SOFTWARE REQUIREMENTS

The TExaS software needed for the Embedded Systems MOOC is ready for downloading.

Step 1) How to install Keil uVision for the ARM, MDK-Lite (32KB) Edition
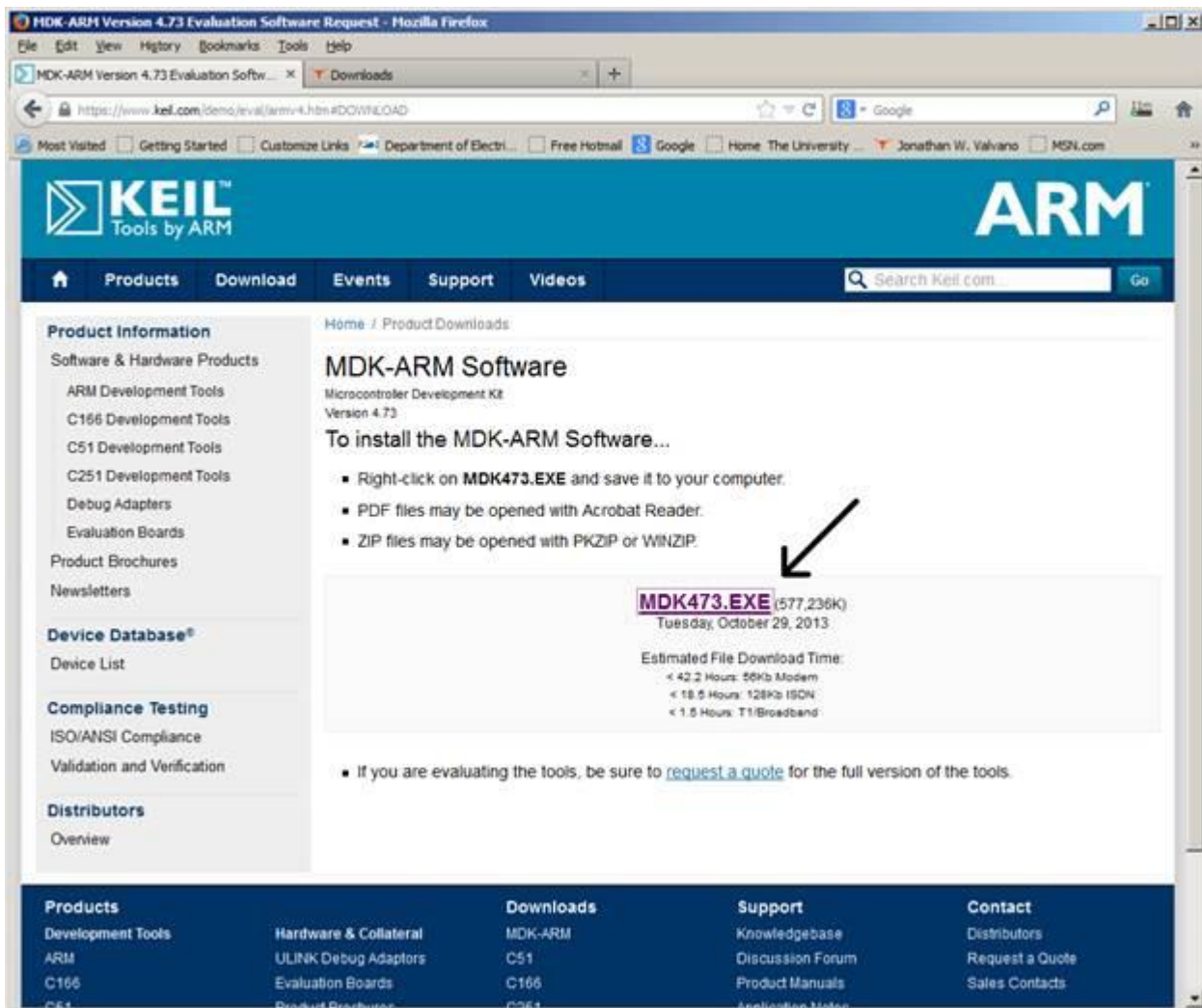
We are using Keil uVision IDE, and we are writing software in C. These programs only run on Windows (XP, Vista, 7 or 8.) There is a way to install software on a Macintosh so Windows and its applications will run on the Macintosh, see **running Keil and TExaS on a Macintosh**. We are really sorry, but there are no solutions for Linux. The Keil application does not require a serial number or license key. **Software for this course will not run with Keil uVision version 5.** However, it is possible to install both Keil uVision 4.74 and Keil uVision 5 on the same computer.

