WiFi-BT Pioneer Kit is sensitive to ESD. Hold the board only by its edges. After removing the board from its box, place it on a grounded, static-free surface. Use a conductive foam pad, if available. Do not slide the board over any surface.

# 1. Introduction



Thank you for your interest in the CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit. The PSoC 6 WiFi-BT Pioneer Kit enables you to evaluate and develop your applications using the [PSoC 6 MCU](#).

The PSoC 6 MCU is Cypress' latest, ultra-low-power PSoC specifically designed for wearables and IoT products. It is a programmable embedded system-on-chip, integrating a 150-MHz Arm® Cortex®-M4 as the primary application processor, a 100-MHz CM0+ that supports low-power operations, up to 1 MB Flash and 288 KB SRAM, CapSense® touch-sensing, and programmable analog and digital peripherals that allow higher flexibility, in-field tuning of the design, and faster time-to-market.

The PSoC 6 WiFi-BT Pioneer board offers compatibility with Arduino™ shields. The board features a PSoC 6 MCU, a 512-Mb NOR flash, an onboard programmer/debugger (KitProg2), a 2.4-GHz WLAN and Bluetooth functionality module (CYW4343W), a USB Type-C power delivery system (EZ-PD™ CCG3), a five-segment CapSense slider, two CapSense buttons, one CapSense proximity sensing header, an RGB LED, two user LEDs, USB host and device features, and one push button. The board supports operating voltages from 1.8 V to 3.3 V for the PSoC 6 MCU.

The CY8CKIT-062-WiFi-BT package includes a CY8CKIT-028-TFT Display Shield that contains a 2.4-inch TFT display, a motion sensor, ambient light sensor, a 32-bit audio codec, and a PDM microphone.

This is the first kit that enables development of PSoC 6 MCU + WiFi applications. To develop a PSoC 6 MCU + WiFi application, WICED™ Studio 6.1 or later must be used. WICED Studio is Cypress' integrated development environment (IDE) for developing WiFi applications. If you are not adding WiFi to your design then you can develop and debug PSoC 6 MCU project using PSoC Creator™. PSoC Creator supports exporting your designs to other third-party firmware development tools.

## 1.1 Kit Contents

The CY8CKIT-062-WiFi-BT package has the following contents, as shown in [Figure 1-1](#).

- PSoC 6 WiFi-BT Pioneer Board
- CY8CKIT-028-TFT Display Shield
- USB Type-A to Type-C cable
- Four jumper wires (4 inches each)
- Two proximity sensor wires (5 inches each)
- Quick Start Guide

Figure 1-1. Kit Contents



Inspect the contents of the kit; if you find any part missing, contact your nearest Cypress sales office for help: [www.cypress.com/support](http://www.cypress.com/support).

## 1.2 Hardware Introduction

### 1.2.1 CY8CKIT-062-WiFi-BT Board Details

Figure 1-2 shows the Pioneer board, which has the following features:

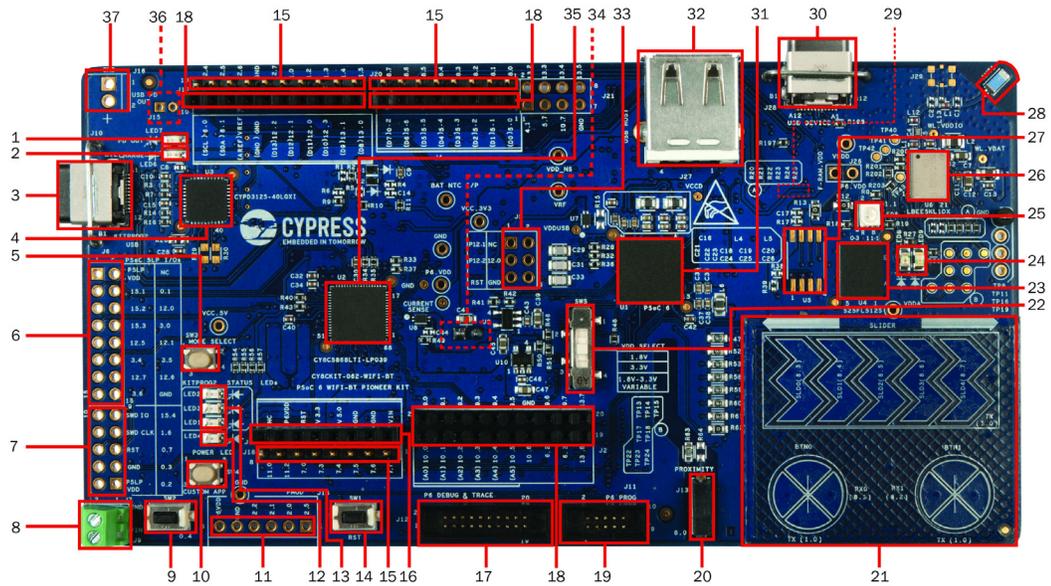
- PSoC 6 MCU
- Expansion headers that are compatible with Arduino Uno 3.3-V shields<sup>1</sup> and Digilent® Pmod™ modules
- Type 1DX ultra-small 2.4-GHz WLAN and Bluetooth functionality module
- 512-Mbit external quad-SPI NOR flash that provides a fast, expandable memory for data and code
- KitProg2 onboard programmer/debugger with mass storage programming, USB to UART/I2C/SPI bridge functionality, and custom applications support
- EZ-PD CCG3 USB Type-C power delivery (PD) system with rechargeable lithium-ion polymer (Li-Po) battery support<sup>2</sup>
- CapSense touch-sensing slider (five elements) and two buttons, all of which are capable of both self-capacitance (CSD) and mutual-capacitance (CSX) operation, and a CSD proximity sensor that allows you to evaluate Cypress' fourth-generation CapSense technology
- 1.8-V to 3.3-V operation of PSoC 6 MCU is supported. An additional 330-mF super-capacitor is provided for backup domain supply (VBACKUP)
- Two user LEDs, an RGB LED, a user button, and a reset button for PSoC 6 MCU.
- Two buttons and three LEDs for KitProg2.

---

1. 5-V shields are not supported

2. Battery and power-delivery capable USB Type-C to Type-C cable are not included in the kit package and should be purchased separately.

