PSoC Creator Release Notes

Version 1.0 Service Pack 1

Revision Date: May 18, 2011

PSoC® Creator™ 1.0 Service Pack 1 (SP1) is a mandatory update to version 1.0. This software includes a workaround for the critical erratum described in document 001-69528 (Loading NVLs during Boot).

All users of PSoC Creator are required to install this service pack.

PSoC Creator is a complete Integrated Development Environment (IDE) for designing with PSoC 3 and PSoC 5 device families. This release is a complete software package for new users and an update (replacement) for all previous production and beta installations. This document describes general software features and changes included with this release only.

Refer to the PSoC Creator version 1.0 Production Release Notes (www.cypress.com/?docID=26869) for a more detailed document covering the major features and updates.

If you have technical questions visit www.cypress.com/go/support or call 1-800-541-4736 and select 8.

Contents

New Features 2
- Bootloading across Multiple Interfaces 2
- Bootloader Support in UDB-Based I2C Component 2
- CRC Checking for Bootload Operations 2
- Component Improvements 2

Supported Devices 2
Supported Tool Chains 3
- Toolchains for PSoC 3 (8051) 3
- Toolchains for PSoC 5 (ARM) 3

Installation 4
- Minimum and Recommended Requirements 4
- Software Update Instructions 4
- Open Source 4
- Installation Notes 5

Further Reading 6
Defects Fixed 6

New Features

Bootloading across Multiple Interfaces

This feature allows you to implement your own Bootloader communication functions. This allows for substantial customization of the bootloader. For example, the functions could be modified to toggle between using a USB component and an I2C component for communication with the host tool. Another possible modification would be to toggle a pin to act as an interrupt to indicate that the bootloader is ready to receive more data.

Bootloader Support in UDB-Based I2C Component

Previously only the Fixed Function I2C component was available for bootloading. However, with the introduction of the Bootloading across Multiple Interfaces feature, support was extended to include the UDB I2C. This allows two I2C components to be placed in a bootloader project and either can be used for communication with the host.

CRC Checking for Bootload Operations

This new feature allows for more robust checksums of the data being sent between the host and the application. Previously only a basic summation was supported. While this was sufficient in most cases, it could fail to detect 2 bits of corruption.

Component Improvements

The cy_boot component (v2.21) was updated to accommodate the bootloader features described above.

The I2C component (v2.20) was updated to implement bootloader communication support in the UDB-based implementation of the component.

Supported Devices

This release supports ES2 (engineering samples 2) and production PSoC 3 silicon. It also supports PSoC 5 silicon.

The design flow and tools available in PSoC Creator 1.0 support the following PSoC 3:CY8C3x and PSoC 5:CY8C5x families of devices:

PSoC 3	PSoC 5
• CY8C32*	• CY8C52*
• CY8C34*	• CY8C53*
• CY8C36*	• CY8C54*
• CY8C38*	• CY8C55*

Supported Tool Chains

Toolchains for PSoC 3 (8051)

1. **DP8051 Keil™ 8.16**

   This toolchain is installed with PSoC Creator. It supports optimization levels 0 through 5. If you would like to use the compiler optimization levels above level 5, you should purchase the PK51 compiler by contacting Keil.

   - In North, Central, or South America... sales.us@keil.com
   - In Europe, Asia, Africa, or Australia... sales.intl@keil.com

   The free toolchain comes with a 30 day evaluation license. You can extend the license, without cost, by registering the product from within PSoC Creator (**Help > Register > Keil…**). Note that the extended license is for one year and that you will need to re-register it upon expiration.

   This is the only officially supported version:

   - Keil PK51 Prof. Developers Kit for PSoC: Version 8.16

2. **DP8051 Keil Generic**

   This option can be used to select a separately-installed version of the Keil toolchain. While any version can be selected, the only version officially supported is Version 8.16.

Toolchains for PSoC 5 (ARM)

1. **ARM GCC 4.4.1**

   The following GNU toolchain is provided with PSoC Creator; it is the only officially supported version:

   - CodeSourcery Sourcery G++ Lite for ARM: Version 4.4.1 2010q1-188 (http://www.codesourcery.com)

2. **ARM GCC Generic**

   This option can be used to select a separately-installed version of the GNU toolchain.