1) Go to **https://www.keil.com/demo/eval/armv4.htm**. Enter your contact information with valid address, phone and email. Set your **Company** to your school, your company, or this class edX UT.6.03x. Set your **devices** to the TM4C123GH6PM. Fill in all fields of this form. It should not cost any money, and you can select or not select whether you want email from ARM. ARM does provide support for Keil via its ARM University. So if you have any Keil-specific questions you could register and post them at **http://www.arm.com/university/**

2) Right-click on **mdk474.exe** and download this 590-MB file to your computer.

3) Execute the **mdk474.exe** file, installing the application some place easy to find, like **C:\Keil** or **D:\Keil**. You will need to find the **Keil** directory because the TExaS example files will be loaded into this same directory. After you have run the mdk474.exe installer, you will not need this file. However, you can use this file to install Keil on additional computers.

4) Follow these step to install Keil on your computer:

1) Go to https://www.keil.com/demo/eval/armv4.htm . Enter your contact information with valid address, phone and email. Set your Company to your school, your company, or this class **edX UT.6.02x**. Set your devices to **TM4C123GH6PM**. Fill in all fields of this form. It should not cost any money, and you can select or not select whether you want email from ARM.
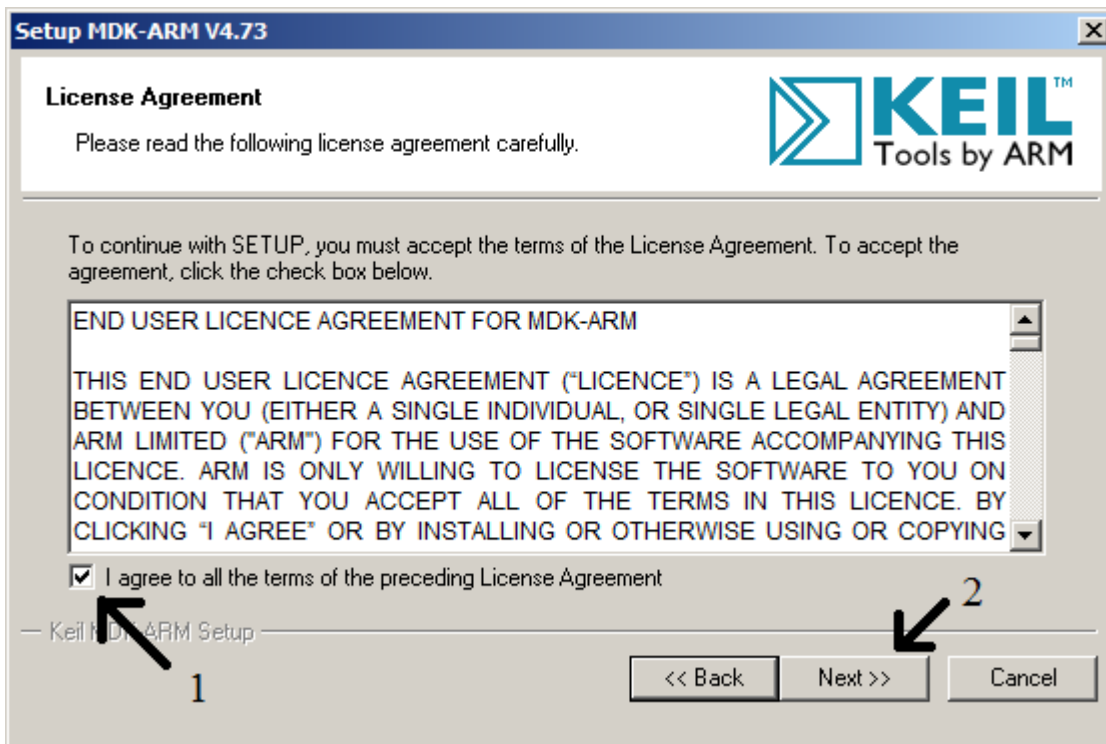

2) Click on the **MDK474.EXE** link, downloading the 590,659K file to your computer.

