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THIS SPEC IS OBSOLETE

Spec No: 002-09373

Spec Title: AN209373 - F2MC-FM3 Family OpenOCD GUI Frontend

Replaced by: 002-10586

AN209373

F²MC-FM3 Family OpenOCD GUI Frontend

This application note describes how to use on-board Open On-Chip Debug hardware with some FM3 evaluation boards. For this the FTDI-Chip chip FT2232D is used to provide one serial port and one JTAG port.

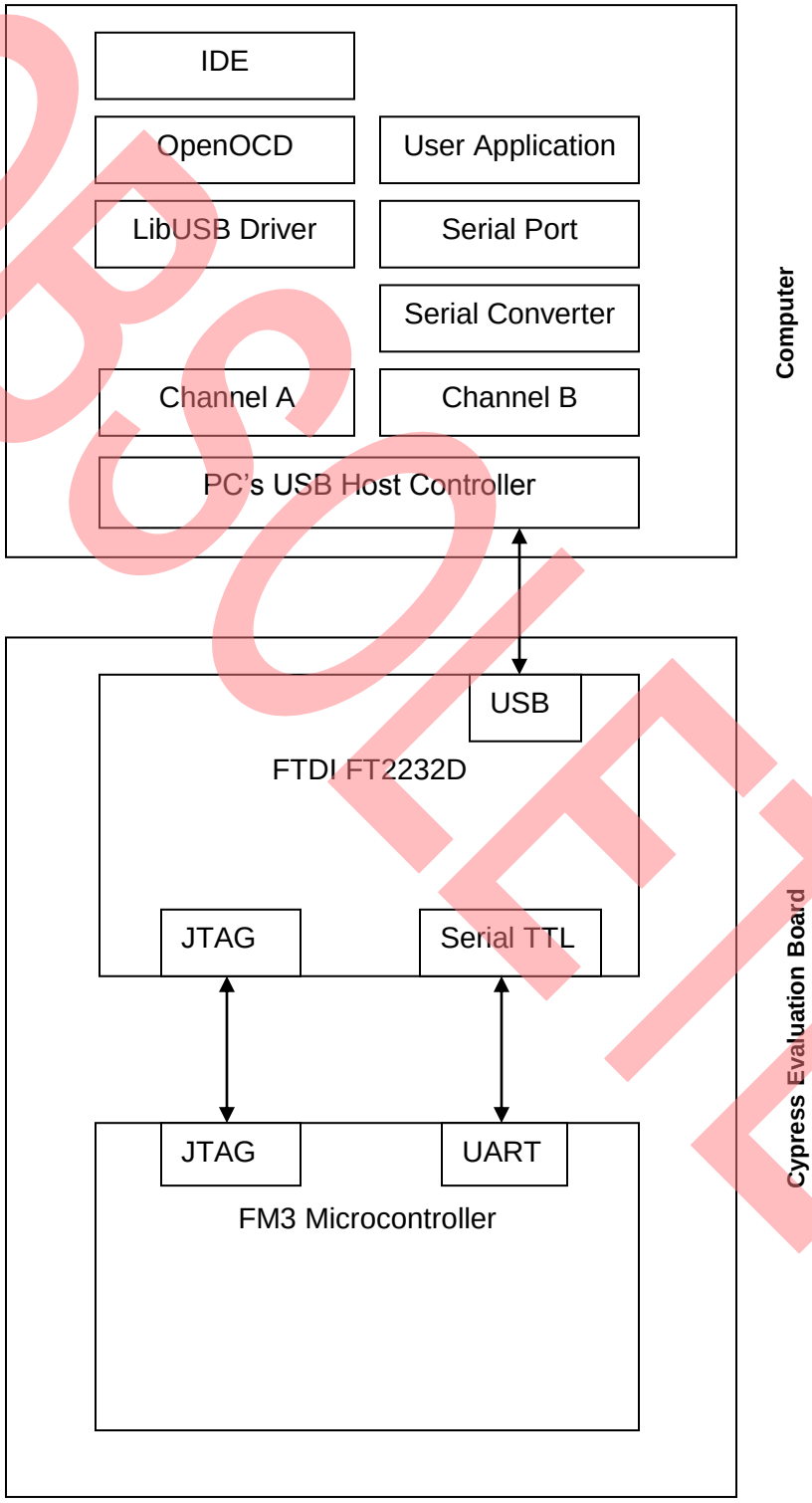
OBSOLETE

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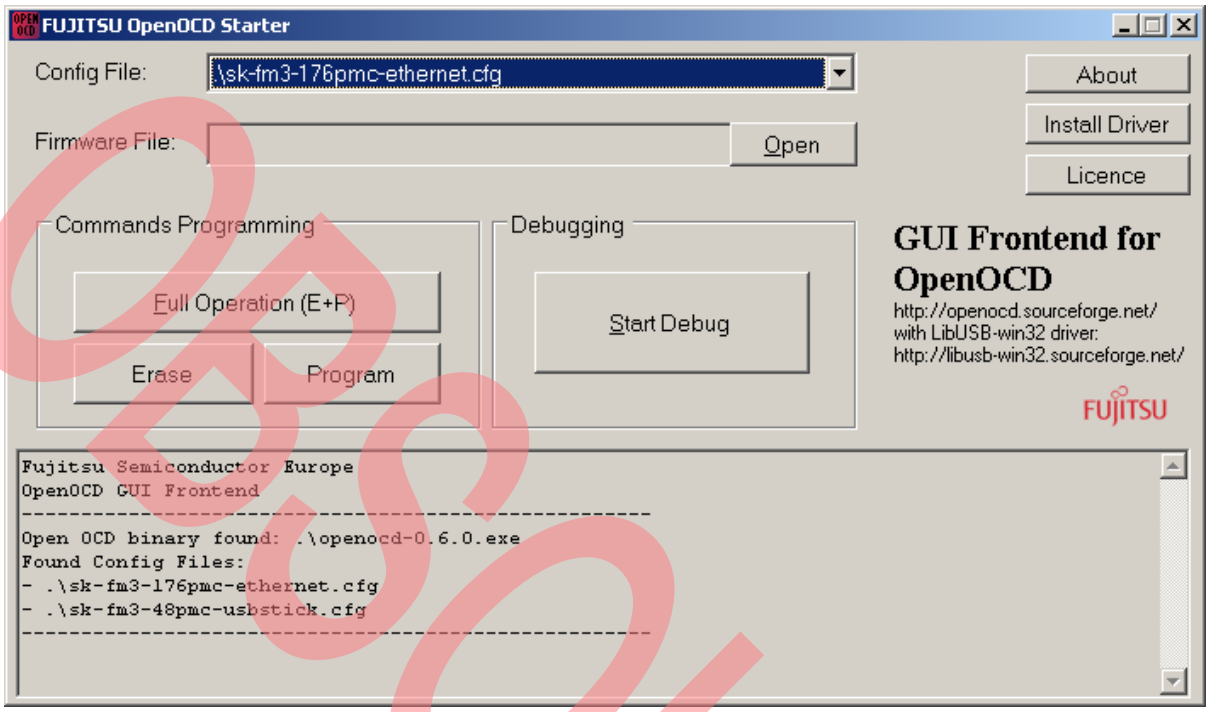
1 Introduction

This Application Note explains how to use on-board Open On-Chip Debug hardware with some FM3 evaluation boards. For this the FTDI-Chip chip FT2232D is used to provide one serial port and one JTAG port.



OBSOLETE

For usage with a graphical frontend, Cypress developed the “Cypress OpenOCD Starter”.



It uses OpenOCD as backend and LibUSB as driver for the FT2232D channel A. OpenOCD is open source and can be found here: http://openocd.sourceforge.net/

See also http://www.yagarto.de/#ocd for OpenOCD binary versions.

Unfortunately it is not allowed to distribute binary version of OpenOCD, which is **linked** to the proprietary library FTD2XX provided by FTDI, so the binary within the installation uses LibUSB to drive the FTDI chip.

LibUSB is also open source and can be found here: http://libusb-win32.sourceforge.net/

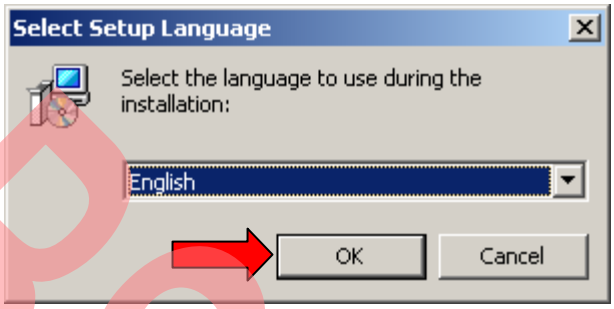
For auto detection in background mode, LibUsbDotNet library is used which is also open source and can be found here: http://libusbdotnet.sourceforge.net

OBSOLETE

2 Automatic Installation

Automatically install OpenOCD GUI frontend from Cypress

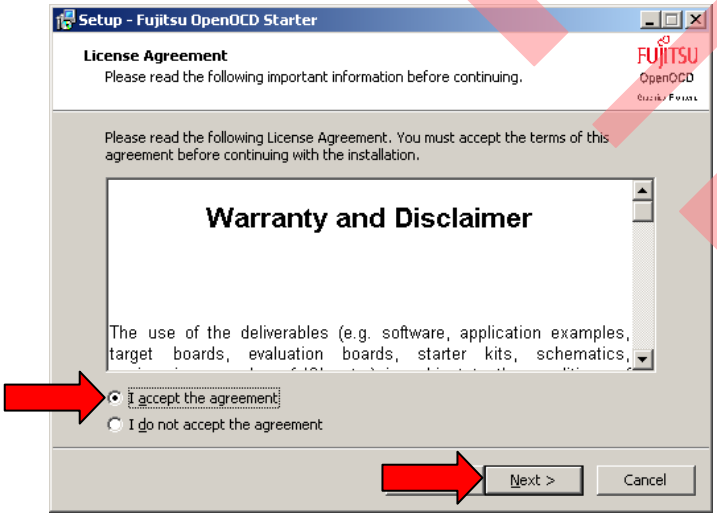
2.1 Start Installation



Click “OK”



