



Experiment the SAMA5D4-XULT and the Software Package

Atmel SAMA5D4x

TRAINING MANUAL



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Prerequisites

- Hardware Prerequisites
 - Atmel® SAMA5D4 Xplained Ultra Evaluation Kit
- Software Prerequisites
 - IAR Embedded Workbench
 - A terminal application (e.g. HyperTerminal on Microsoft Windows)







Introduction

This Hands-On training shows the basic use of the SAMA5D4x using a SAMA5D4 Xplained Ultra Evaluation Kit (SAMA5D4-XULT) and Integrated Development Environment IAR Embedded Workbench.

The goal of this Hands-On Training is to:

- Have a tool setup for development and debugging with SAMA5D4-XULT
- Become familiar with the SAMA5D4x device

Icon Key Identifiers

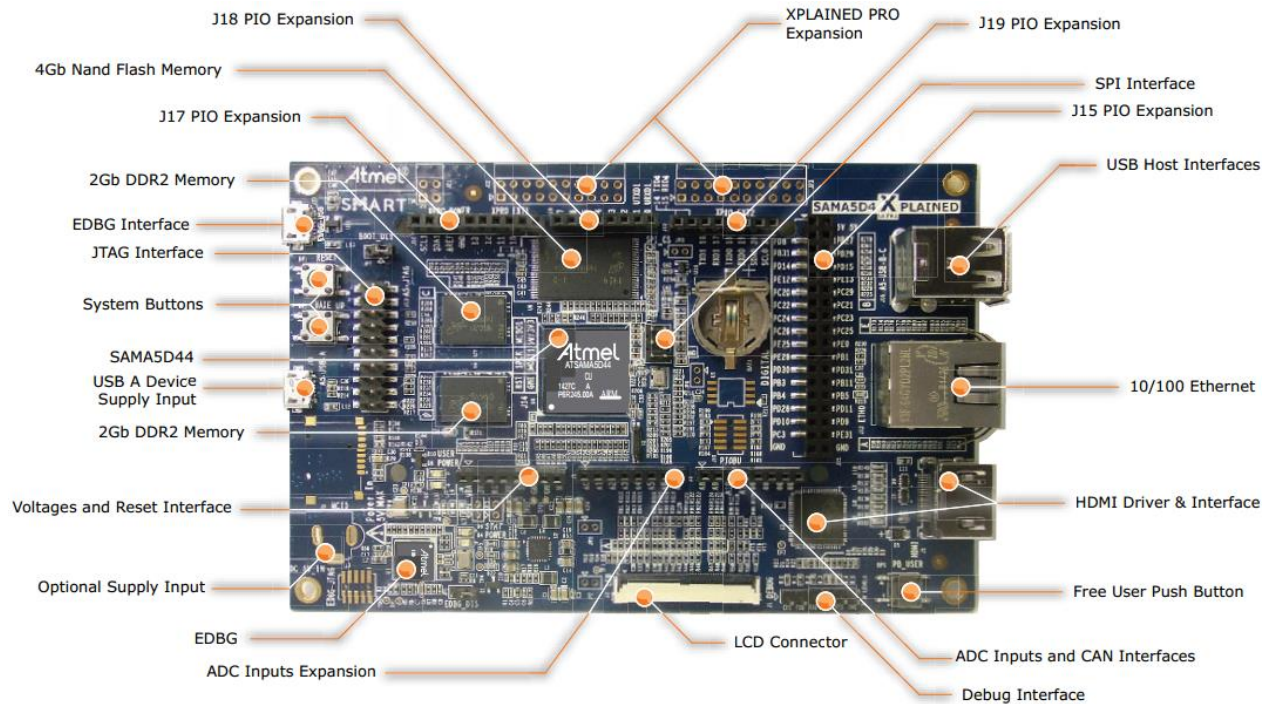
	INFO	Delivers contextual information about a specific topic
	TIPS	Highlights useful tips and techniques
	TO DO	Highlights objectives to be completed
	RESULT	Highlights the expected result of an assignment step
	WARNING	Indicates important information
	EXECUTE	Highlights actions to be executed out of the target when necessary

1. Hardware Prerequisites

1.1 Atmel SAMA5D4 Evaluation Kit (SAMA5D4-XULT)

As the evaluation kit is a fast-prototyping and low-cost evaluation platform, the purpose of it is to get started and familiar with the development of Atmel SAMA5D4 ARM Cortex®-A5-based microprocessor (MPU).

Figure 1-1. SAMA5D4-XULT Board Overview



2. PC Software Prerequisites

2.1 IAR Embedded Workbench

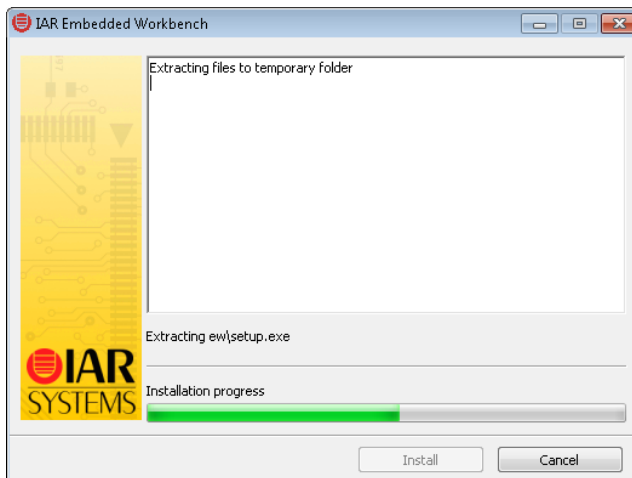


TO DO Install IAR Embedded Workbench by following the below steps.

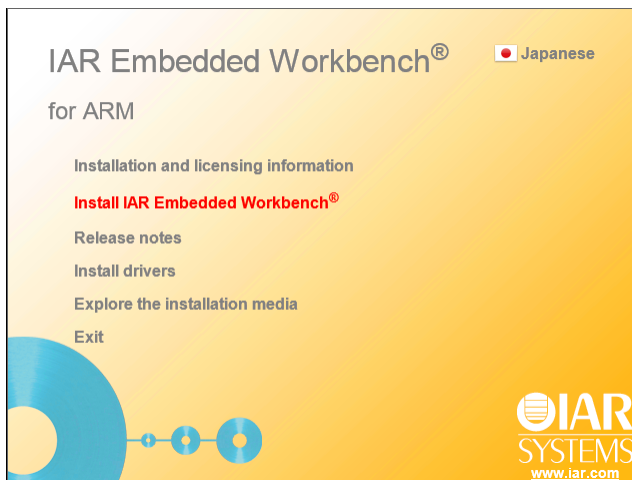
- Execute the [EWARM-CD-7602-11350.exe](#) file.



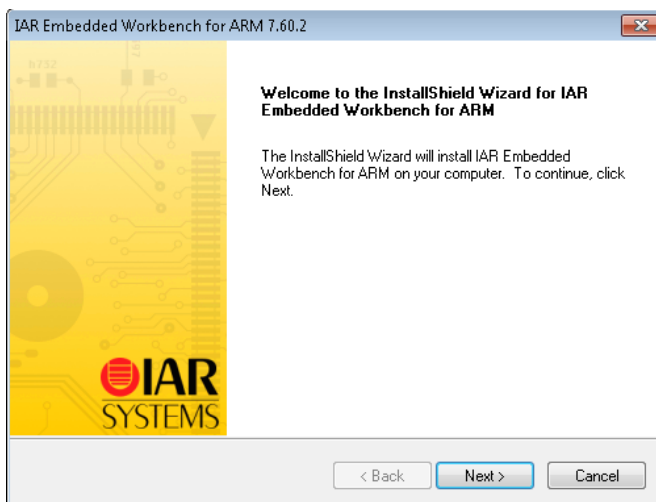
- The files for installation will be extracted



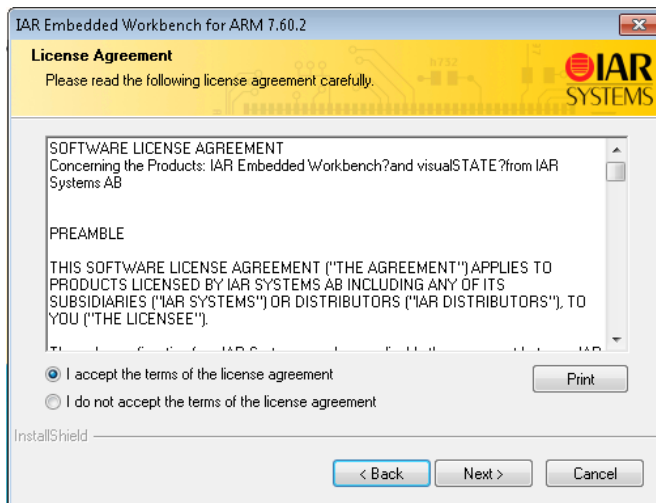
- Click “[Install IAR Embedded Workbench](#)” to continue.



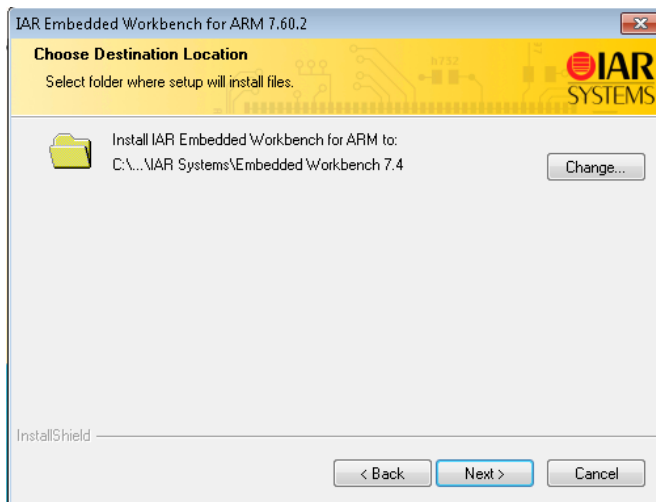
- Click “[Next](#)” to continue.