3) Execute the **mdk474.exe** file, installing the application some place easy to find, like C:\Keil or D:\Keil. You will need to find the **Keil** directory because the TExaS example files will be loaded into this same directory. This is the first screen:
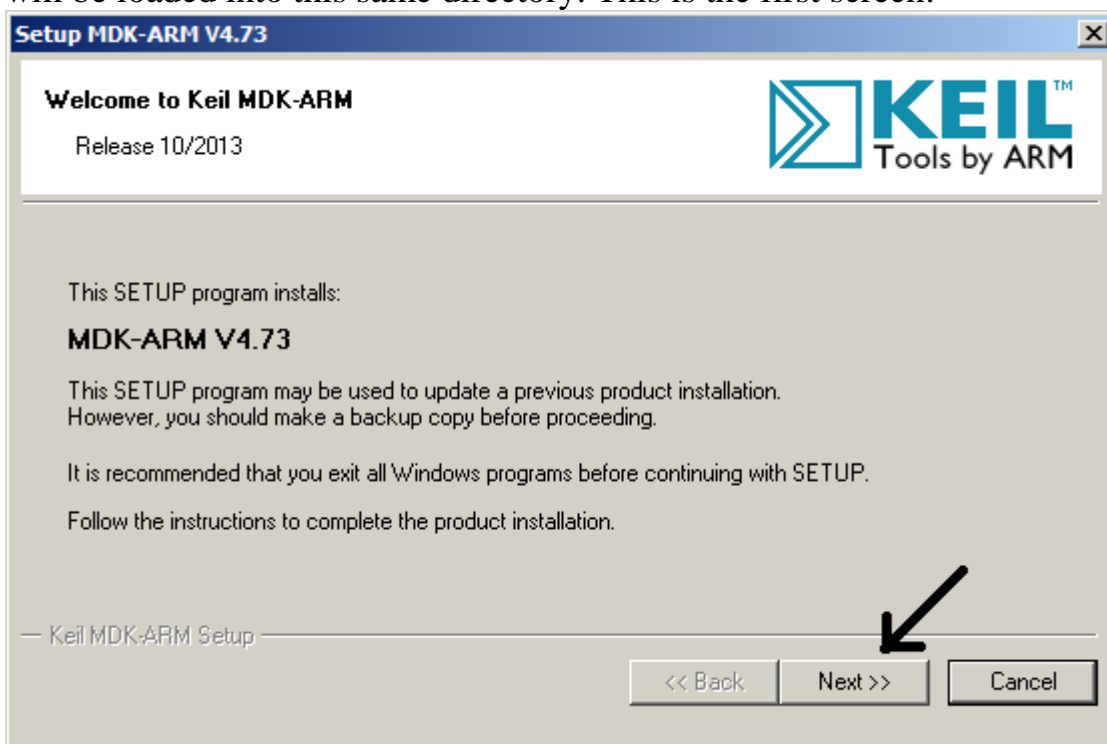
Read license agreement, agree to terms, and click **Next**.

