

Embedded Target for TI TMS320C6000™ DSP Platform Release Notes

This release of Version 2.3.1 of Embedded Target for TI TMS320C6000™ DSP Platform does not contain major new features or bug fixes made since the version 2.3 release. It does include all of the changes made in Version 2.3.

Embedded Target for TI C6000 DSP Version 2.3 contains new features and major bug fixes. In addition, there are some considerations for upgrading from previous releases. These Release Notes discuss the following topics:

- “New Features” on page 1-2
- “Major Bug Fixes” on page 1-4
- “Upgrading from an Earlier Release” on page 1-5
- “Known Software and Documentation Problems” on page 1-6

Information About Previous Releases

The “Embedded Target for TI TMS320C6000 DSP 2.2 Release Notes” on page 2-1 describe Version 2.2 of the Embedded Target for TI TMS320C6000™ DSP Platform. These Release Notes discuss the following topics:

- “New Features” on page 2-2
- “Major Bug Fixes” on page 2-4
- “Upgrading from an Earlier Release” on page 2-5
- “Known Software and Documentation Problems” on page 2-7

Printing the Release Notes

If you would like to print the Release Notes, you can link to a PDF version.

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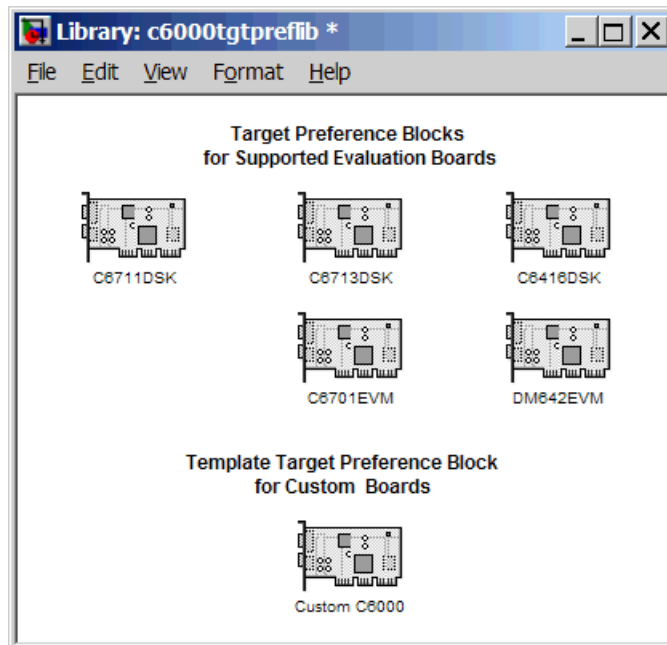
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New Features

This section summarizes the new features and enhancements introduced in the Embedded Target for TI C6000 DSP 2.3.

New Target Preferences Blocks For Targeting Custom Hardware

Version 2.3 introduces new blocks for targeting both existing supported boards and custom hardware. Located in the C6000 Target Preferences library (enter `c6000tgtpreflib` at the MATLAB prompt) and shown in this figure, the blocks provide configuration details for both supported boards like the C6711 DSK, and your custom hardware based on processors from the C6000 family.



Note the two block categories:

- Blocks for supported boards:

- C6416DSK—Set the target preferences and memory map for the C6416 DSP Starter Kit
- C6701EVM—Set the target preferences and memory map for the C6701 Evaluation Module
- C6711DSK—Set the target preferences and memory map for the C6711 DSP Starter Kit
- C6713DSK—Set the target preferences and memory map for the C6713 DSP Starter Kit
- DM642EVM—Set the target preferences and memory map for the DM642 Evaluation Module
- Block for targeting custom hardware—Custom C6000—Set the target preferences and memory map for your custom hardware based on a TI C6000 family processor

These blocks replace the C6000 Target Preferences block released in an earlier version. For details about the blocks, refer to the online Help for the Embedded Target for TI C6000 DSP. Each block has a reference page and you can find tutorial information about using the new blocks in “Targeting C6000 DSP Hardware” in the online Help system as well.

Added Interrupt Threshold Option in Configuration Parameters

To allow you to control how the compiler, linker, and assembler handle loops in your code, Embedded Target for TI C6000 DSP provides options that control interrupts in your code:

- **Interrupt threshold(-mi)**—enables the interrupt threshold option the project and enables Interrupt threshold value (cycles) so you can set the threshold.
- **Interrupt threshold value (cycles)**—sets the interrupt threshold for your code.

When you enable and set the threshold options, you are specifying the number of cycles that the compiler can disable interrupts. For more information, refer to the online Help system, and search for the keywords ‘interrupt’ ‘threshold’.

Major Bug Fixes

The Embedded Target for TI C6000 DSP 2.3 includes several bug fixes made since Version 2.2. This section describes the particularly important Version 2.3 bug fixes.

If you are viewing these Release Notes in PDF form, please refer to the HTML form of the Release Notes, using either the Help browser or the MathWorks Web site and use the link provided.

Upgrading from an Earlier Release

The only upgrade issues in this release are:

- Requires Code Composer Studio version 3.0
- Requires you to make changes to existing models that use the existing C6000 Target Preferences block to perform target selection

The following sections provide more details about the upgrade process.

Embedded Target for TI C6000 Requires CCS 3.0

To use this 2.3 release of Embedded Target for TI C6000 DSP, you must install Code Composer Studio 3.0 from Texas Instruments.

New Target Preferences Blocks Replace Existing C6000 Target Preferences Block

If you have models that use the earlier version of the target preferences block—C6000 Target Preferences, those models now have a broken link to the block. The C6000 Target Preferences block is obsolete and is not provided in this release.

To update your models, replace the existing C6000 Target Preferences block with the appropriate new block from the C6000 Target Preferences library. Select either the block that is specifically identified for your target, or use the Custom C6000 block if your hardware is not one of the explicitly supported boards.

