Procedure

Hardware

1. You will need the following hardware:

    * A 32 or 64-bit Windows XP or Windows7 laptop with 2G or more of free hard drive space. 1G of RAM should be considered a minimum … more is better.
    * A laptop with Wi-Fi is highly desirable
    * If you are working the labs from home, a second monitor will make the process much easier. If you are attending a live workshop, you are welcome to bring one.
    * If you are attending a live workshop, please bring a set of earphones or ear-buds.
    * If you are attending a live workshop, you will receive an evaluation board; otherwise you need to purchase one. (http://www.ti.com/tool/EK-LM4F120XL)
    * If you are attending a live workshop, a digital multi-meter will be provided; otherwise you need to purchase one like the inexpensive version here: (http://www.harborfreight.com/catalogsearch/result?q=multimeter)
    * If you are attending a live workshop, you will receive a second **A-male to micro-B-male** USB cable. Otherwise, you will need to provide your own to complete Lab 7.
    * If you are attending a live workshop, you will receive a Kentec 3.5" TFT LCD Touch Screen BoosterPack (**Part# EB-LM4F120-L35).** Otherwise, you will need to provide your own to complete Lab 10.

    As you complete each of the following steps, check the box in the title, like the below, to assure that you have done everything in order.
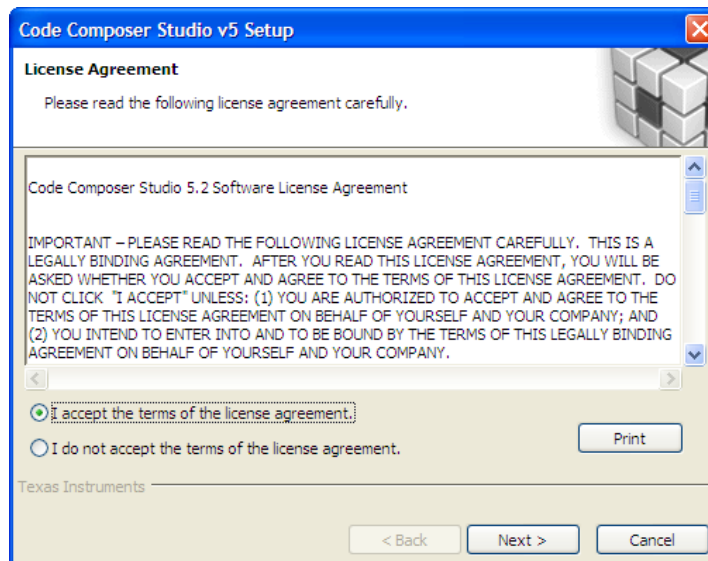
Download and Install Code Composer Studio ☐

2. Download and start the latest version of Code Composer Studio (CCS) 5.x web installer from http://processors.wiki.ti.com/index.php/Download_CCS (do not download any beta versions). Bear in mind that the web installer will require Internet access until it completes. If the web installer version is unavailable or you can't get it to work, download, unzip and run the offline version. The offline download will be much larger than the installed size of CCS since it includes all the possible supported hardware.

    This version of the workshop was constructed using build number 5.2.1.00018. Your version will likely be later. For this and the next few steps, you will need a my.TI account (you will be prompted to create one or log into your existing account).
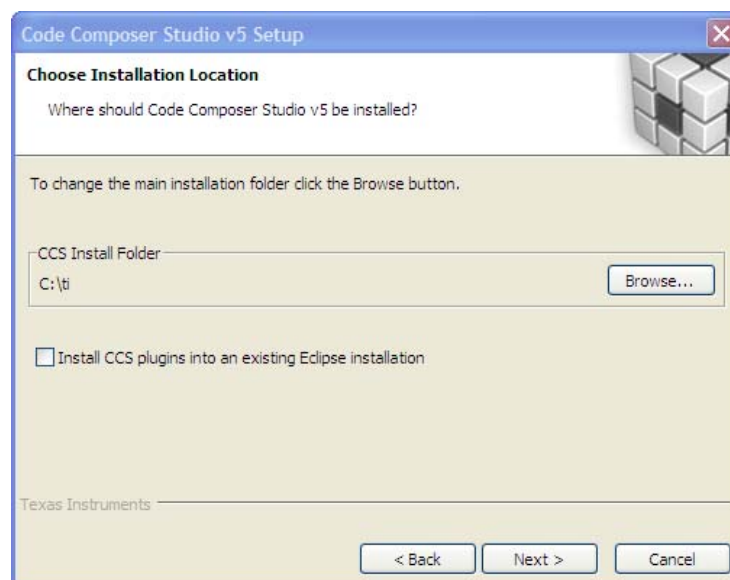
    You should note that the 16K limitation on the free, code size limited version of CCS is too small to work with most of the projects in this workshop.