Click “Next”

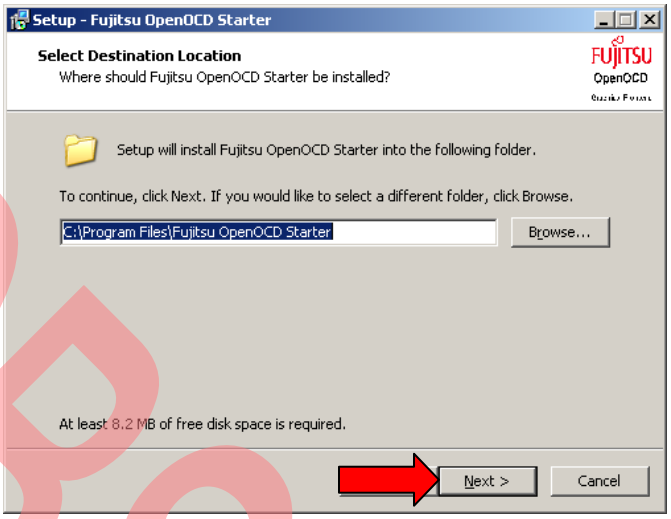


Read the disclaimer.

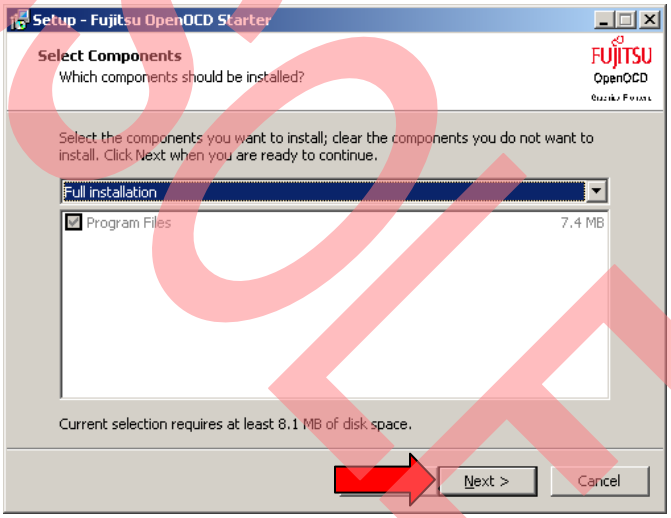
Agree the disclaimer.

Click “Next”

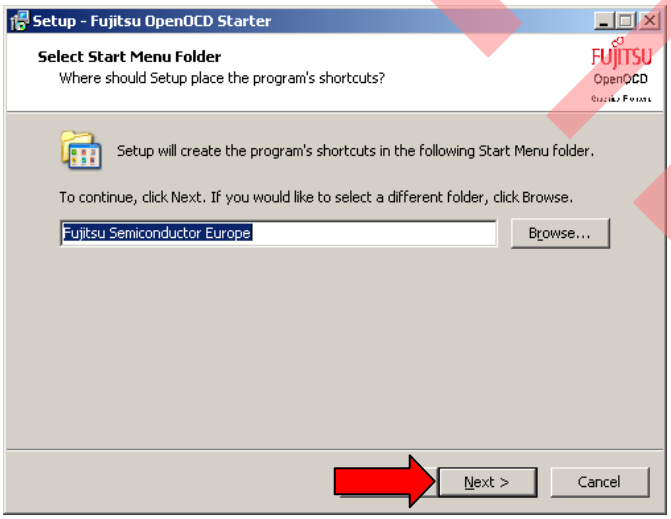
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Click “Next”

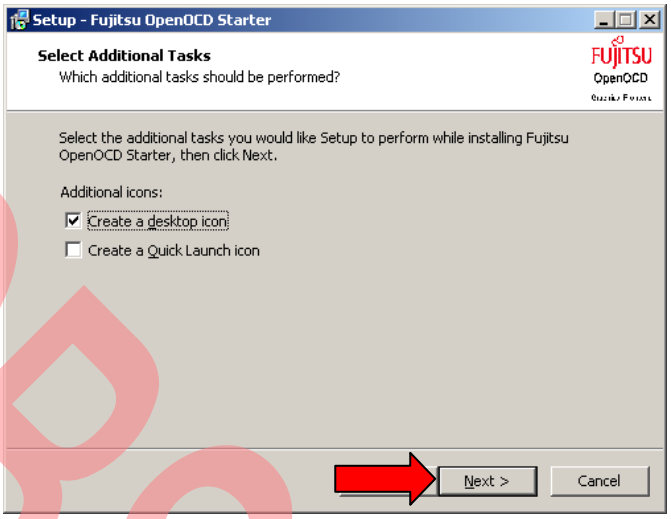


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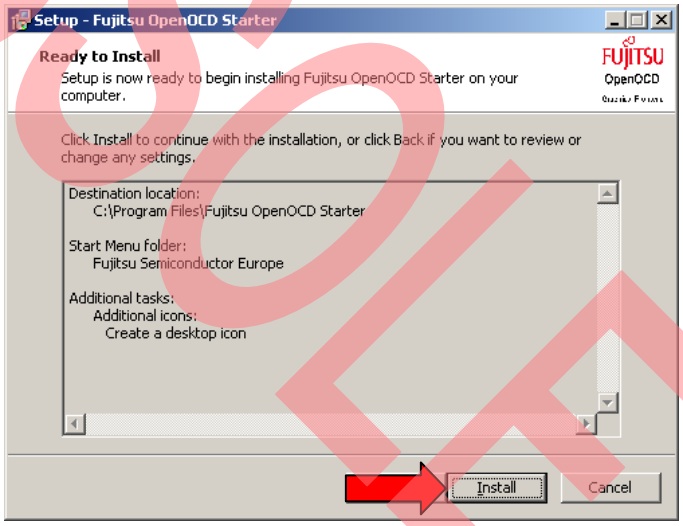


Click “Next”

OBSOLETE

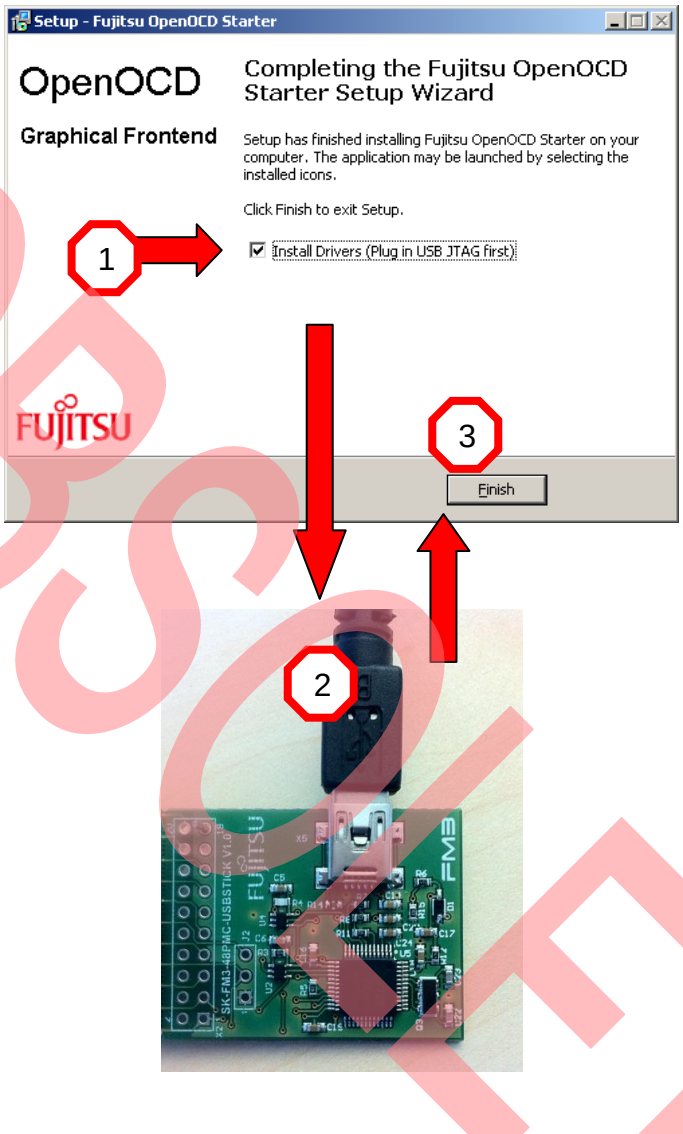


Click “Next”



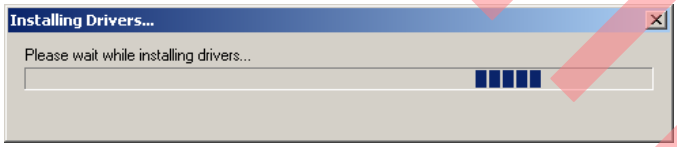
Click “Install”

OBSOLETE



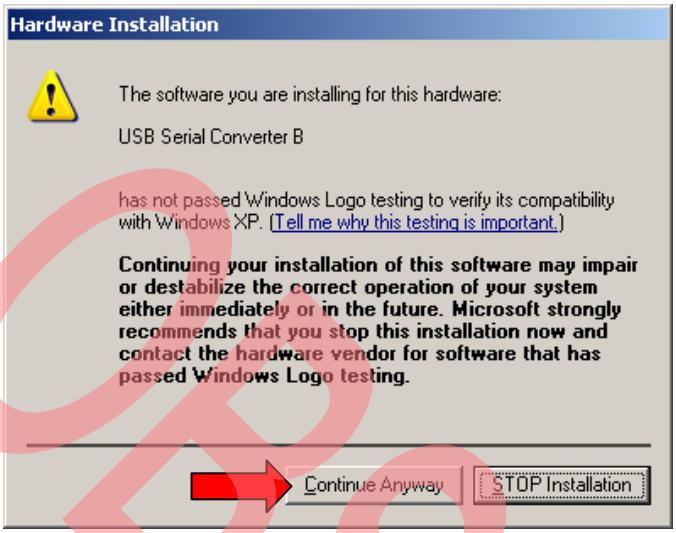
To install the drivers,

1. Select “Install Drivers”
2. Connect device via USB
3. Click “Finish”



During driver installation following dialog appears.

