



Programmer User Guide

Version 1.22

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1. Introduction



This document describes how to install and use Cypress' PSoC Programmer software. This software is used as a standalone application to program PSoC devices via Intel HEX files. It can also be launched from within PSoC Designer to program a device from an open project.

If the information in this guide is not sufficient to resolve any issues while using PSoC Programmer, use the resources presented in the next section.

1.1 Support

Free support for PSoC Programmer is available online at <http://www.cypress.com/psoc>. Resources include Training Seminars, Discussion Forums, Application Notes, PSoC Consultants, TightLink Technical Support Email/Knowledge Base, and Application Support Technicians.

Technical Support may also be contacted by phone at 1-800-541-4736.

Before using Cypress support services, know the version of PSoC Programmer installed on your system. To determine the version, build, or service pack of PSoC Programmer, click Help > About PSoC Programmer.

1.1.1 Product Upgrades

Cypress provides scheduled upgrades and version enhancements for PSoC Programmer free of charge. You can order the upgrades from your distributor on CD-ROM or download them directly from www.cypress.com under Software and Drivers. Also provided are critical updates to system documentation under Design Support > Design Resources > More Resources or go to <http://www.cypress.com>.

1.2 Conventions

The following table lists the document conventions used throughout this user guide.

Table 1-1. Conventions

Convention	Usage
<i>Italics</i>	Displays file names and reference documentation: Read about the <i>sourcefile.hex</i> file in the <i>PSoC Designer User Guide</i> .
[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 .
Text in gray boxes	Presents cautions or unique functionality of the product.

1.3 Acronyms

The following are acronyms used throughout this user guide

Table 1-2. Acronyms

Acronym	Description
DRC	design rule checker
EPP	enhanced parallel port
ICE	in-circuit emulator
IDE	integrated development environment
SSC	system supervisory call

2. Installation



PSoC Programmer may be obtained either from a CD-ROM provided by a distributor, or downloaded directly from the Cypress web site at <http://www.cypress.com>.

PSoC Programmer is compatible with PSoC Designer version 4.2 or later.

2.1 Setup

Multiple versions of PSoC Programmer cannot be installed on the same computer. Un-install any previous version.

2.1.1 Installing from PSoC Programmer CD-ROM

1. Place the Cypress PSoC Designer CD-ROM in your CD-ROM drive.
2. At the Setup screen, select **Install PSoC Programmer**.
3. At the Welcome screen, proceed as directed.

2.1.2 Download and Installing from Cypress Web Site

1. Go to <http://www.cypress.com>, click **Products > Software and Drivers**.
2. On the Design Resources page, click **PSoC_Programmer_n_nn.zip** and then proceed to download the file as directed.
3. Use any ZIP compatible program to open the PSoC Programmer installation package.
4. Click *GenProg_setup* to start the setup wizard.
5. Follow the on-screen prompts to install PSoC Programmer.

If an earlier version of PSoC Programmer is already installed, the Setup Wizard will prompt you to delete the older version. After un-installing the previous version repeat steps 4 and 5 to install the latest version.



3. Using Programmer



Use PSoC Programmer to open a HEX file, select a communication port, set a device, set a programming mode, program, verify, read, and run a checksum.

3.1 Starting Programmer

PSoC Programmer may be started independently from the Windows desktop or accessed through PSoC Designer. Set up all hardware, including the device to be programmed, before starting the program.

- To open PSoC Programmer from the desktop, click **Windows Start > Programs > Cypress > PSoC Programmer**.
- To open from within PSoC Designer, load the target project that containing the HEX file and the device you want to program. Click **Program** to launch PSoC Programmer.

3.2 Selecting a HEX File

To select a file for programming:

1. Click **File Load** or press [**F4**].
2. In the Open dialog box, browse to the folder containing the file, then click a file name.
3. Click **Open**.

3.3 Selecting a Port

To select a port, click the Port drop-down list and then select the port used to connect to the programming device.

The following list provides a description of the current port options.

- **LPT1, 2, 3** – Connect the program to an ICE-4000 to program a device.
- **USB/yywwDnnn** – The 'D' implies a USB Adapter. Programming goes through the selected USB port to an ICE Cube or ICE-4000. Where: yy = Production Year, ww = Production Work Week, and nnn = Serial Number.
- **USB/yywwXnnn** – The 'X' may be any letter other than 'D'. 'X' implies an ICE-Cube USB port. Programming goes through the USB port to an ICE-Cube to program a device. Where: yy = Production Year, ww = Production Work Week, and nnn = Serial Number.

When changing ports, PSoC Programmer attempts to connect to the selected port, then displays the port status in the lower-right corner of the window.

USB ports are added to the port list automatically when a programming device is connected and removed from the list when disconnected.

3.4 Selecting a Device

Setting a base and part device allows the programming operations to perform actions based on the characteristics of the PSoC device. For example, 8 pin CY8C25xxx parts require Power Cycle Programming Mode because the reset pin is not available to do Reset Programming Mode. Flash sizes are also determined by selecting a PSoC device. Flash size is important when the verify operation is performed. Changing the device will enable/disable Acquire Mode options and display Flash size information in the status window.