Known Software and Documentation Problems

This section includes a link to a description of known software and documentation problems in Version 2.3.

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For information about issues you might encounter while you work with the Embedded Target for TI C6000 DSP, refer to the Appendix of the Embedded Target for TI C6000 DSP documentation in the online Help system.

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New Features

This section summarizes the new features and enhancements introduced in the Embedded Target for TI C6000 DSP 2.2.

Support for DM642 Evaluation Module

This release adds support for developing video applications on the DM642 Evaluation Module (DM642 EVM). The new blocks that support the DM642 EVM, found in a library named DM642 Board Support, include blocks for capturing and delivering video data, and a block to control the LEDs on the board:

- DM642 Video ADC—Configure video capture capability (video decoders) to capture analog video input on the DM642 Evaluation Module
- DM642 Video DAC—Configure the video display capability (video encoder) on the DM642 EVM
- DM642 LED—Control the eight light-emitting diodes (LED) on the DM642 Evaluation Module
- DM642 Reset—Reset the DM642 EVM to initial conditions

With the new blocks, you can capture NTSC video in a range of modes and formats, process the video in an application on your target, and output the processed video as NTSC compatible video data.

Additional Demos for the DM642 and Other Hardware

To help you develop applications on your DM642, this version of the software includes new demos in MATLAB:

- DM642 Video Stabilization—demonstrates active image stabilization in real time applied to streaming video data.
- DM642 Edge Detection—demonstrates the process of detecting edges in streaming video data.
- C6416 DSK Adaptive Noise Cancellation Using Fixed-Point Filtering—demonstrates and adaptive filtering application.

- C6416 DSK Edge Detection using High Speed RTDX-demonstrates edge detection in real time in streaming video data. Note that you need a high speed RTDX emulator, such as the XDS 560 to run this demo.

Relocate the Stack to Internal RAM on Some Boards

On the 6713, 6416 and DM642 boards, we now use internal RAM (ISRAM) to store the stack. This provides faster operation in many instances.

Ability to Choose the CPU Clock Rate on Custom Boards

Added an option for selecting the CPU clock rate in the Real-Time Workshop **TI C6000 target selection** dialog. There is also an option to specify whether the clock speed should be user-specified or automatically determined—the default setting. When you select the **Specify via dialog** setting, you enable the **CPU clock rate** option so you can enter the actual board clock rate for your generated code to use to run correctly on the target. On the C6713 DSK, you set the 225 MHz clock rate in the GEL file for the project. When you change the GEL file, the Embedded Target for TI C6000 software assumes the new clock rate by default. Setting the new clock rate in the Configuration Parameters dialog does not change the actual clock rate on the target.

Ability to Specify the Stack Size in Bytes on Some Boards

Added an option for selecting the stack size in the Real-Time Workshop **TI C6000 link** dialog. There is also an option to specify whether the stack size should be user-specified or automatically determined—the default setting. When you select the **Specify via dialog** setting, you enable the **Stack size (bytes)** option so you can enter your stack size in bytes.

Major Bug Fixes

The Embedded Target for TI C6000 DSP 2.2 includes several bug fixes made since Version 2.1. This section describes the particularly important Version 2.2 bug fixes.

If you are viewing these Release Notes in PDF form, please refer to the HTML form of the Release Notes, using either the Help browser or the MathWorks Web site and use the link provided.

If you are upgrading from Release 14 or earlier, then you should see Major Bug Fixes of the Embedded Target for TI C6000 DSP 2.1 Release Notes.

Upgrading from an Earlier Release

The only upgrade issue in this release is updating CCS for the DM642.

Requirements for the DM642 EVM

Certain requirements for the DM642 EVM differ from the other supported targets. This sections provides details about using both the DM642 EVM hardware target and the simulator. Using the DM642 requires the following:

- Separate CCS installation version 2.2
- DM642 EVM patch to upgrade CCS version to 2.20.18
- Device Driver Development Kit (DDK) patch

Installation procedures for the CCS software is provided in the Texas Instruments DM642 Quick Start Guide.

You can use any means you wish to connect to your DM642.

Optionally, to run the video surveillance demo, you need a high speed RTDX emulator like the XDS560 JTAG Scan-Based Emulator (High Speed RTDX emulator) or something similar.

Setting Up Code Composer Studio for the DM642 EVM

Your DM642 EVM requires a separate Code Composer Studio installation. To use the EVM when have more than one CCS installation, you need to install the CCS for the DM642 EVM in a separate location. You cannot merge your DM642 CCS installation with existing or other CCS installation. Follow the installation guidelines provided by Texas Instruments when you install CCS to use your DM642 EVM.

Install the patch C6000-2.20.00-FULL-to-C6000-2.20.18-FULL.EXE as directed by Texas Instruments.

Finally, install the Device Driver Development Kit patch `ddk-v1-10-00-23.exe`.

About the Device Driver Development Kit

To use the Embedded Target for TI C6000 DSP software with your DM642 you need to install the Device Driver Developer Kit (DDK) patch that you get from Texas Instruments. While the DDK is optional for some DM642 operations, the

Embedded Target for TI C6000 DSP requires the DDK for code generation. According to TI, the DDK is Texas Instruments' Device Driver Development Kit, and Version 1.1 of the DDK contains device drivers for the DM642 EVM peripheral devices.

About the XDS560 JTAG Scan-Based Emulator

You need the XDS560 Emulator to use the DM642 with the Embedded Target for TI C6000 DSP. Either the PCI-bus or USB version works. While the XDS510 Emulator may work, we have not tested it with the target software.

Known Software and Documentation Problems

This section includes a link to a description of known software and documentation problems in Version 2.2.

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