

Quick Start Instructions

phyCORE-TC1796

with

phyCORE-mini-I/O

Using TASKING VX-toolset for TriCore evaluation version

Note: The PHYTEC phyCORE-TC1796-Disc includes the electronic version of the English phyCORE-TC1796 Hardware Manual.

1st Edition: June 2012

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	EUROPE	NORTH AMERICA
Address:	PHYTEC Technologie Holding AG Robert-Koch-Str. 39 55129 Mainz GERMANY	PHYTEC America LLC 203 Parfitt Way SW, Suite G100 Bainbridge Island, WA 98110 USA
Ordering Information:	+49 (800) 0749832 order@phytec.de	1 (800) 278-9913 sales@phytec.com
Technical Support:	+49 (6131) 9221-31 support@phytec.de	1 (800) 278-9913 support@phytec.com
Fax:	+49 (6131) 9221-33	1 (206) 780-9135
Web Site:	http://www.phytec.de	http://www.phytec.com

1st Edition: June 2012

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Chapter 1 Introduction

**5 min**

In this Quick Start you will find general information on the PHYTEC phyCORE-TC1796, and an overview of the TASKING VX-toolset for TriCore evaluation version. You will also find instructions on how to run example programs on the phyCORE-TC1796, mounted on the PHYTEC Development Board and connected with the phyCORE-mini-I/O.

Please refer to the phyCORE-TC1796 Hardware Manual for specific information on board-level features, such as jumper configuration and pin layout.

1.1 Kit Documentation

This kit includes the following electronic documentation on the enclosed PHYTEC Tricore Tools CD:

- The phyCORE-TC1796 Hardware Manual.
- The phyCORE-TriCore Development Board Hardware Manual.
- phyCORE-mini-I/O Board Hardware Manual.
- Data Sheets and Schematics.
- This Quick Start Instructions with general kit description, software installation advice, and an example program enabling quick out-of-the-box start-up of the phyCORE-TC1796 in conjunction with the TASKING VX-toolset for TriCore.

1.2 Professional Support Packages Available

This kit comes with free installation support. If you have any questions concerning installation and setup, you are welcome to contact our support department.

For more in-depth questions, we offer a variety of custom-tailored packages with different support options (e-mail, phone, direct contact to the developer) and different reaction times.

Please contact our sales team to discuss the appropriate support option if professional support beyond installation and setup is important to you.

1.3 Overview of this Quick Start Manual

This Quick Start manual gives you a general kit description, as well as software installation advice and an example program enabling quick out-of-the-box start-up of the phyCORE-TC1796 in conjunction with the TASKING VX-toolset for TriCore. It is structured as follows:

- The “*Getting Started*” chapter describes the configuration of the host platform and how to setup all the tools used in this manual.
- The “*Getting More Involved*” chapter provides an overview of the TASKING VX-toolset for TriCore evaluation version.

Please refer to the phyCORE-TC1796 Hardware Manual for specific information on board-level features such as memory mapping and pin layout.

1.4 Conventions Used in this Quick Start Manual

The following is a list of the typographical conventions used in this Quick Start manual:

Italic Used for file and directory names, program and command names, command-line options, menu items, URLs, and other terms that correspond the terms on your desktop.

Bold Used in examples to show commands or other text that should be typed literally by the user.

Pay attention to notes set apart from the text with the following icons:



At this part you might leave the path of this Quick Start.



This is a warning. It helps you to avoid annoying problems.



Provides useful supplementary information about the topic.



At the beginning of each chapter you can find information of the time needed to pass that chapter.



You have successfully passed an important part of this Quick Start manual.



Provides information to solve common problems.

1.5 System Requirements

Use of this kit requires:

- The PHYTEC phyCORE-TC1796.
- The PHYTEC Development Board with the included DB-9 serial cable, Ethernet cross-over cable and AC adapter supplying 5 VDC (min. 2A).
- The PHYTEC phyCORE-mini-I/O Board and cables.
- The PHYTEC Tricore Tools CD.
- The TASKING VX-toolset for TriCore Disc.
- An IBM-compatible host PC (586 or higher running at least WinXP).
- Recommended free disk space: at least 2 GB.