Select a place to install Keil (I choose D: because there was more room on the computer on drive D) , and click **Next**.
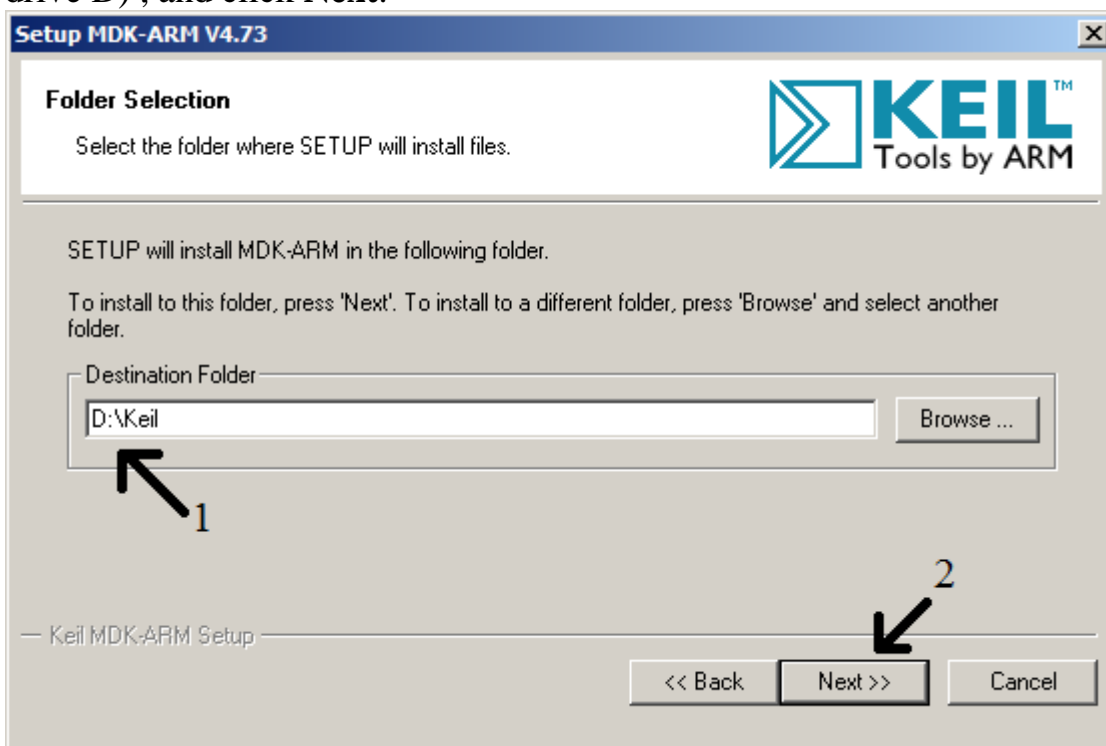
Update these fields with your correct information, and click **Next**.

