



# C67I3DSK & TI CCSV4 INSTALLATION INSTRUCTIONS

Milwaukee School of Engineering

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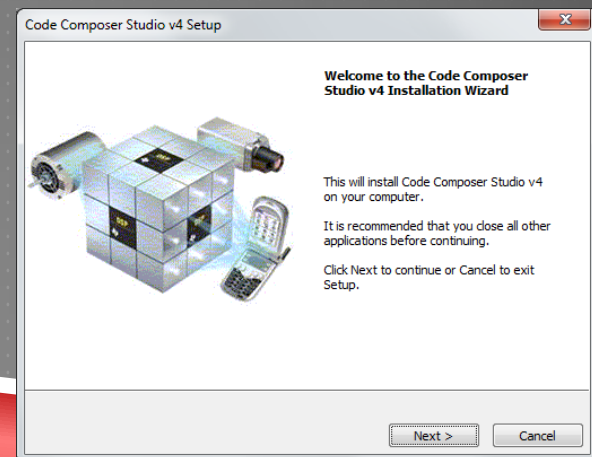
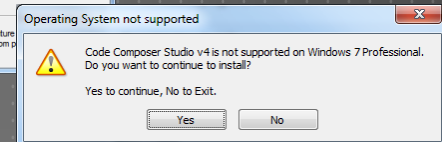
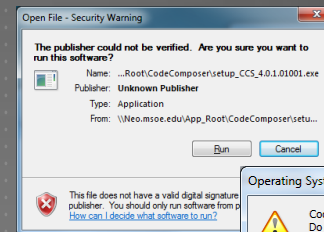
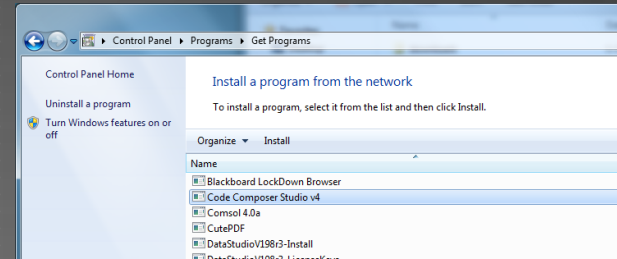
Author: Cory J. Prust, Ph.D.

# OVERVIEW

- ▶ This tutorial covers the following:
  - ▶ Installation of Code Composer Studio v4 on your MSOE laptop
  - ▶ Running CCS v4 for the first time
  - ▶ Setup of support libraries
  - ▶ Connection and installation of the C6713DSK hardware platform
  - ▶ Downloading a sample program into the DSK unit

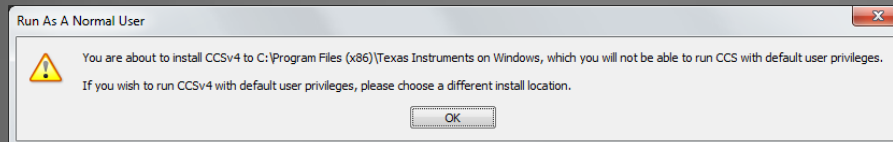
# CCSV4 INSTALL: 1 OF 6

- ▶ Locate and select “Code Composer Studio v4” from the network program installation menu
  - ▶ Click “Install”
  - ▶ If prompted with a security warning, select “Run”
  - ▶ If prompted with an “Operating System not supported” message, choose “Yes”
- ▶ Select “Next” at the Welcome screen

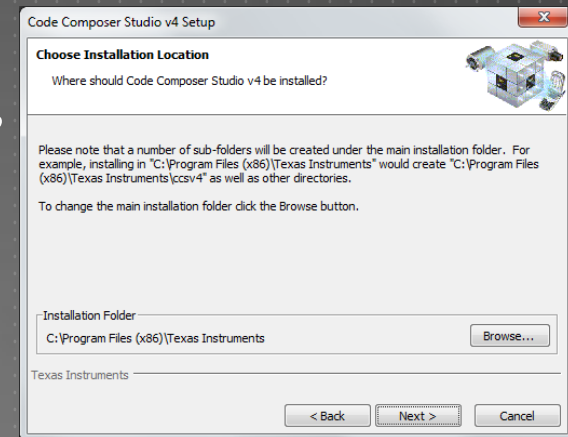


# CCSV4 INSTALL: 2 OF 6

- ▶ Accept the license agreement and select “Next”
- ▶ Choose the Installation Location and select “Next”
  - ▶ Using the default installation folder “C:\Program Files (x86)\Texas Instruments” is STRONGLY recommended
- ▶ You may see the following message:

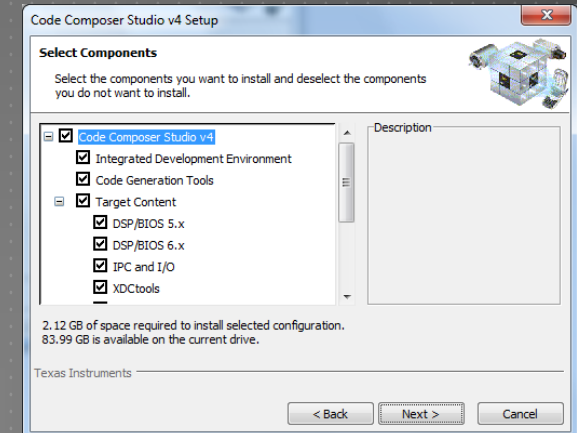
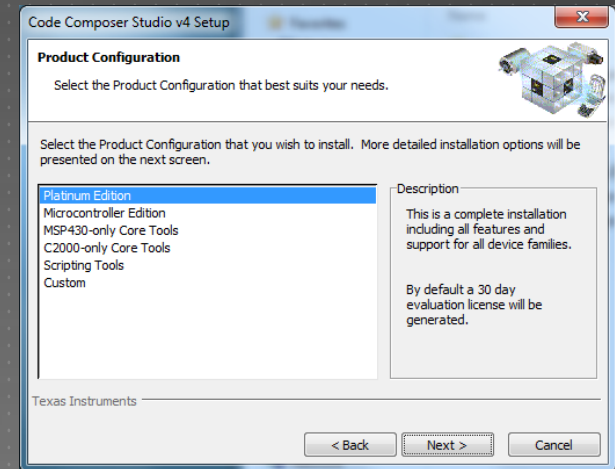


- ▶ Click “OK” and proceed



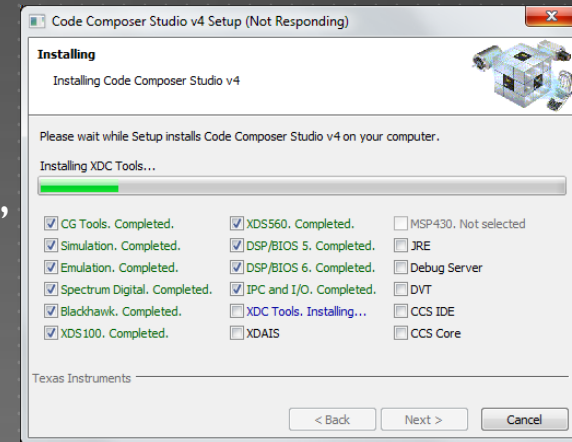
# CCSV4 INSTALL: 3 OF 6

- ▶ Select “Platinum Edition” as the Product Configuration and select “Next”
- ▶ Use default settings for “Select Components” and select “Next”
- ▶ Select “Next” to begin copying files

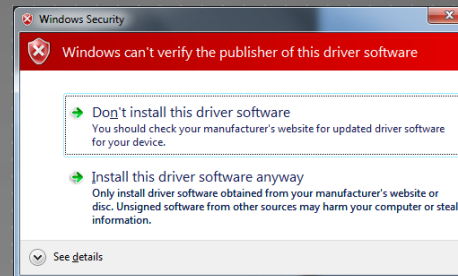
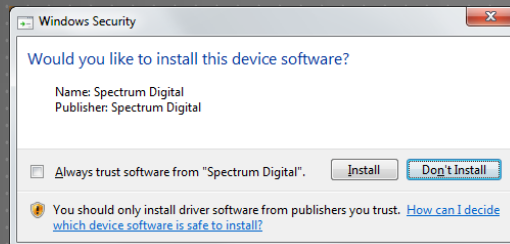


# CCSV4 INSTALL: 4 OF 6

- ▶ You should see the “Installing” screen
  - ▶ Windows may report the install as “Not Responding”
  - ▶ Don’t worry; allow the install to continue



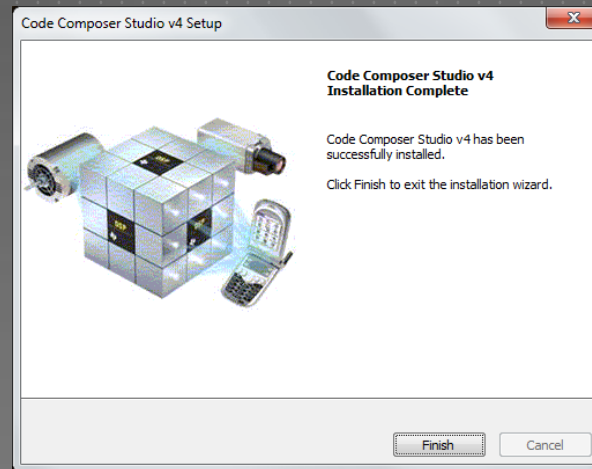
- ▶ If during installation, you see messages similar to the following