To select a device:

1. Click the **Device Family** drop-down and select the target device family.
2. Click the **Device** drop-down and select the target device associated with the target device family.

3.5 Selecting a Programming Mode

Programming Mode determines how PSoC Programmer acquires the device for programming. There are three modes:

- **Reset** – Used for ISSP header programming on a self-powered target application board. In this mode, the target board supplies the power and the programmer uses the reset pin to acquire.
- **Power Cycle** – Used for programming when the programmer requires power. The programmer cycles power to acquire.
- **Power Detect** – Used for ISSP and MiniProg1. The programmer detects when the target systems' power is applied then acquires the device. Power Detect is not an enabled function on the current release of PSoC Programmer.

Click the Power Device check box if your target board is not self powered.

The Reset Programming Mode cannot be used with 8-pin devices.

3.6 Programming a Device

A HEX file must be loaded into PSoC Programmer in order to program a device. To program a device:

1. Click the **Connect** button.
2. Click **Program** or press **[F5]**.

The program operation erases, programs, verifies, protects, and performs a checksum. The verify is performed before the protect action so all blocks are verified.

3.7 Verify Programming

To verify device programming click **Utilities > Verify** or press **[Ctrl] [C]**.

Protected blocks are not verified. If the device is read-protected the verify operation will fail. On completion, PSoC Programmer will specify the number of protected blocks.

The results of the verify procedure fills the text window, flowing up from the initial operation command. The results may be saved or copied by right-clicking the text window and then selecting Copy or Save As from the drop down menu.

3.8 Read

Click Read or press **[F7]** to read the contents of a device. Device contents are displayed in hexadecimal, as shown in [Figure 3-1](#).

```

Read Completed at 09:39:32
0000: 80 67 01 08 30 30 30 30 7e 30 30 30 7e 30 30 30
0010: 7e 30 30 30 7e 30 30 30 7e 30 30 30 7c 03 60 7e
0020: 7e 30 30 30 7d 02 ac 7e 7e 30 30 30 7e 30 30 30
0030: 7e 30 30 30 7e 30 30 30 7e 30 30 30 7e 30 30 30
0040: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0050: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0060: 7e 30 30 30 7e 30 30 30 41 fe fb 50 5a 4e 55 f8
0070: 00 55 f9 00 71 10 62 e0 02 70 ef 62 e3 38 62 71
0080: 05 62 75 05 62 79 05 62 7d 05 7c 02 a4 50 00 55
0090: 0d 0e 3c 0d 5a a0 05 3f 0d 8f f8 50 01 57 50 55
00a0: 0d 00 3c 0d 06 a0 0b 08 28 3f 0d 18 75 09 00 8f
00b0: f2 71 10 41 e3 cf 70 ef 62 e0 00 71 10 62 e0 02
00c0: 70 ef 62 e2 00 7c 03 09 8f ff 30 30 30 30 30 30
00d0: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
00e0: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
00f0: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0100: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0110: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0120: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0130: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0140: 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
0150: 18 18 18 00 01 01 71 10 62 00 a7 62 01 58 70 ef
0160: 62 03 bf 62 02 00 71 10 62 02 00 62 03 00 70 ef
0170: 62 01 00 71 10 62 04 1f 62 05 fb 70 ef 62 07 e4
0180: 62 06 00 71 10 62 06 00 62 07 10 70 ef 62 05 10
0190: 71 10 62 08 ff 62 09 ff 70 ef 62 0b 00 62 0a 00
    
```

Figure 3-1. Read Display

Flash Security data is displayed along with the read values in the PSoC Programmer Results window as shown in [Figure 3-2](#). Unprotected blocks are displayed as 'U'. Protected blocks are displayed as 'xx'.

```

--- Flash Security Data ---
0000: U U U U U U U U U U U U U U U U
0400: U U U U U U U U U U U U U U U U
0800: U U U U U U U U U U U U U U U U
0c00: U U U U U U U U U U U U U U U U
1000: U U U U U U U U U U U U U U U U
1400: U U U U U U U U U U U U U U U U
1800: U U U U U U U U U U U U U U U U
1c00: U U U U U U U U U U U U U U U U
2000: U U U U U U U U U U U U U U U U
2400: U U U U U U U U U U U U U U U U
2800: U U U U U U U U U U U U U U U U
2c00: U U U U U U U U U U U U U U U U
3000: U U U U U U U U U U U U U U U U
3400: U U U U U U U U U U U U U U U U
3800: U U U U U U U U U U U U U U U U
3c00: U U U U U U U U U U U U U U U U

```

Figure 3-2. Security Data

3.9 Checksum

Click Checksum or press [F6] to perform a checksum operation on a device. If a HEX file is loaded, device values are compared to the loaded file. Read and Checksum operations may be completed without a loaded HEX file.

Revision History



Document Revision History

Revision	ECN #	Issue Date	Origin of Change	Description of Change
**/1.0	See ECN	09/01/2004	HMT	New document.
1.17		12/01/2004	–	Support for additional devices and minor fixes.
1.22	See ECN	08/18/2005	SFV	Implemented new Cypress logo and format, along with minor edits.

