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PSoC® Creator™ 4.3 Release Notes

Overview

The primary purpose of this release is to support the new PSoC 4500 product line. This release also includes new devices in the PSoC 4100S Plus product line and an updated version of the peripheral driver library (PDL).

This release does not replace existing production versions of PSoC Creator (e.g., 4.1 or 4.2); it installs alongside them. We guarantee that your existing designs can be opened in the new software, but please upgrade your components to the latest version. To ensure that you can always return to your previous setup, a backup of your project is automatically created when opening a project in a new version of the tool. It is stored in a folder named "backup" in the project's folder.

If you have technical questions, visit www.cypress.com/go/support or call 1-800-541-4736 and select 3.

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PSoC Creator 4.3 Features

PSoC 4500 Support

With this release, PSoC Creator provides pre-production support for the PSoC 4500 devices. The PSoC 4500 family contains two programmable analog sub-system (PASS) blocks for a very analog-rich chipset sporting two independent SAR ADCs and up to five Opamp/Comparator blocks.

PDL Version 3.1.1

This release includes a new version of the PDL to provide updated support for various devices and Components. For more details, refer to the to the PDL v3.1.1 release notes.

Components/Code Examples

This release includes the following new and updated Components, as well as code examples for them. Refer to the Component datasheets and code example documents for more details.

New and Updated Components

The following Components have been added or updated since the previous release to support the PSoC 4500 and PSoC 4100S Plus series.

Component Name	Version
cy_boot	5.90
CapSense_P4	7.0

Known Issues

This section lists known issues with this release as well as any workarounds.

Problem	Workaround
When attempting to run the debugger, the tool displays an error message similar to the following: Debugger exited unexpectedly during run. Encountered error (Remote communication error: No error.)	This error, and similar errors, may be caused by the “Enable Device Protection” setting being selected. This feature causes the part to disable debugging at run-time. To run the debugger, deselect this option under **Design Wide Resources > System > Programming\Debugging**. This error message will be improved in a future release.

Problem	Workaround
When using a device with a UAB (see the following list of affected devices), you may get an error message similar to this: "System.Collections.Generic.KeyNotFoundException" Affected devices: CY8C4A45PVI-481, CY8C4A45FNI-483, CY8C4A45LQI-483, CY8C4A45AZI-483, CY8C4A25LQI-483, CY8C4A45FNQ-483, CY8C4A45LQQ-483, CY8C4125PVI-PS421, CY8C4125FNI-PS423, CY8C4125LQI-PS423, CY8C4125AZI-PS423, CY8C4145PVI-PS421, CY8C4145FNI-PS423, CY8C4145LQI-PS423, CY8C4145AZI-PS423, CY8C4145PVI-PS431, CY8C4145FNI-PS433, CY8C4145LQI-PS433, CY8C4145AZI-PS433, CY8C4145FNQ-PS423, CY8C4145FNQ-PS433	The only solution is to use PSoC Creator 4.2.
In some PSoC Creator designs for the PSoC 4BS0 device, using a combination of the AMux and ADC_UAB Components does not work as expected. The ADC output does not vary with a change of input.	Use firmware control. On the schematic, connect the ADC to a single pin. This pin will always be connected. Use firmware to connect/disconnect additional pins via AMUXBUSA or AMUXBUSB.
The Clock Editor may report an error for a PSoC 4 device if a clock is disabled when it was previously selected as the source for PLL0_Sel, even if PLL0 is disabled. For example, if the design has PLL0_Sel set to ECO, PLL0 disabled, and then ECO disabled, an error will be presented in the GUI.	To eliminate the error, temporarily enable PLL0, change PLL0_Sel to a different source, then disable PLL0 again.
When opening the Clock Editor GUI editor for a PSoC 4 device that has the PLL enabled, the PLL0_Sel GUI element will be disabled.	This is a GUI artifact only. The correct clock code is generated. To re-enable the GUI element, toggle the PLL enable check box.
Setting the PLL to be sourced from the IMO in PSoC Creator settings doesn't work. For PSoC 4500 devices, if the PLL is configured to source from the IMO in the Clock Editor, peripherals whose clock is derived from the PLL do not function correctly.	Instead of using the Clock Editor, configure the PLL using the CySysClkPll APIs from CyLib.

Supported Devices

The design flow and tools available in this release of PSoC Creator support the following:

Family/Series/Product Line	Part Numbers
PSoC 6000, PSoC 6100, PSoC 6200, PSoC 6300	CY8C6*
PSoC 5LP	CY8C52*LP CY8C54*LP CY8C56*LP CY8C58*LP
PRoC BLE	CYBL1*
EZ-BLE modules	CYBLE*
PSoC 4500	CY8C45*

Family/Series/Product Line	Part Numbers			
PSoC 4200, PSoC 4200L, PSoC 4200M, PSoC 4200 BLE, PSoC 4200DS	CY8C42* CY8C42*DS	CY8C42*L	CY8C42*M	CY8C42*BL
PSoC 4100, PSoC 4100M, PSoC 4100S, PSoC 4100S Plus, PSoC 4100 BLE	CY8C41* CY8C41*BL	CY8C41*M	CY8C41*S	CY8C41*S Plus
PSoC 4000, PSoC 4000S, PSoC 4000DS	CY8C40*	CY8C40*S	CY8C40*DS	
PSoC 3	CY8C32*	CY8C34*	CY8C36*	CY8C38*
FM0+	S6E1A*	S6E1C1*	S6E1C3*	
System Hardware Manager (SHM)	CYSHM*			