Choose “Install”

# CCSV4 INSTALL: 5 OF 6

- ▶ Upon completion, you should see the following screen



- ▶ Choose “Finish” to exit the installation process

# CCS V4 INSTALL: 6 OF 6

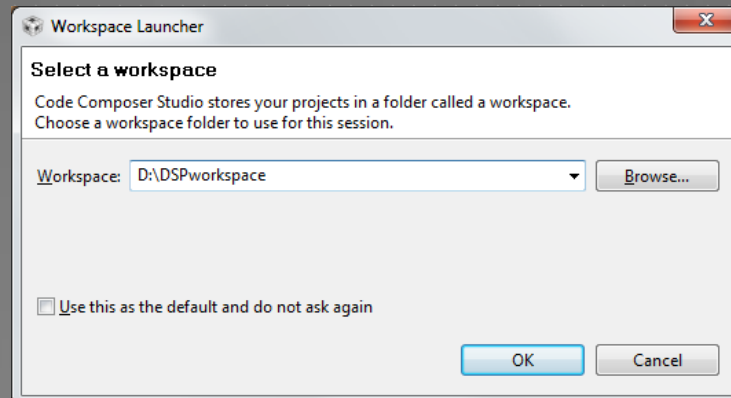
- ▶ You should see three new icons on your desktop
- ▶ You should only ever need “Code Composer Studio v4”
  - ▶ You may safely delete the other shortcuts from your desktop
- ▶ Congratulations!! CCS v4 has been successfully installed!





# RUNNING CCSV4 THE FIRST TIME: 1 OF 3

- ▶ Run Code Composer Studio
- ▶ You will be prompted to “Select a workspace”
  - ▶ The workspace is essentially just a folder that will store your DSP projects
  - ▶ Choose a suitable location and folder name (e.g., D:\DSPworkspace), and select “OK”

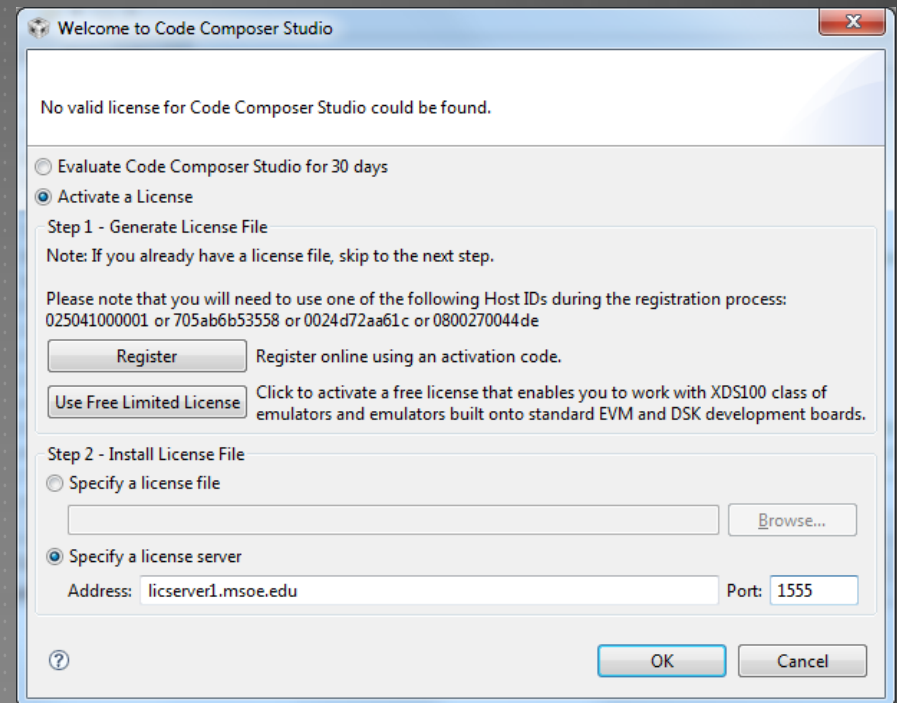


# RUNNING CCSV4 THE FIRST TIME: 2 OF 3

- ▶ You will then be prompted to select a license
  - ▶ Choose “Activate a license” and “Specify a license server”

