TWR-MCF51JF Quick Start Demo

Rev. 1.0

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1 Purpose

This quick start document describes how to use the TWR-MCF51JF demo that is pre-programmed onto your Tower module. It also covers how to configure your tower module to run the demo, and the steps to re-flash the project onto your Tower board.

Use Sections 2 and 3 to run the demo. Use Section 4 to learn how to re-flash the demo on the board.

2 Configure Hardware

If running the TWR- MCF51JF board in stand-alone mode:

1) Plug-in the USB mini cable to your laptop and connect the cable to the board.

If using the TWR- MCF51JF board with the TWR-SER board (required for USB host demo):

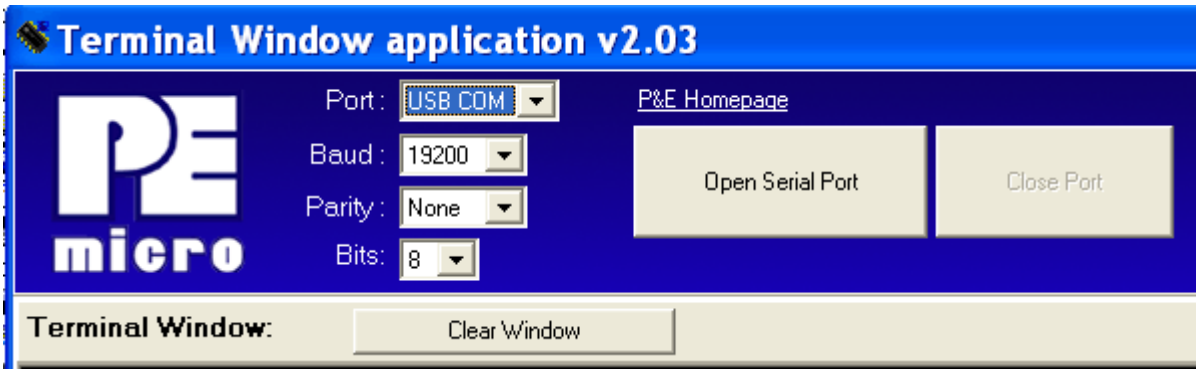
1) Follow the steps in the section above plus:
2) Connect the TWR- MCF51JF and TWR-SER boards via the elevator boards. Make sure the primary side (often marked with a white stripe) goes into the elevator board with the white edges. Detailed instructions are in the Quick Start Guide inside the TWR-ELEV module.
3) Connect a mini-B USB cable between the TWR-SER board and a USB port on your computer. This is only required for running the USB demo.
4) Connect a Serial cable to the DB9 connector on the TWR-SER board. This is required if the demo code is communicating with the serial channel.

3 Run the Demo

1) Install the P&E Micro OSBDM Virtual Serial Toolkit. You may download the toolkit from the TWR-MCF51JF Quick Start DVD or from P&E Micro.
2) Connect a mini-B USB cable to the TWR-MCF51JF tower module.
3) Allow the PC to automatically configure the OSJTAG drivers used for debugging and the serial-to-USB feature. If you have trouble connecting to the board or using the Serial Terminal, see Section 6 for troubleshooting.

Terminal Demo

4) Open the P&E Terminal Utility by clicking on Start Menu->Programs->P&E OSBDM OSJTAG Virtual Serial Toolkit->Utilities->Terminal Utility
5) Make sure USB COM is selected with 19200 baud, no parity, eight bit communication and click on the “Open Serial Port” button. If you have trouble connecting, see Section 6 for Troubleshooting.