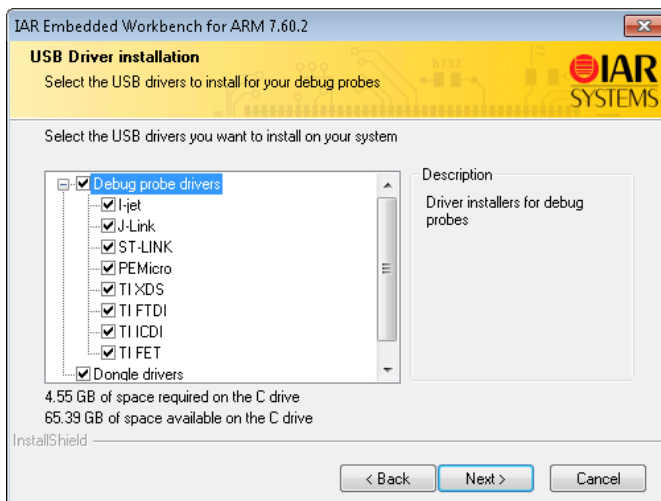
- Select “I accept ...” and click “Next” to continue.



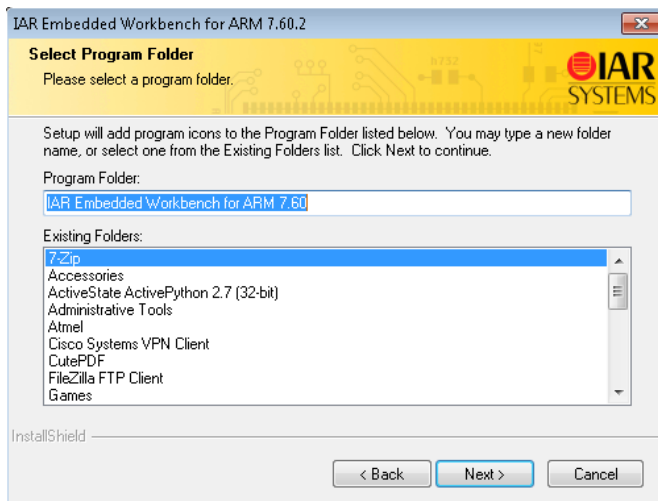
- Click “Next” to continue.



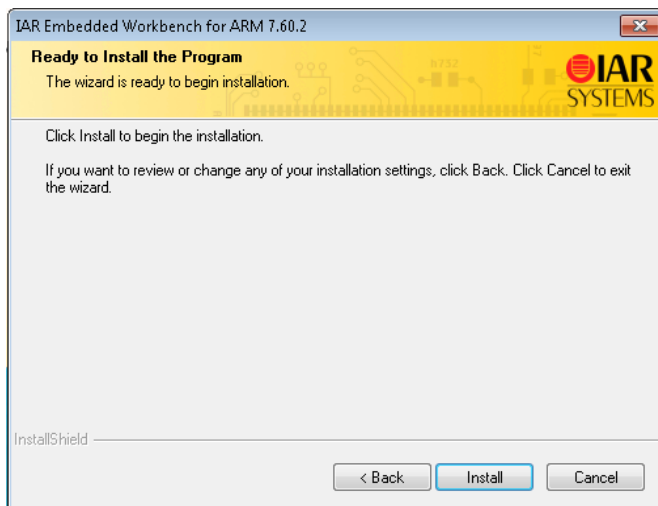
- Click “Next” to continue.



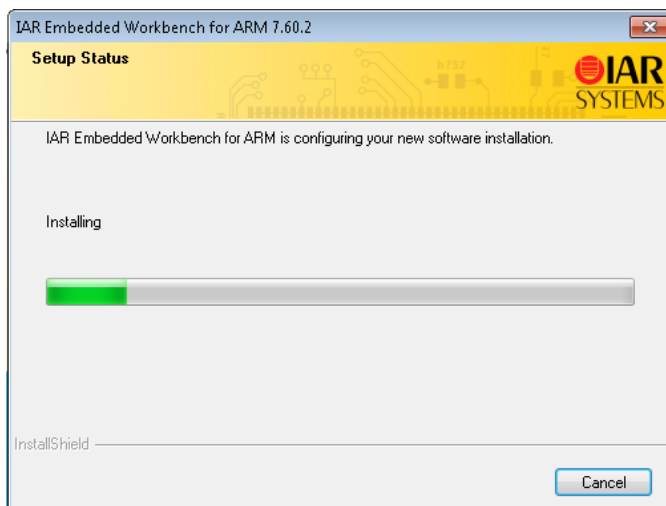
- Click “Next” to continue.



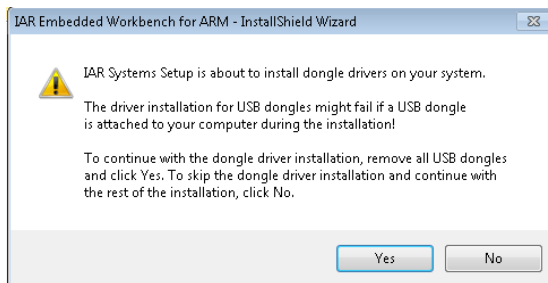
- Click “Install” to continue.



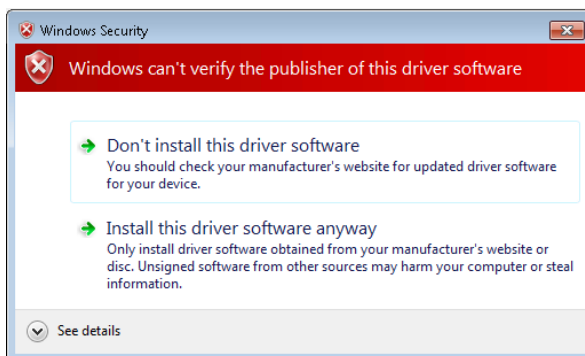
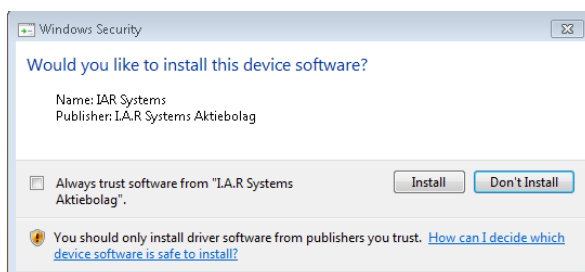
- Wait the installation to be completed.



- Click “Yes” to install dongle drivers.



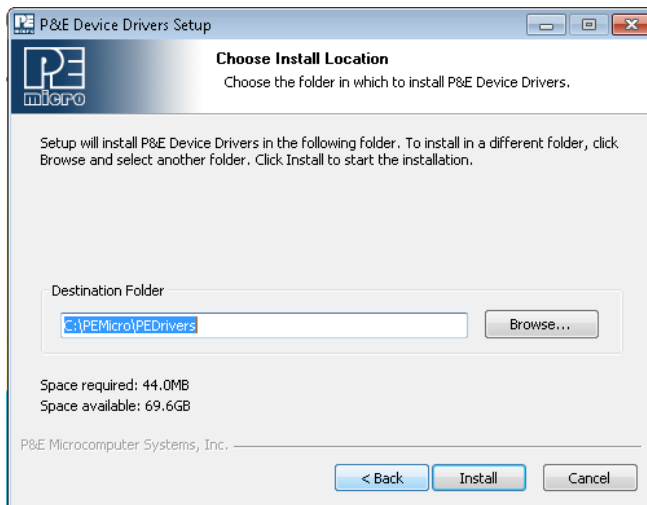
INFO Similar warning message windows might appear during installing dongle drivers, just click “Install” or “Install this ...” to continue.



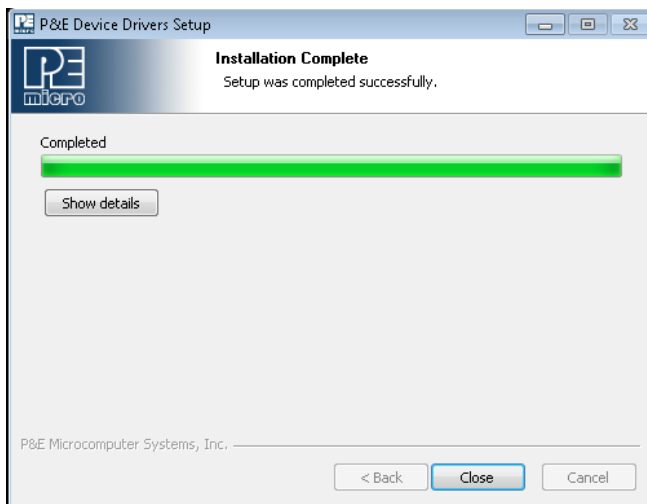
- Click “I Agree” to continue.



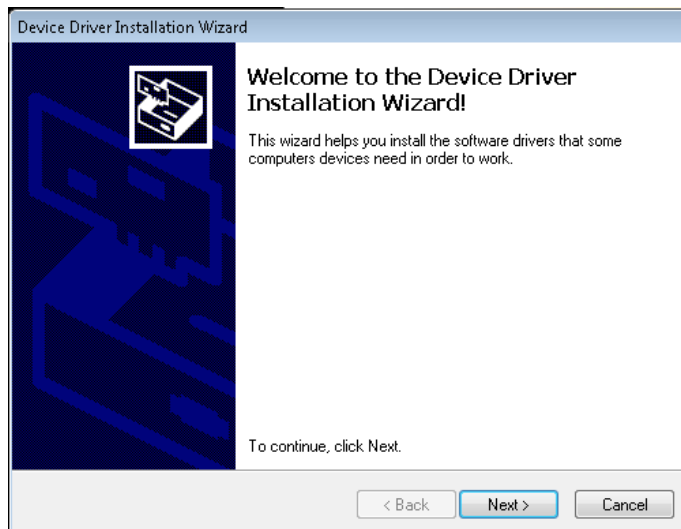
- Click “Install” to continue.