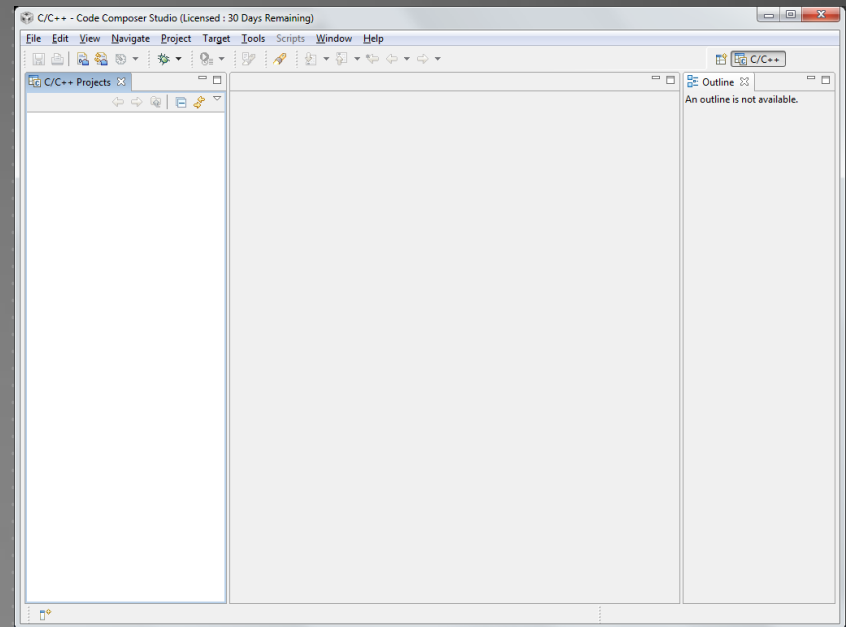
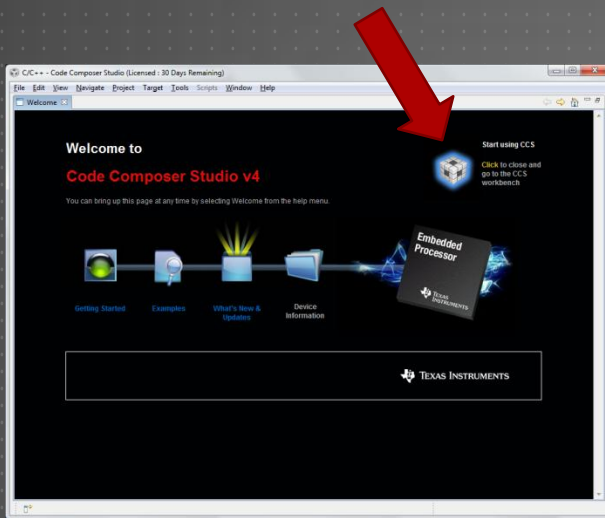
Address: **licserver1.msoe.edu**