Toggle LED Demo - The following steps require the TWR-MCF51JF tower module only:

1) Once the connection is established with the terminal window the prompt will say:
   "Enter any key to toggle on/off the Green LED" – Hit a key and the Green LED changes
   "Enter any key to toggle on/off the Orange LED" – Hit a key and the Orange LED changes

TSI Demo – A continuation of the toggle LED demo

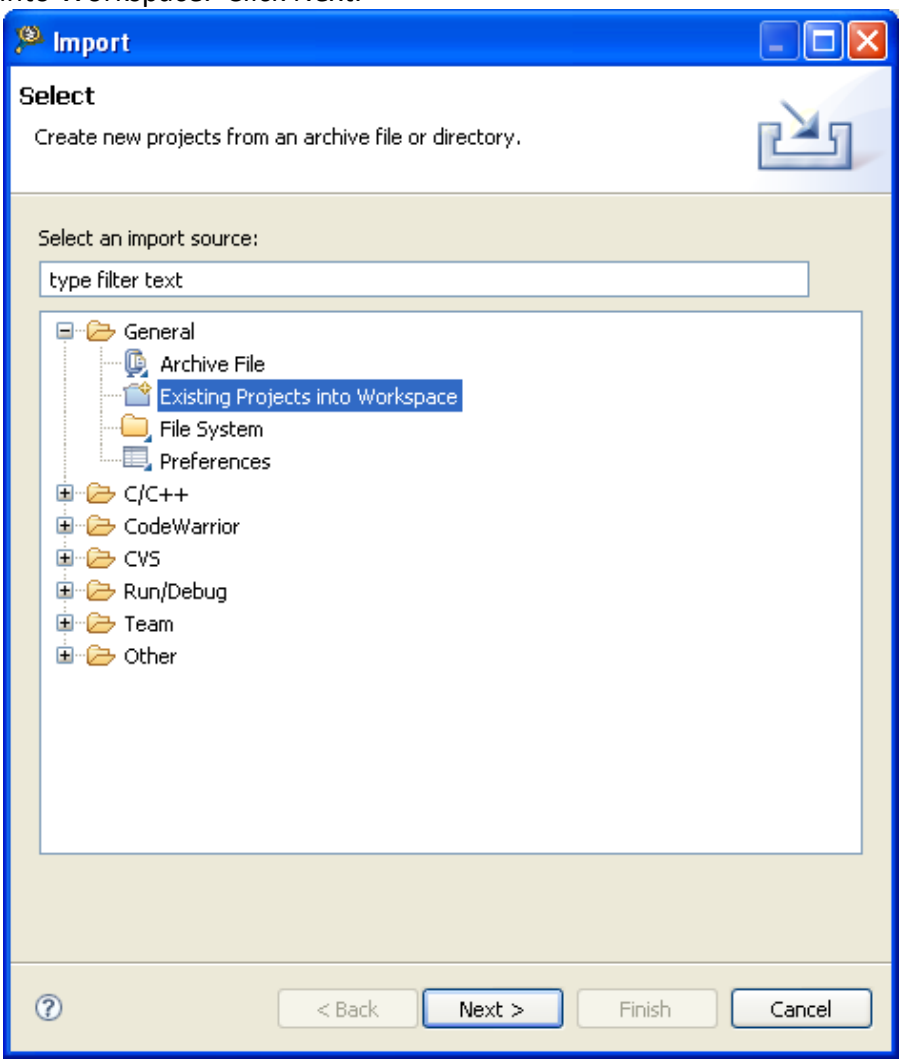
2) Press the Switch labelled IRQ on the tower module.
3) Enter a couple of keys on the terminal to get out of the input loop.
4) Touch one or the other electrodes on the tower module.
5) Observe the LED change state and a message is sent out to the terminal.
6) Press the IRQ switch and the state goes back to the toggle led function.