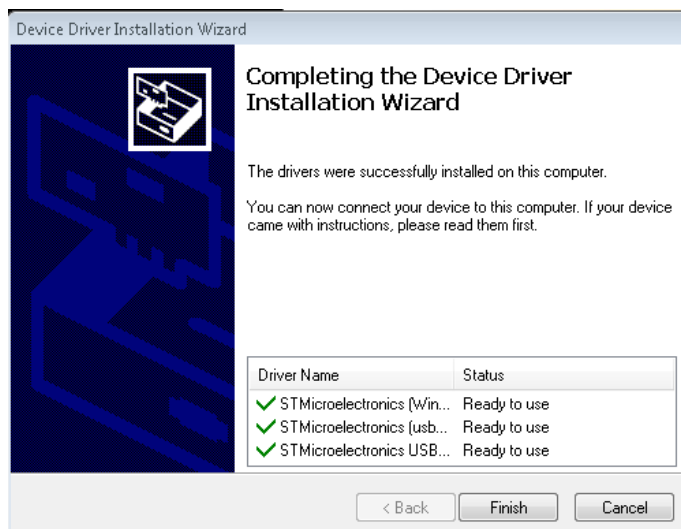
- Click “Close” to continue.



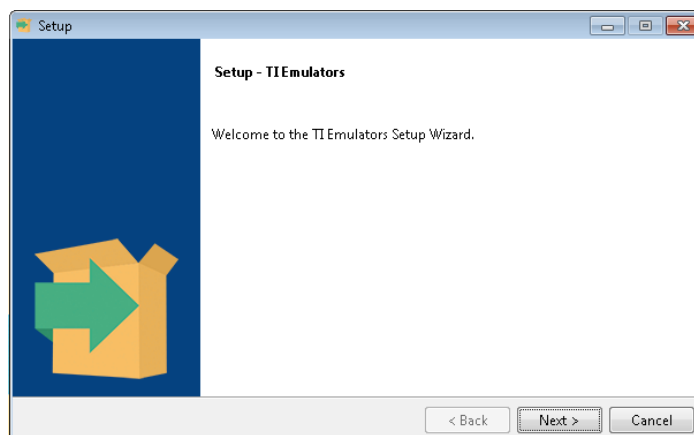
- Click “Next” to continue.



- Click “Finish” to continue.



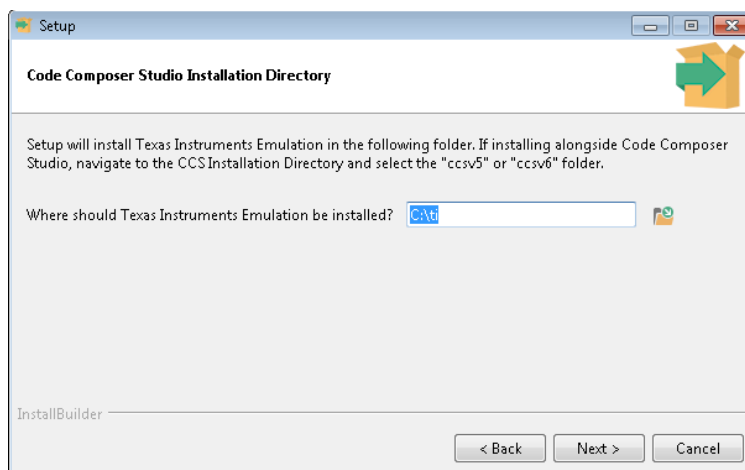
- Click “Next” to continue.



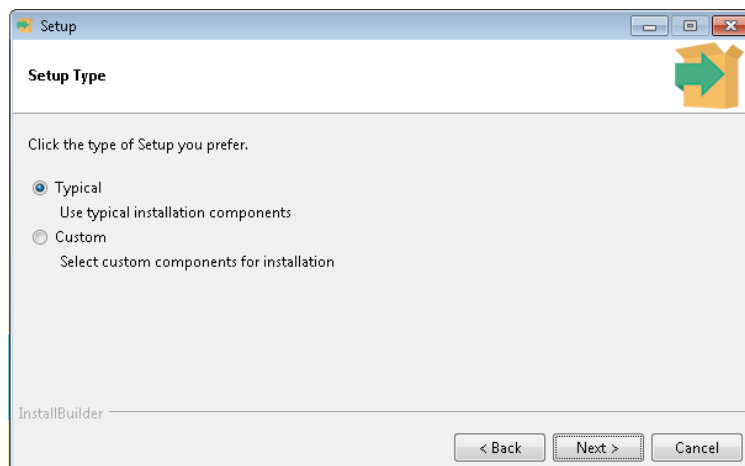
- Click “Next” to continue.



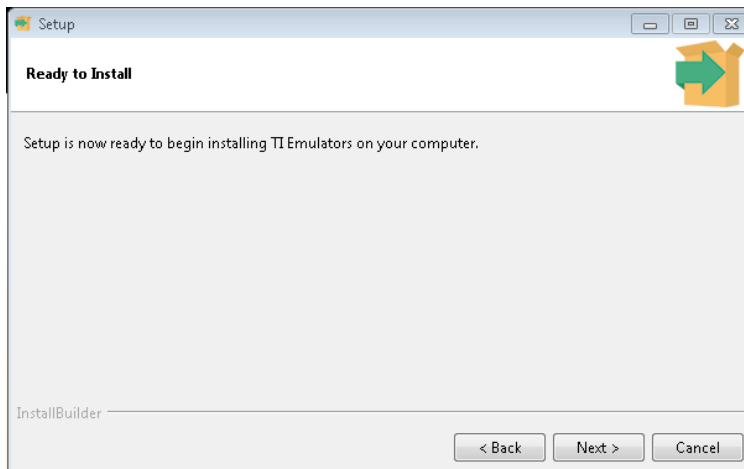
- Click “Next” to continue.



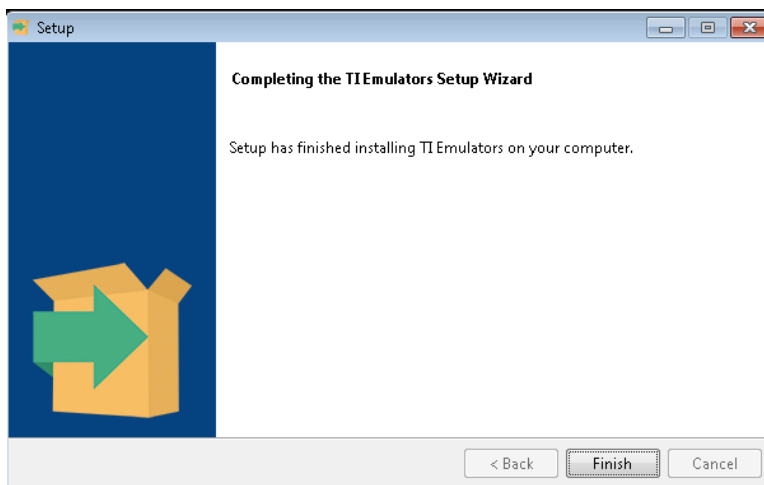
- Click “Next” to continue.



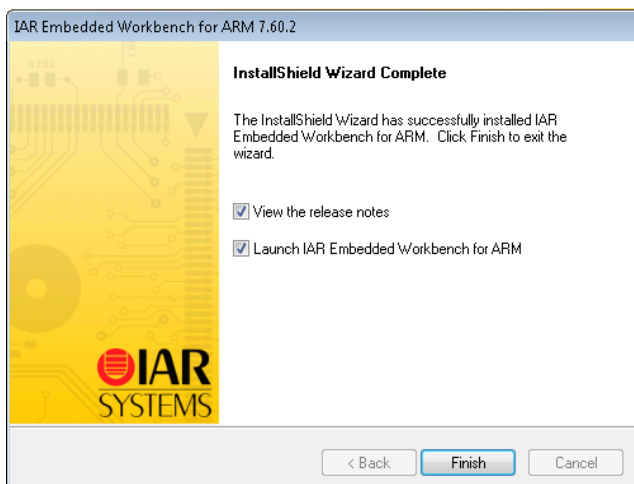
- Click “Next” to continue.



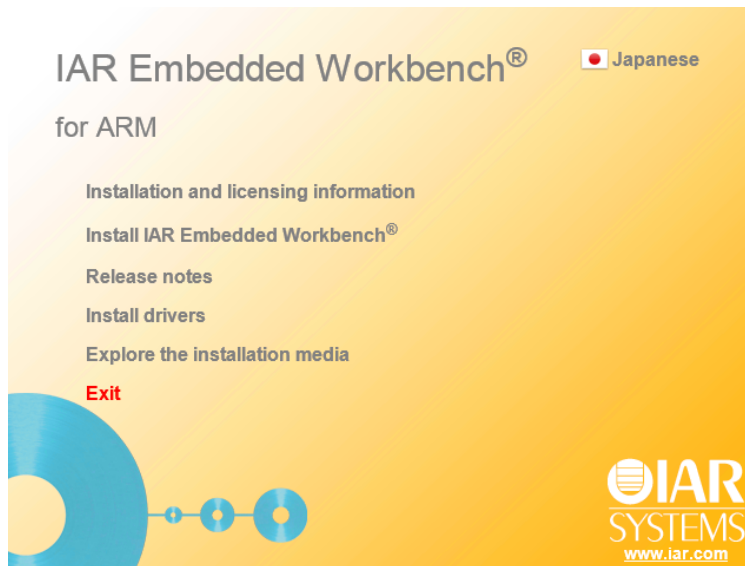
- Click “Finish” to continue.



- Deselect “View ...” and “Launch ...” then click “Finish” to complete the installation.



- Click “Exit” to exit the installation.