Port: **1555**



# RUNNING CCSV4 THE FIRST TIME: 3 OF 3

- ▶ Select the CCS icon in the upper right hand corner to open the IDE

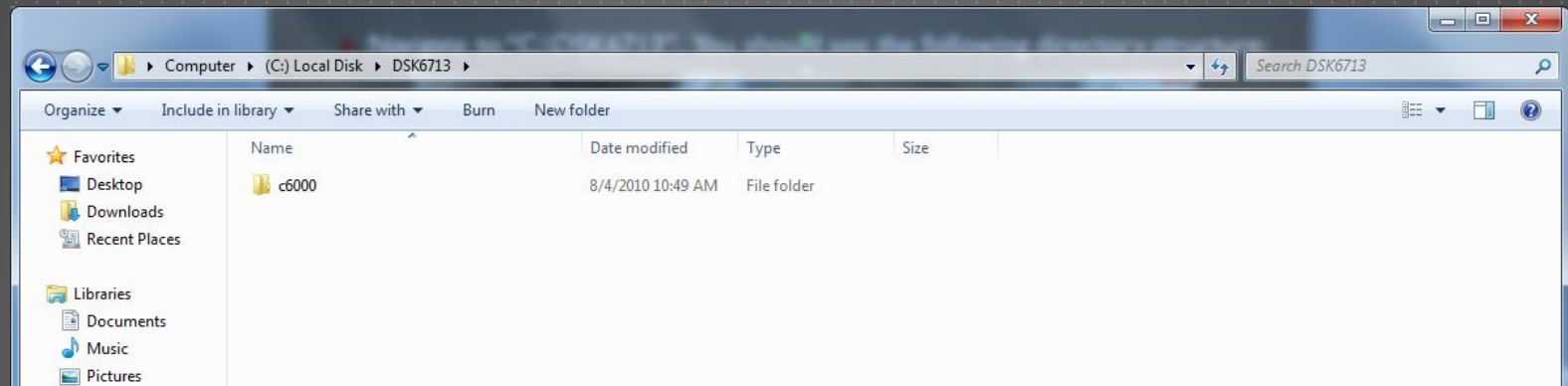


# SUPPORT LIBRARIES: 1 OF 3

- ▶ Using the DSK requires additional libraries provided by the hardware vendor (Spectrum Digital) and Texas Instruments
- ▶ Navigate your web browser to <http://people.msoe.edu/~prust/c6713dsk> and download the following files:
  - ▶ dsk6713libs.zip
  - ▶ dskSupport.zip
- ▶ Unzip the file “dsk6713libs.zip” directly to your harddisk (C:\)
- ▶ Unzip the file “dskSupport.zip” directly to your CSS workspace directory
  - ▶ e.g., “D:\DSPworkspace”

# SUPPORT LIBRARIES: 2 OF 3

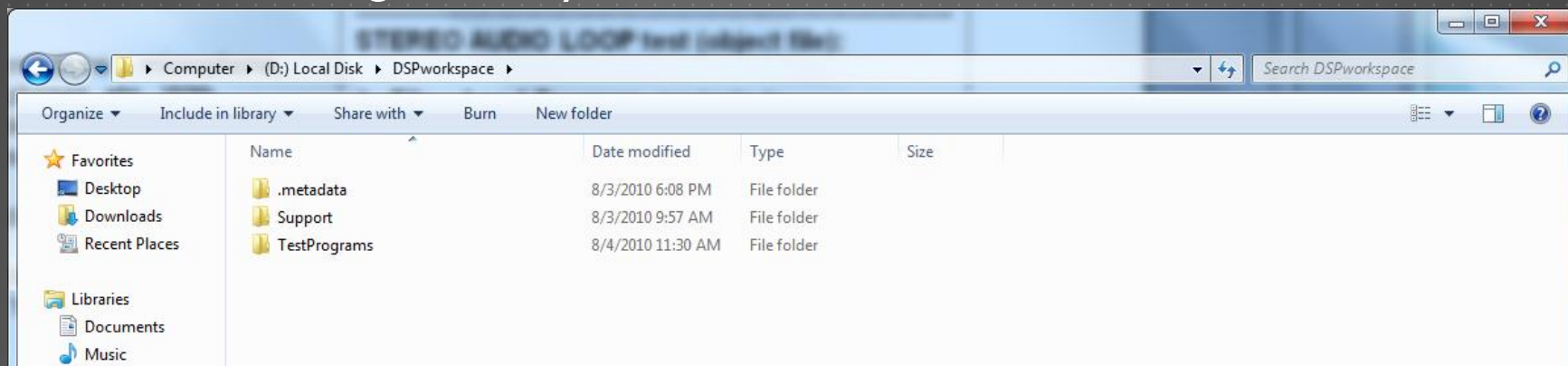
- ▶ Navigate to “C:\DSK6713”. You should see the following directory structure:



- ▶ Several of these files and directories will be linked into our CCS projects
- ▶ You should never need to modify any of these files

# SUPPORT LIBRARIES: 3 OF 3

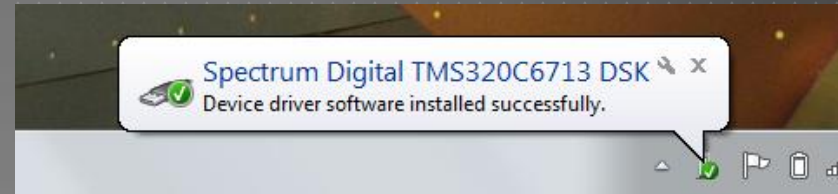
- ▶ Navigate to your workspace directory (e.g., “D:\DSPworkspace”). You should see the following directory structure:



- ▶ The “Support” directory contains files for use in writing DSK software
- ▶ The “TestPrograms” directory contains a pair of executable files that can be downloaded to the DSK.
  - ▶ We will test the DSK with these files momentarily...