Other Demos will be added in the future -

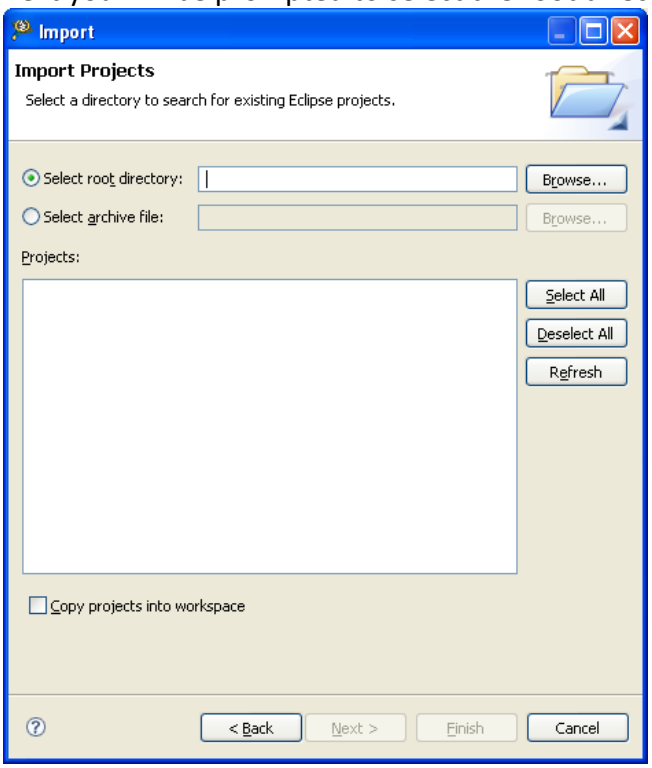
4 Development Software and Programming the Board

1) Install the P&E Micro OSBDM Virtual Serial Toolkit. You may download the toolkit from the TWR-MCF51JF Quick Start DVD or from P&E Micro.
2) Install CodeWarrior 10.1. The Evaluation edition is available.
3) Install the MCF51JF service pack (available from the TWR-MCF51JF Quick Start CD). Follow the instructions outlined by the Quick Start DVD (follow the appropriate link in the software section of the DVD Flash Applet).
4) Download the ColdFire+ TWR-MCF51JF Quick Start Demo Lab from the TWR-MCF51JF website.
5) Unzip the **TWR-MCF51JF_Quick_Start_Demo.zip** file into **C:\demo** directory
6) Open CodeWarrior 10.1 and import the demo using CodeWarrior's import functionality (File->Import).

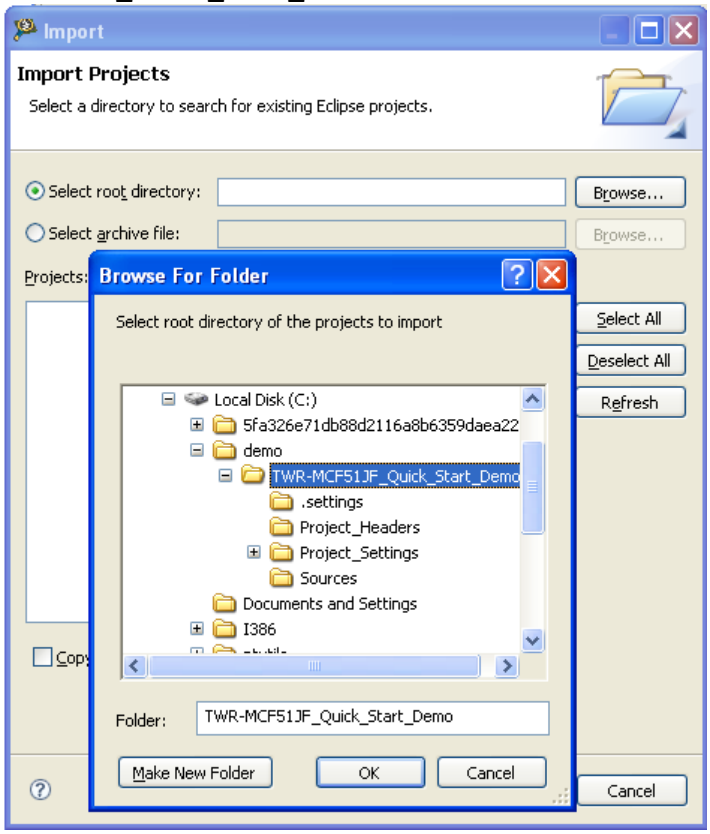
7) When the Import dialogue box appears, expand the General folder and select Existing Projects into Workspace. Click Next.