2.2 IAR License

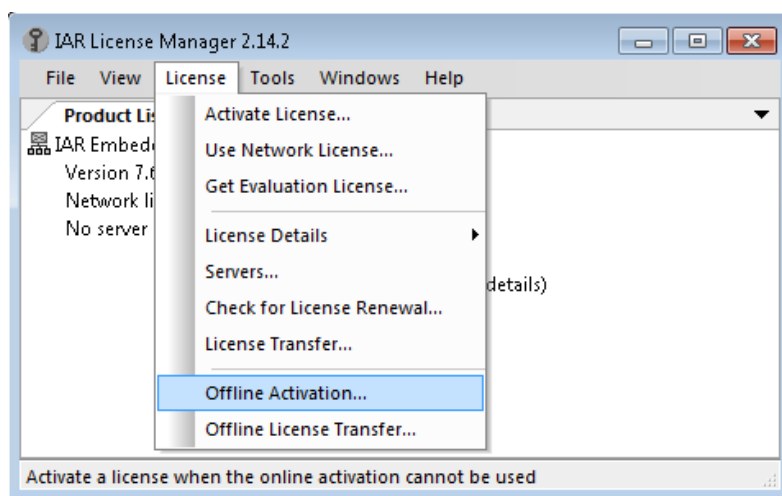


TO DO Configure the license for IAR by following the below steps.

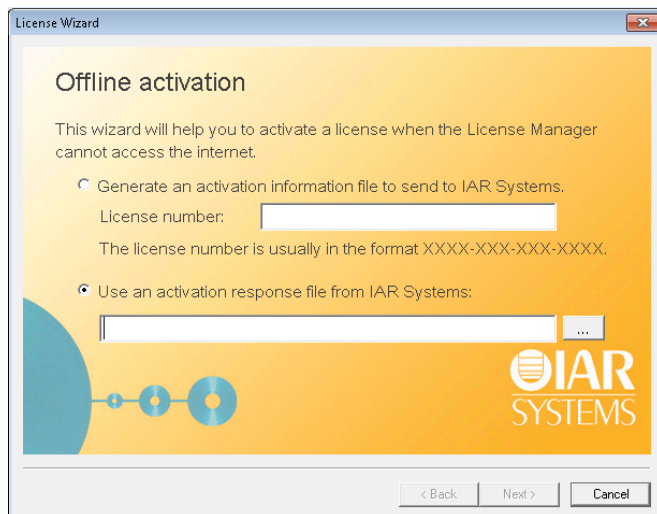
- Execute “[LicenseManager.exe](#)” in the IAR installation folder (C:\Program Files (x86)\IAR Systems\Embedded Workbench 7.4\common\bin).



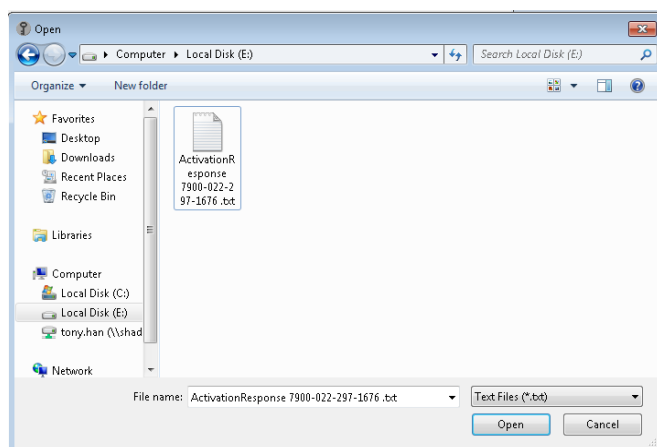
- Click menu “[License->Offline Activation](#)” to continue.



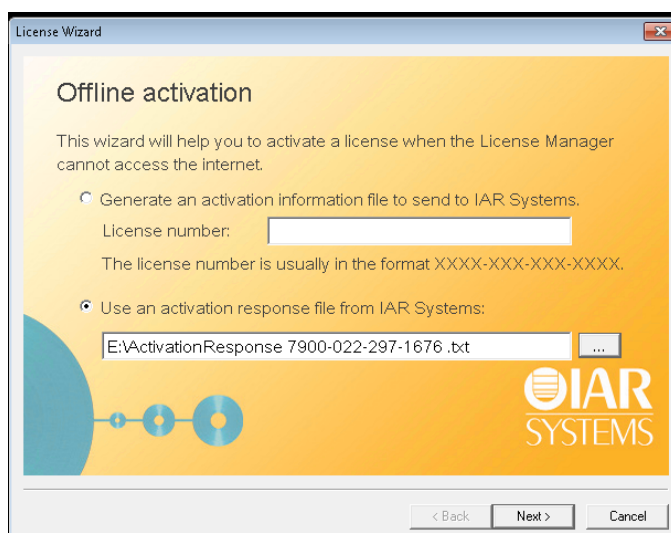
- Select “Use an activation response ...” and click button “...” to continue.



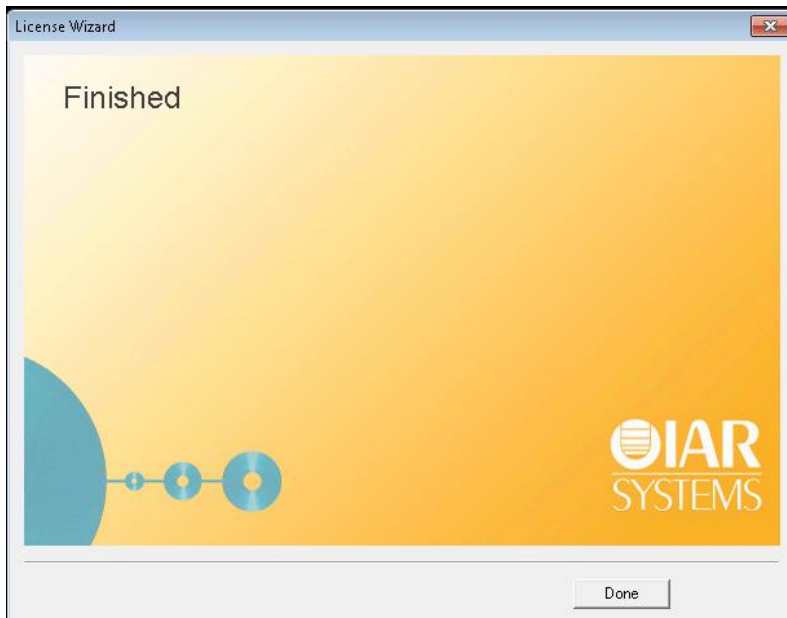
- Find and select the “Activation Response” file and click “Open” to continue.



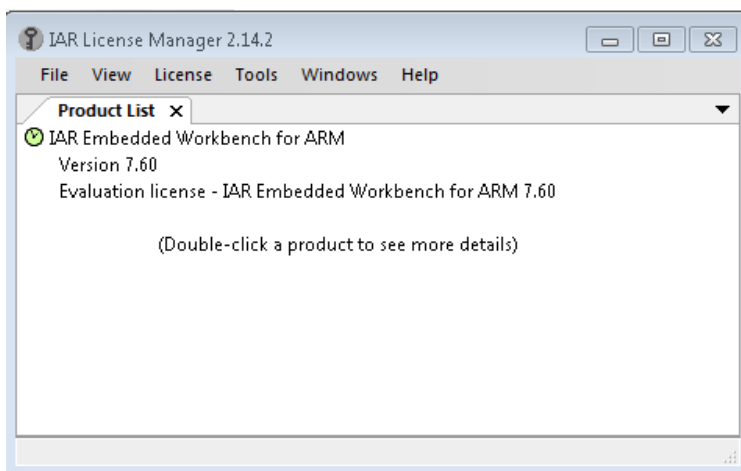
- Path of “Activation Response” file will occurs in the dialog, click “Next” to continue.



- The License keys are successfully installed, click “Done” to continue.



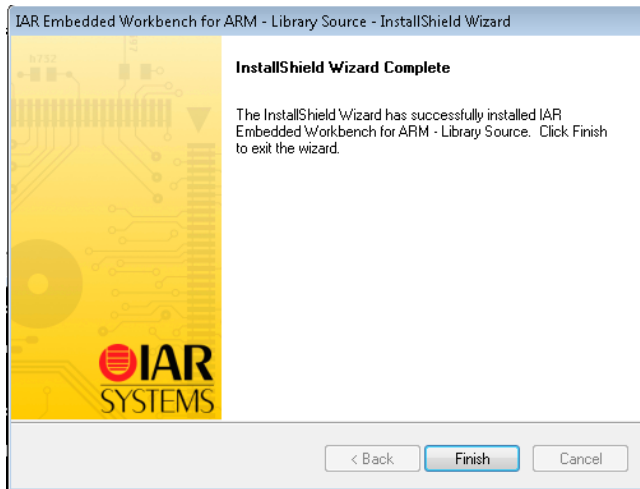
RESULT Status of the license shown bellow



- Click “Yes” to extract IAR Library Source for ARM.



- Click “[Finish](#)” to complete the installation



2.3 Drivers for SAMA5D4-XULT (EDBG interface)

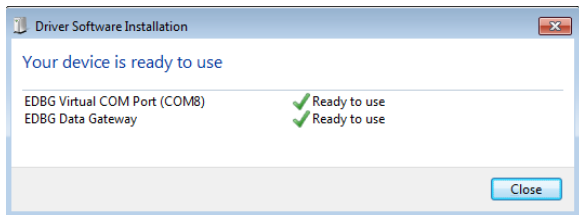


TO DO Install drivers for EDBG interface.