OBSOLETE



This dialog should pop-up 4 times.

If this dialog appears, press “Continue Anyway”.

OBSOLETE

3 Manual Installation

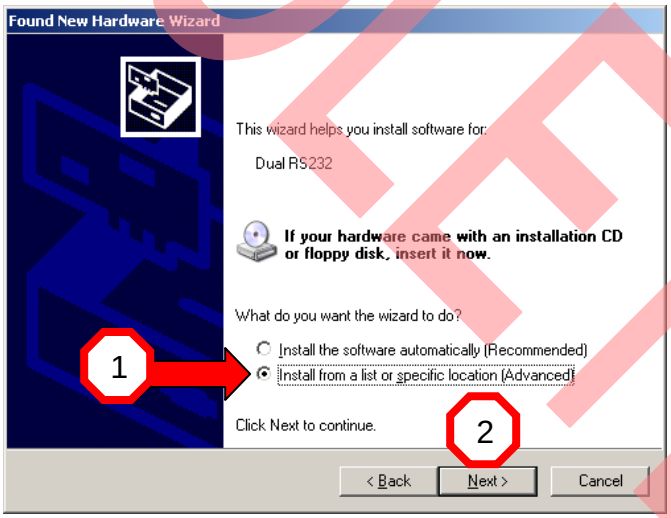
Used for manually install drivers for FTDI for use with LIBUSB

This section is normally not needed, because the Cypress OpenOCD Starter automatically installs all required drivers. In some environments manual driver install may be interesting.

3.1 If no FTDI-Chip drivers are installed in the operating system

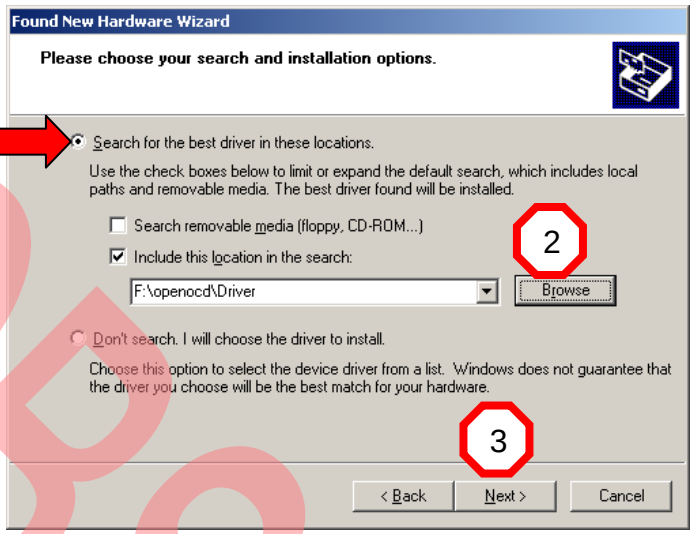


1. Choose “No, not this time”
2. Click “Next”

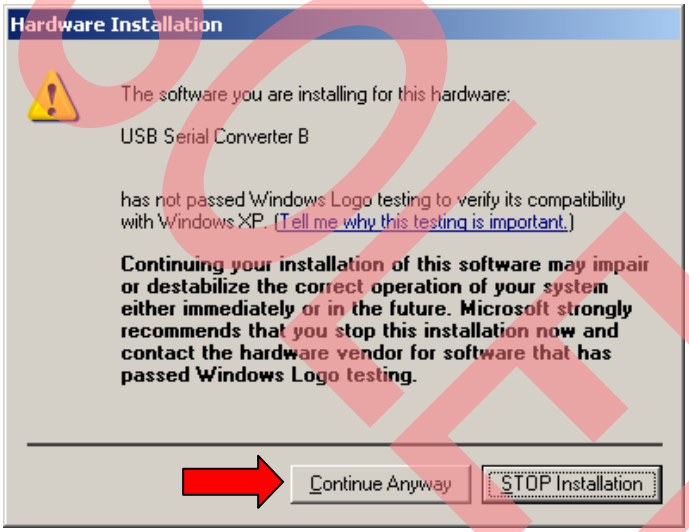


1. Choose “Install from a list…”
2. Click “Next”

OBSOLETE

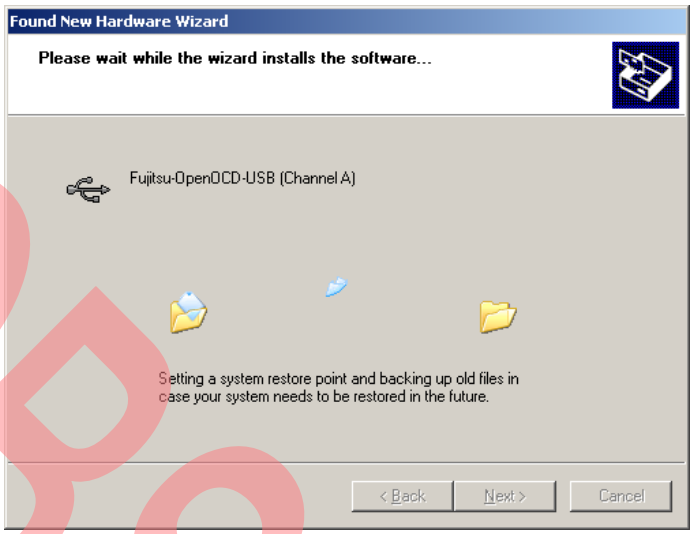


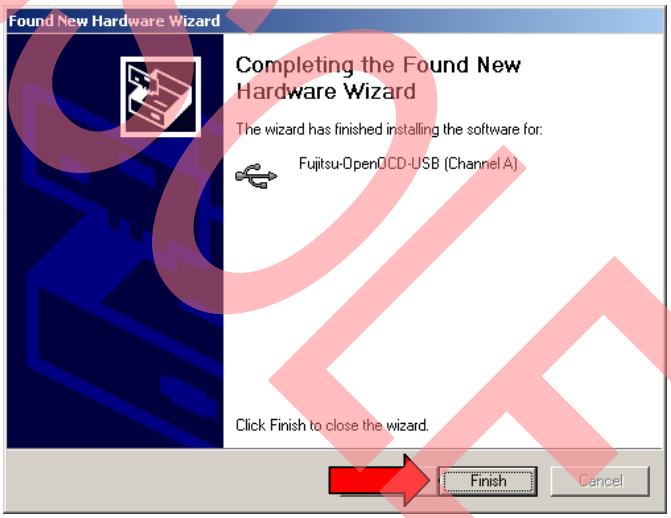
1. Select “Search for the...”
2. Choose the “Drivers” directory, in the OpenOCD folder
3. Click “Next”



If following dialogs opens, click “Continue Anyway”

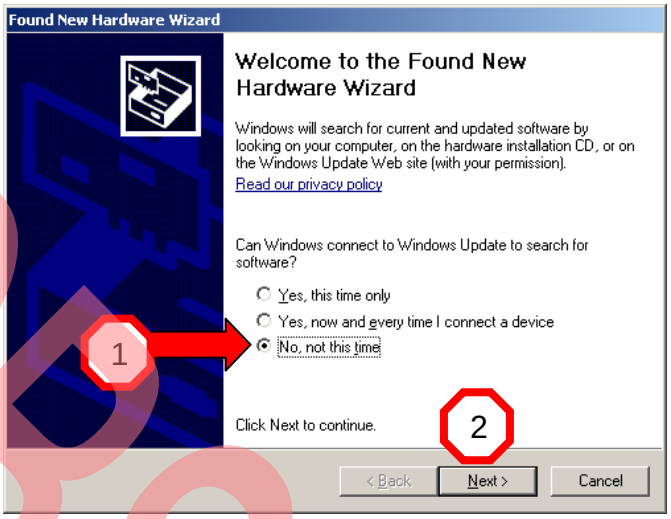
OBSOLETE



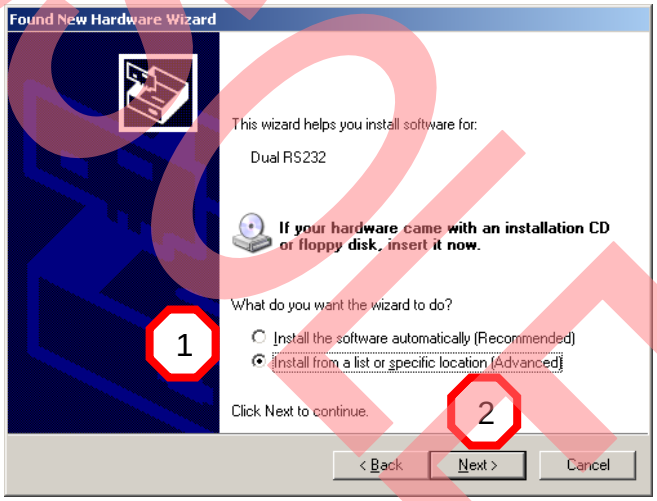


Click “Finish”