For more information and updates, please refer to the following sources:

PHYTEC

<http://www.phytec.de>

support@phytec.de

 **TASKING**
*Embedded software development from **Alum**.*

<http://www.tasking.com>

support_de@tasking.com (Germany)

support@tasking.com (International)

Chapter 2 Getting Started

**45 min**

TIME

In this chapter you will install the TASKING VX-toolset for TriCore. After connecting the host to the target, you will copy an application to the target. At the end of this chapter you will see several GPIOs, one analogue input, the serial interface, the micro-SD card slot and accesses to the external RAM working.

2.1 Installing TASKING VX-toolset for TriCore

When you insert the TASKING VX-toolset for TriCore v3.5r1 CD into the CD-ROM drive of your host-PC, it should automatically launch a setup program that installs the software required for kit as specified by the user. Otherwise the setup program *setup.exe* can be manually executed from the root directory of the CD.

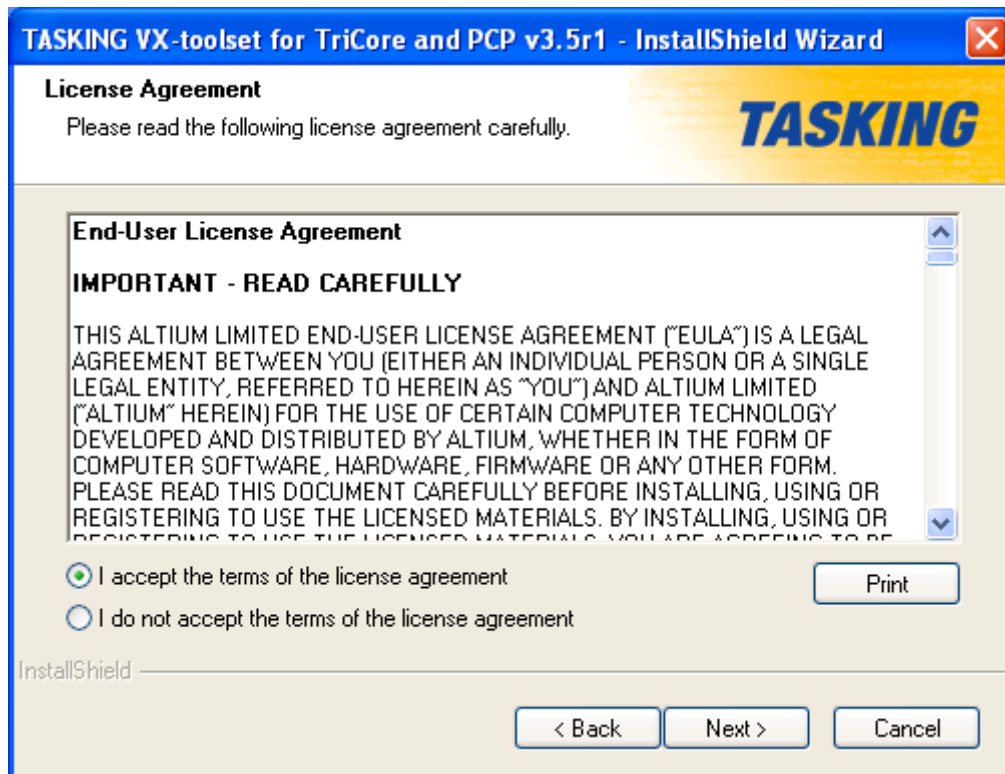
The following window appears:



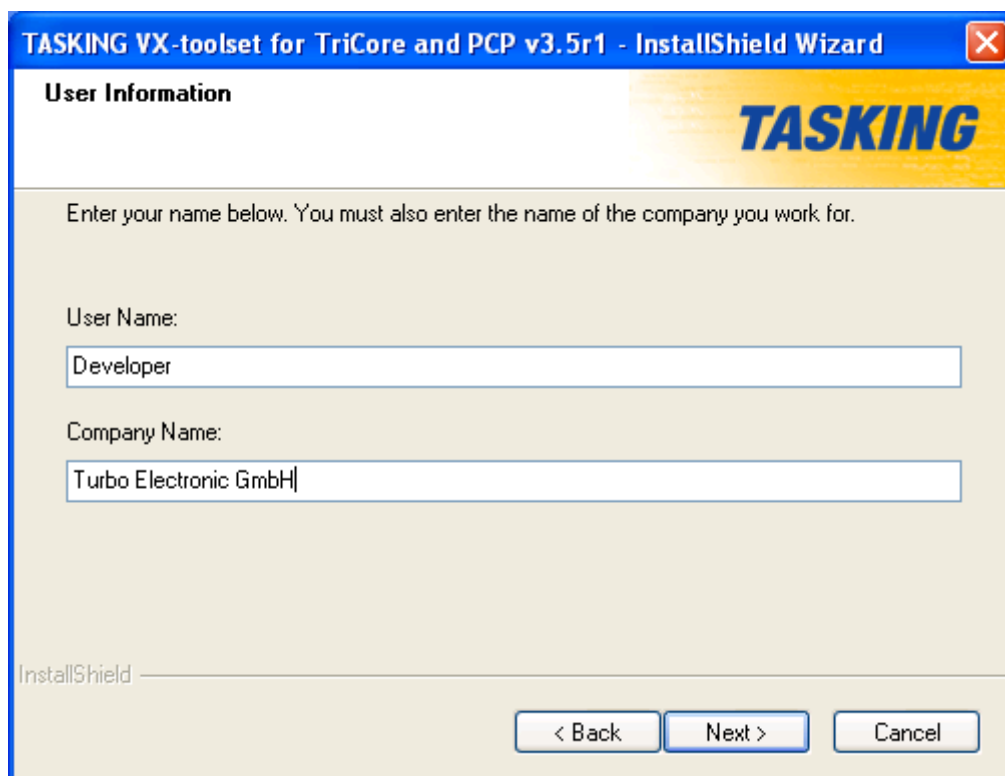
Choose *TASKING VX-toolset for TriCore and PCP v3.5r1* - *PC/Windows* and click *Install*.



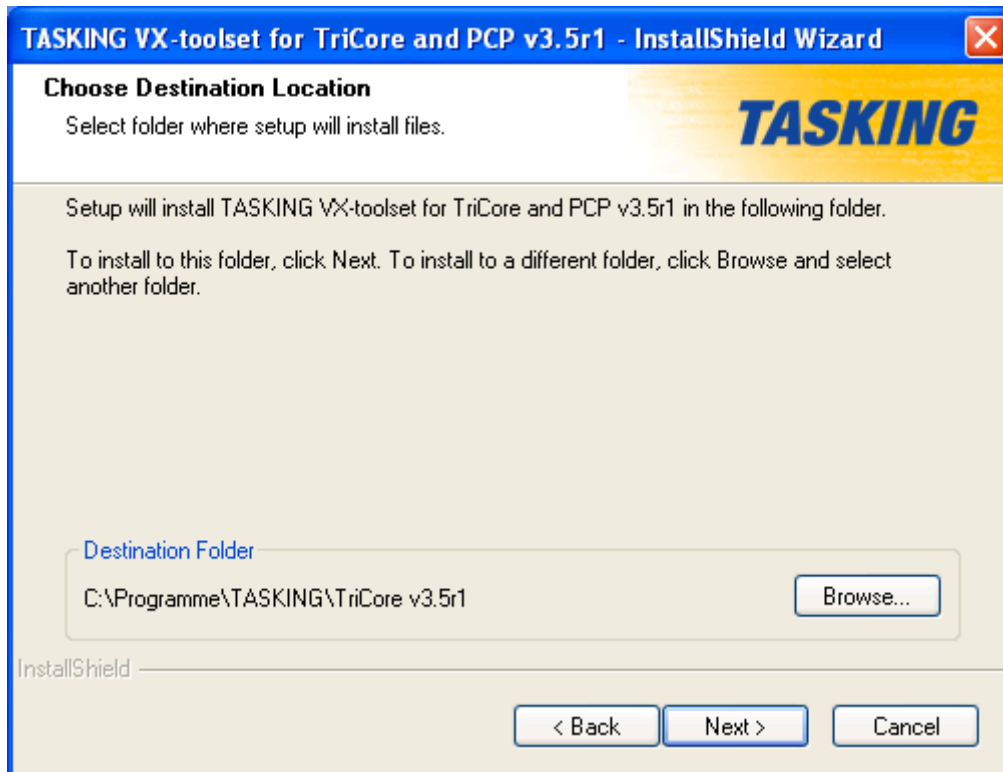
Click *Next*.