   While no longer officially supported, the GNU toolchain provided with Beta1 through Beta4.1 can be downloaded and used as the generic toolchain (contact Cypress technical support for details). The older version is:

   - CodeSourcery Sourcery G++ Lite for ARM: Version 4.2.1 2007q3-53

3. **ARM RVDS Generic**

   This option can be used to select a separately-installed version of the ARM RealView Development System. While any version can be selected, the only version officially supported is:

   - RealView Compilation Tools version 4.0, build 529, available in RVDS Version 4.0

4. **ARM MDK Generic**

   This option can be used to select a separately-installed version of the ARM Microcontroller Development Kit. While any version can be selected, the only version officially supported is:

   - MDK Compilation Tools version 4.0, build 524, available in MDK-ARM Version 3.70

Installation

Minimum and Recommended Requirements

Hardware/Operation System Requirements	Minimum	Recommended
• Processor Speed	2 GHz	2 GHz Dual Core
• RAM	2 GB	3 GB
• Free Hard Drive Space	1 GB	1 GB
• Screen Resolution	1024x768	1280x1024
• CD/DVD Drive	Not Req.	✓ *
• USB	Full Speed	2.0 Hi-Speed
• Windows® XP (SP2 or higher), Vista, or Windows 7 **	✓	✓

* CD/DVD drive is only required for installation with no web access.

** PSoC Creator 1.0 runs on Windows platforms only. Cypress does not test or support execution on virtualized platforms or emulated environments.

Software Prerequisites ***	Minimum Version
• Microsoft Internet Explorer (not IE8 beta)	7
• .NET Framework	2.0 SP1
• Adobe Reader (for viewing PDF Documentation)	6
• Windows Installer	3.1
• PSoC Programmer	3.12.5
• Keil Compiler	8.16

*** To install and run PSoC Creator, you may also need to install additional software. The Cypress Installer will guide you through the process if the additional programs are not already installed.

Software Update Instructions

As part of the installation process, the Cypress Update Manager utility will also be installed and located on the **Start** menu. You can use this utility to update all programs you have installed when updates for them become available.

Open Source

Portions of this software package are licensed under free and/or open source licenses such as the GNU General Public License. Such free and/or open source software is subject to the applicable license agreement and not the Cypress license agreement covering this software package. The applicable license terms will accompany each source code package. You may obtain the source code of such free and/or open source software at no charge from the following web site: www.cypress.com/go/opensource.

Installation Notes

The installation process is a set of wizards that walk you through installing various components. You can install PSoC Creator and various prerequisites from the web, or from a CD. There are slight differences in the process, based on the medium used to install the software.

The CDs provide the necessary prerequisites and the wizards to guide you through installing the appropriate software. The following sections contain more specific installation details.

Note Do NOT plug in your Miniprog3 until all software installation is complete AND the PSoC Creator application has been opened.

PSoC Creator CD Installation

The PSoC Creator CD contains PSoC Creator and PSoC Programmer, as well as various prerequisites.

1. Load the CD. The main installer program should run automatically. If not, double-click the cyautorun.exe file to launch it.
2. On the main installer, click the **Install Software for PSoC…** button to launch the PSoC Creator InstallShield Wizard.
3. Follow the prompts on the wizard. The CyInstaller for PSoC Creator opens and displays steps to install PSoC Creator.
4. Click the hyperlink for any software that is not installed as indicated (such as, Acrobat Reader, etc.). Run the installer for that program as needed.
5. Continue following the prompts to install PSoC Creator.

Cypress PSoC Kit CD Installation

A kit CD contains PSoC Creator and PSoC Programmer, as well as projects, documentation, and prerequisites needed for the associated kit. Refer to kit instructions.

Web Installation

If you are downloading the software from the web (www.cypress.com/go/creator), run the PSoC Creator single package executable.

1. Double-click the PSoC Creator executable file to launch the installer.
2. If a non Cypress prerequisite is missing (like .Net and Windows Installer, etc), a webpage with a download link will pop up. Download and install the prerequisites. Run the installer of those programs as needed.
3. Follow the prompts to install PSoC Creator. The CyInstaller for PSoC Creator opens and displays a series of steps to install PSoC Creator, and it will perform pre-requisite checks and install the prerequisites.
4. When complete, close the installer.