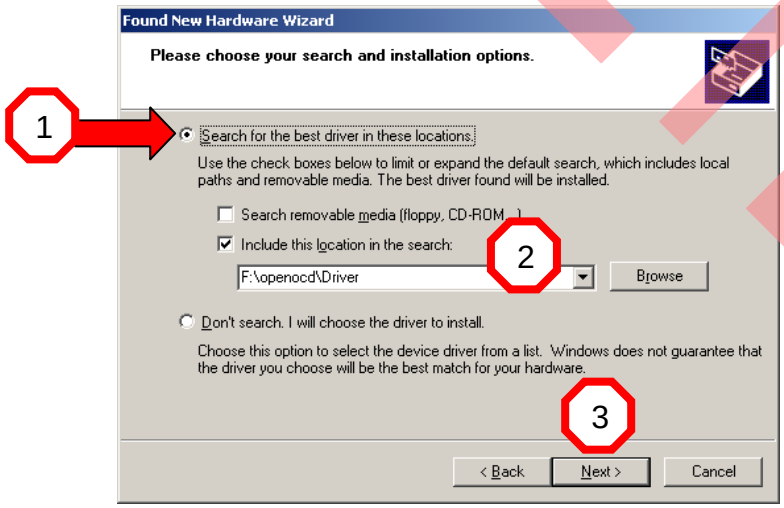
OBSOLETE



1. .Choose “No, not this time”
2. Click “Next”

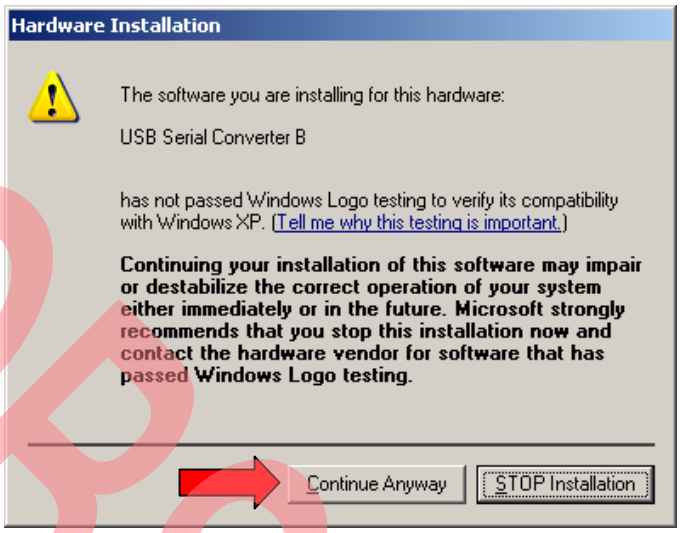


1. Choose “Install from a list....”
2. Click “Next”

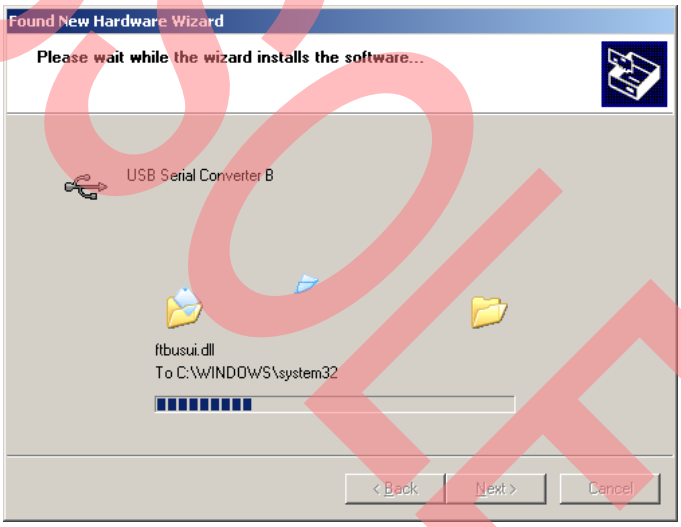


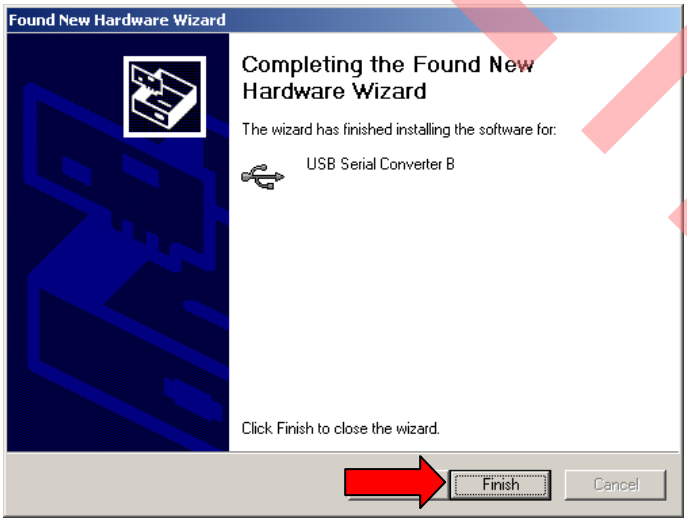
1. Select “Search for the...”
2. Choose the Drivers “Directory”, in the OpenOCD folder
3. Click “Next”

OBSOLETE



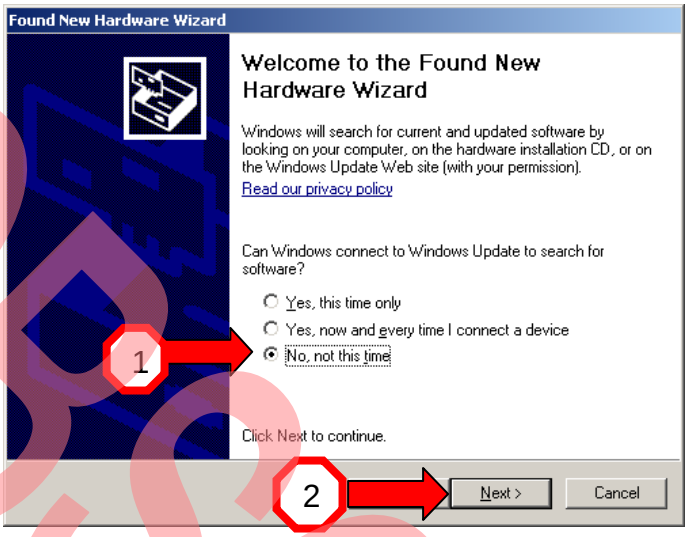
If following dialogs opens, click "Continue Anyway"





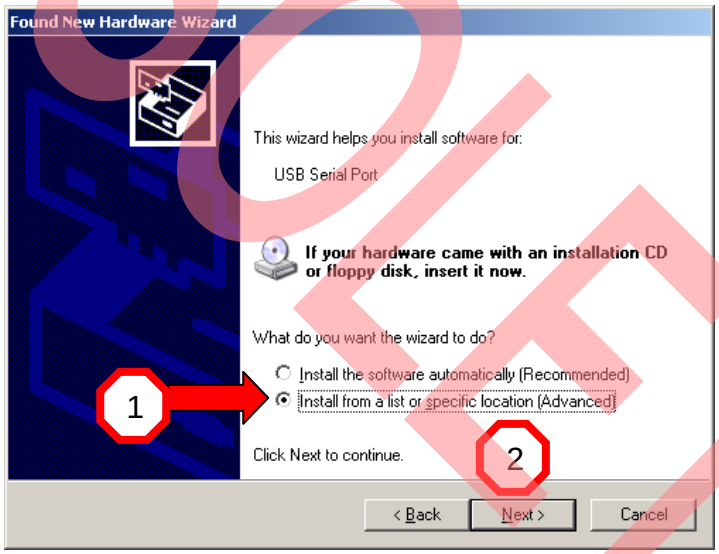
Click "Finish"

OBSOLETE



1.Choose “No, not this time”

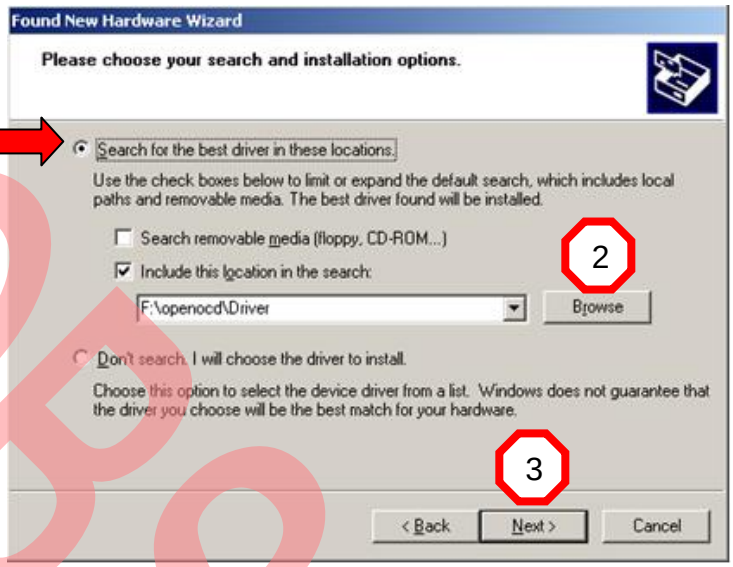
2.Click “Next”