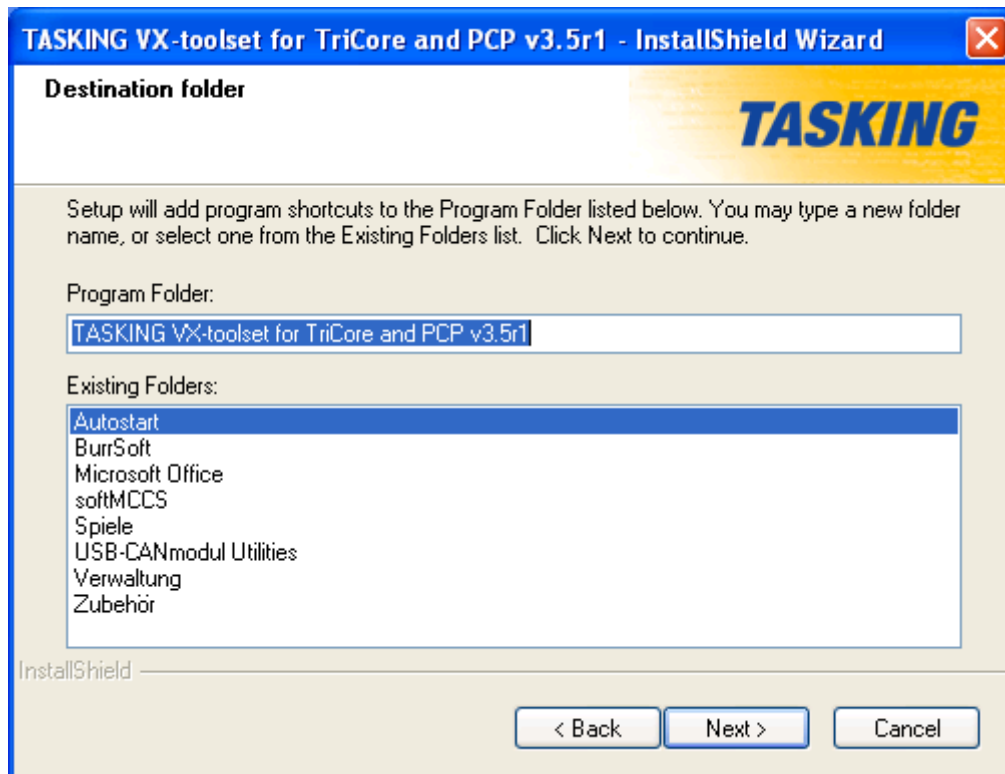
Accept the license agreement and click *Next*.



