

Release Notes for CrossCore Embedded Studio 2.5.1

Contents

1	Intro	Introduction 3						
	1.1	Suppo	rted Operating Systems	3				
	1.2	Syster	n Requirements	4				
	1.3 Obtaining Technical Support							
2 Installing CrossCore Embedded Studio								
	2.1	Installi	ng CrossCore Embedded Studio on Windows	6				
	2.2	Installi	ng CrossCore Embedded Studio on Linux	6				
		2.2.1	Different users sharing the same CCES license on Linux	7				
		2.2.2	OpenOCD needs to be run as sudo on Linux	7				
3	New	and No	teworthy	8				
	3.1	Pre-in:	stalled ADuCM302x CMSIS-Pack file has been updated	8				
	3.2	ADuC	M4x50 CMSIS-Pack file is supported, but not pre-installed.	8				
		3.2.1	EZK license	8				
		3.2.2	Installing ADuCM4x50 support	8				
		3.2.3	Creating a new project, building and debugging with GDB and OpenOCD	9				
	3.3	3.3 OpenOCD console now shows its standard output in black and errors are shown in red (CCES-						
				11				
	3.4	adi_ini	tialize.c and adi_initialize.h are re-generated if they do not exist in the project (CCES-152	.11)				
	12							
	3.5	Regist	er Browser (CCES-15067)	12				
4	Cha	nges Th	at Might Impact Backwards Compatibility	13				
	4.1	ADuC	M302x LD script now matches Linker configuration file supplied with the ADuCM302x BSF	^{>} for				
	IAR. I	Less me	mory is available by default (GLUEM-280)	13				
5	Kno	wn Issue	es	14				
	5.1	Regist	er View does not show peripheral registers (CCES-14240)	14				
	5.2	2 X11 forwarding is required to create or build projects from a command line with CCES on Linux						
	remot	tely by S	SH	14				
	5.3	For Mo	pre Information	15				

1 Introduction

This document describes the changes for CrossCore Embedded Studio (CCES) 2.5.1. You can find the release notes for older releases in the docs sub-directory of your CCES installation.

1.1 Supported Operating Systems

Notes for Windows Users

The following versions of Windows are supported for this release of CCES:

- Windows 7 Professional, Enterprise, or Ultimate (32 and 64-bit)
- Windows 8.1 Pro or Enterprise (32 and 64-bit)
- Windows 10 Pro or Enterprise (32 and 64-bit)

Å Notes for Linux Users

This release of CrossCore Embedded Studio for Linux has been provided to support the Linux Add-In for CrossCore Embedded Studio and support bare-metal development on Cortex-M processors such as the ADuCM302x family of MCUs.

The following Linux distributions are officially supported for this release of CCES:

• Ubuntu 14.04 32-bit

The following features are available and supported:

- Compilation using the GNU toolchain for the ADSP-SC58x ARM Cortex-A core.
- Compilation using the GNU ARM toolchain for the ADuCM302x and ADuCM4x50 ARM Cortex-M cores.
- Debugging ADSP-SC58x, ADuCM302x and ADuCM4x50 via the IDE with GDB/OpenOCD.
- Development and debugging of Applications running under Linux on the ADSP-SC58x ARM Cortex-A core.
- Development and debugging of bare-metal applications on the ADuCM302x and ADuCM4x50 ARM Cortex-M cores.

The following features are only supported via the Windows version of CrossCore Embedded Studio:

- Development, simulation and debug of Blackfin processors
- Development, simulation and debug of SHARC processors (excluding ADSP-SC58x ARM core)
- Use of CrossCore Embedded Studio Add-Ins other than the Linux Add-In
- Debugging an Application using the CrossCore Debugger (TPSDK)

1.2 System Requirements

Verify that your PC has these minimum requirements for the CCES installation:

- 2 GHz single core processor; 3.3GHz dual core or better recommended
- 4 GB RAM; 8GB or more recommended
- 2 GB available disk space
- One open USB port

O Note

A faster disk drive or SSD decreases the build time, especially for a large amount of source files. 8GB of RAM or more will substantially increase the performance of the IDE.