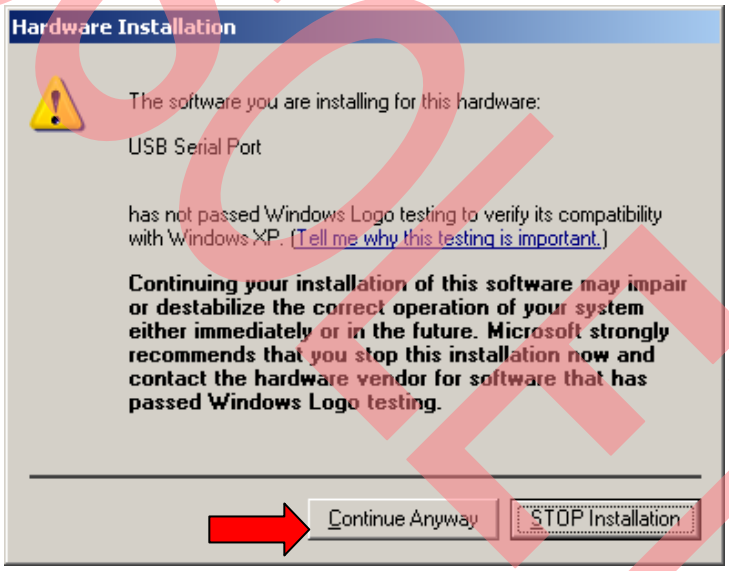
1. Choose “Install from a list”.

2. Click “Next”

OBSOLETE

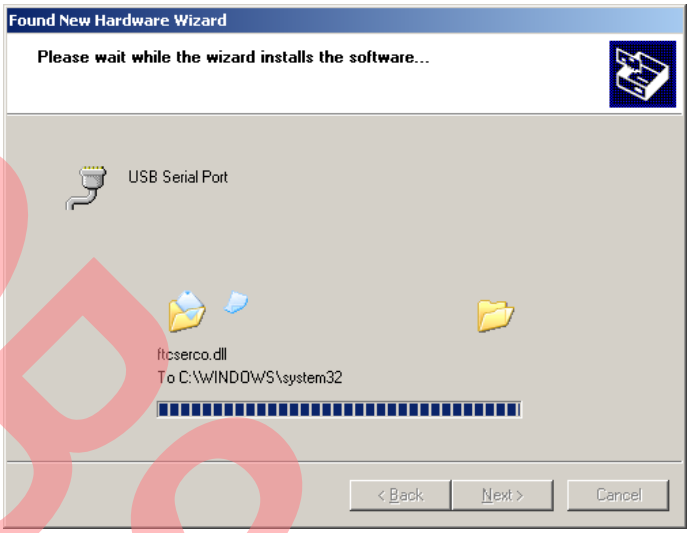


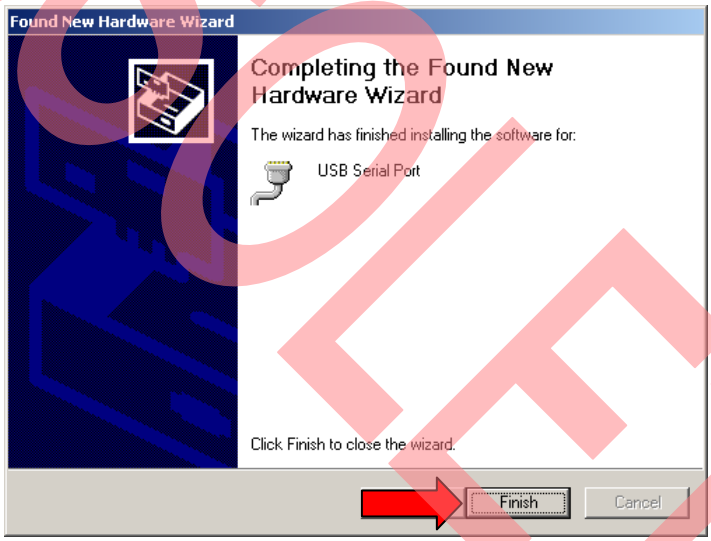
1. Select “Search for the”
2. Choose the “Drivers” directory in the OpenOCD folder”
3. Click “Next”



If following dialogs opens, click “Continue Anyway”

OBSOLETE





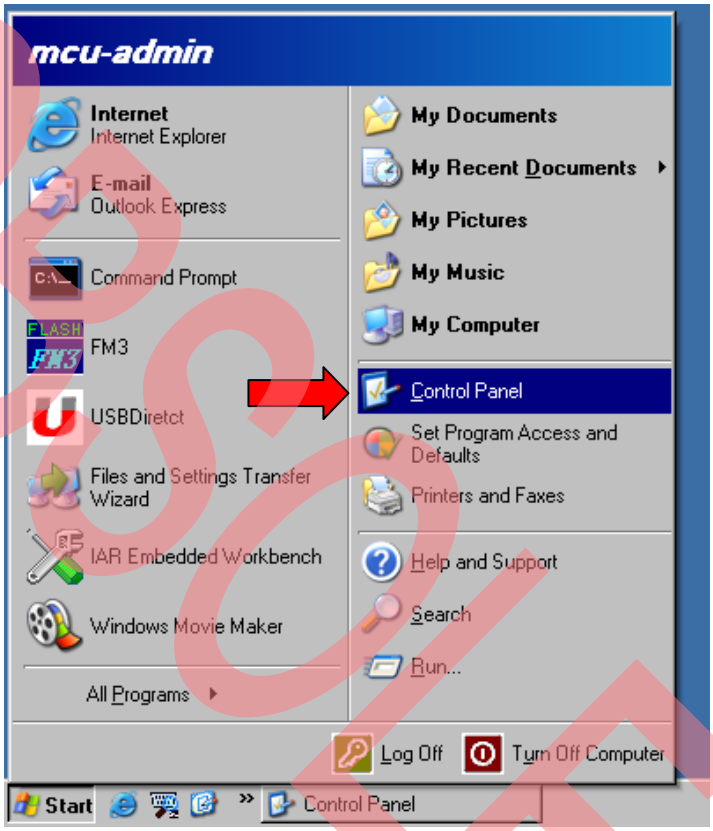
Click “Finish”

Now Drivers are installed and OpenOCD is ready to use.

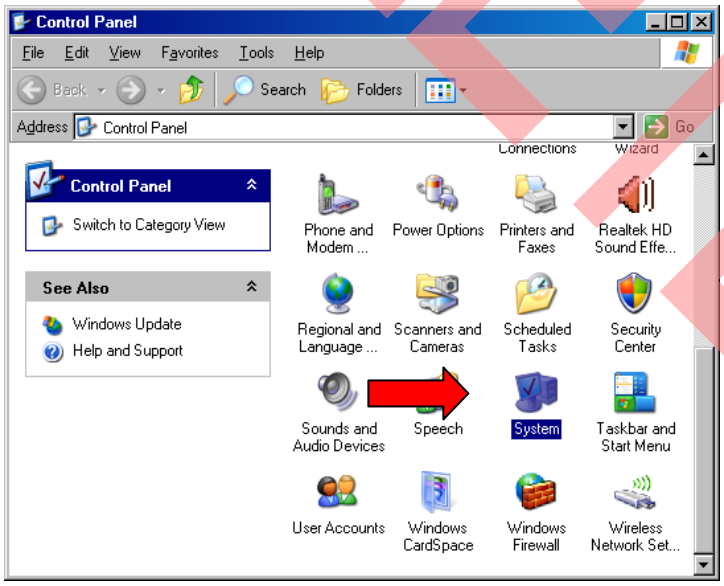
OBSOLETE

3.2 If FTDI-Chip drivers are installed in the operating system

In this case Channel A of the USB to dual RS232 bridge will be recognized as Serial Converter A. To use it with LibUSB, the driver of “Serial Converter A” has to be patched to a LibUSB driver.