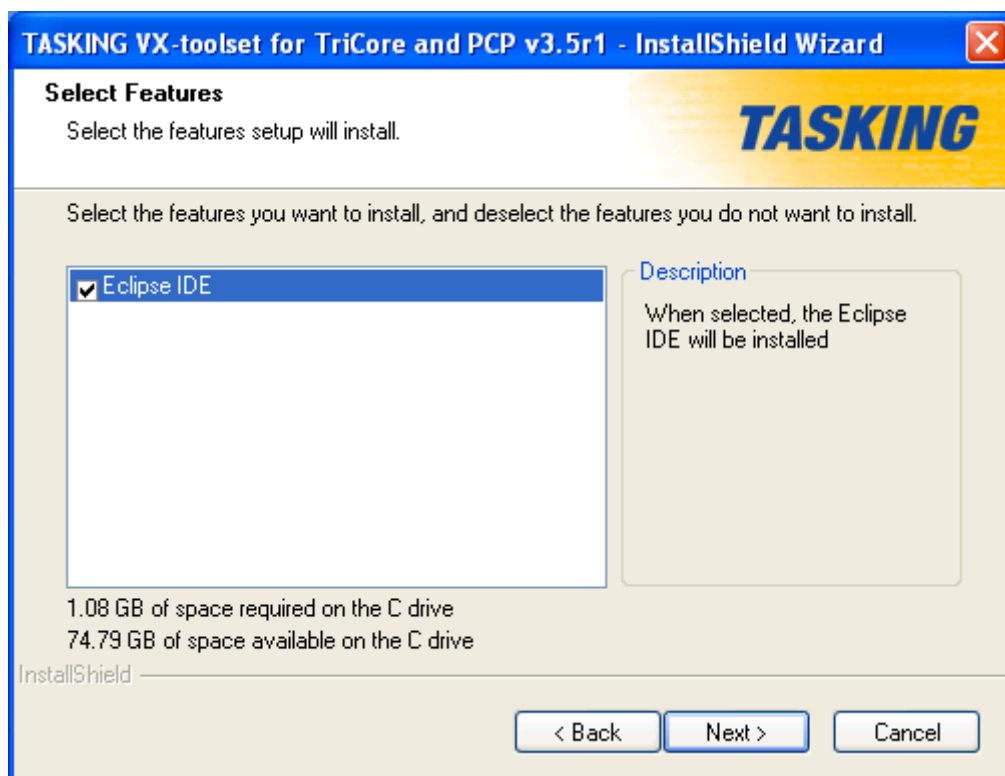
Enter user name and company name, then click *Next*.



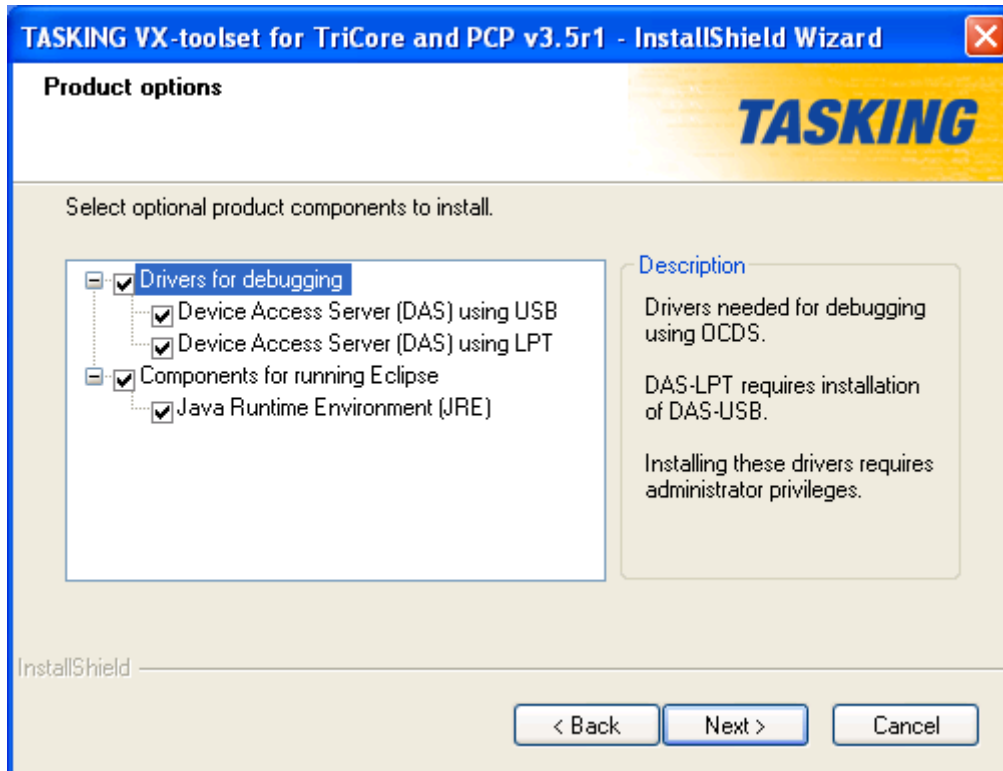
We recommend to accept the default destination location by clicking *Next*. If you decide to individually choose different paths and/or drives you must consider this for all further file and path statements.