Further Reading

The primary documentation for PSoC Creator is provided in the Help, which you can open from the **Help** menu or by pressing [**F1**]. Other documents included with this release are also available from the **Help** menu, under **Documentation**. These documents include (but are not limited to):

- Quick Start Guide
- Known Problems and Solutions (KP&S)
- System Reference Guide
- Component Author Guide

The PSoC Creator KP&S document is a snapshot of the Knowledge Base issues available on online at the Cypress web site: http://www.cypress.com/?id=4&rtID=383.

Even more information is provided online, including:

- PSoC 3, PSoC 5 Architecture Technical Reference Manual (TRM)
- PSoC 3 and PSoC 5 Registers TRM
- PSoC 3 and PSoC 5 Device Datasheets
- Application Notes
- Training

Contact your Cypress representative, as needed.

Defects Fixed

The following defects were fixed in this release.

Cypress ID	Defect	Fix and Impact
99602	CY_BOOT state message must be ERRORs before 2.21	To force the update to v2.21 of CY_BOOT all previous versions now generate an error message.
99040	Add NV latch reload immediately after PSoC3 boot to workaround erratum 001-69528	A workaround has been inserted into v2.21 of the CY_BOOT component. All existing projects must be updated to this version of CY_BOOT.
98722	Buzz mode disabled for PSoC3 ES3	The hardware buzz feature of sleep mode is no longer supported and has been disabled.
97656	The CySetTemp(void) function fails on production PSoC 3 devices when MASTER_CLOCK is set to 60 MHz or greater.	The CySpcReadData() function was modified to wait for the SPC to be ready before reading data, rather than leaving the CySetTemp() function to rely on a timeout.
97016	Incorrect code in the CyPmSleep() API can cause Vcca to go above 2.0 V, which is out of spec for the part.	Incorrect placement of parentheses was leading to errors in register/mask comparisons. These have been addressed to ensure the CyPmSleep() API does not cause the over-voltage situation.
96625	Bootloader fails, giving Row Checksum failure	Fixed an issue with the merging of the last row of application code and the bootloader meta data code.
95759	The CySetTemp() API does not guarantee any actual reads from the SPC	Error checking inside the API was improved to ensure that the SPC was correctly accessed when reading the temperature. A return code of CYRET_SUCCESS is now reliable.

Cypress ID	Defect	Fix and Impact
95190	Debugger steps slowly on PSoC 5 devices.	Stepping speed has been improved through various changes, including: 1) Better mapping of source to assembly instructions in optimized code 2) Limit of 20 lines of code map to an assembly instruction 3) Disassembly window does not update on every step 4) Disassembly window does not update if not visible
88824	The cy_boot component DRC warning doesn't update after project is updated to resolve the issue	Forcing a DRC check immediately after updating components causes the no-longer applicable error message to be cleared from the display.

Cypress Semiconductor
198 Champion Ct.
San Jose, CA 95134-1709 USA
Tel: 408.943.2600
Fax: 408.943.4730
Application Support Hotline: 425.787.4814
www.cypress.com

© Cypress Semiconductor Corporation, 2011. All rights reserved.

The information contained herein is subject to change without notice. Cypress Semiconductor Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in a Cypress product. Nor does it convey or imply any license under patent or other rights. Cypress products are not warranted nor intended to be used for medical, life support, life saving, critical control or safety applications, unless pursuant to an express written agreement with Cypress. Furthermore, Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress products in life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

PSoC® and CapSense® are registered trademarks, and Programmable System-on-Chip™, PSoC Creator™, and SmartSense™ are trademarks of Cypress Semiconductor Corporation. All other trademarks or registered trademarks referenced herein are property of the respective corporations.

This Source Code (software and/or firmware) is owned by Cypress Semiconductor Corporation (Cypress) and is protected by and subject to worldwide patent protection (United States and foreign), United States copyright laws and international treaty provisions. Cypress hereby grants to licensee a personal, non-exclusive, non-transferable license to copy, use, modify, create derivative works of, and compile the Cypress Source Code and derivative works for the sole purpose of creating custom software and or firmware in support of licensee product to be used only in conjunction with a Cypress integrated circuit as specified in the applicable agreement. Any reproduction, modification, translation, compilation, or representation of this Source Code except as specified above is prohibited without the express written permission of Cypress.

Disclaimer: CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Cypress reserves the right to make changes without further notice to the materials described herein. Cypress does not assume any liability arising out of the application or use of any product or circuit described herein. Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress' product in a life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

Use may be limited by and subject to the applicable Cypress software license agreement.