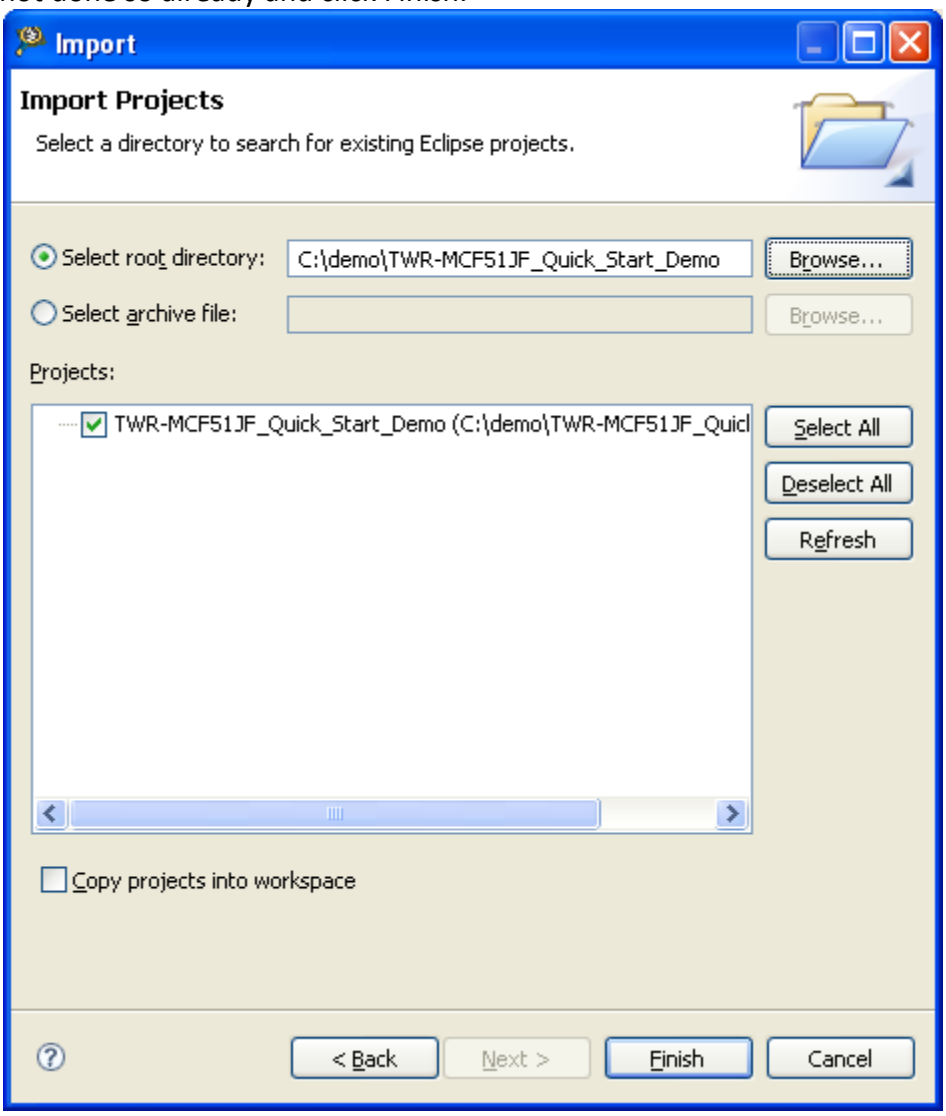
8) Next you will be prompted to select the root directory or archive file.



Select root directory and click the Browse button next to this item. Navigate to **C:\demo\TWR-MCF51JF_Quick_Start_Demo.** Then click Ok.