1.3 Obtaining Technical Support

You can reach Analog Devices software and tools technical support in the following ways:

- Post your questions in the software and development tools support community at EngineerZone[®]
- E-mail your questions about software and development tools directly from CrossCore Embedded Studio by choosing Help > Email Support or directly to processor.tools.support@analog.com
- E-mail your questions about processors and processor applications to processor. support@analog.com
- Submit your questions to technical support directly via http://www.analog.com /support
- Contact your Analog Devices sales office or authorized distributor

2 Installing CrossCore Embedded Studio

2.1 Installing CrossCore Embedded Studio on Windows

Note: Windows Only

▲ Caution

Windows users may experience User Access Control (UAC) related errors if the software is installed into a protected location, such as Program Files or Program Files (x86). We recommend installing the software in a non-UAC-protected location.

To install CrossCore Embedded Studio, double-click ADI_CrossCoreEmbeddedStudio-Rel2.5.1.exe

To uninstall CrossCore Embedded Studio, click the Start Menu / Analog Devices / CrossCore Embedded Studio 2.5.1 / Uninstall CrossCore Embedded Studio 2.5.1 shortcut

2.2 Installing CrossCore Embedded Studio on Linux

👃 Note: Linux Only

▲ Caution

It is strongly recommended to use the command prompt to install CrossCore Embedded Studio. Post-install configuration may fail when installing via Ubuntu Software Center.

To install CrossCore Embedded Studio run the following command from the command prompt:

```
sudo dpkg -i adi-CrossCoreEmbeddedStudio-linux-x86-2.5.1.deb
```

To uninstall CrossCore Embedded Studio run the following commands from the command prompt:

```
sudo dpkg -r adi-cces-2.5.1
sudo dpkg -P adi-cces-2.5.1
sudo rm -rf /opt/analog/cces/2.5.1 (to clean up any leftover files)
```

2.2.1 Different users sharing the same CCES license on Linux

Many users can share a single valid license.dat file on a system by creating a symbol link to the valid license.dat in their own home directory (~/.analog/cces). The user who installed license should ensure that the appropriate directory and file permissions are set-up to allow other users to access the valid license.dat.

2.2.2 OpenOCD needs to be run as sudo on Linux

In order to debug an Application with GDB and OpenOCD (Emulator) on Linux, OpenOCD needs to have permissions to access your USB device. You can set-up the necessary permissions when installing CCES on Linux by selecting 'Configure OpenOCD permissions' option on the installation dialog or afterwards by running sudo sh /opt /analog/cces/2.5.1/Setup/setup_openocd_permissions.sh.

If you debug an Application with GDB and OpenOCD (Emulator) using the IDE and OpenOCD fails, because it cannot access your USB device, a dialog will appear with a message telling you that you can run the setup_openocd_permissions.sh script.

If you start CCES with sudo permission, then there should be no problems with OpenOCD accessing your USB device.

3 New and Noteworthy

3.1 Pre-installed ADuCM302x CMSIS-Pack file has been updated

CCES 2.5.1 comes pre-installed with the ADuCM302x 1.0.4 CMSIS-Pack file.

▲ Future release

The ADuCM302x CMSIS-Pack file will not be pre-installed in the next major release of CCES. The pack file can be installed via the Keil CMSIS-Pack Index or by downloading it from the ADI website and installed from your local download. Please consult the CCES Online Help for more information on how to install CMSIS-Pack files.

3.2 ADuCM4x50 CMSIS-Pack file is supported, but not pre-installed.

3.2.1 EZK license

An EZK license is provided with each ADuCM4x50 EZ-Kit and the serial number can be used to activate your copy of CrossCore Embedded Studio (CCES).

As with the EZK license for ADuCM302x, this license will allow you to create and build ARM projects for Cortex-M processors and debug your applications with GDB and OpenOCD. The EZK license will not allow you to build or debug applications using the CrossCore toolchains and CrossCore Debugger.

3.2.2 Installing ADuCM4x50 support

ADuCM4x50 CMSIS-Pack files can be installed by opening the CMSIS Pack Manager perspective in CCES and selecting Check for Updates on Web. ADuCM4050 will be available to install by selecting it from the Devices View, choosing the Device Family Pack (DFP) and/or Board Support Pack (BSP) in the Packs View, and clicking the Install Action.