Wait while it installs

Deselect example projects (the examples will come later as part of the TExaS installation), and click **Next**.
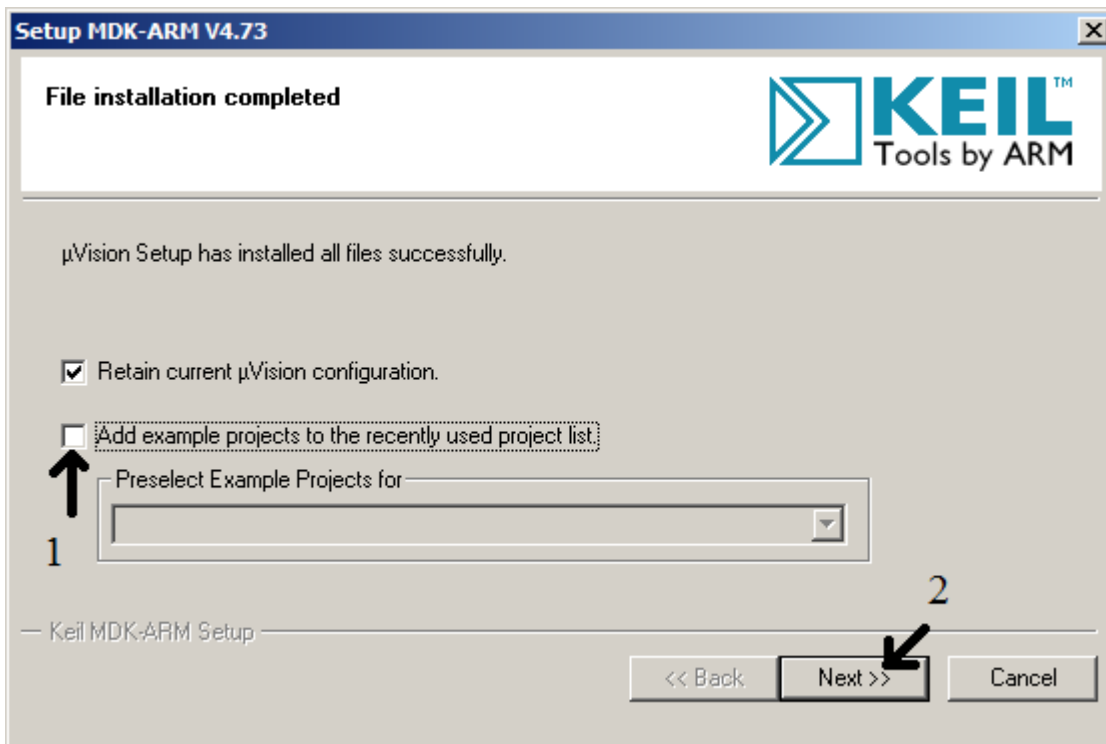
Deselect ULINK Pro Driver V1.0 (the drivers you need will be installed later), and click **Finish**.
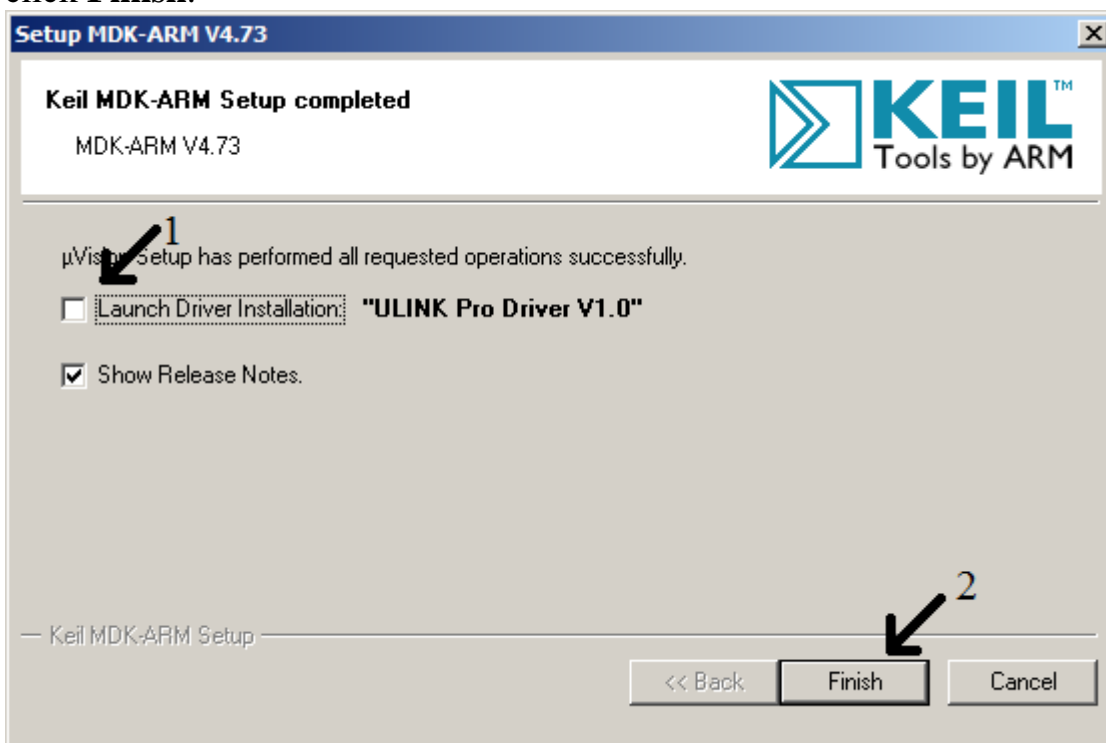

The **Release Notes** contain links to information about the Keil development tool. In this class we will demostrate the features you will need.