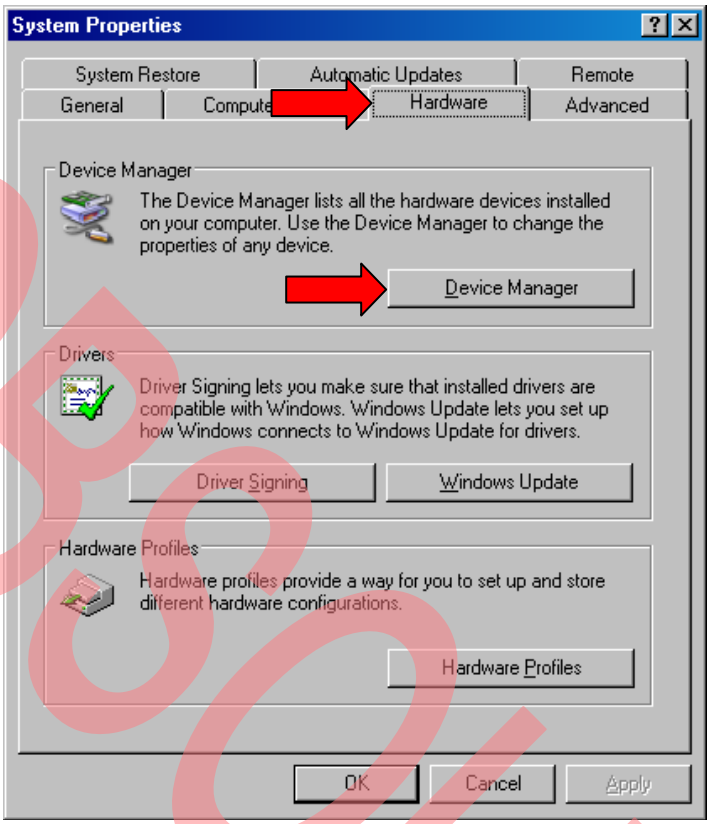


Go to Control Panel



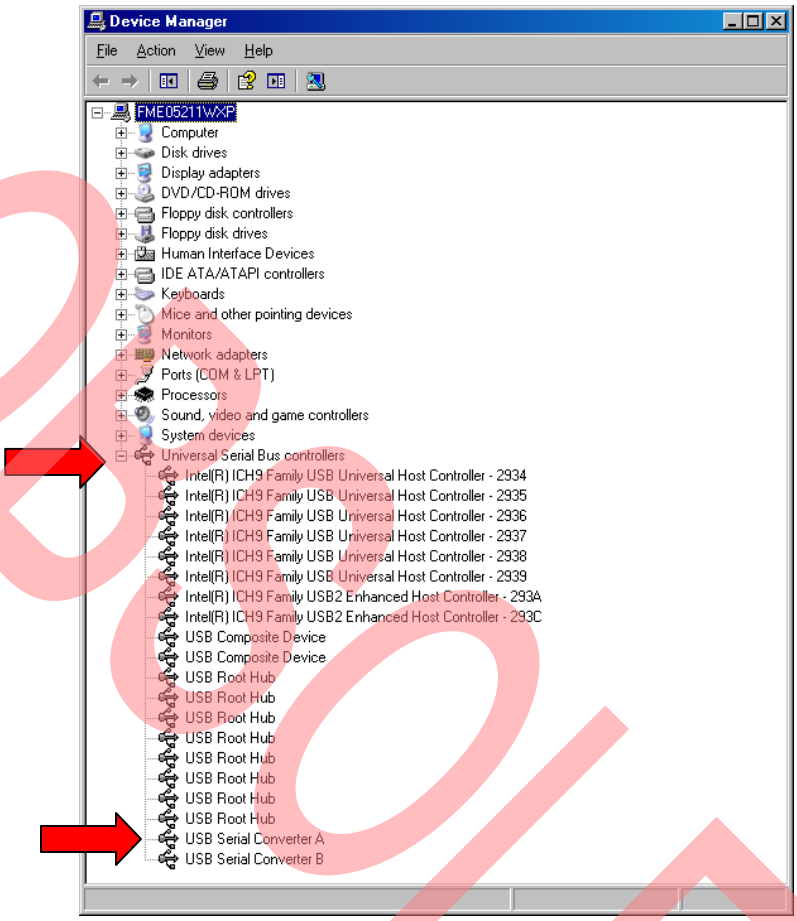
Open “System” control panel

OBSOLETE



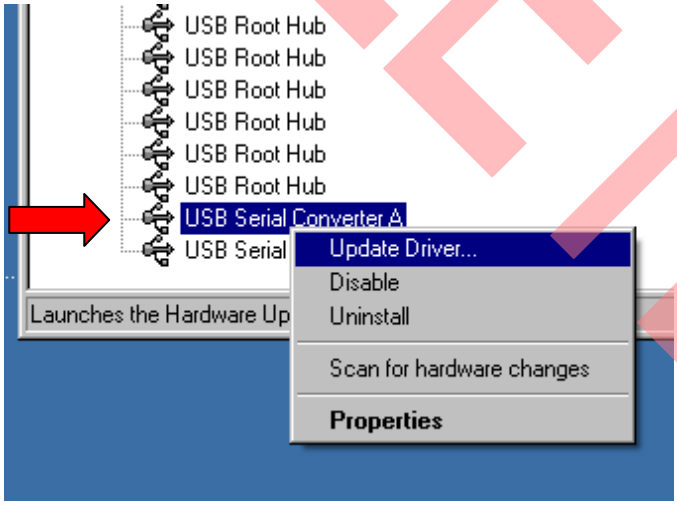
Open the “Device Manager”.

OBSOLETE



Expand “Universal Serial Bus Controller”

Here the “USB Serial Converter A” is listed.

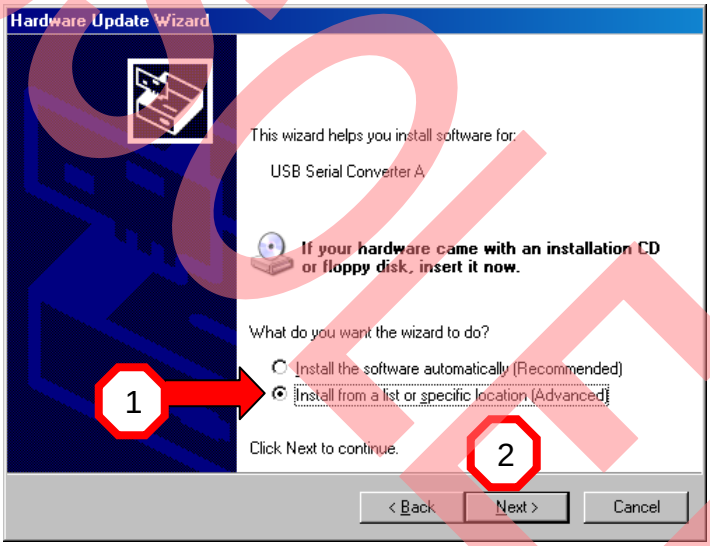


Click with right-mouse button “USB Serial Converter A” and choose “Update Driver…”