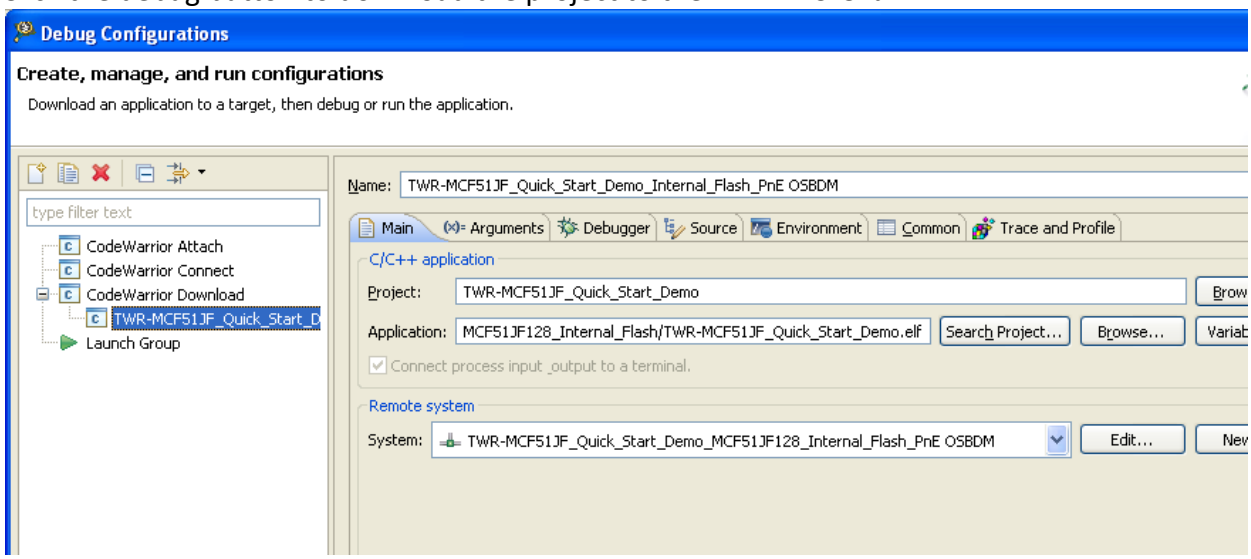
9) By default, the project, TWR-MCF51JF_Quick_Start_Demo, will be checked. Check this box if not done so already and click Finish.



10) Perform a clean of the project (Project -> Clean…). If you chose not to have the clean procedure rebuild automatically, compile the project by clicking the Make icon (or right clicking on the project and select "Build Project"). (NOTE: The following warning message may be displayed: "Invalid project path: Include path not found (TWR-JF128_Quick_Start_Demo\Source). If you encounter this message perform a clean (Project->Clean…) and rebuild the demo).

11) After compilation completes, select the down arrow beside this debug icon and select "Debug Configurations". The Debug Configurations dialogue box will appear. Expand the CodeWarrior Download from the leftmost menu and select TWR-MCF51JF_Quick_Start_Demo. Ensure that the project field contains TWR-MCF51JF_Quick_Start_Demo, application field contains MCF51JF128_Internal_Flash/TWR-MCF51JF_Quick_Start_Demo.elf, and the system field contains TWR-MCF51JF_Quick_Start_Demo_MCF51JF128_Internal_Flash_PnE OSBDM.

Click the debug button to download the project to the TWR-MCF51JF.



12) Once the code has downloaded to Flash, the debugger screen will come up and pause at the first instruction. Hit the “Resume” button to start running.

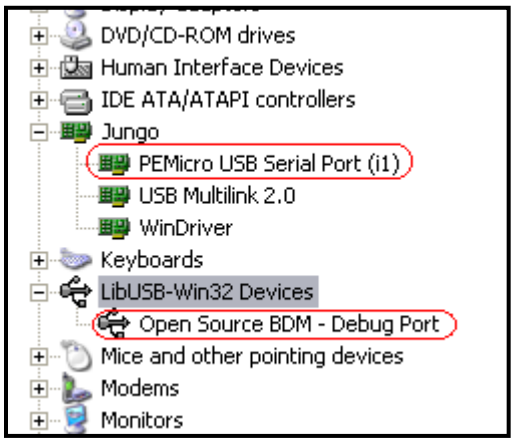
5 Demo Software Overview

This demo is a combination of a couple of simple routines joined together to get you running quickly on the tower board.
The first toggle led which changes the state of each of the LEDs upon a key press in the terminal window.
The second is a function that uses the TSI module to detect a finger press of either of the two touch pads on the top of the tower module. As you press the touch pad the LED’s under the pad toggle. Note that the touch sensing is not de-bounced.
To select between these two function use the IRQ push button in the corner of the tower module.