Step 2) TExaS Lab Graders for all Labs

We have written DLL extensions to the Keil uVision IDE that will evaluate your lab solutions. We have named this set of DLLs as Test EXecute and Simulate or TExaS. There is also an application called TExaSdisplay that provides interaction with your serial port software running on the LaunchPad. TExaSdisplay is like HyperTerminal or PuTTy but much simpler and adds grading for Labs 5 and 11. The application TExaSdisplay also provides a simple oscilloscope and voltmeter, which is a voltage versus time graphical plot measured from **PD3**. For those students who did not purchase the optional Nokia display, TExaSdisplay also emulates the graphics display used in Lab 15. You will need to first install Keil before installing TExaS. You will find the lab starter projects in the **Keil\Labware** folder, and you will find the example projects in the **Keil\TExaSware**folder. If you have installed TExaS before and you are using this installer to upgrade to the newest version of TExaS, we suggest you backup any software you have edited/written before installing TExaS.

Execute the **TExaS_Install.exe** file to install TExaS, which will add files to the **Keil** directory.

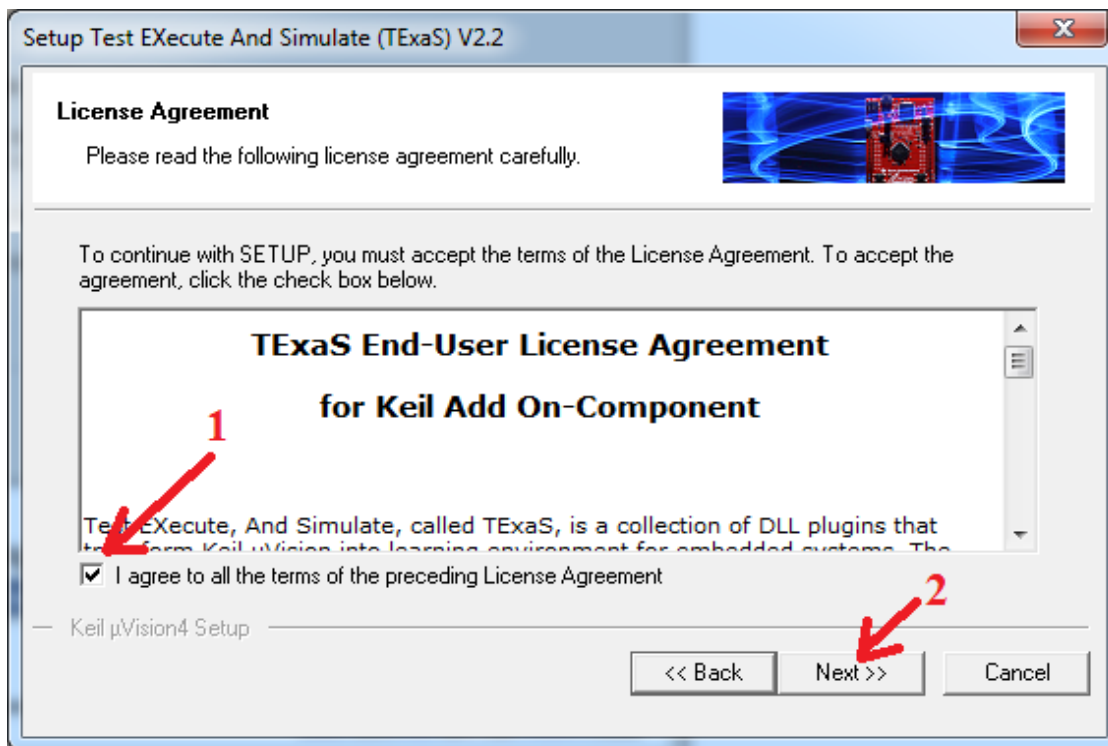Folowing these step to download and install TExaS :