File Edit Navigate Search Project Run Window Help							
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🔳 Devices 🛛 📓 Boards	🗄 E 🕐 🙀 🗸 E	, 🗆	😫 Packs 🕴 📑 Examples		🕀 🖻 📚 🍪 🗸 🖓 🖻	P 🛛 🗖 🗖	
Search Device			Search Pack			₽ ₽ ? ~	
Device	Summary	*	Pack	Action	Description	1	
🔺 😤 All Devices	3890 Devices		 Device Specific 	2 Packs	ADuCM4x50 Series selected		
ABOV	10 Devices		AnalogDevices.ADuCM4x50_DFP	😻 Up to date	Analog Devices ADuCM4x50 Device Support and Examples		
Ambiq Micro	10 Devices		# 1.0.0	🔀 Remove	Initial Release		
 Analog Devices 	21 Devices		A halogDevices.ADuCM4x50_EZ_KIT_BSP	🚸 Up to date	Analog Devices ADuCM4x50 EZ-Kit Off-Chip Drivers and Examples		
A ADuCM4x50 Series	1 Device		# 1.0.0	🔀 Remove	Initial Release		
ADuCM4050	ARM Cortex-M4 52 MHz, 96 kB RAM, 508 kB		Generic	17 Packs	Software Packs with generic content not specific to a device		
ADuCM32x Series	4 Devices						
ADuCM36x Series	2 Devices						
ADuCM302x Series	2 Devices						
CM4xx Mixed Signal Control Pro 10 Devices							
CM41x Mixed Signal Contr	rol Pro 2 Devices						

Alternatively, the ADuCM4x50 Device Family Pack (DFP) and Board Support Pack (BSP) files can be installed using a local download.

After downloading the .pack files from the ADI website, select the Import Packs button in the CMSIS Pack Manager's Packs View, choose the .pack file as shown in the screenshot below, and click Open.

You will be prompted to accept a license agreement and, after agreeing to it, the CMSIS-Pack file will be installed into CrossCore Embedded Studio's CMSIS-Pack installation directory (C:\Analog Devices\CrossCore Embedded Studio 2.5.1 \ARM\packs\AnalogDevices).

CMSIS Pack Manager - CrossCore Emb	bedded Studio							
File Edit Navigate Search Project	Run Window Help							
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🔳 Devices 🕅 関 Boards 🛛 🕀 🖻 🗇 🗮 🤝 🖓				🏟 Packs 🕸 📑 Examples		🖽 🖻 🕐 😓 🦑 🕆 🗉	P x P	
Search Device				Search Pack			•••	
Device	Summary			Pack	Action	Description		
All Devices	3890 Devices			 Device Specific 	2 Packs	ADuCM4x50 Series selected		
ABOV	10 Devices			AnalogDevices.ADuCM4x50_DFP	😻 Up to date	Analog Devices ADuCM4x50 Device Support and Examples		
Ambiq Micro	10 Devices			1.0.0	X Remove	Initial Release		
 Analog Devices 	21 Devices			A halogDevices.ADuCM4x50_EZ_KIT_BSP	😻 Up to date	Analog Devices ADuCMAX50 EZ-Kit Off-Chip Drivers and Examples		
ADuCM4x50 Series	1 Device			# 1.0.0	X Remove	Initial Release		
ADuCM4050	ARM Cortex-M4 52 MHz, 96 kE	8 RAM, 508 kB		Generic	17 Packs	Software Packs with generic content not specific to a device		
ADuCM32x Series	ADuCM32x Series 4 Devices ADuCM36x Series 2 Devices				Ň			
ADuCM36x Series								
ADuCM302x Series 2 Devices				Kits ADuCM4x50 Device Family Pack-Rel1.0.0		✓ ♦ Search ADuCM4x50 De P		
) concirios cirinos com s		
				New folder		ii - 🗍 🔞		
ARM	40 Devices							
Atmel	263 Devices	AnalogDevicesADuCM4x50_DFP.1.0.0.pack						
Cypress	425 Devices							
GigaDevice	70 Devices							
Holtek	22 Devices							

3.2.3 Creating a new project, building and debugging with GDB and OpenOCD

A project for ADuCM4050 can be created using the New CrossCore Project Wizard.

🔀 New CrossCore Project	
Processor Type Specify the family, type, and silicon revision of project to target.	f the processor that you would like for this
Processor family:	Processor type:
	ADuCM3027 ADuCM3029 ADuCM4050
Blackfin Blackfin SHARC	Silicon revision:
	0.1 any none
Show processors from third party vendors	
?	Next > Finish Cancel

ADuCM4050 programs can be downloaded and debugged using GDB and OpenOCD.