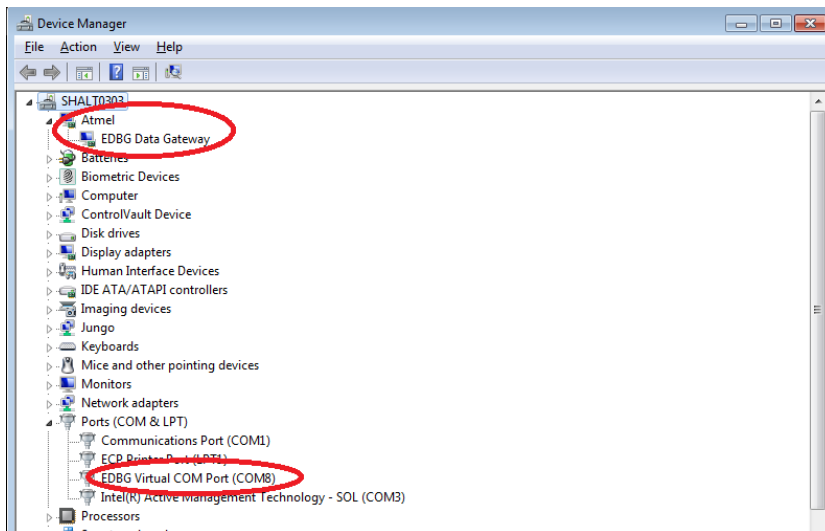
- Execute “[AtmelStudioUSB-7.0.31.exe](#)” to install the drivers.



RESULT After the installation, the device is ready to use.



RESULT Connect J20 (EDBU-USB port) to computer using a USB cable. The devices will also be listed in the Device Manager.



WARNING

Keep JP1 (EDBG_DIS) open for using the EDBG interface properly.

2.4 Drivers for SAMA5D4-XULT (interface for SAM-BA/USB slave)



TO DO

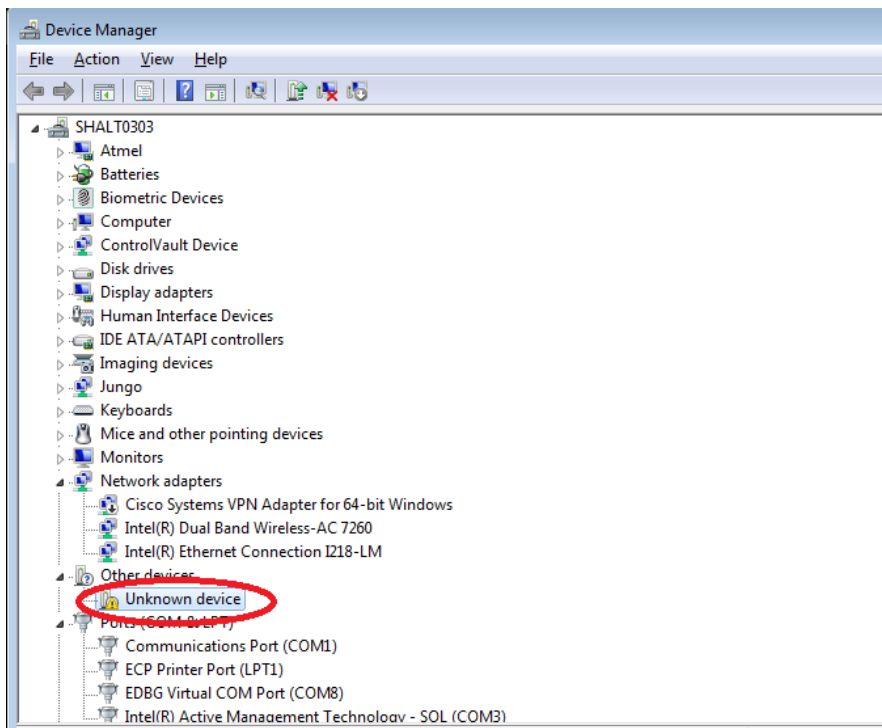
Install USB CDC Driver for J11 (A5-USB-A port) for SAM-BA usage.



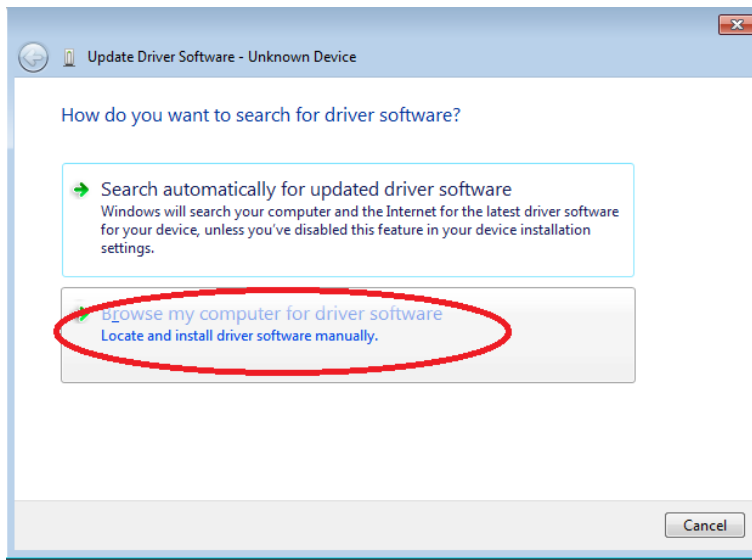
WARNING

Keep JP7 (BOOT_DIS) closed for entering ROM-BOOT properly.

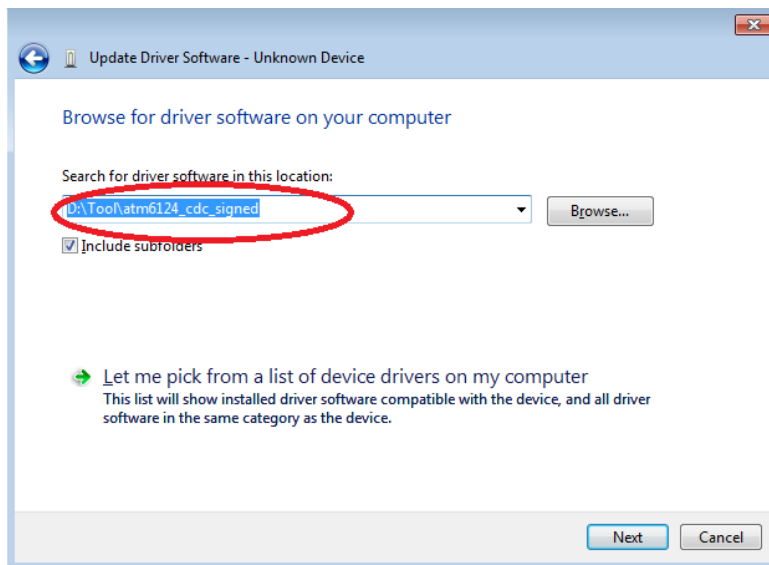
- Connect J11 (A5-USB-A port) to computer using a USB cable, an Unknown device occurs.



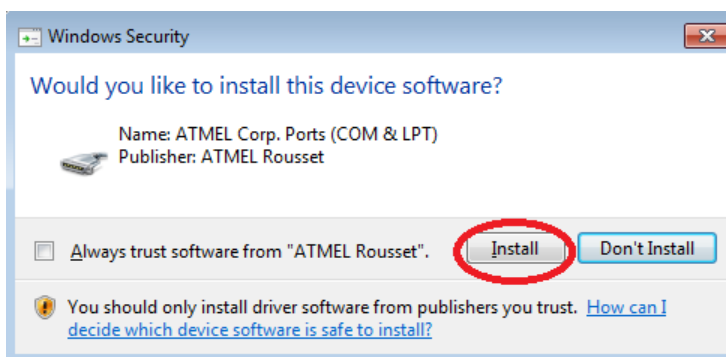
- Update the driver software.



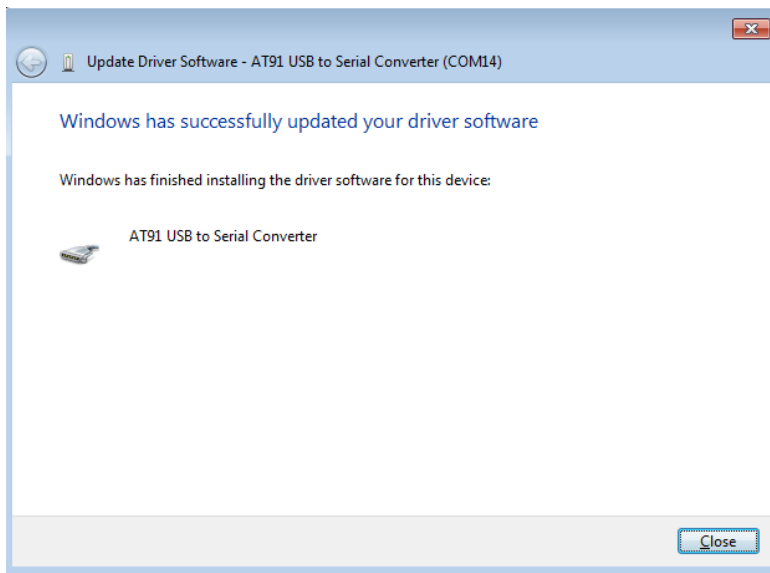
- Select the location of the driver (in folder "atm6124_cdc_signed") and click "Next".