1) Download TExaS for Labs 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16 saving the a large file on your computer. Click on **TExaS_Install.exe** and execute **Save File**.
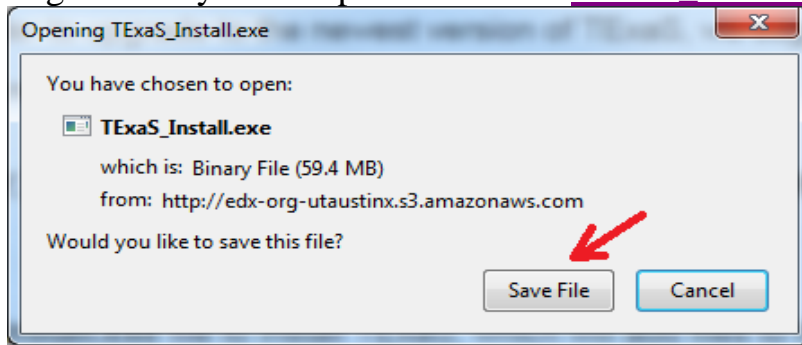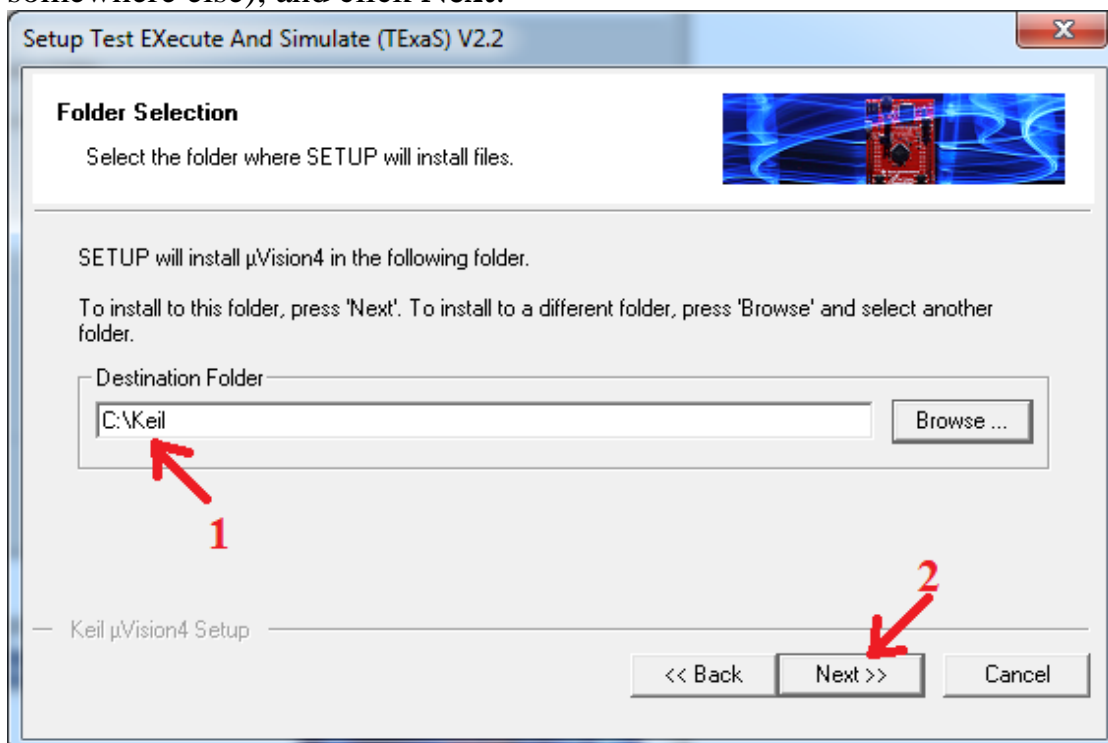