Z Debug Configurations					
Create, manage, and run configurations Specify and launch an application with GDB and OpenO	cD 🔊				
Image: The second se	Name: HelloWorld Debug Target Main Debugger Startup Source Common Command: openocd Browse Target (processor) Board Analog Devices ADuCM4050 Interface: Analog Devices ICE-2000 Emulator Clock speed: I MHz Halt options Halt options Halt peripherals on suspend Arguments:				
Filter matched 5 of 5 items	Revert Apply				
?	Debug Close				

For more information, please read the ADuCM4x50 Device Family Pack (DFP) for CCES Users Guide available in the CMSIS-Pack installation folder: C:\Analog Devices\CrossCore Embedded Studio 2.5.1 \ARM\packs\AnalogDevices\ADuCM4x50_DFP\1.0.0\Documents.

3.3 OpenOCD console now shows its standard output in black and errors are shown in red (CCES-16581)

The console output from OpenOCD has been stream-lined so that its standard text output will appear in black while errors will be shown in red.

The output from OpenOCD can be seen in the Console View by selecting the OpenOCD process in the Debug View or by switching to the OpenOCD Console using the "Display Selected Console" option in the Console View itself.

🕒 Console 🖾 🖉 Tasks 🖹 Problems 💽 Executables	= x 🔌 🔈 🖬 🖉 🕑 🕐 🗆 🔶 🖛 🗝
<terminated> HelloWorld Debug [Application with GDB and OpenOCD (Emulator)]</terminated>	2 1 CMSIS RTE console [HelloWorld]
Open On-Chip Debugger (Analog Devices CCES 2.5.1 OpenOCD 0.9.	G 2 Output
Licensed under GNU GPL v2	3 CDT Global Build Console
Report bugs to <processor.tools.support@analog.com></processor.tools.support@analog.com>	4 CDT Build Console [HelloWorld]
0	5 Errors
adapter speed: 1000 kHz	6 <terminated> HelloWorld Debug [Application with GDB and OpenOCD (Emulator)] OpenOCD Process</terminated>
trst_only separate trst_pusn_pull adence58x init	7 HelloWorld Debug [Application with GDB and OpenOCD (Emulator)] C:\Analog Devices\CrossCore Embedded Studio 2.5.1\ARM\gcc-arm-embedded\bin\arm-none-eabi-gdb (3/3/17, 2:55 PM)
adapter speed: 1000 kHz	

3.4 adi_initialize.c and adi_initialize.h are re-generated if they do not exist in the project (CCES-15211)

The CCES Add-in framework in CCES 2.5.1 will re-generate the System configuration's Initialization adi_initialize.c and adi_initialize.h source files when they're used in the project but were not found (i.e. deleted or were not added to source control).

These files can still be re-generated manually by right-clicking on the /system folder in your project and selecting Generate Add-in Initialization Source Files from the context menu.

3.5 Register Browser (CCES-15067)

Improvements have been made to speed up the Register Browser.

4 Changes That Might Impact Backwards Compatibility

4.1 ADuCM302x LD script now matches Linker configuration file supplied with the ADuCM302x BSP for IAR. Less memory is available by default (GLUEM-280)

The default linker configuration file provided with the ADuCM302x BSP for IAR locates variables in SRAM regions to be retained during hibernation. In CCES, variables are located in non-retained SRAM.

The mapping of code and data in the CCES (GCC) ADuCM302x LD script now matches the Linker configuration file provided with the ADuCM302x BSP for IAR thereby avoiding confusion when porting an application set-up to use low power from one toolchain to another.

5 Known Issues

5.1 Register View does not show peripheral registers (CCES-14240)

If you are debugging a Cortex-M program (ADuCM302x/ADuCM4x50) with GDB and OpenOCD, then you will need to add an entry to the Expressions View in order to view the values of peripherals registers. CCES does not provide a Debug View to view peripheral registers.

5.2 X11 forwarding is required to create or build projects from a command line with CCES on Linux remotely by SSH

Å Note: Linux Only

If you want to use the CrossCore Embedded Studio headless tools application to create or build projects from a command line on Linux remotely by SSH, then you will need to setup:

- 1. X11 forwarding needs to be enabled on both the client side and the server side.
- 2. Have X Server (e.g. Xming) setup on your client side.

To make sure your server side has enabled X11 forwarding, check if its /etc/ssh /sshd_config contains:

```
X11Forwarding yes
X11DisplayOffset 10
```

If you use Putty as client, enable the X11 forwarding option by checking Configuration > Connection > SSH > X11 > Enable X11 forwarding and adding an X display location (e.g. localhost:0.0).

If you use Cygwin as client, enable the X11 forwarding by the following commands:

```
export DISPLAY=localhost:0.0
ssh -XY username@remote_server_ip
```

5.3 For More Information

For the latest anomalies please consult our Software and Tools Anomalies Search page.