    Note that the evaluation license of CCS will operate with full functionality for free while connected to a Stellaris evaluation board. Most Stellaris boards can also operate as an emulator interface for your target system, although this function requires a licensed version of CCS.
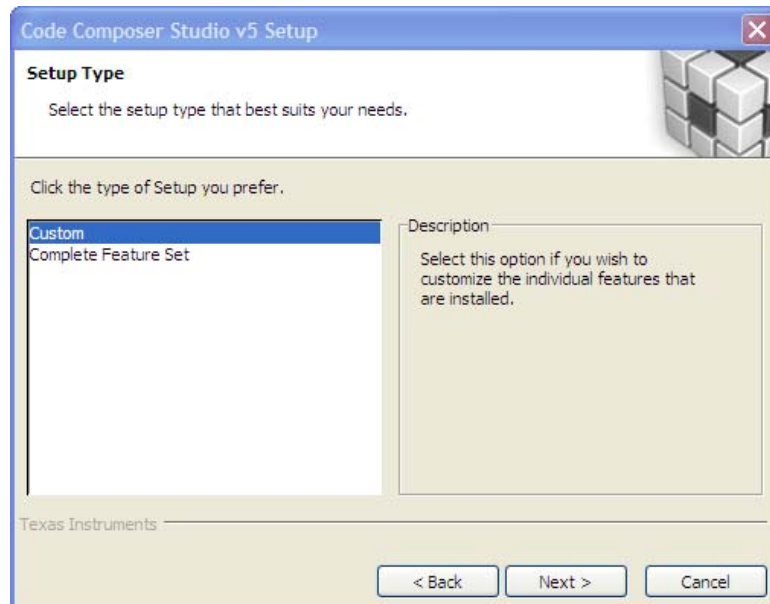
3. If you have downloaded the offline file, start the `ccs_setup_5.xxxxx.exe` file in the folder created when you unzipped the download.

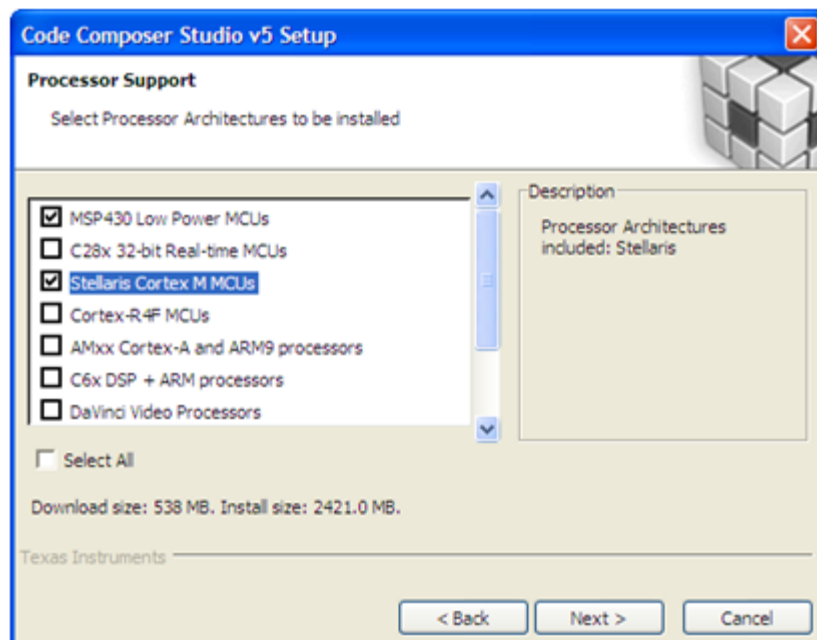4. Accept the Software License Agreement and click Next.

