Release Notes for CrossCore® Embedded Studio 2.10.1

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2 Introduction

This document describes the changes for CrossCore Embedded Studio (CCES) 2.10.1. You can find the release notes for older releases in the `docs` sub-directory of your CCES installation as well as an Installation Guide which will help you install this release.

3 New and noteworthy

3.1 ADSP-SC591 Processor Support Added

CCES 2.10.1 adds support for ADSP-SC591 parts.

3.2 New adi_securebootsim utility

A new `adi_securebootsim` utility has been added to CCES. Use `adi_securebootsim` to verify signed and encrypted boot files for secure boot of parts such as ADSP-2156x, ADSP-2159x and ADSP-SC59x. See "CrossCore Embedded Studio 2.10.1 > SHARC® Development Tools Documentation > Loader and Utilities Manual > Utilities > securebootsim - Verify and Validate Boot Streams for SecureBooting" in the CCES Online Help for further details.

3.3 DMC PHY Calibration issue workaround updated

The workaround for DMC PHY Calibration issue 20000117 that is incorporated into the initcodes and preloads and OpenOCD for ADSP-SC59x/ADSP-2159x parts has been updated to match rev D of Silicon Anomaly List for SHARC+ ADSP-21591/21593/21594/ADSP-SC591/SC592/SC594 (analog.com).

3.4 Changes to the definition of _adi_mmu_tableMemory

The CCES 2.10.1 Linker Files addin for ADSP-SC5xx parts has been updated to generate a `system/linker/page_table_mem.c` source that defines the raw memory array that is used to hold the first- and second-level page tables used by the Cortex-A cores MMU support. This generated file will be linked in to replace the librtadi.a definition and should use less memory.

3.5 Changes to generated makefiles

Makefiles generated for building CCES projects no longer use backslashes for quoting spaces in recipe lines. This is in preparation for upgrading make.exe to version 4.3 or later in a future CCES update, as that no longer supports such a use of backslashes in Windows mode.

3.6 OSPI access uses RCU0_MSG register on SC59x

There was an issue accessing OSPI memory in CCES when not configured properly so the SPI driver has added code to set bit 0 of RCU0_MSG to indicate that configuration is complete. If changing the RCU0_MSG register in an application take care not to overwrite/clear bit 0.

3.7 Ubuntu 20.04 supported

CCES now supports Ubuntu 20.04 when 32-bit compatibility libraries are installed. See the Installation Guide for more details.

4 Changes That Might Impact Backwards Compatibility

4.1 Ubuntu 16.04 support is deprecated

Support for CCES on Linux Ubuntu 16.04 will be removed in a future release of CCES.

4.2 SHARC C/C++ compiler detects additional cases of cc3832 "The section name "seg_dmda_nw" is reserved for use by the compiler"

On SHARC+ parts, attempting to define normal-word/word-addressed variables and arrays in byte-addressed code by placing them in the `seg_dmda_nw` section using the section keyword or #pragma section is unsafe. This can result in incorrect code and will produce larger data objects than intended. Prior to CCES 2.10.1 an error would be emitted by the compiler when attempting to do this using #pragma section, but no error was seen when using the section keyword to do the same. A cc3832 error will now also be emitted for the section keyword when using CCES 2.10.1.

The correct way to define normal-word/word-addressed variables and arrays is by defining them in a separate source file which is built with the char size set to 32-bit (`-char-size-32` compiler switch). These variables should be declared in byte-addressed code using `#pragma word_addressed` on the line immediately before the extern specifier.

5 Known Issues

5.1 OpenOCD does not support the EV-SOMCRR-EZKIT On-board Debug Agent

Currently OpenOCD only supports use of an ICE-1000 or ICE-2000 for debugging.

5.2 Separately installed Add-ins are not loaded correctly by CCES

Add-ins that are installed separately from CrossCore Embedded Studio are not properly loaded ("recognized"). Add-ins that are bundled with CCES (Internal Add-ins) such as Startup Code/LDF and those Add-ins that are installed via Analog Devices' External Update Site, such as the SSL/DD configuration UI, are properly loaded ("recognized") by CCES.

5.3 Debugger support for static const members

The IDDE does not display accurate debug information for `static const` class members. The values that are displayed in the expressions window are incorrect, and they may appear to change as the values of other struct members are modified.