Figure 1-2. Pioneer Board



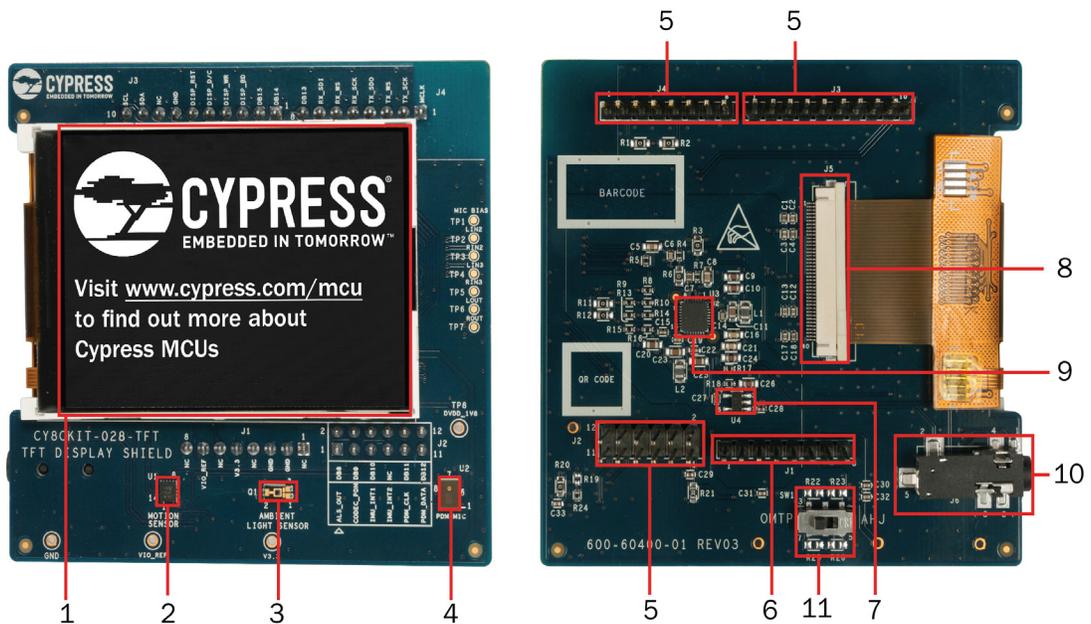
- |  |                                     |
|--|-------------------------------------|
| 1. USB PD output voltage availability indicator (LED7) | 20. CapSense proximity header (J13) |
|--|-------------------------------------|
1. USB PD output voltage availability indicator (LED7)
  2. Battery charging indicator (LED6)
  3. KitProg2 USB Type-C connector (J10)
  4. Cypress EZ-PD™ CCG3 Type-C Port Controller with PD (CYPD3125-40LQXI, U3)
  5. KitProg2 programming mode selection button (SW3)
  6. KitProg2 I/O header (J6)1
  7. KitProg2 programming/custom application header (J7)1
  8. External power supply connector (J9)
  9. PSoC 6 user button (SW2)
  10. KitProg2 application selection button (SW4)
  11. Digilent® Pmod™ compatible I/O header (J14)1
  12. Power LED (LED4)
  13. KitProg2 status LEDs (LED1, LED2, and LED3)
  14. PSoC 6 reset button (SW1)
  15. PSoC 6 I/O header (J18, J19 and J20)
  16. Arduino™ Uno R3 compatible power header (J1)
  17. PSoC 6 debug and trace header (J12)
  18. Arduino Uno R3 compatible PSoC 6 I/O header (J2, J3 and J4)
  19. PSoC 6 program and debug header (J11)
  20. CapSense proximity header (J13)
  21. CapSense slider and buttons
  22. PSoC 6 VDD selection switch (SW5)
  23. Cypress 512-Mbit serial NOR Flash memory (S25-FL512S, U4)
  24. PSoC 6 user LEDs (LED8 and LED9)
  25. RGB LED (LED5)
  26. WiFi/BT module (LBEE5KL 1DX, U6)
  27. Cypress serial Ferroelectric RAM (U5)1
  28. WiFi-BT Antenna
  29. VBACKUP and PMIC control selection switch (SW7)2
  30. PSoC 6 USB device Type-C connector (J28)
  31. Cypress PSoC 6 (CY8C6247BZI-D54, U1)
  32. PSoC 6 USB Host Type-A connector (J27)
  33. Arduino Uno R3 compatible ICSP header (J5)1
  34. PSoC 6 power monitoring jumper (J8)2
  35. KitProg2 (PSoC 5LP) programmer and debugger (CY8C5868LTI-LP039, U2)
  36. Battery connector (J15)1,2
  37. USB PD output voltage (9V/12V) connector (J16)1

### 1.2.2 CY8CKIT-028-TFT Board Details

Figure 1-3 shows the TFT display shield that has the following features:

- A 2.4-inch Thin-Film Transistor (TFT) LCD module with 240x320 pixel resolution.
- A three-axis acceleration and three-axis gyroscopic motion sensor.
- A PDM microphone for voice input.
- A 32-bit stereo codec with microphone, headphone, and speaker amplifier capability.
- An audio jack with a provision of connecting both AHJ and OMTP headphones. The headset standard can be set by an onboard switch.
- An ambient light sensor IC made of an NPN phototransistor.
- An LDO that converts 3.3 V to 1.8 V for the digital supply of the audio codec.

Figure 1-3. TFT Display Shield



1. 2.4-inch TFT display
2. Motion Sensor (U1)
3. Ambient Light Sensor (Q1)
4. PDM microphone (U2)
5. Arduino compatible I/O headers (J2, J3, J4)
6. Arduino compatible power header (J1)
7. TFT display power control load switch (U4)
8. TFT display connector (J5)
9. Audio CODEC (U3)
10. Audio Jack (J6)
11. Audio Jack Selection (OMTP/AHJ) Switch (SW1)

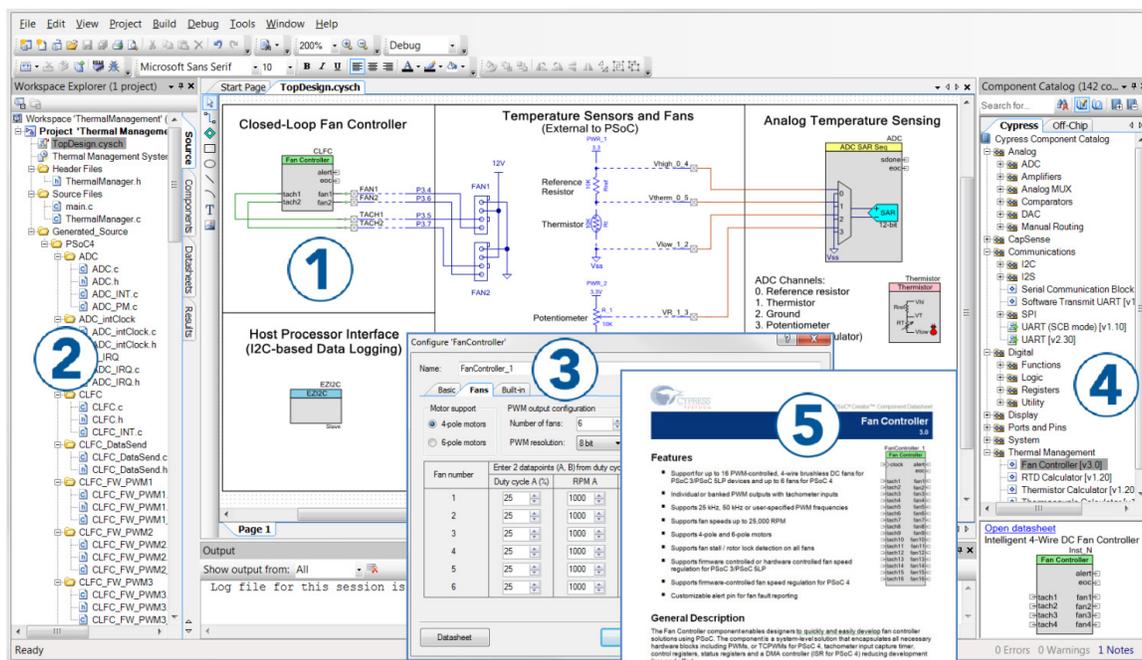
## 1.3 Software Introduction

### 1.3.1 PSoC Creator Overview

**PSoC Creator** is a state-of-the-art, easy-to-use IDE. It uses revolutionary hardware and software co-design, powered by a library of fully verified and characterized PSoC Components™ and peripheral driver libraries (PDL), as shown in [Figure 1-4](#). With PSoC Creator, you can:

1. Drag and drop Components to build your hardware system design in the main design workspace.
2. Co-design your application firmware with the PSoC hardware.
3. Configure Components using configuration tools or PDL.
4. Explore the library of 100+ Components.
5. Access Component datasheets.
6. Export your design to third-party firmware development tools.

Figure 1-4. PSoC Creator Features



PSoC Creator also enables you to tap into an entire tool ecosystem with integrated compiler chains and production programmers for PSoC devices. Use PSoC Creator for all PSoC 6 MCU designs that do not require WiFi connectivity. If WiFi connectivity is required, use WICED Studio 6.1 or higher.

#### 1.3.1.1 PSoC Creator Code Examples

PSoC Creator includes a large number of code examples. These examples are accessible from the PSoC Creator Start Page, as shown in [Figure 1-5](#) or from the menu **File > Code Example**.

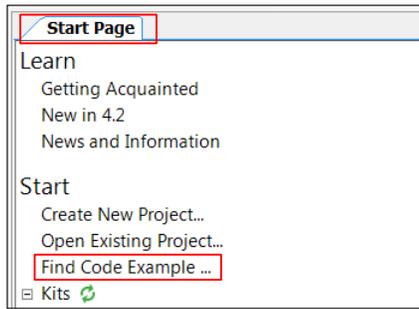
Code examples can speed up your design process by starting you off with a complete design. The code examples also show how to use PSoC Creator Components for various applications. Code examples and documentation are included.

In the **Find Code Example** dialog, you have several options:

- Filter for examples based on device family or keyword.
- Select from the list of examples offered based on the **Filter Options**.

- View the project documentation for the selection (on the **Documentation** tab).
- View the code for the selection on the **Sample Code** tab. You can also copy and paste code from this window to your project, which can help speed up code development.
- Create a new workspace for the code example or add to your existing workspace. This can speed up your design process by starting you off with a complete, basic design. You can then adapt that design to your application.

Figure 1-5. Code Examples in PSoC Creator



### 1.3.1.2 Kit Code Examples

You can access the installed kit code examples from the PSoC Creator Start Page. To access these examples, expand the Kits under the section Examples and Kits; then, expand the specific kit to see the code examples. To work with the code examples using this kit, see [PSoC Creator chapter on page 18](#).

### 1.3.1.3 PSoC Creator Help

Launch PSoC Creator and navigate to the following items:

- **Quick Start Guide:** Choose **Help > Documentation > Quick Start Guide**. This guide gives you the basics for developing PSoC Creator projects.
- **Simple Component Code Examples:** Choose **File > Code Example**. These examples demonstrate how to configure and use PSoC Creator Components. To access examples related to a specific Component, right-click the Component in the schematic or in the Component Catalog. Select the **Find Code Example** option in the context menu that appears.
- **System Reference Guide:** Choose **Help > System Reference Guide**. This guide lists and describes the system functions provided by PSoC Creator.
- **Component Datasheets:** Right-click a Component and select **Open Datasheet**.

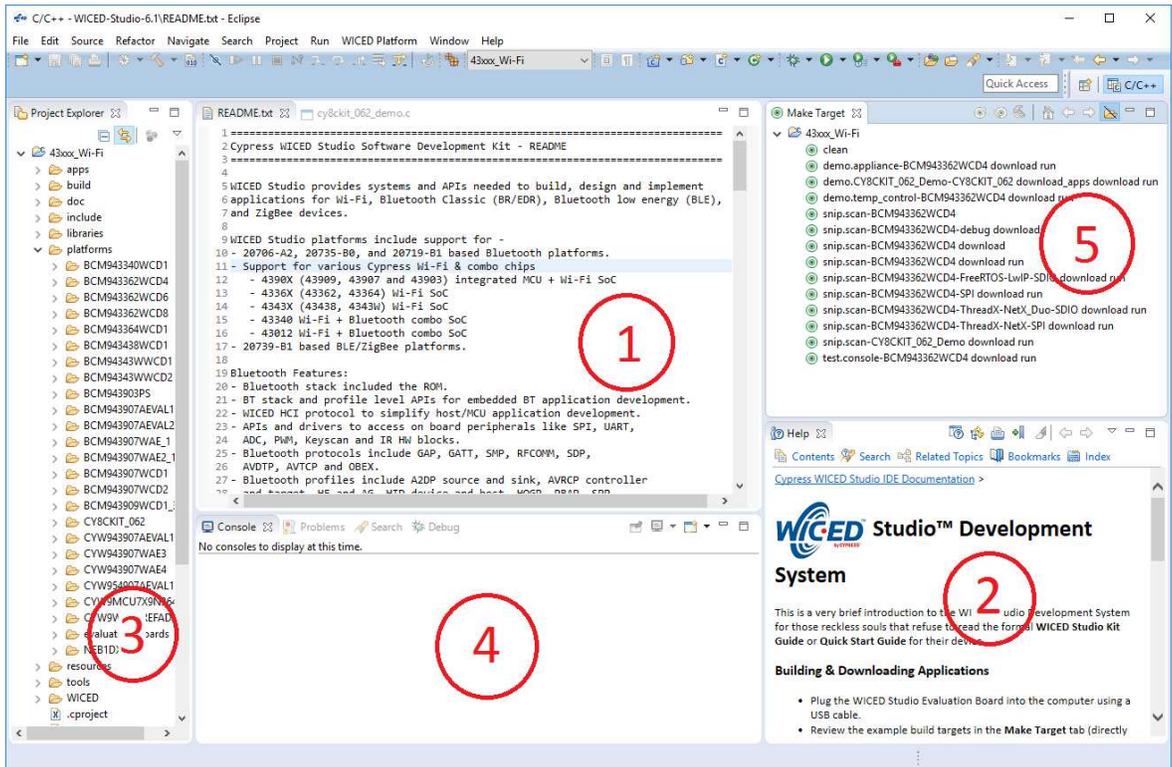
## 1.3.2 WICED Studio Development System Overview

WICED Studio 6.1 (or later) supports WiFi and Bluetooth application development using the CY8CKIT-062-WiFi-BT kit. Tabs and their location in the WICED IDE are as shown in [Figure 1-6](#).