OBSOLETE

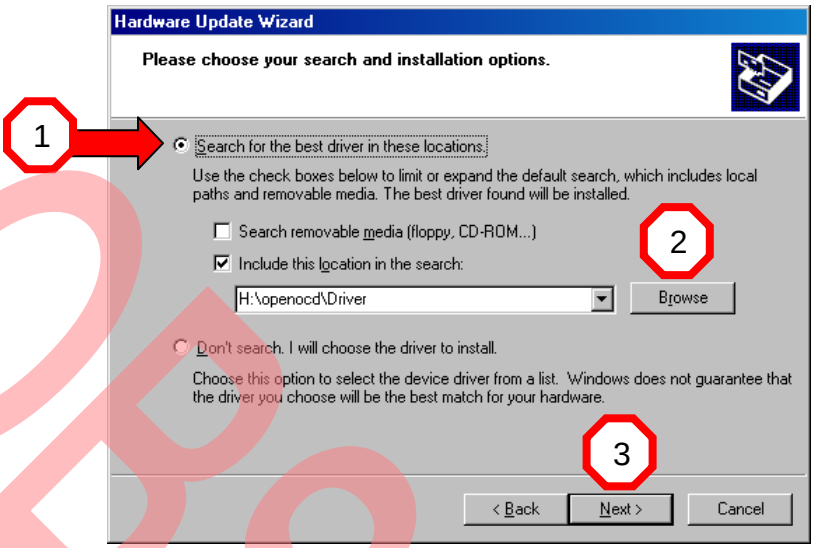


1. Choose “No, not this time”
2. Click “Next”

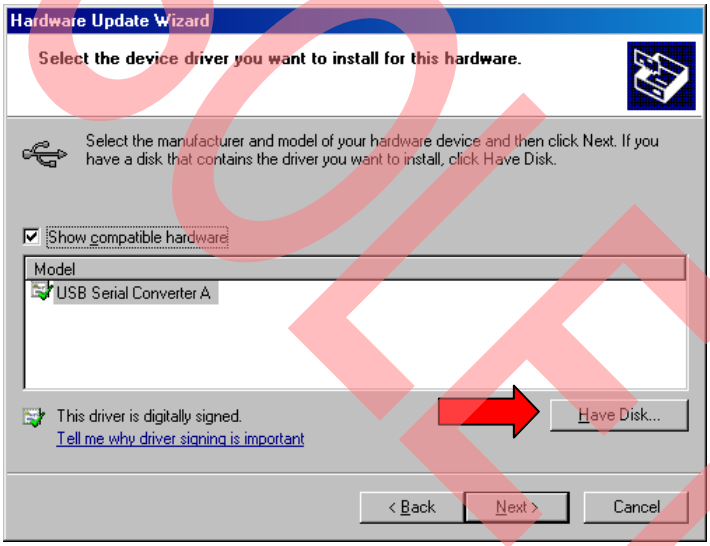


1. Choose “Install from a list…”
2. Click “Next”

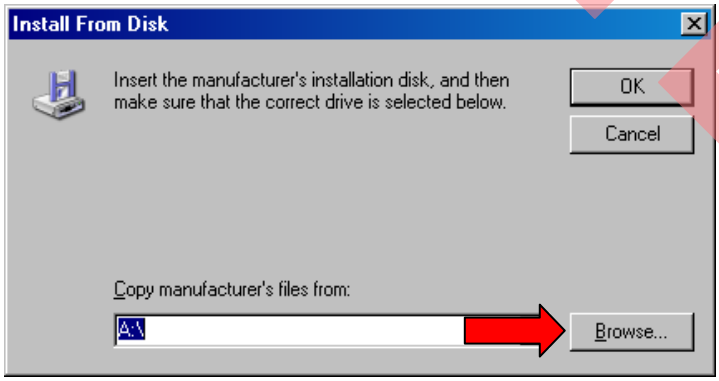
OBSOLETE



1. Select "Search for the..."
2. Choose the "Drivers" directory in the open OCD folder
3. Click "Next"

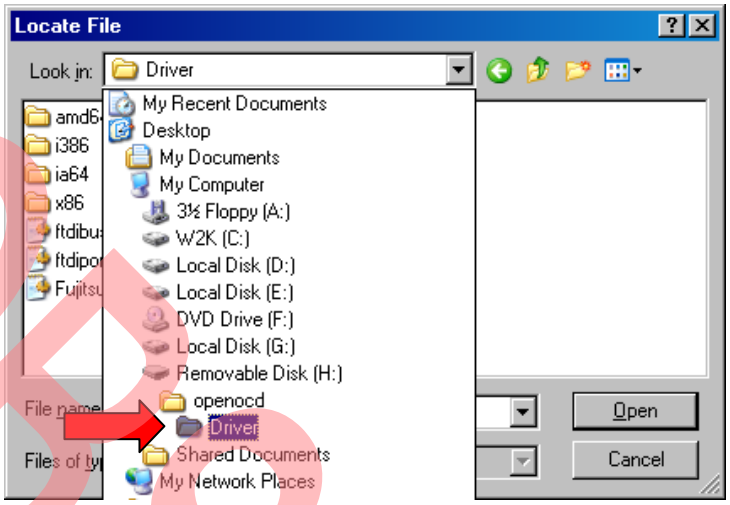


Click "Have Disk…"

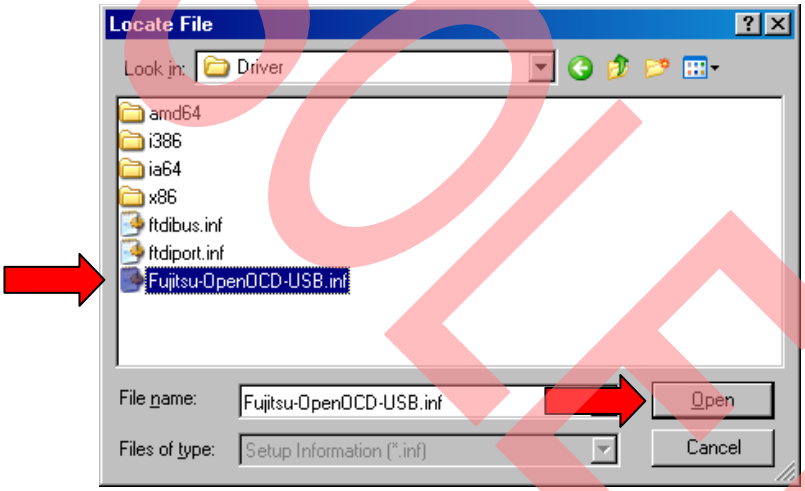


Click "Browse"

OBSOLETE



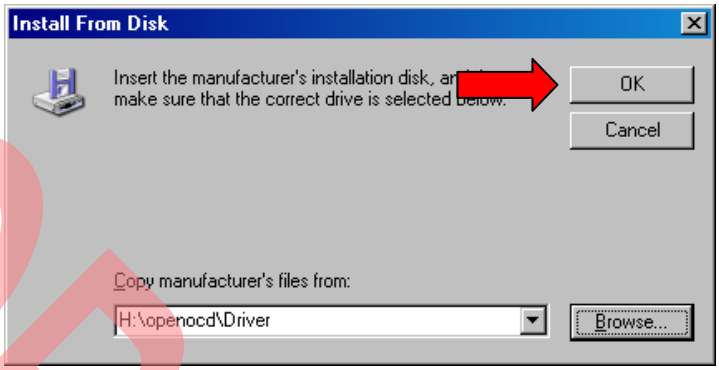
Navigate to “Drivers” folder in the open OCD folder



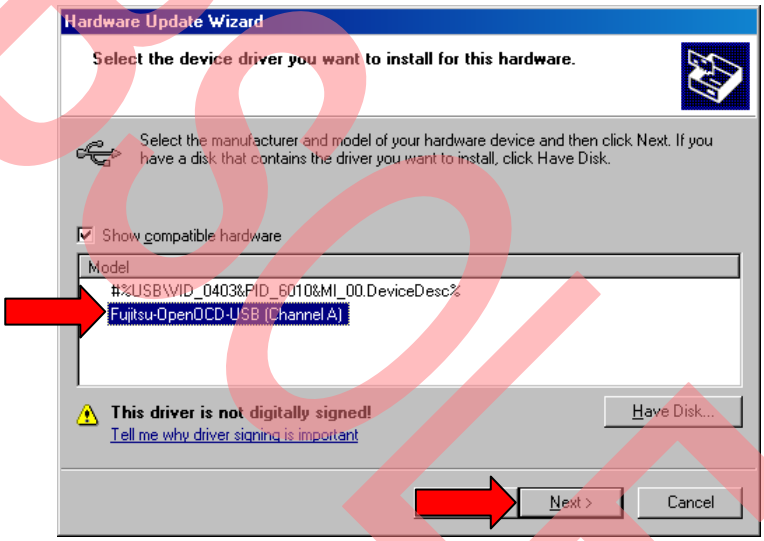
Choose “Cypress-OpenOCD-USB

Click “Open”

OBSOLETE

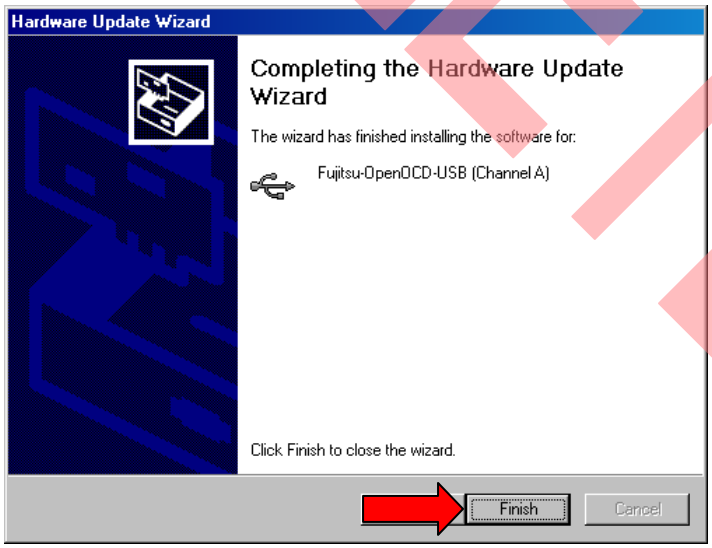


Click “OK”



Choose “CypressOpenOCD-USB”

Click “Next”



Click “Finish”

Now drivers are installed and OpenOCD is ready to use.

OBSOLETE

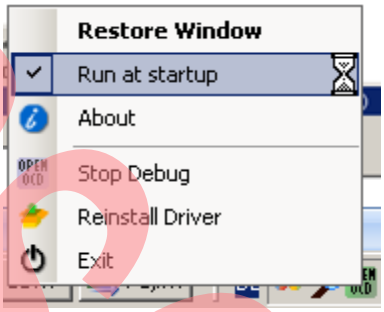
4 Use OpenOCD

How To Use OpenOCD

The *Cypress OpenOCD Starter* can be used in different ways: As GUI or in background mode.

4.1 Background Mode

If *Cypress OpenOCD Starter* is configured to start with windows start up, it automatically switches to background mode. If this was not configured at installation, this can be done via tray icon :

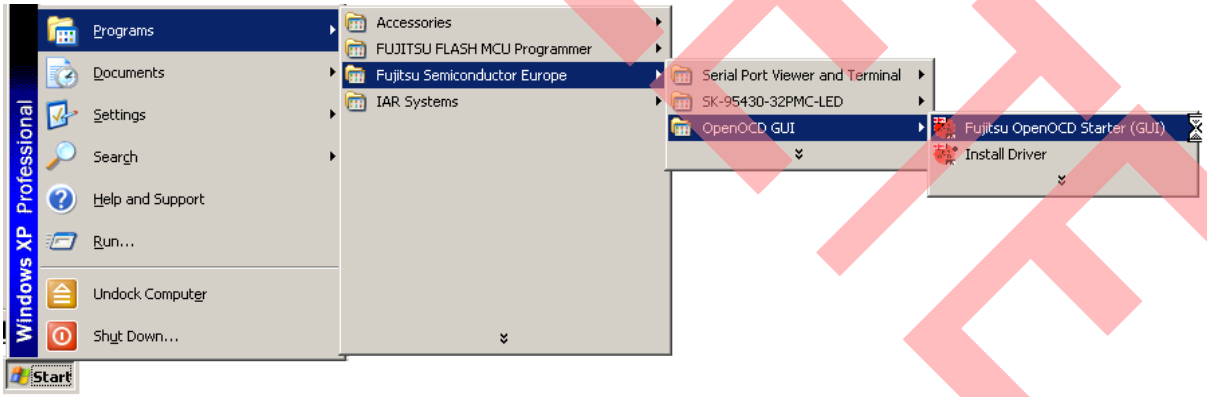


In background mode the *Cypress OpenOCD Starter* automatically detects the evaluation board and starts the debugger.