2) Execute the **TExaS_Install.exe** file to install TExaS, which will add files to the Keil directory. Click **Next**.
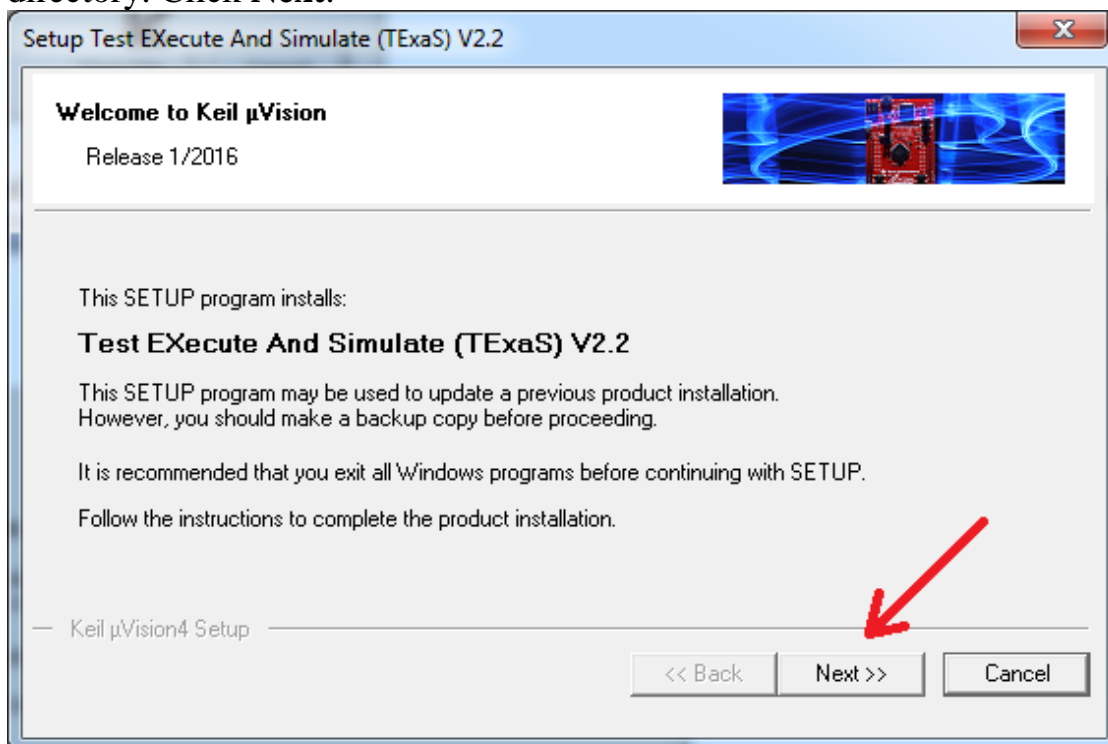
3) Read license agreement, agree to terms, and click Next.

4) Install TExaS into the same directory as Keil (this is important, you cannot install it somewhere else), and click **Next**.

5) Update these fields with your correct information, and click **Next**.

6) Wait while it installs, and click Finish.

Step 3) Windows drivers for the LaunchPad board (wait to finish steps 1 and 2)

Once Keil and TExaS are installed you will need to install the windows drivers for the Texas Instruments microcontroller board. The process is the same for both the LM4F120 and the TM4C123 LaunchPads. You will need the actual physical LaunchPad board to complete this step. So if you have ordered your board and it hasn't yet arrived, bookmark this page and come back once your board arrives. Installing drivers can be tricky so here are two alternative methods to installing drivers.

Method 1 uses drivers that were saved on your HD when you installed TExaS in step 2). These slide shows demonstrate the process to install windows drivers for the LaunchPad board specific for your operating system: **Windows XP**, **Windows Vista**, **Windows 7**, **Windows 8**, and**Windows 10**. If you downloaded TExaS_Install.exe on or after 1/26/2016 it will include new drivers from Texas Instruments. These new drivers do not need you to disable **driver signature enforcement**. For the new drivers the installation steps are **New Windows 8**, and **New Windows 10**.

Method 2 uses the official Texas Instruments web site where you can **download the drivers**, and read the **Stellaris Driver Installation Guide (Rev. C)** on how to download. The new drivers from do not require you to disable **Driver signature enforcement** while installing the drivers for the LaunchPad.

If you are unsure if the drivers are all properly installed, you can test the JTAG drivers by running Lab 2. If you are unsure about the COM port drivers follow **these instructions**.

Feel free to use information on this site for education purposes.