[Figure 1-6](#) illustrates the following:

1. Edit your application firmware.
2. Help Window that contains instructions on building and downloading applications.
3. Explore existing applications/firmware and library of the Software Development Kit (SDK).
4. View Build messages in the Console window.
5. Create and edit Make Targets for the platform to build your application/project.

Figure 1-6. WICED IDE



### 1.3.2.1 WICED Studio Code Examples

WICED Studio includes libraries and code examples supporting both Bluetooth and WiFi platforms. Selecting the 43xxx\_Wi-Fi Filter will show only WiFi platform related files in the project explorer as shown in Figure 1-7.

Application examples can speed up the design process by serving as templates for development. Code examples are located under the *apps* category (in the Project Explorer window), as shown in Figure 1-8. Code examples under *apps* are further grouped into *demo*, *snip*, *test*, *waf* (WICED application framework), and *wwd* (WICED WiFi Driver Application) directories.

The *demo* directory contains applications that combine various WICED features into a single application. The *snip* directory contains application snippets that demonstrate how to use various WICED libraries and API functions. The *test* directory contains applications that are used for simple test and utility. The *waf* directory contains applications that are part of WICED application framework, for instance, the bootloader. The *wwd* directory contains applications that are developed using the low level *wwd* API calls and do not rely on higher level WICED APIs. Located within each subdirectory in the *apps* folder is a *README.txt* that lists and summarizes the applications located within the folder. Note that not all applications are supported in all platforms. The *snip* directory contains a *README.txt* with a matrix on what applications are supported in what platforms. For more details on the WICED software stack and APIs, review the application notes and documents available in the doc folder <WICED SDK installation folder>/WICED-Studio-6.1/43xxx\_Wi-Fi/doc. *WICED-QSG.pdf*, available in the same path, is a good document to start with.

Figure 1-7. Filter for WiFi Code Example in WICED Studio

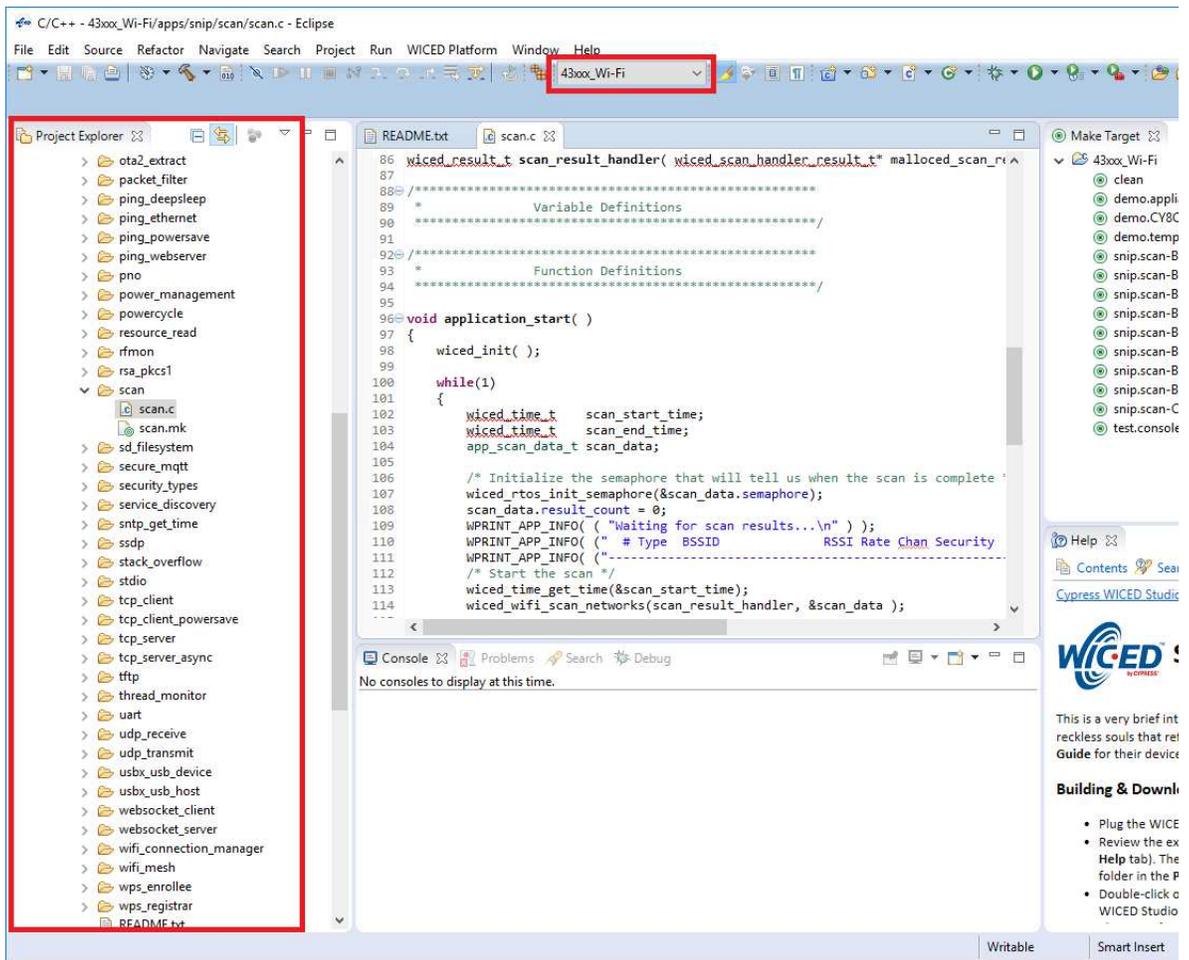
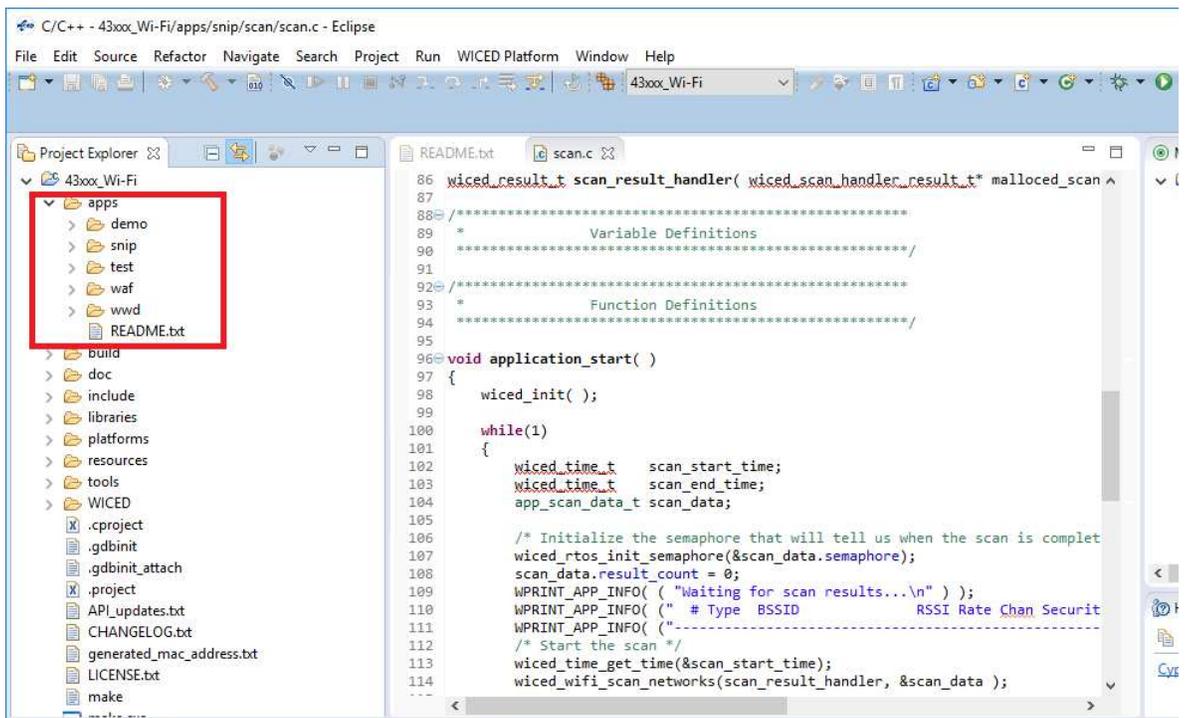