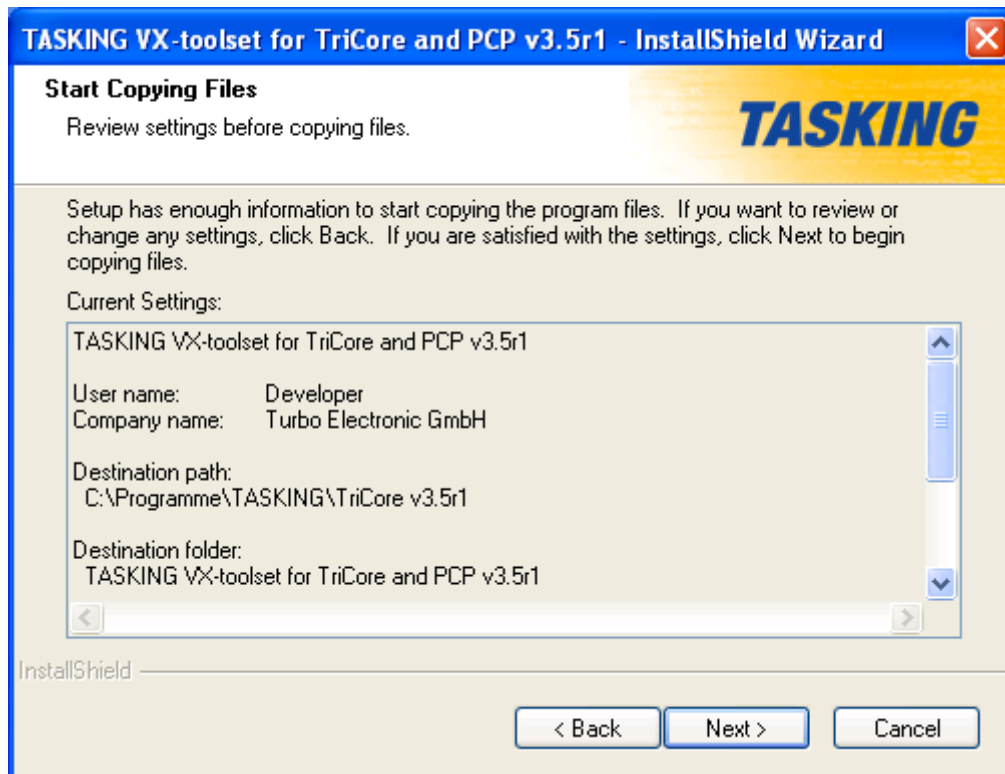
Click *Next*.