Supported Tool Chains

Toolchains for PSoC 4, PSoC 5LP, and PSoC 6 (ARM)

- **ARM GCC –** The GCC ARM Embedded toolchain GCC 5.4-2016-q2-update is installed with PSoC Creator. This toolchain has no use restrictions and does not require license activation (it is distributed under the terms of the GNU Public License).
- **ARM GCC Generic –** This option can be used to select a separately-installed version of the ARM GCC toolchain.
- **ARM MDK Generic –** This option can be used to select a separately-installed version of the ARM Microcontroller Development Kit. The officially supported version is 4.72a.

Toolchains for PSoC 3 (8051)

DP8051 Keil™ 9.51

The Keil PK51 Professional Developers Kit for PSoC 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 standard PK51 product 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 Keil 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 each year.

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 officially supported versions are 8.16, 9.03, 9.51.

Installation

Minimum and Recommended System Requirements

The following are system requirements to install and use PSoC Creator. Each requirement specifies a minimum that your system must meet or exceed.

PSoC Creator will execute correctly in highly resource-constrained systems. However, performance (startup time, project creation and opening, build times, and so on) may be impacted when resources are scarce. The most directly impacted performance metric is build time. The following sections provide examples of the resource scarcity impact.

Note During initial startup, PSoC Creator builds and caches component DLL files used to display the component parameter editors. As a result, the tool will launch less quickly the first time after a new installation or a Windows® reboot.

Summary

Hardware/Operation System Requirements	Minimum
▪ Processor	1.3 GHz or faster 32-bit (x86) or Intel 64/ AMD64 64-bit
▪ RAM	1.5 GB
▪ Free Hard Drive Space	5 GB
▪ Screen Resolution	1024x768
▪ USB	2.0

Software Prerequisites *	Minimum Version
▪ Microsoft Internet Explorer (not IE8 beta)	7
▪ .NET Framework	4.0
▪ Adobe Reader (for viewing PDF Documentation)	9.2 **
▪ Windows Installer	3.1
▪ PSoC Programmer	3.28.6 (included with PSoC Creator)
▪ Keil Compiler (For PSoC 3 Only)	8.16 (9.51 provided)
▪ PDL	3.1.1 for PSoC 6, 2.1.0 for FM0+

* 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.

** For Windows 7, the minimum required version of Adobe Reader is version 9.2. You can download the latest version here: http://get.adobe.com/reader/. You can also use a non-Adobe PDF reader if you prefer; however, Cypress has no recommendations for any particular non-Adobe reader or version.

Processor

1.3 GHz or faster 32-bit (x86) or Intel 64/AMD64 64-bit processor is required.

PSoC Creator exhibits a predictable relationship between CPU speed and build time above 1 GHz. Doubling the CPU speed, e.g., from 1 GHz to 2 GHz or 1.5 GHz to 3 GHz, almost halves the build time.

On a fast (3 GHz) PC, simple designs can build in about one minute. At low speeds even designs that fill the device and generate complex routing solutions will build in under 5 minutes.

Operating System

One of the following Windows platforms is required:

- Windows 7 and Windows 7 SP1 (32- and 64-bit supported)
- Windows 8 and Windows 8.1 (32- and 64-bit supported)
- Windows 10 (32- and 64-bit supported)

Memory

A minimum of 1.5 GB of RAM is required.

Free Disk Space

PSoC Creator requires 5 GB of free disk space. PSoC Creator will install and run with just 1 GB of free disk space. However, in order to allow Windows to do memory paging, we recommend a minimum free disk space requirement of 5 GB.

If your disk is highly fragmented it will severely impact memory paging time and can result in very long build times. Disks that are nearly full are particularly prone to fragmentation. We recommend de-fragmenting your disk if you experience excessively long build times (10 minutes or more).

USB

PSoC Creator requires a USB 2.0-compliant or newer host to program and debug.

Screen

A resolution of 1024x768 pixels or higher is required.

Note The build time examples given above were obtained with new product installations on minimally fragmented disks with no other applications running. If your build times exceed these expectations we recommend closing unnecessary applications, adding RAM to the system (to reduce paging) and ensuring that there is sufficient free and unfragmented disk space.

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 Cypress programs you have installed when updates for them become available.

Open Source

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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. The installation provides all the necessary prerequisites, and the wizards to guide you through installing the appropriate software.

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

Web Installation

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

1. Double-click the PSoC Creator executable file to launch the installer.
2. 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.
3. 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
- System Reference Guide
- Component Author Guide

Cypress provides a web page specifically for PSoC Creator at www.cypress.com/creator.

Other documentation includes (but is not limited to):

- Device Datasheets
- Device Architecture Technical Reference Manual (TRM)
- Device Registers TRM
- Application Notes
- Training

Contact your Cypress representative, as needed.

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