Figure 1-8. Code Examples under apps Category



## 1.4 Getting Started

This guide will help you to get acquainted with the PSoC 6 WiFi-BT Pioneer Kit:

- The [PSoC Creator chapter on page 18](#) describes the installation of the kit software. The kit software includes the PSoC Creator IDE and PDL to develop and debug the applications, the PSoC Programmer to program the .hex files on to the device.
- The [WICED chapter on page 24](#) describes the installation of WICED and getting started guidelines of the WICED-based example project of the kit.
- The [Kit Hardware chapter on page 38](#) describes the CY8CKIT-062-WiFi-BT base board and CY8CKIT-028-TFT shield hardware features and functionalities.
- The [Appendix on page 58](#) provides a detailed hardware description, methods to use the onboard components, kit schematics, the bill of materials (BOM), and an FAQ.

## 1.5 Additional Learning Resources

Cypress provides a wealth of data at [www.cypress.com/psoc6](http://www.cypress.com/psoc6) to help you to select the right PSoC device for your design and to help you to quickly and effectively integrate the device into your design.

## 1.6 Technical Support

For assistance, visit [Cypress Support](#) or contact customer support at +1(800) 541-4736 Ext. 3 (in the USA) or +1 (408) 943-2600 Ext. 3 (International).

You can also use the following support resources if you need quick assistance:

- [Self-help \(Technical Documents\)](#)
- [Local Sales Office Locations](#)

## 1.7 Documentation Conventions

Table 1-1. Document Conventions for Guides

Convention	Usage
Courier New	Displays user entered text and source code:
<i>Italics</i>	Displays file locations, file names, and reference documentation: Read about the <i>sourcefile.hex</i> file in the <i>PSoC Creator User Guide</i> .
[Bracketed, Bold]	Displays keyboard commands in procedures: [Enter] or [Ctrl] [C]
File > Open	Represents menu paths: File > Open > New Project
<b>Bold</b>	Displays commands, menu paths, and icon names in procedures: Click the <b>File</b> icon and then click <b>Open</b> .
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
BOM	bill of materials
BT	Bluetooth
CINT	integration capacitor
CMOD	modulator capacitor
CPU	central processing unit
CSD	CapSense sigma delta
CTANK	shield tank capacitor
DC	direct current
Del-Sig	delta-sigma
ECO	external crystal oscillator
ESD	electrostatic discharge
F-RAM	Ferroelectric Random Access Memory
FPC	flexible printed circuit
GPIO	general-purpose input/output
HID	human interface device
I <sup>2</sup> C	Inter-Integrated Circuit
IC	integrated circuit
ICSP	in-circuit serial programming
IDAC	current digital-to-analog converter
IDE	integrated development environment
LED	light-emitting diode

Table 1-2. Acronyms Used in this Document (*continued*)

Acronym	Definition
PC	personal computer
PCM	pulse code modulation
PD	power delivery
PDM	pulse density modulation
PTC	positive temperature coefficient
PSoC	Programmable System-on-Chip
PWM	pulse width modulation
RGB	red green blue
SAR	successive approximation register
SMIF	serial memory interfac
SPI	serial peripheral interface
SRAM	serial random access memory
SWD	serial wire debug
TFT	thin-film transistor
UART	universal asynchronous receiver transmitter
USB	Universal Serial Bus
WCO	watch crystal oscillator

## 2. PSoC Creator



This chapter describes the steps to install PSoC Creator and the packages required to use the PSoC 6 WiFi-BT Pioneer Kit, for non WiFi applications. This includes the IDE on which the projects will be built and used for programming. For developing WiFi applications, WICED Studio 6.1 or later must be used (see the [WICED chapter on page 24](#)).

### 2.1 Before You Begin

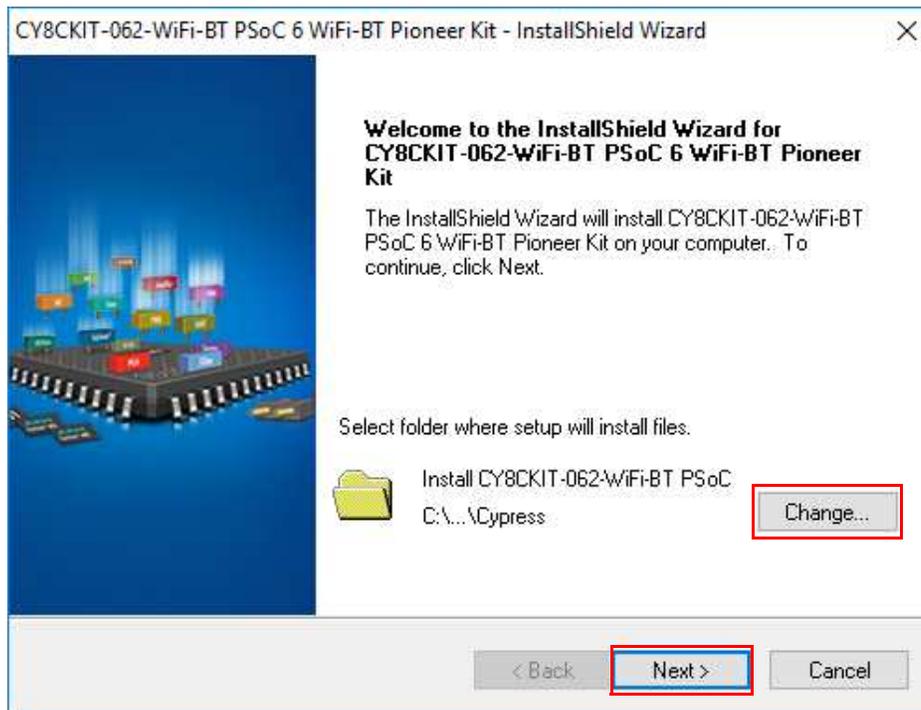
To install Cypress software, you will require administrator privileges. However, they are not required to run the software that is already installed. Before you install the kit software, close any other Cypress software that is currently running.