5. Unless you have a specific reason to install CCS in another location, accept the default installation folder and click Next. If you have an another version of CCS and you want to keep it, we recommend that you install this version into a different folder.
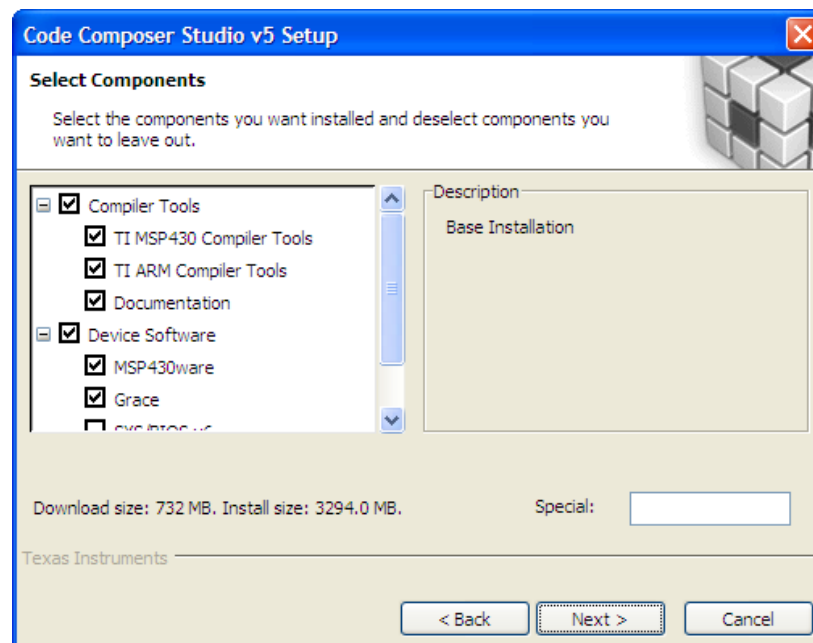
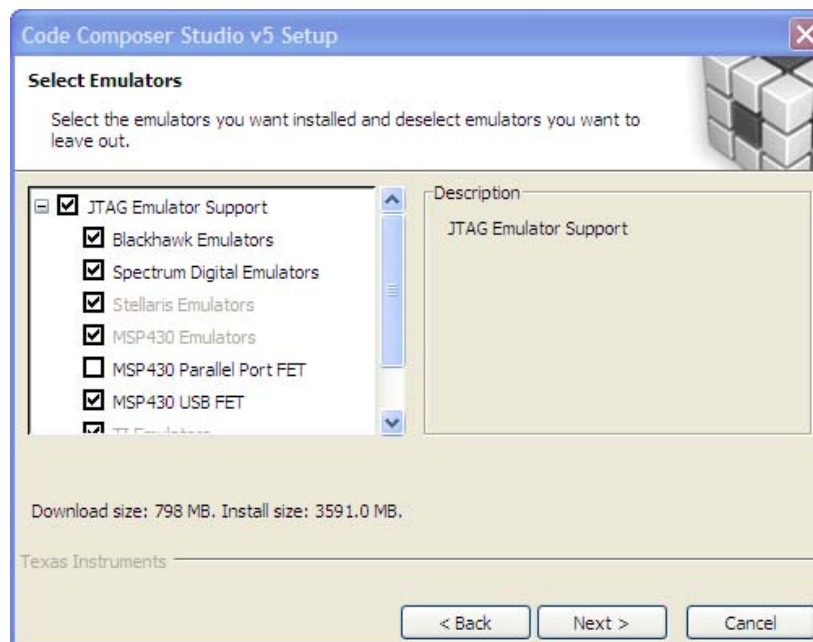6. Select "Custom" for the Setup type and click Next.

7. The next dialog, select the processors that your CCS installation will support. You should select "Stellaris Cortex M MCUs" in order to run the labs in this workshop. If you are also attending the MSP430 workshop you should also select "MSP430 Low Power MCUs". You can select other architectures, but the installation time and size will increase. Click Next.
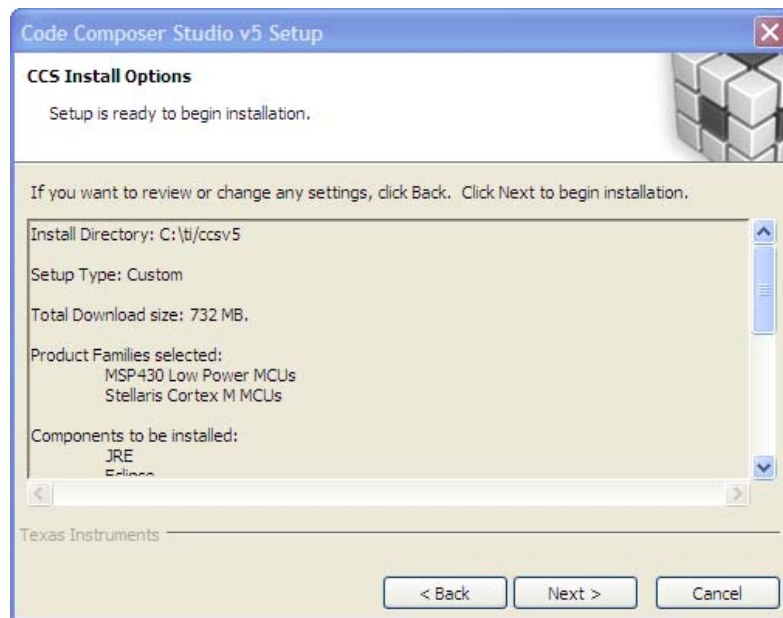
8. In the Component dialog, keep the default selections and click Next.