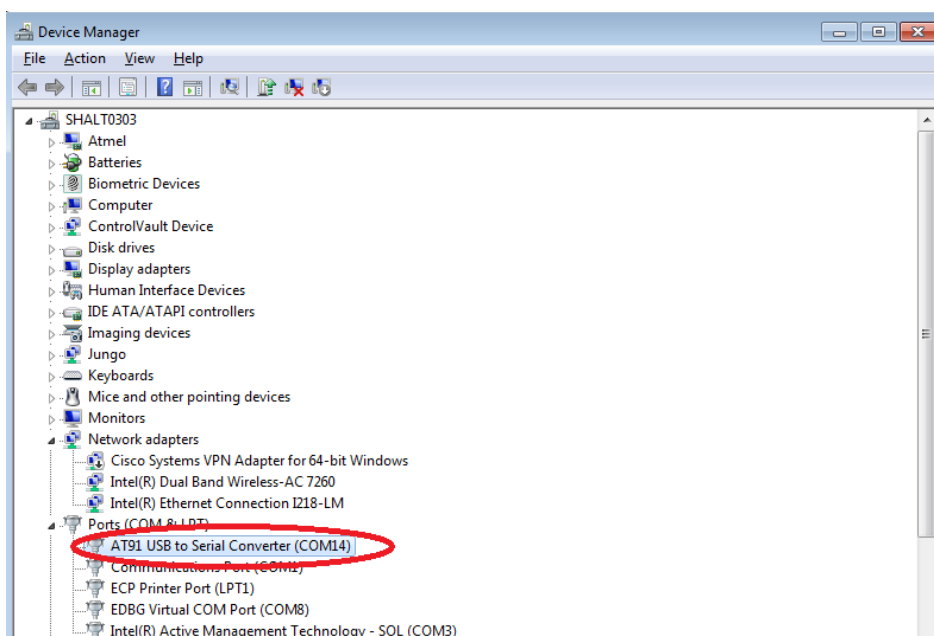
- Click "Install" to continue.



- Click “Close” to complete the installation.



RESULT An “AT91 USB to Serial Converter” will be listed in the Device Manager.



2.5 Software Package



TO DO Before starting this training it is necessary to copy [sama5_softpack_ewarm_2.1.zip](#) and extract it to C:\.



TIPS The software package can be downloaded from http://www.atmel.com/images/sama5_softpack_ewarm_2.1.zip.



WARNING

Using long path like copying into “My Documents” folder may pose problems.

See Appendix for details tool setup in case installation has not been done beforehand or if you already have all the tools installed.

3. Hands-On

3.1 Environment Setting

- Connect Debug serial COM port (or the EDBG interface port) to a computer, then open and configure a terminal application with these settings: **115200bps, 8 bits of data, no parity, 1 stop bit, no flow control**. These ports provide debug level access to the SAMA5D4.
- Connect SAMA5D4-XULT EDBG interface to the computer with a USB cable.



TIPS

SAMA5D4-XULT can also be powered through the EDBG interface or the USB-A interface.



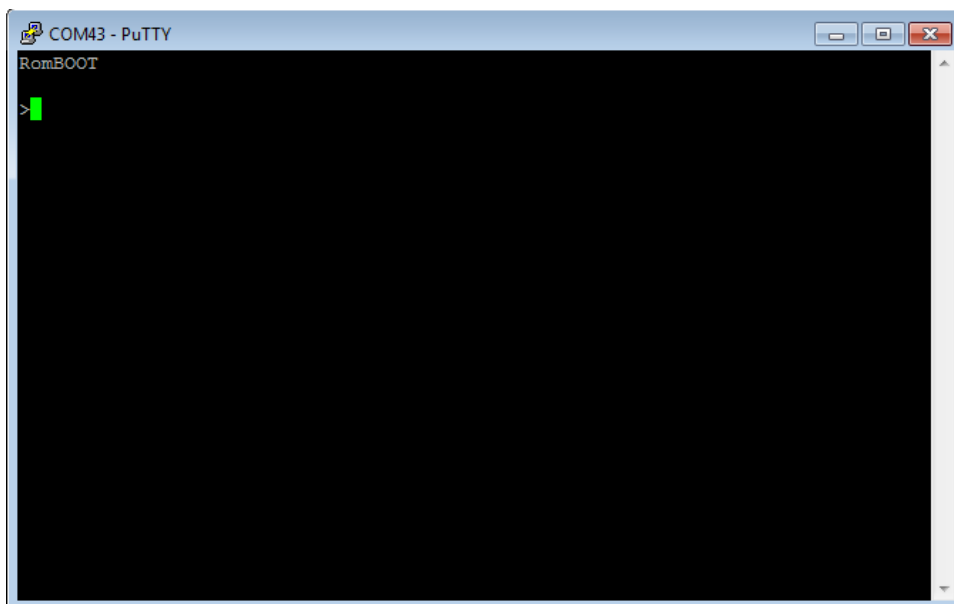
TIPS

COM number for serial port or EDBG can be checked in Device Manager



TO DO

After power-up the board or pressing “reset” button, “RomBOOT” will occurs in the terminal application, press “**Shift + #**” on PC keyboard to enable the debug mode (a “**>**” will occurs in the terminal application).





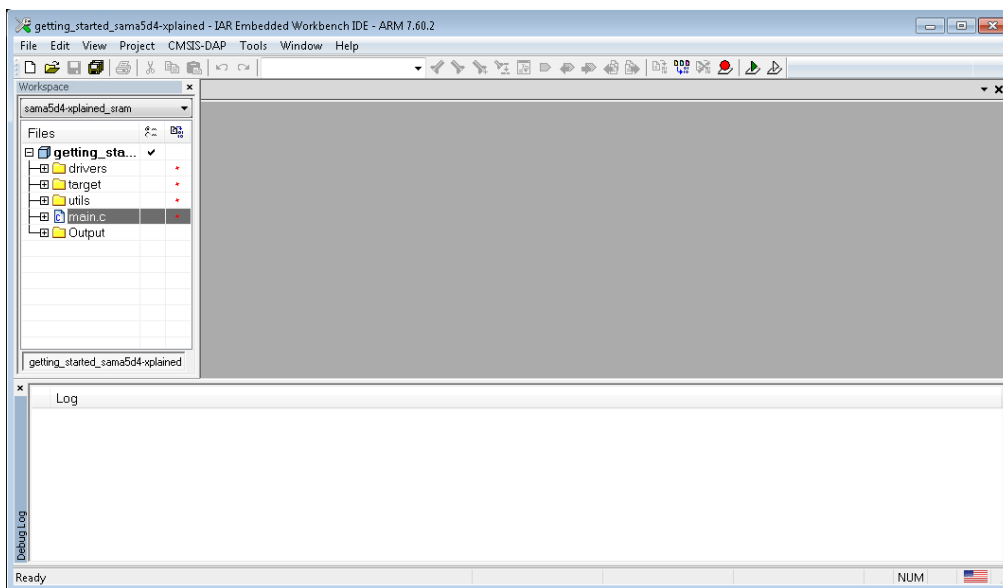
WARNING Please keep jumper JP7 (BOOT_DIS) closed, else the “RomBOOT” might not occur in the terminal application.

3.2 Example “getting_started”



TO DO Open the project “getting_started_sama5d4-xplained.eww” from IAR.

- Open IAR and click on [File/open/workspace](#)
- Browse your explorer [C:\sama5_softpack_ewarm_2.1\softpack_sama5_2.1\examples\getting_started\](#) and select the project getting_started_sama5d4-xplained.eww
- Click on Open

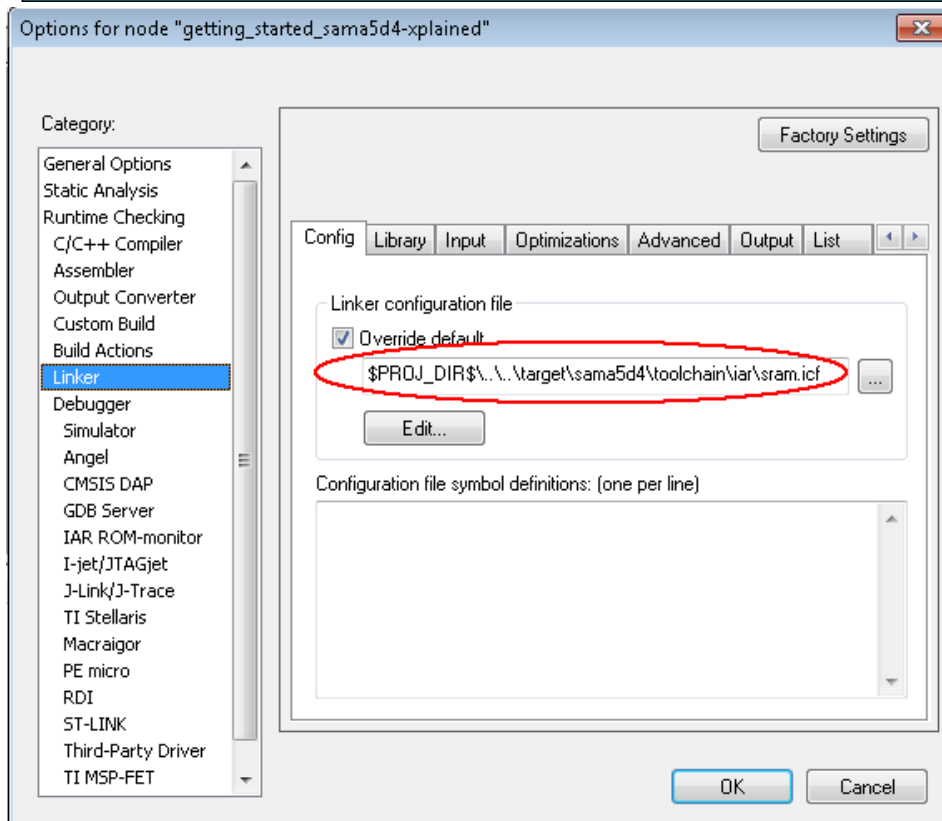
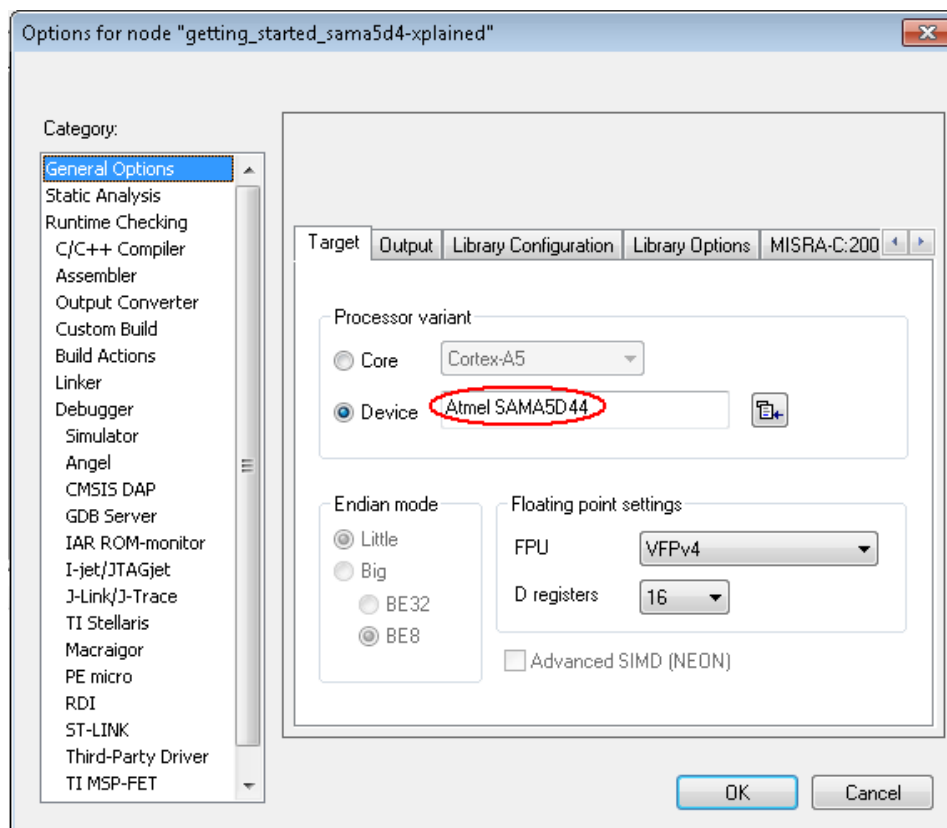