### 2.2 Install Kit Software

Follow these steps to install the PSoC 6 WiFi-BT Pioneer Kit software:

1. Download and run the CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit software from [www.cypress.com/CY8CKIT-062-WiFi-BT](http://www.cypress.com/CY8CKIT-062-WiFi-BT). The kit software is available in two different formats for download.
  - a. **CY8CKIT-062-WiFi-BT Kit Complete Setup:** This installation package contains the files related to the kit including PSoC Creator, PSoC Programmer, and PDL. However, it does not include the Windows Installer or Microsoft .NET framework packages. If these packages are not on your computer, the installer will direct you to download and install them from the Internet.
  - b. **CY8CKIT-062-WiFi-BT Kit Only:** This executable file installs only the kit contents, which include kit code examples, hardware files, and user documents. This package can be used if all the software prerequisites (listed in step 3) are installed on your PC.
2. Select the folder in which you want to install the PSoC 6 WiFi-BT Pioneer Kit-related files. Choose the directory and click **Next**.

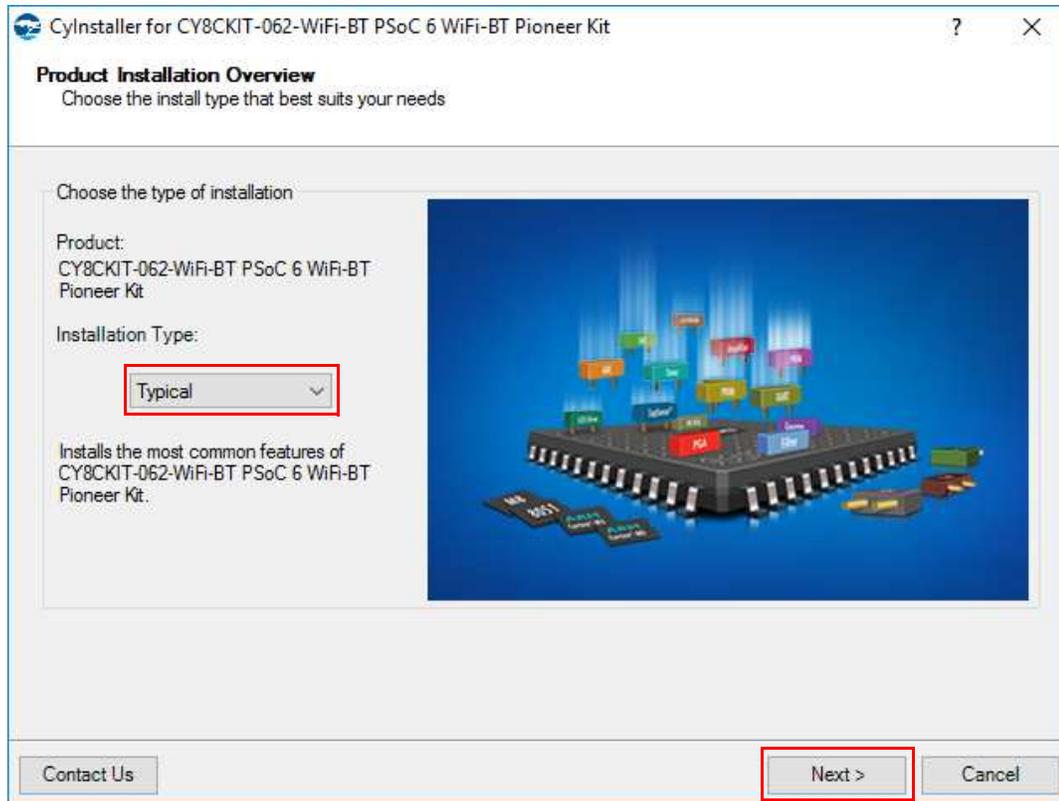
Figure 2-1. Kit Installer Screen



3. When you click **Next**, the installer automatically installs the required software, if it is not present on your computer. Following are the required software:
  - a. PSoC Creator 4.2: This software is available for download separately at [www.cypress.com/psoccreator](http://www.cypress.com/psoccreator). PSoC Creator 4.2 installer automatically installs the following additional software:
    - PSoC Programmer 3.27.0
    - Peripheral Driver Library 2.1.0
    - Peripheral Driver Library 3.0.1

- Choose the **Typical**, **Custom**, or **Complete** installation type (select **Typical** if you do not know which one to select) in the Product Installation Overview window, as shown in Figure 2-2. Click **Next** after selecting the installation type.

Figure 2-2. Product Installation Overview



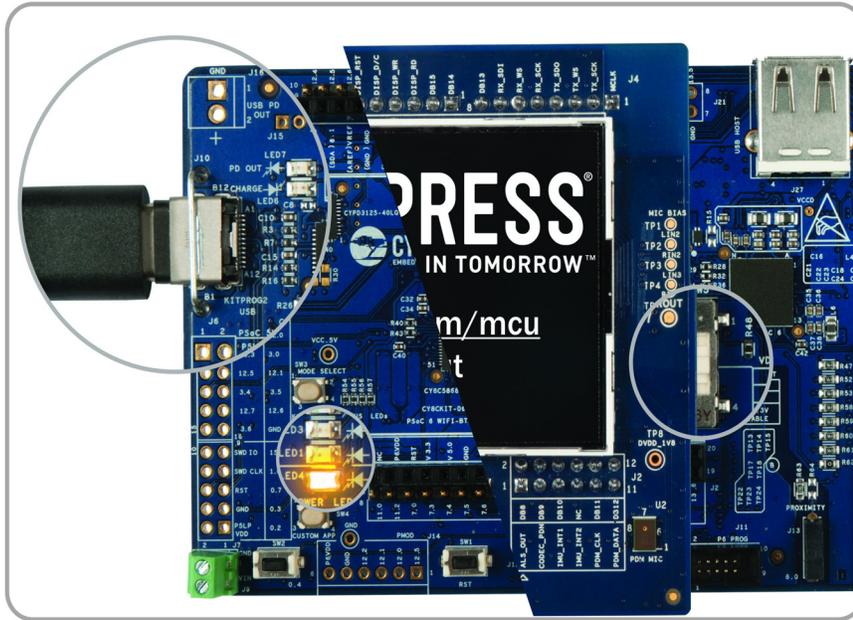
- Read the License agreement and select **I accept the terms in the license agreement** to continue with installation. Click **Next**.
- When the installation begins, a list of packages appears on the installation page. A green check mark appears next to each package after successful installation.
- Enter your contact information or select the check box **Continue Without Contact Information**. Click **Finish** to complete the CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit software installation.
- After the installation is complete, the kit contents are available at the following location:  
*<Install\_Directory>\CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit*  
 Default location:  
 Windows 7 (64-bit): *C:\Program Files (x86)\Cypress\CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit*  
 Windows 7 (32-bit): *C:\Program Files\Cypress\CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit*

**Note:** For Windows 7/8/8.1/10 users, the installed files and the folder are read-only. To use the installed code examples, create an editable copy of the example in a path that you choose, so that the original installed example is not modified. These steps will create an editable copy of the example in a path that you choose, so the original installed example is not modified.