9. In the Emulators dialog, uncheck the Blackhawk and Spectrum Digital emulators, unless you plan on using either of these.

10. When you reach the final installation dialog, click Next. The web installer process should take 15 - 30 minutes, depending on the speed of your connection. The offline installation should take 10 to 15 minutes. When the installation is complete, don't start CCS.

Install StellarisWare ☐

11. Download and install the latest full version of StellarisWare from: http://www.ti.com/tool/sw-lm3s . This workshop was built using release number 9107. Your version will likely be a later one. If at all possible, please install StellarisWare into the default `C:\StellarisWare` folder.

Install LM Flash Programmer ☐

12. Download, unzip and install the latest LM Flash Programmer (LMFLASHPROGRAMMER) from http://www.ti.com/tool/lmflashprogrammer . This workshop was built using version number 1381. Your version will likely be a later one.

Download ICDI Drivers ☐

13. Download the latest version of the in-circuit debug interface drivers from http://www.ti.com/tool/stellaris_icdi_drivers . Unzip the file and place the `stellaris_icdi_drivers` folder in `C:\StellarisWare`.

Download and Install Workshop Lab Files ☐

14. Download the lab installation file from the workshop materials section of the Wiki site below. The file will install your lab files in:
`C:\StellarisWare\boards\MyLaunchPadBoard`. So please be sure that you have installed StellarisWare before installing the labs.

www.ti.com/StellarisLaunchPadWorkshop

Download Workshop Workbook ☐

15. Download a copy of the workbook pdf file from the workshop materials section of the Wiki site below to your desktop. It will be handy for copying and pasting code.

www.ti.com/StellarisLaunchPadWorkshop

Terminal Program ☐

16. If you are running WindowsXP, you can use HyperTerminal as your terminal program. Windows7 does not have a terminal program built-in, but there are many third-party alternatives. The instructions in the labs utilize HyperTerminal and PuTTY. You can download PuTTY from the address below.

http://the.earth.li/~sgtatham/putty/latest/x86/putty.exe

Windows-side USB Examples ☐

17. Download and install the StellarisWare Windows-side USB examples from this site:

www.ti.com/sw-usb-win

Download and Install GIMP ☐

18. We will need a graphics manipulation tool capable of handing PNM formatted images. GIMP can do that. Download and install GIMP from here:

www.gimp.org

LaunchPad Board Schematic

19. For your reference, the schematic is included at the end of this workbook.

Helpful Documents and Sites ❑

20. There are many helpful documents that you should have, but at a minimum you should have the following documents at your fingertips.

    Look in `C:\StellarisWare\docs` and find:

    Peripheral Driver User's Guide (SW-DRL-UGxxxx.pdf)

    USB Library User's Guide (SW-USBL-UGxxxx.pdf)

    Graphics Library User's Guide (SW-GRL-UGxxxx.pdf)

    LaunchPad Board User's Guide (SW-EK-LM4F120XL-UG-xxxx.pdf)

21. Go here: http://www.ti.com/product/lm4f120h5qr and download the LM4F120H5QR Data Sheet. Stellaris data sheets are actually the complete user's guide for the device. So expect a large document.

22. Download the ARM Optimizing C/C++ Compilers User Guide from http://www.ti.com/lit/pdf/spnu151 (SPNU151). Of particular interest are the sizes for all the different data types in table 6-2. You may see the use of "TMS470" here … that is the TI product number for its ARM devices.

23. You will find a "Hints" section at the end of chapter 2. You will find this information handy when you run into problems during the labs.

24. Search the TI website for these additional documents of interest:

    SPMU287:   Stellaris Driver Installation Guide (for ICDI and FTDI drivers)

    SPMU288:   BoosterPack Development Guide

    SPMU289:   LaunchPad Evaluation Board User's Manual (includes schematic)

You can find additional information at these websites:

Main page: www.ti.com/launchpad

Stellaris LP: www.ti.com/stellaris-launchpad

EK-LM4F120XL product page: http://www.ti.com/tool/EK-LM4F120XL

BoosterPack webpage: www.ti.com/boosterpack

LaunchPad WiKi: www.ti.com/launchpadwiki

LM4F120H5QR folder: http://www.ti.com/product/lm4f120h5qr