# CONNECTING THE DSK: 1 OF 1

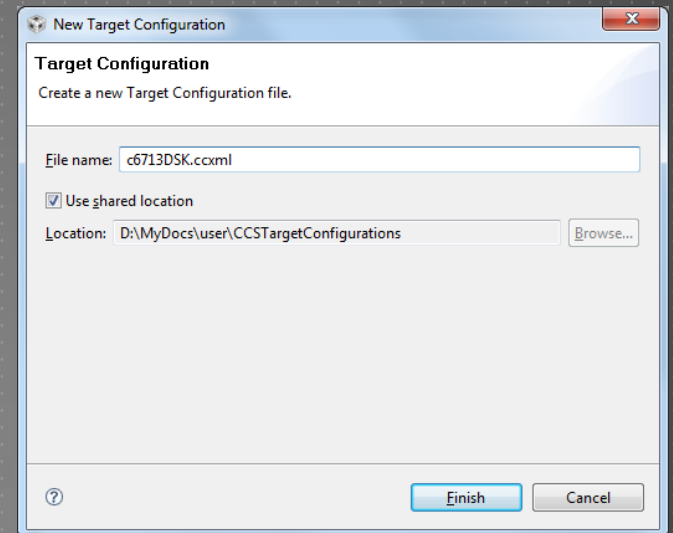
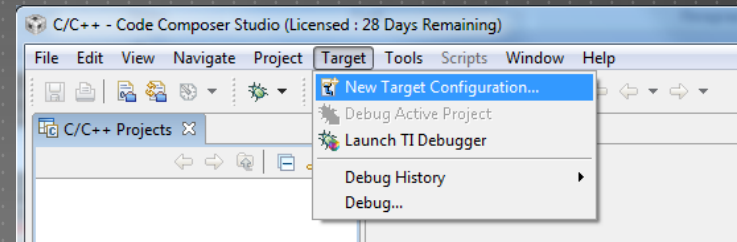
- 1) Connect one end (only) of the USB cable to your laptop computer
- 2) Connect AC power adapter to wall outlet
- 3) Connect AC power adapter to DSK board and wait for 4 LEDs to cycle (10-15 seconds) -- they will finally remain all “on.”
- 4) Connect the other end of the USB cable to the DSK board
- 5) Windows should automatically find the appropriate driver



**Please follow this procedure each time  
you connect the DSK!**

# TESTING THE DSK: 1 OF 6

- ▶ The first task is to create a configuration file for the DSK inside of CCS
- ▶ With CCS running:
  - ▶ Select “Target > New Target Configuration”
- ▶ Set the “File name:” as “c6713DSK.ccxml”
- ▶ Use the default “Location:”
- ▶ Select “Finish”



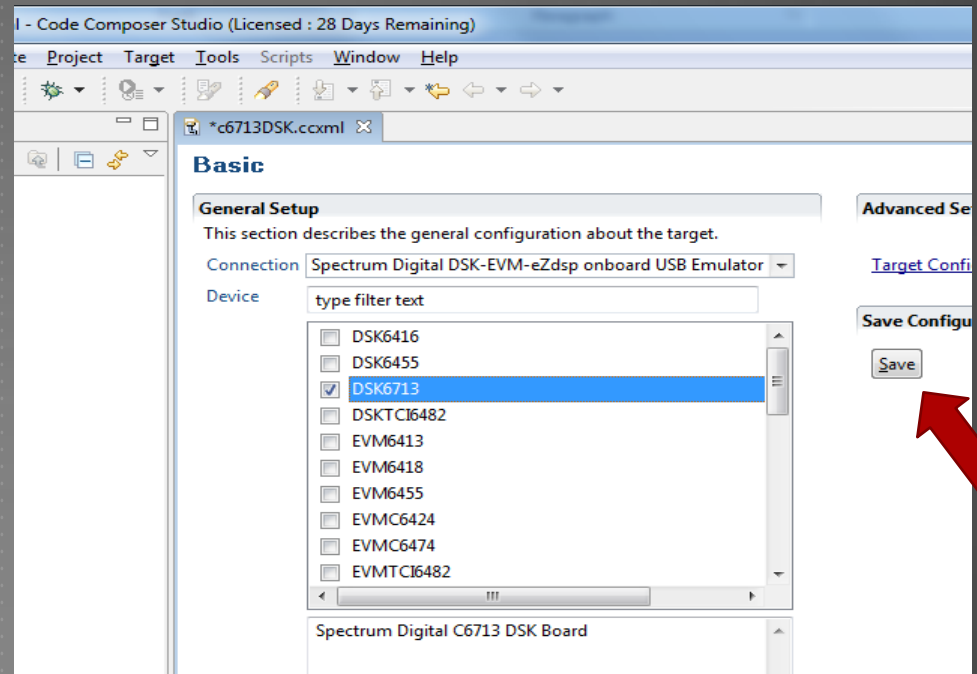


# TESTING THE DSK: 2 OF 6

- ▶ The configuration file will then open inside of CCS
  - ▶ Set the “Connection” field to  
**Spectrum Digital DSK-EVM-eZdsp onboard USB Emulator**