## 2.3 Programming and Debugging using PSoC Creator

1. Connect the PSoC 6 WiFi-BT Pioneer Kit to the PC using the USB cable, as shown in [Figure 2-3](#). The kit enumerates as a composite device if you are connecting it to your PC for the first time. See section [4.3.3 Kit Enumeration and Programming Modes of KitProg2](#) to know whether the kit is successfully enumerated or not.

Figure 2-3. Connect USB Cable to USB Connector on the Kit



2. Open the desired project in PSoC Creator. To do this, go to **File > Open > Project/Workspace**. This provides the option to browse and open your saved project.
3. Select the option **Build > Build Project** or pressing **[Shift] [F6]** to build the project.
4. If there are no errors during build, select **Debug > Program** or press **[Ctrl] [F5]**. This programs the device on the PSoC 6 WiFi-BT Pioneer Kit.

PSoC Creator has an integrated debugger. You can start the debugger by selecting **Debug > Debug** or by pressing **[F5]**. For more details, see the “Debugging Using PSoC Creator” section in the [KitProg2 User Guide](#).

## 2.4 Kit Code Examples

The PSoC 6 WiFi-BT Pioneer Kit includes two code examples. One of these two code examples is developed in PSoC Creator. To access this code example, first download and install the PSoC 6 WiFi-BT Pioneer Kit setup file from [www.cypress.com/CY8CKIT-062-WiFi-BT](http://www.cypress.com/CY8CKIT-062-WiFi-BT). After the kit package is installed on your PC, the PSoC Creator-based code examples will be available from **Start > Kits** on the PSoC Creator Start Page. This code example can be accessed in the following directory:  
`<Install_Directory>\CY8CKIT-062-WiFi-BT PSoC 6 WiFi-BT Pioneer Kit\<version>\Firmware\PSoC 6 MCU\CE222221.`

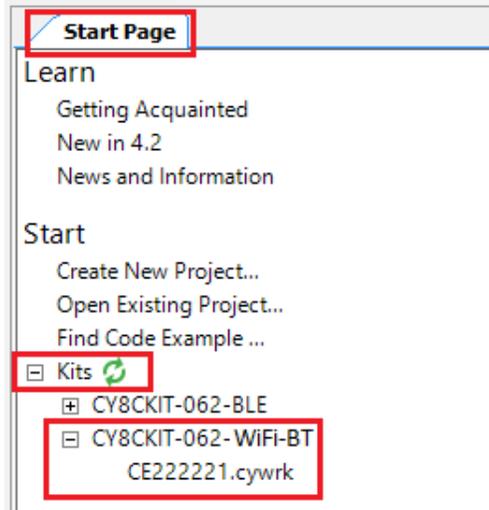
### 2.4.1 Using the Kit Code Examples Built in PSoC Creator

Follow these steps to open and use the code examples:

1. Launch PSoC Creator from **Start > All Programs > Cypress > PSoC Creator <version> > PSoC Creator <version>**.

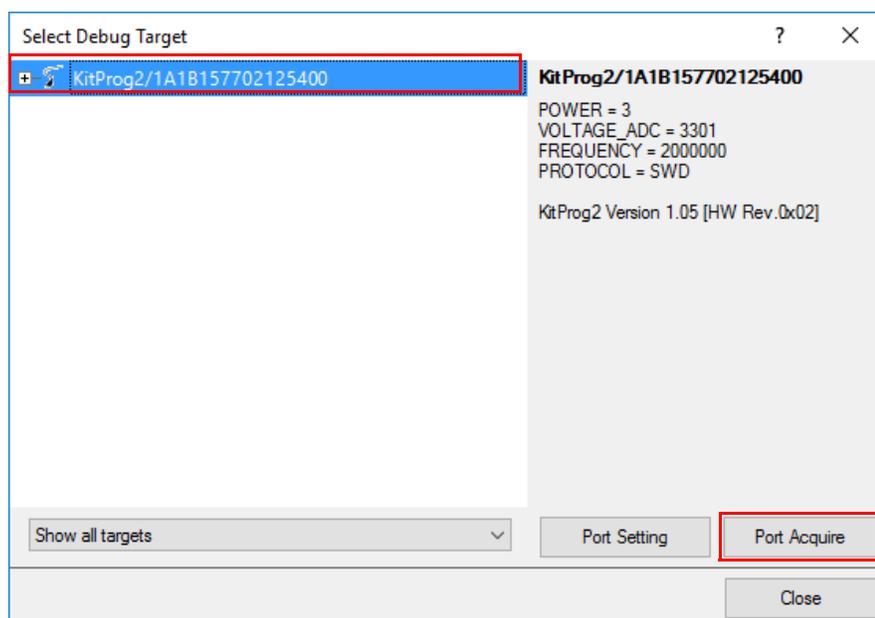
- On the Start Page, click **CY8CKIT-062-WiFi-BT** under **Start > Kits**. A list of code examples appears, as shown in [Figure 2-4](#).
- Click the desired code example, select a location to save the project, and click **OK**.

Figure 2-4. Open Code Example from PSoC Creator



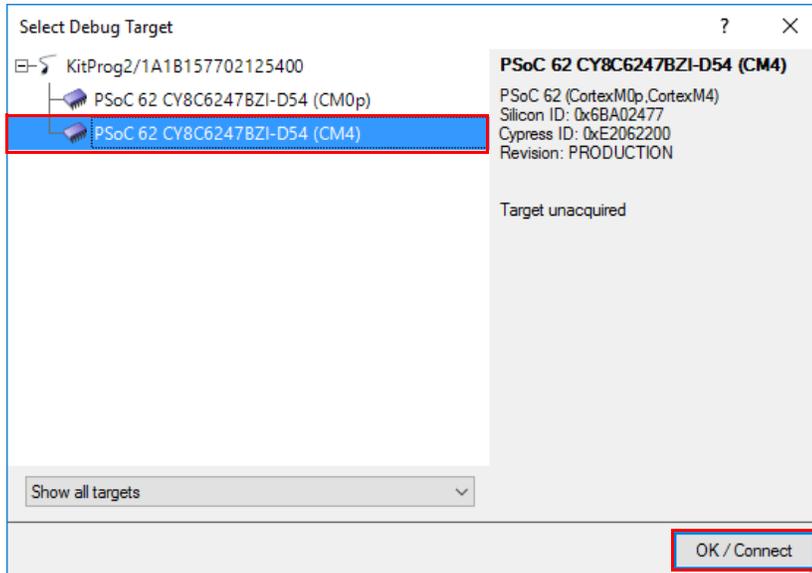
- Build the code example by choosing **Build > Build <Project Name>**. After the build process is successful, a `.hex` file is generated.
- Connect PSoC 6 WiFi-BT Pioneer Kit to the PC using the USB cable, as shown in [Figure 2-3 on page 21](#), to program the kit with the code example.
- Choose **Debug > Program** in PSoC Creator.
- If the device is already acquired, programming will complete automatically – the result will appear in the PSoC Creator status bar at the bottom left side of the screen. If the device is yet to be acquired, the Select Debug Target window will appear. Select **KitProg2/<serial\_number>** and click **Port Acquire**, as shown in [Figure 2-5](#).