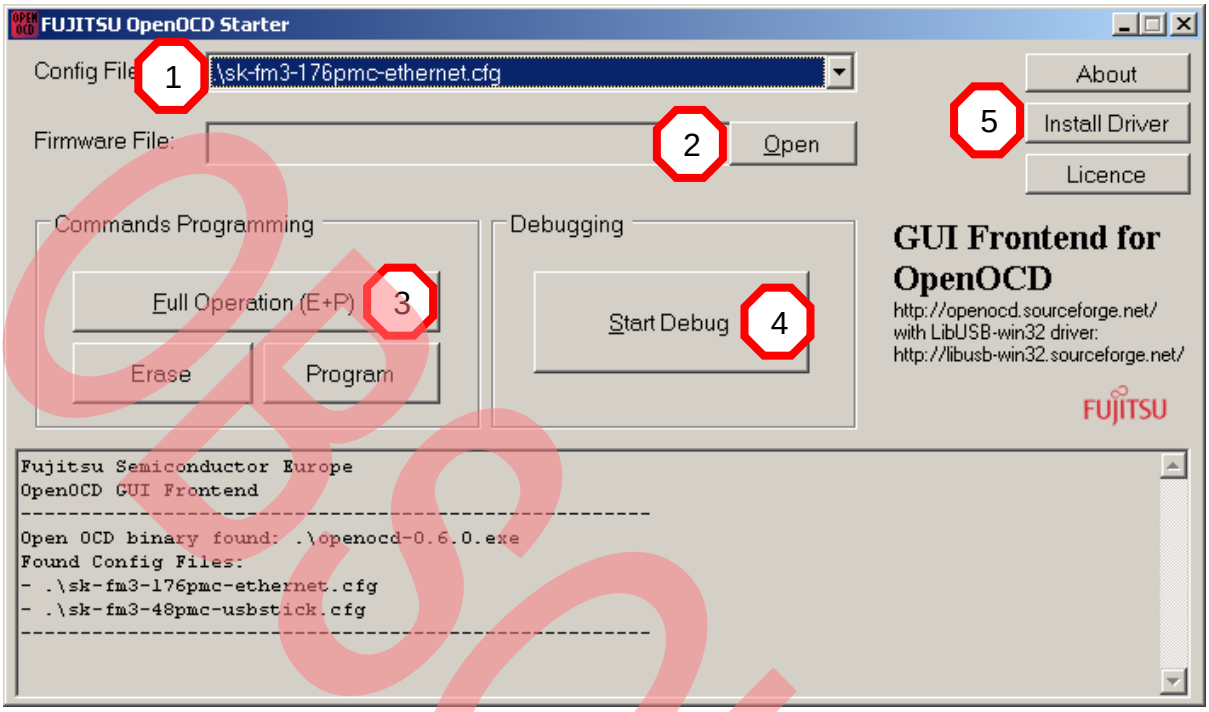
To switch into background mode, just minimize the *Cypress OpenOCD Starter.* You may have to reconnect the board, to start auto detection.

4.2 Graphical Interface

Start “Cypress OpenOCD Starter (GUI)”



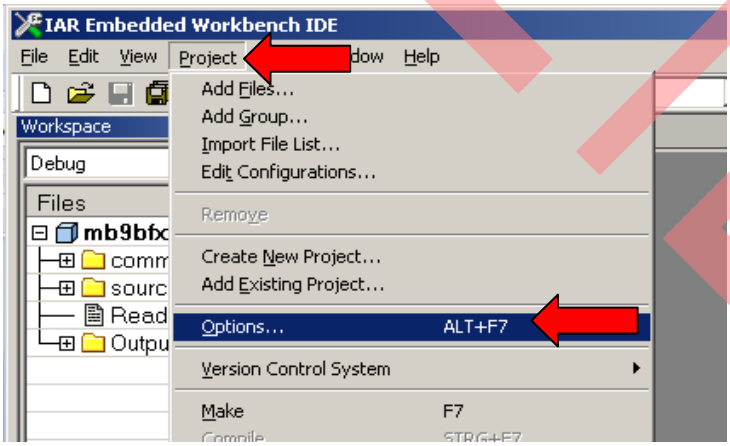
OBSOLETE



1. Select evaluation board
2. Select firmware file (optional)
3. Download Firmware into flash (optional and experimental)
4. Start OpenOCD Debug Server
5. Reinstall drivers if needed

4.3 Configure IAR for use with OpenOCD

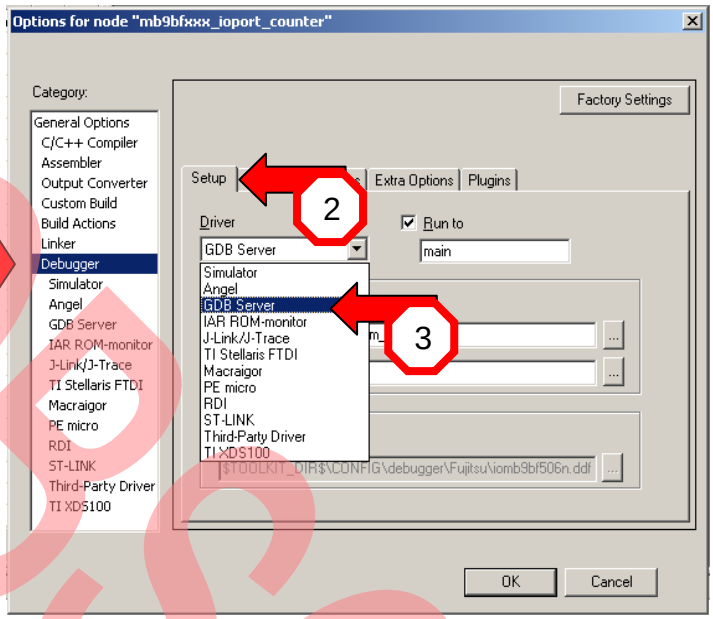
Start IAR Workbench.



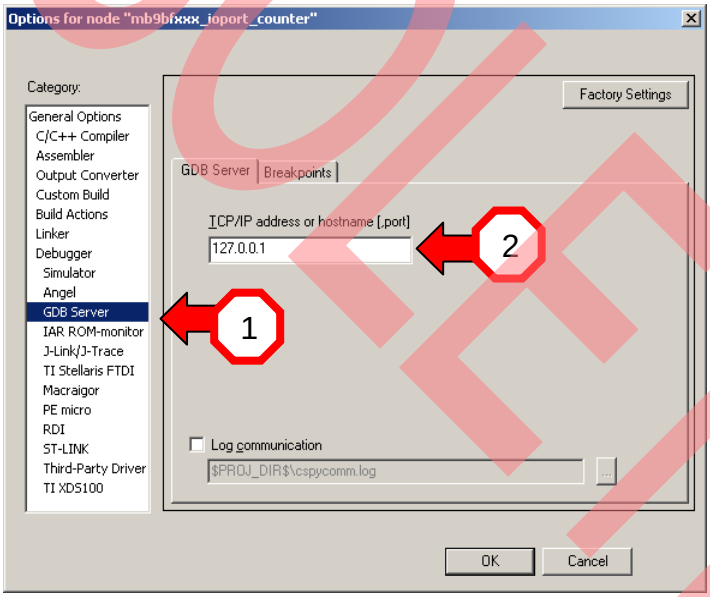
Select “Project” in the menu

Choose “Options”

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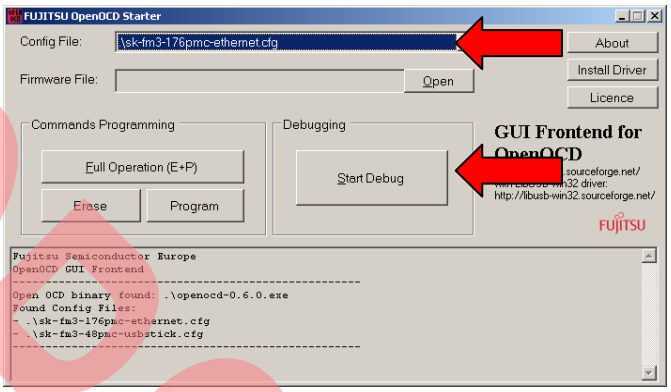
1. Select Debugger
2. Select Setup
3. As driver select “GDB Server”



1. Select GDB Server
2. Enter 127.0.0.1 in TCP/IP address

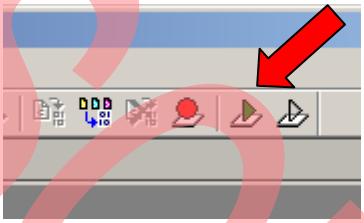
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If *Cypress OpenOCD Starter* is not in background mode, the OpenOCD debugger has to be started manually:



In Cypress OpenOCD Starter select your evaluation board

Click “Start Debug”



Start debug in IAR Workbench

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A Appendix

A.1 WWW

A.1.1 Cypress Semiconductor

http://www.cypress.com/cypress-microcontrollers

A.1.2 OpenOCD at Sourceforge.net

http://openocd.sourceforge.net/

A.1.3 LibUSB at Sourceforge.net

http://libusb-win32.sourceforge.net/

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Document History

Document Title: AN209373 - F²MC-FM3 Family OpenOCD GUI Frontend

Document Number: 002-09373

Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	-	MSCH	02/01/2012	Initial release.
			02/24/2012	Additional Information Added
*A	5247657	MSCH	06/29/2016	Migrated Spansion Application Note from MCU-AN-300406-E-V11 to Cypress format. Link to the Hardware and Firmware doesn't exist and this AN to be Obsolete.

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Cypress Semiconductor
198 Champion Court
San Jose, CA 95134-1709

Phone : 408-943-2600
Fax : 408-943-4730
Website : www.cypress.com

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