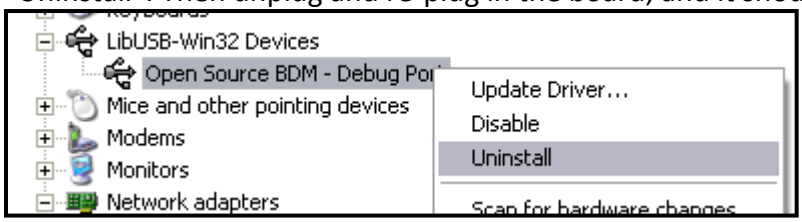
6 OSJTAG

Open Source JTAG (also known as OSBDM on ColdFire+ tower boards) allows a user to program, debug, and get serial data from ColdFire+ devices via a USB cable. The firmware is located on a Freescale MCFS08JM60 on the underside of the ColdFire+ tower board.

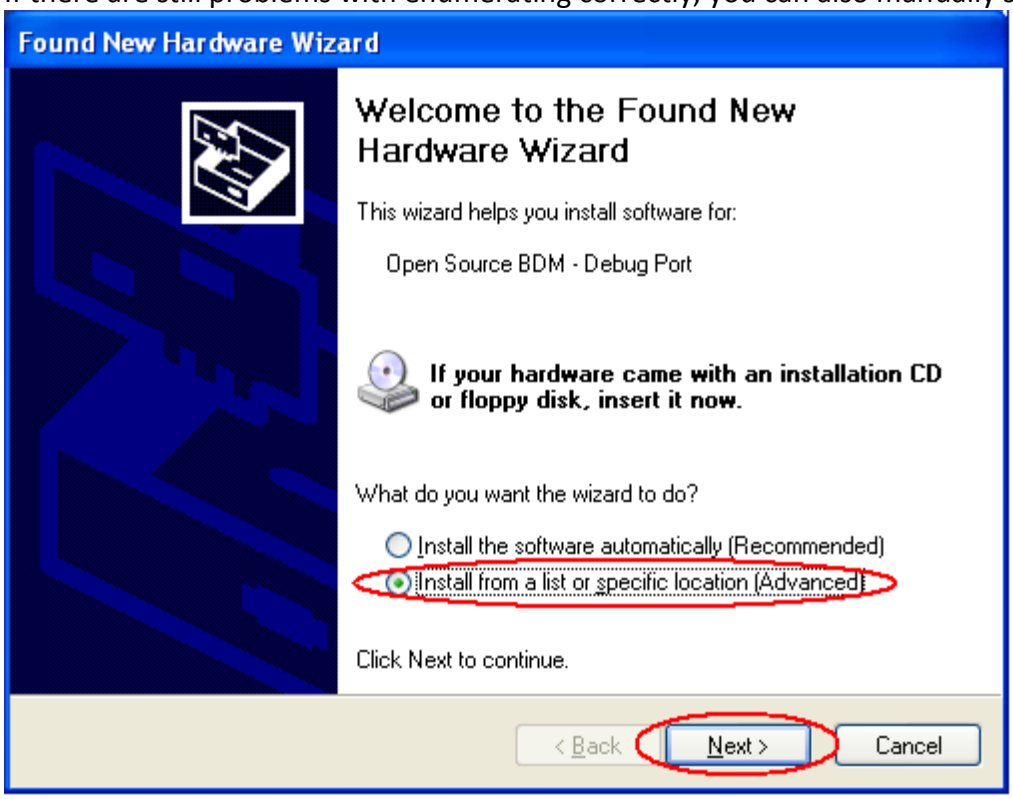
When the tower board is plugged in, it should enumerate as a composite device, with one driver for debugging, and the other as a serial port. If you go to the Device Manager you should see the following:

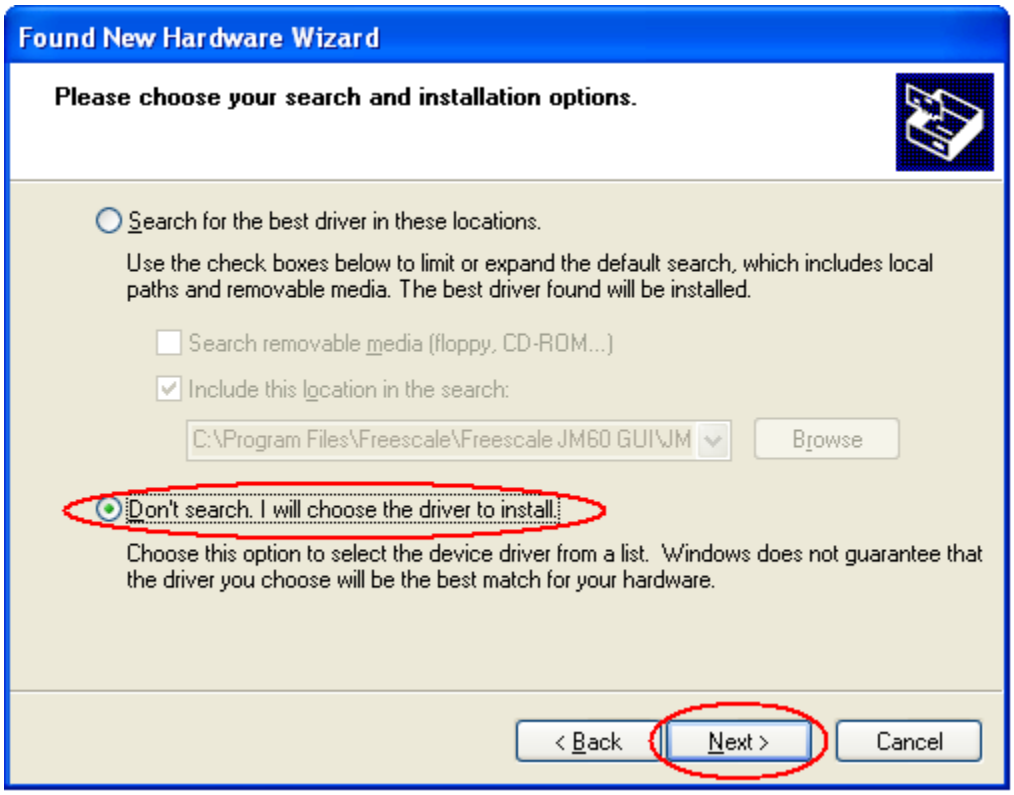


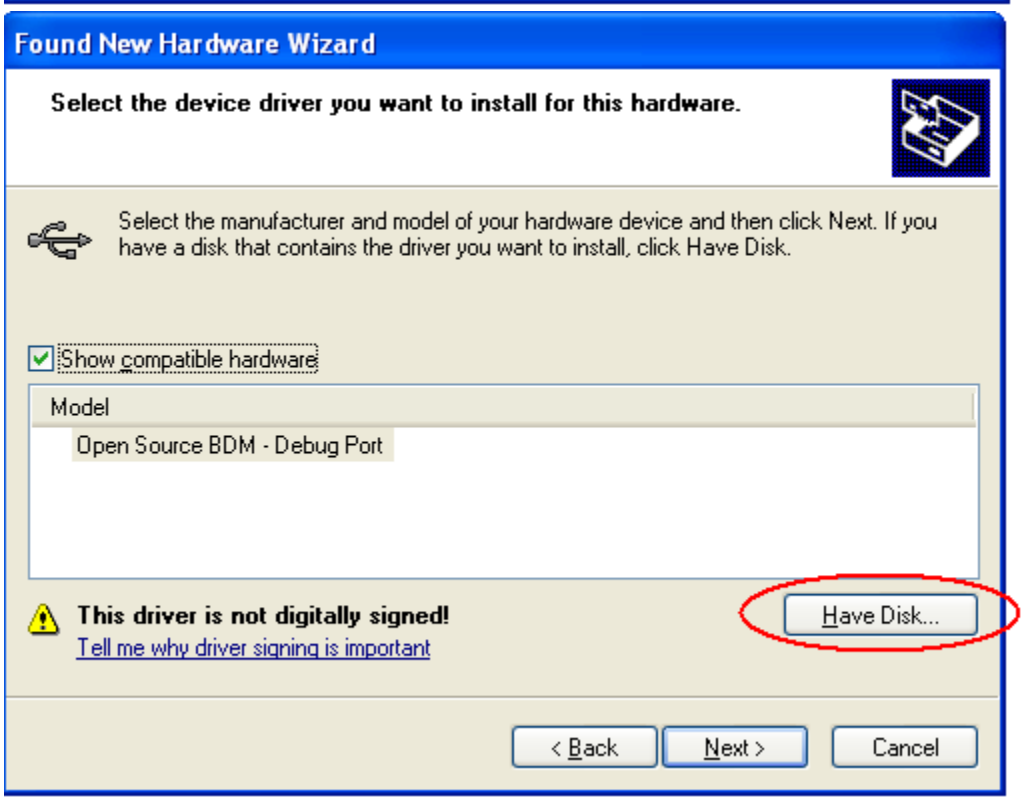
If you only see it enumerate as the Open Source BDM Debug Port, then your computer may automatically picking up an outdated driver. To fix this, right click on the OSBDM driver and select "Uninstall". Then unplug and re-plug in the board, and it should enumerate correctly.

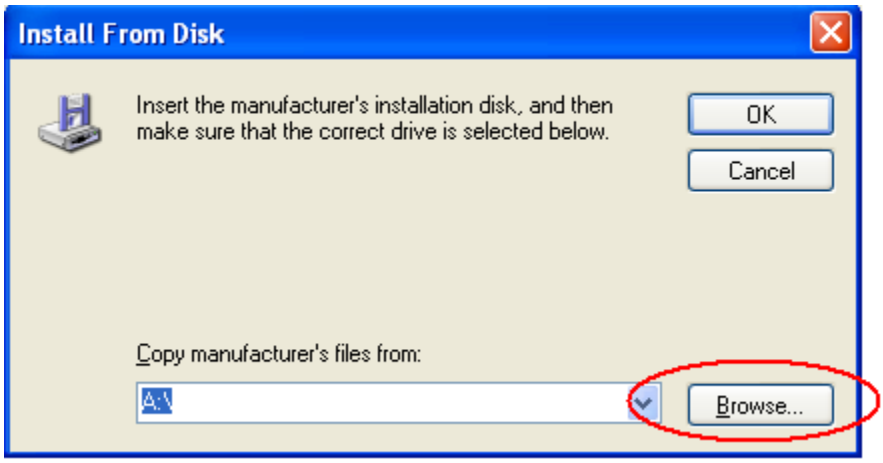


If there are still problems with enumerating correctly, you can also manually select the drivers.




Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Program Files\Freescale\Freescale JM60 GUI\JM
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
Open Source BDM - Debug Port
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel



- For the **Open Source BDM – Debug Port,** use the driver at: **C:\pemicro\Drivers\osbdm\OSJTAG_Debug_Interface_libusb.inf**

- For the **PEMicro USB Serial Port (i1)**, use the driver at: **C:\ C:\pemicro\Drivers\osbdm\OSJTAG_Serial_Interface_windriver_version.inf**