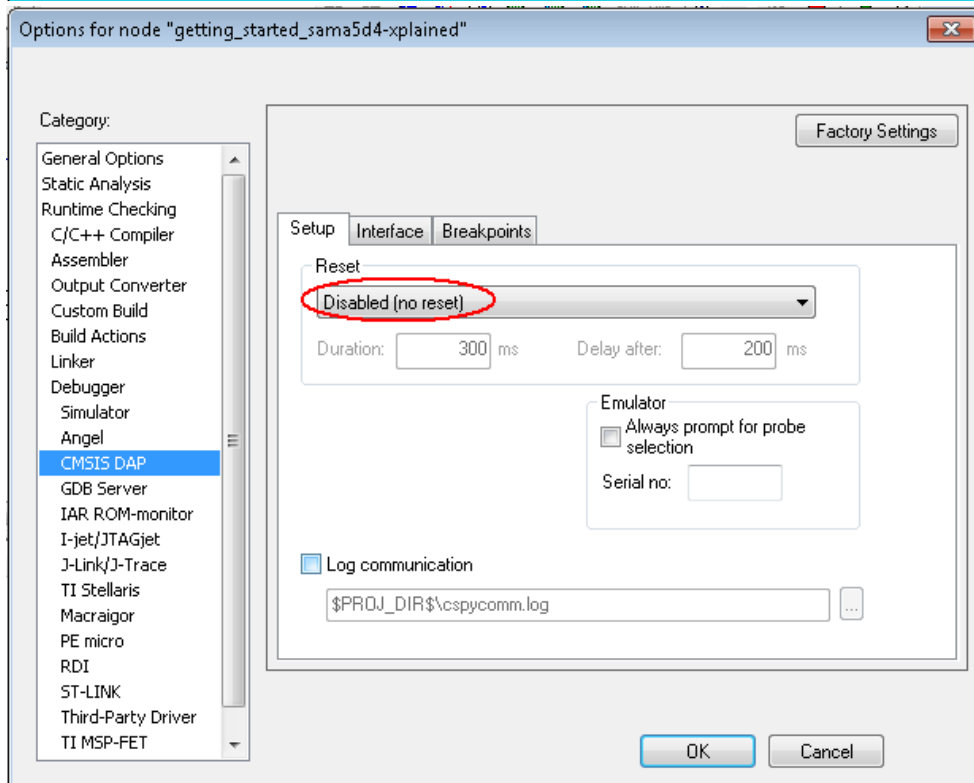
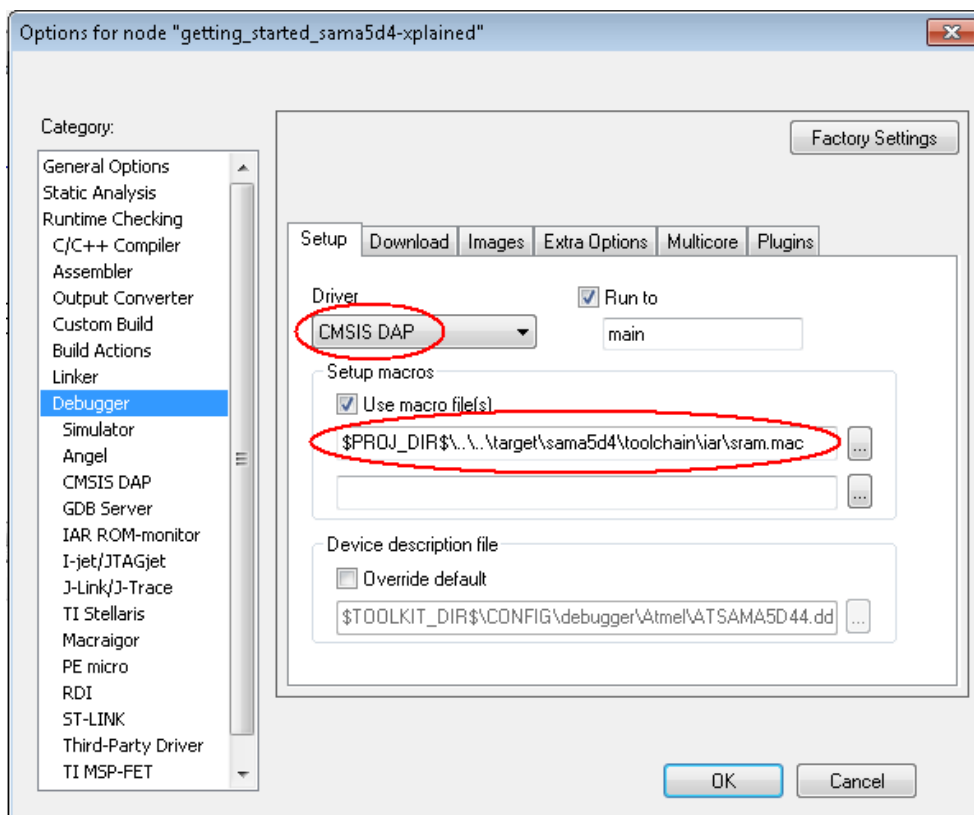
INFO The project is opened and you are now ready to start!



TIPS Before building the project, check the “Options” for the project.


- Right click on the **sama5d4x-xplained_sram** project in Workspace window. Select “Options” to open the **Options for node “getting_started_sama5d4-xplained”** window.
- Check the “General Options”, “Linker” and “Debugger” category to make sure the configurations are correct as below.