- ▶ Select “Device”  
**DSK6713**

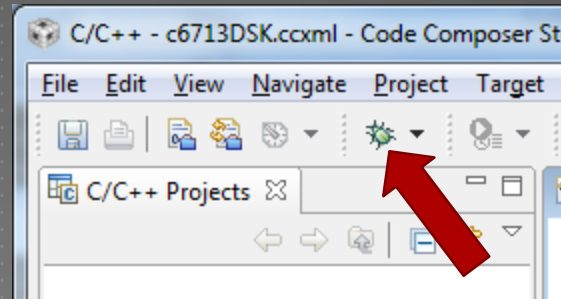
- ▶ Press “Save”



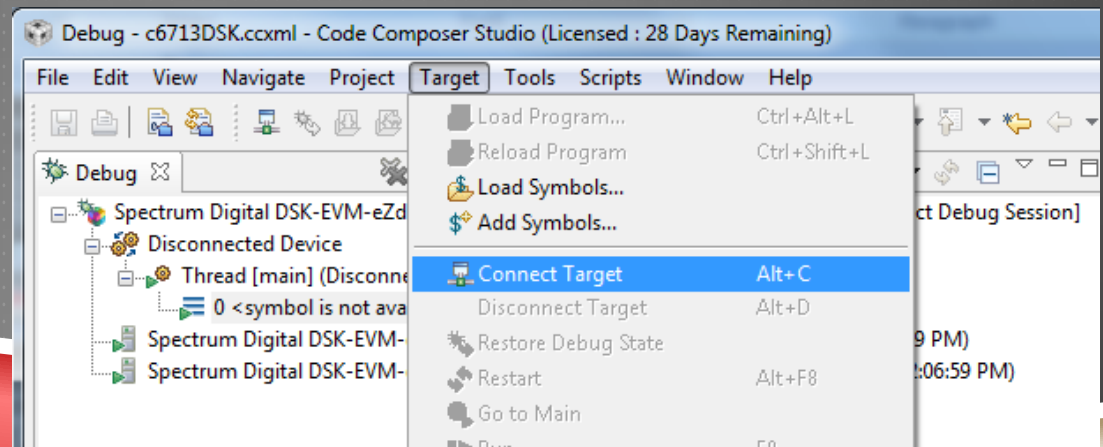
# TESTING THE DSK: 3 OF 6

- ▶ We will now start the CCS Debugger which handles communication with the DSK unit

- ▶ Click the “Debug” icon

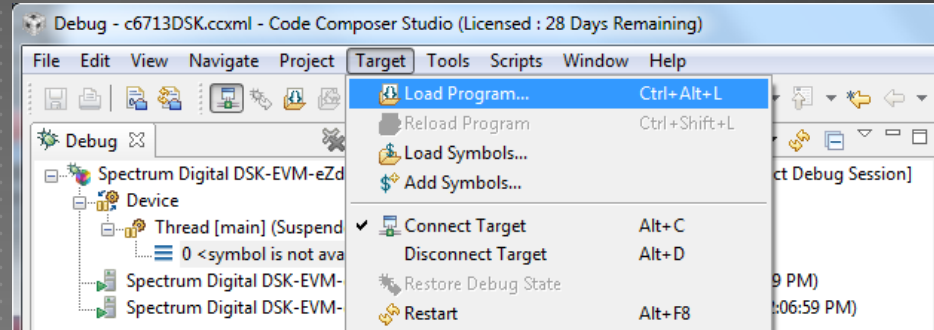


- ▶ After a few seconds, the debug window should appear
  - ▶ Select “Target > Connect Target”

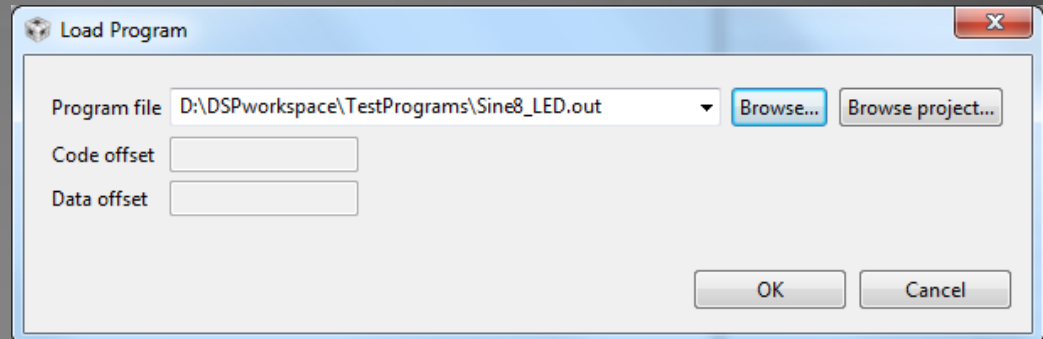


# TESTING THE DSK: 4 OF 6

- ▶ We will now load an executable file into the DSK
  - ▶ Select “Target > Load Program”