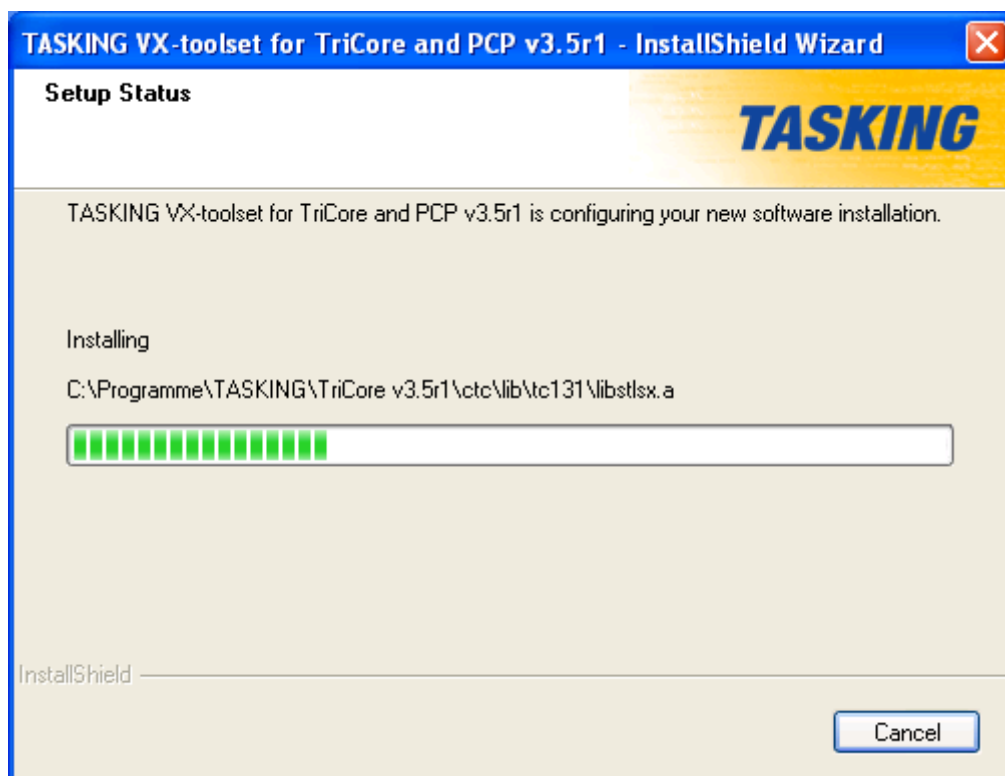
Eclipse IDE is needed for all further steps, so please install it by clicking *Next*.



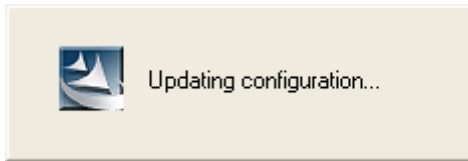
Accept all optional product components and click *Next*.



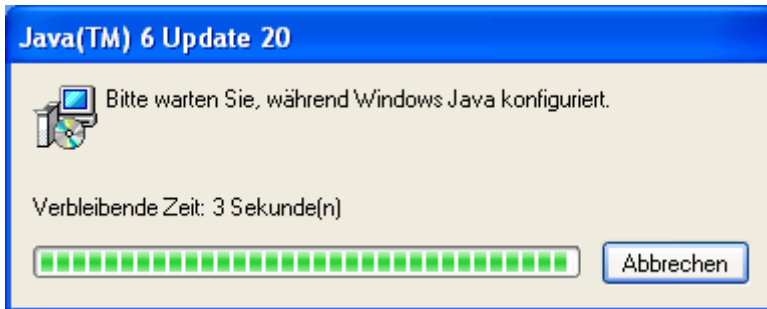
Click *Next*.



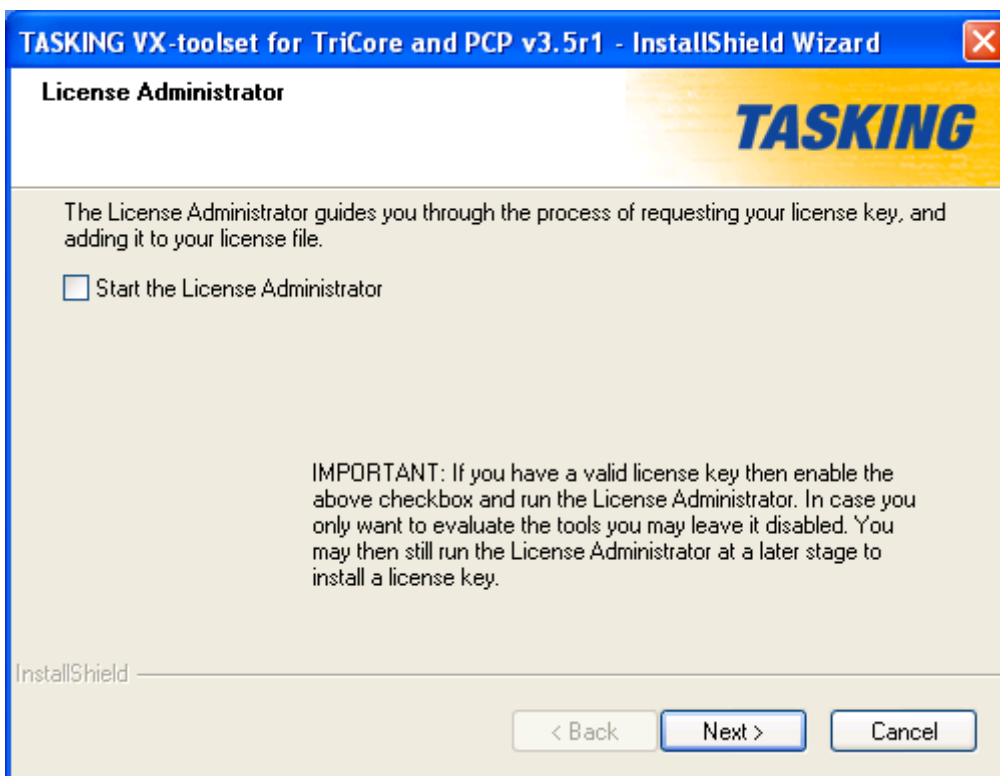
Wait until all components have been installed.