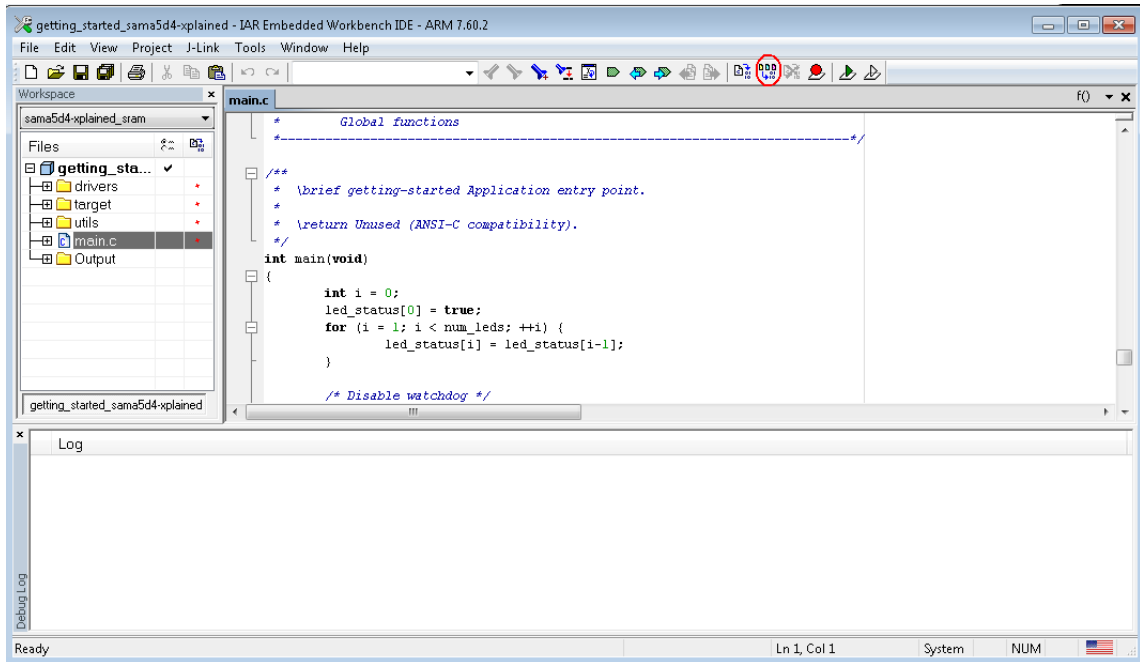





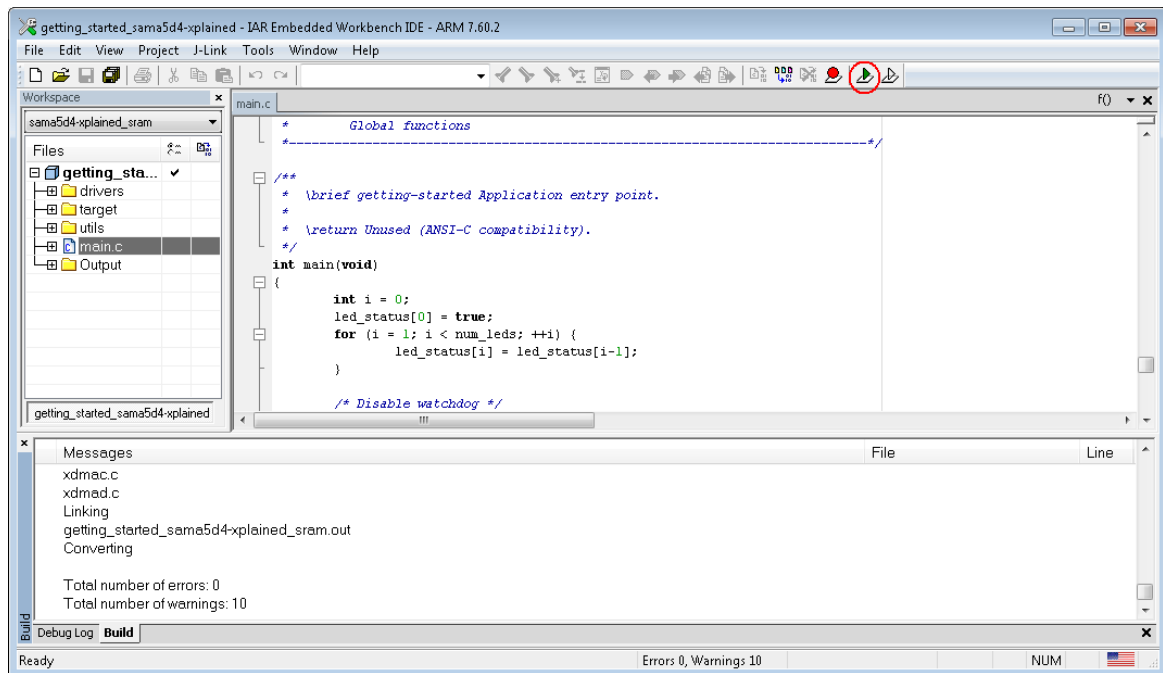



TO DO Build the **getting_started_sama5d4-xplained** project and download

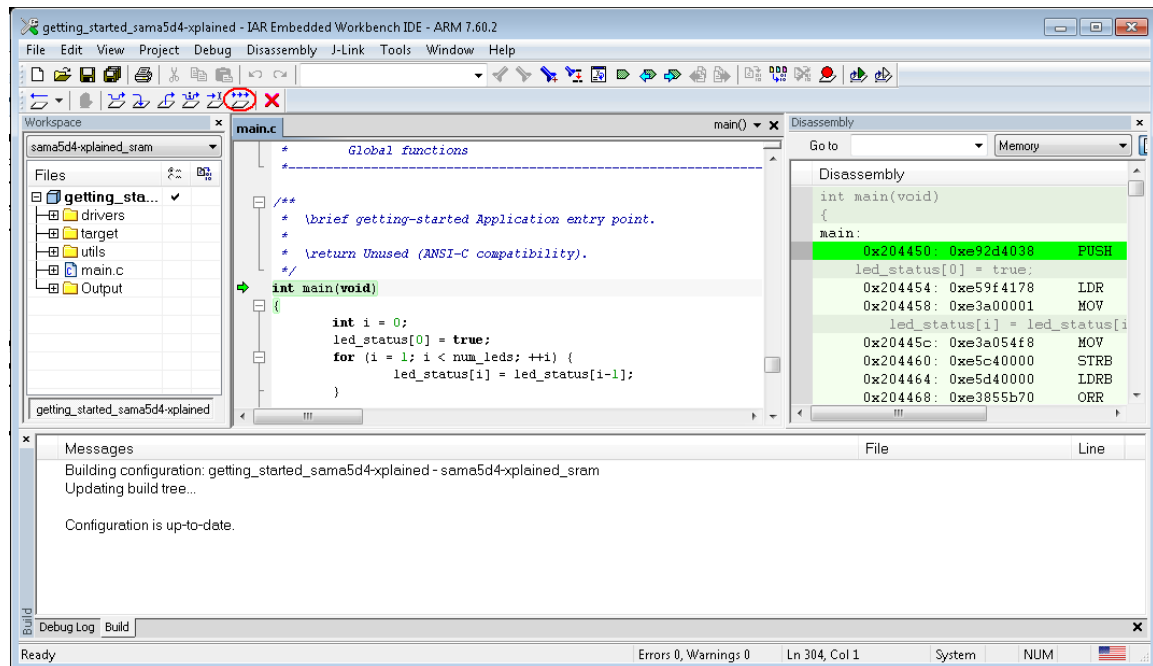
- Click  (**Make**) button on the tool bar to build the project.



- Click  (**Download and Debug**) button to download the application into SAMA5D4-XULT.

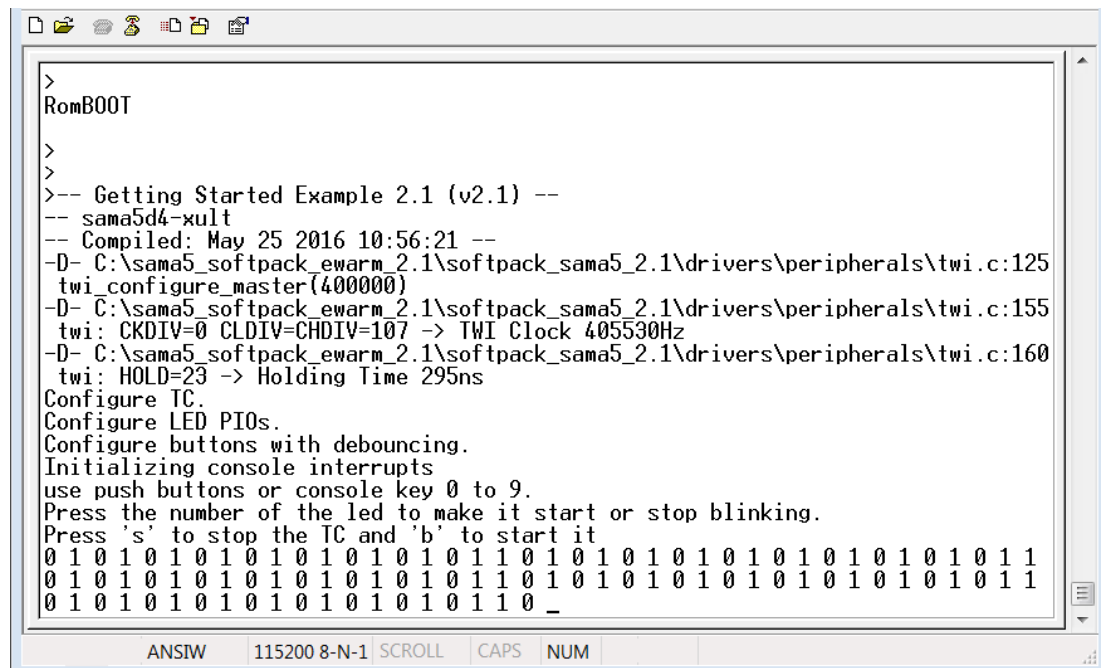


- Click  (**Go**) button to execute the application.



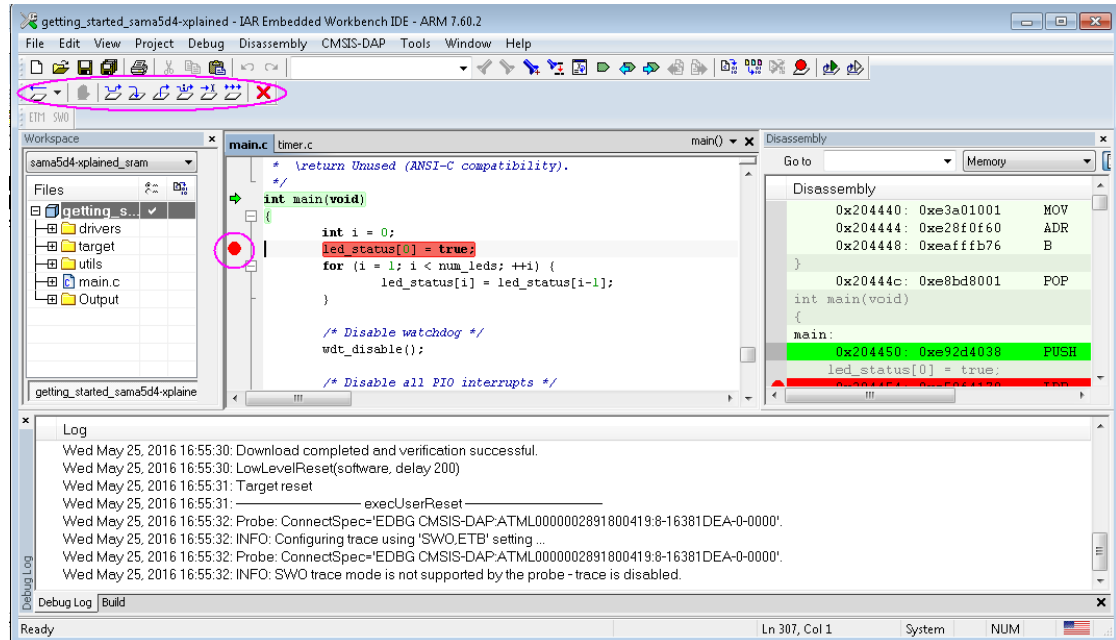
RESULT

The following text will be shown on the Terminal Application. And LEDs on board blinking.





TIPS Users can debug the examples by setting break-points or using other debugging methods offered by IAR.





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