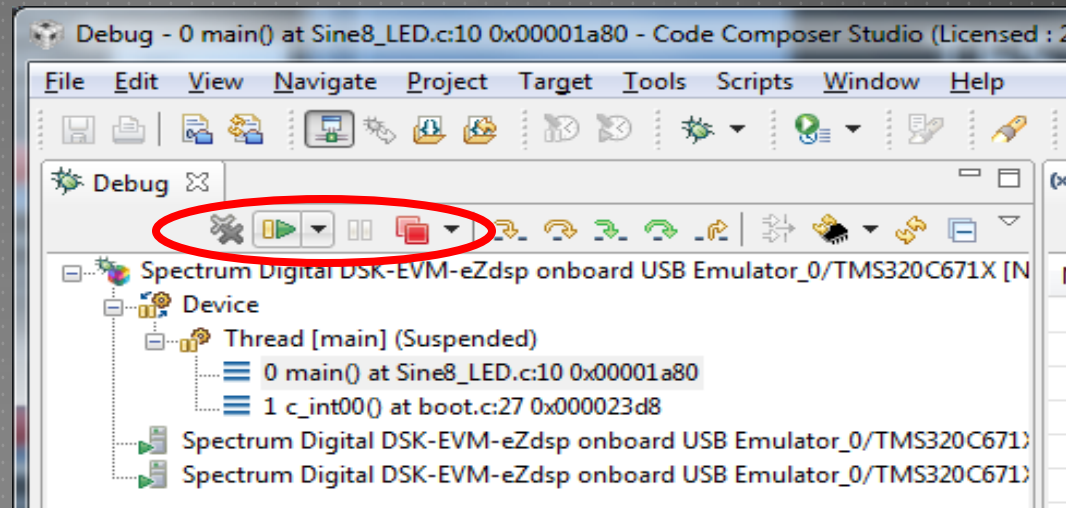


- ▶ “Browse” to the “TestPrograms” directory and select “Sine8\_LED.out”
- ▶ Select “OK”



# TESTING THE DSK: 5 OF 6

- ▶ To begin execution of the program, select “Target > Run”
- ▶ To pause execution, select “Target > Halt”
- ▶ To stop execution (and exit the debugger), select “Target > Terminate All”
- ▶ *Hint:* These operations, as well as other debugger commands, are available as icons in the debug window



# TESTING THE DSK: 6 OF 6

- ▶ The program “Sine8\_LED.out” produces a 1kHz sine wave on the LINE OUT and HEADPHONE jacks when pushbutton 0 (on SW1) is pressed.
- ▶ To test the program, connect the LINE OUT jack to an oscilloscope and monitor the output while pressing pushbutton 0
- ▶ Following the same procedure, load the program “Loop\_stereo\_test.out” into the DSK
- ▶ This program samples a stereo audio signal on the LINE IN jack and outputs the signal (unchanged) to the LINE OUT and HEADPHONE jacks.
- ▶ To test the program, play stereo audio (e.g., from an IPOD or laptop) into the LINE IN jack and monitor the output

...but, **REMEMBER...**

# USING THE C6713DSK: IMPORTANT!!!

- ▶ If using HEADPHONES to monitor output signals:
  - ▶ **NEVER** download software to the DSK while headphones are affixed to your ears
  - ▶ The onboard headphone amplifier has high gain and could damage your hearing
  - ▶ When testing software, slowly lift headphones to your ears
- ▶ If applying signals to the LINE IN port
  - ▶ **ALWAYS** check signals on the oscilloscope prior to connecting to the DSK
  - ▶ **ALWAYS** monitor signals on the oscilloscope while connected to the DSK
  - ▶ Input signals should never exceed **1.0V peak-to-peak**.
  - ▶ Large voltages can damage the DSK. Replacement cost is ~\$500.

# CONGRATULATIONS!

- ▶ You now have a fully functioning IDE and hardware configuration for the TMS320C6713 DSK!
- ▶ Part III of this tutorial shows you how to create and configure your own DSK projects.