Figure 2-5. Port Acquire



8. After the device is acquired, it is shown in a tree structure below the **KitProg2/<serial\_number>**. Click **Connect** and then **OK** to exit the window and start programming, as shown in [Figure 2-6](#). **Note:** PSoC 6 MCUs have both CM0+ and CM4 CPUs. To program, select one of them and click **Connect**. To debug, select the CPU that needs to be debugged.

Figure 2-6. Connect Device from PSoC Creator and Program



9. After programming is successful, the code example is ready to use.

[Table 2-1](#) shows the code example, developed in PSoC Creator, which can be used with this kit.

Table 2-1. Code Example in PSoC Creator

Project	Description
<a href="#">CE222221_TFT_VoiceRecorder</a>	This code example shows how PSoC 6 MCU can be used to record audio data, store it, and play it back. It uses a digital microphone with the PDM/PCM hardware block. All the audio data captured by the microphone is stored in an external flash memory. After the recording is completed, you can play the audio data over I2S, which interfaces with an audio codec. You can record/play/pause/resume with CapSense buttons. You control the audio volume with a CapSense slider. The TFT LCD displays the current state of the voice recorder, the volume, and the time of the record/play.

## 3. WICED



### 3.1 Introduction

This chapter describes the steps to install the WICED software tools and packages required to use the PSoC 6 WiFi-BT Pioneer Kit for developing WiFi applications. This chapter describes basic quick start guidelines of the WICED-based example project that can be used for further development purposes.

### 3.2 Before You Begin

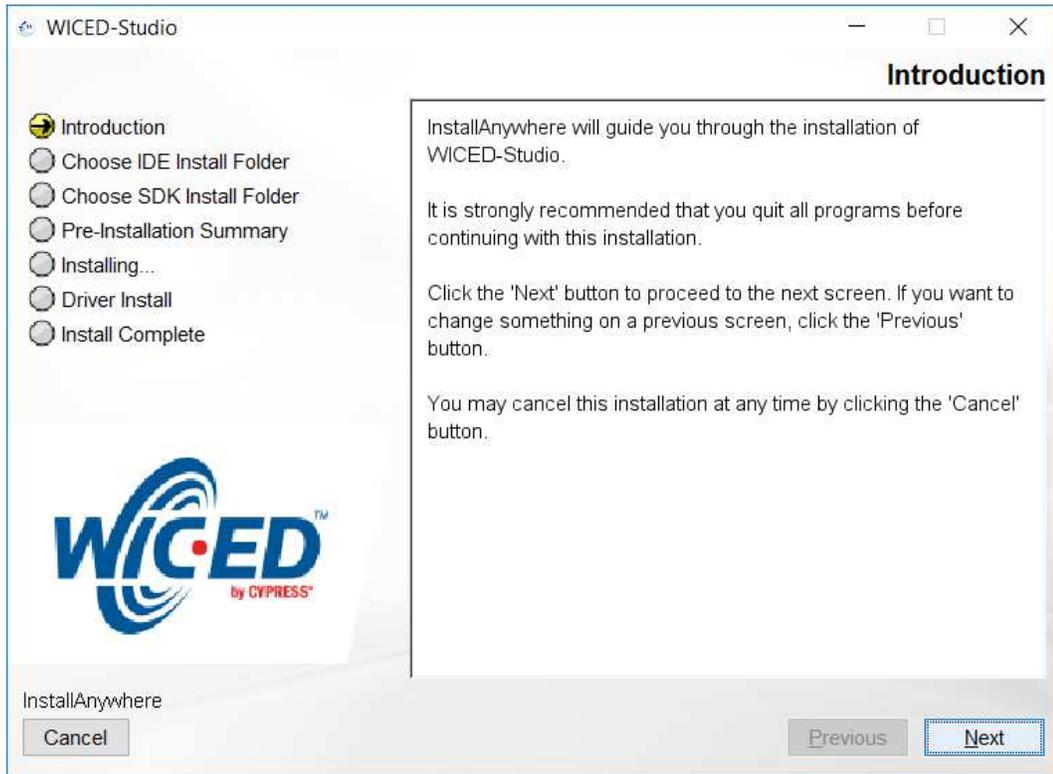
To install Cypress software, you will require administrator privileges. However, they are not required to run the software that is already installed. Before you install the kit software, close any other Cypress software that is currently running.

### 3.3 Install WICED

The CY8CKIT-062-WiFi-BT kit needs the WICED 6.1 (or later) software to be installed in your system. WICED 6.1 needs separate download and installation.

1. Download and install WICED Studio 6.1 (or later) from [www.cypress.com/products/wiced-software](http://www.cypress.com/products/wiced-software).
2. Select two folders, one for the IDE and the other for the SDK. The SDK folder contains the Framework for developing WiFi applications.
3. The installer will ask to select between WiFi and Bluetooth platforms. Select **43xxx\_Wi-Fi** as the default.

Figure 3-1. Installer Window Screenshot



## 3.4 Programming and Debugging in WICED

### 3.4.1 Building and Programming a Project for CY8CKIT-062-WiFi-BT in WICED Studio IDE

To build and program a project for CY8CKIT-062-WiFi-BT, perform the following steps:

1. To open the WICED IDE on the Windows PC, go to **Start > All Programs > Cypress > WICED-Studio**.
2. Select **43xxx\_Wi-Fi** in the WICED Target selector drop-down box as shown in [Figure 1-7](#). Building a project requires a corresponding make target, located in the Make Target window. All applications go under the *apps* directory. The make target path will contain the directory hierarchy starting from *apps* with directory names separated by a period. The project name is followed by a hyphen and then the platform name. Finally, the actions to be performed after the build are specified, such as download and run. For example, to build, download, and run the application scan which exists in *apps\snip\scan*, create the following make target:

```
snip.scan-CY8CKIT_062 download_apps download run
```

This project will periodically scan for Wi-Fi access points and will list them using the serial-to-USB connection on the kit.

Perform these steps to create the make target, build, program, and test application scan:

3. Right-click **43xxx\_Wi-Fi** in the Make Target window as shown in [Figure 3-2](#) and click **New**.