Some more time to wait.



Even some more time to wait.



Click *Next* without choosing the License Administrator.

Note:

This will install the evaluation version which is limited for 15 days since the first start of the IDE. If you don't use the IDE any more for more than 24 hours, count down of the remaining days will wait until the next start.



Click *Yes* and *Finish* for restarting the PC.



You have successfully installed the TASKING VX-toolset for TriCore.

2.2 Interfacing the phyCORE-TC1796 to a Host-PC

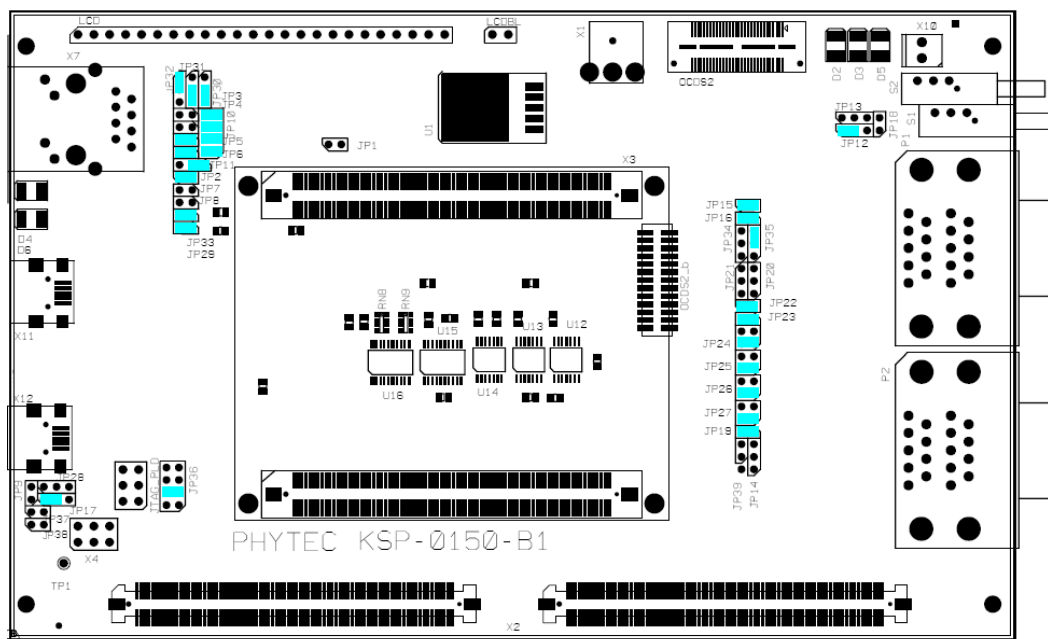
Connecting the phyCORE-TC1796 on the PHYTEC Development Board, to your computer is simple:

- As shown in the figure below, if the phyCORE-TC1796 is not already pre-installed, mount it pins-down onto the Development Board's interior receptacle footprint (X3).

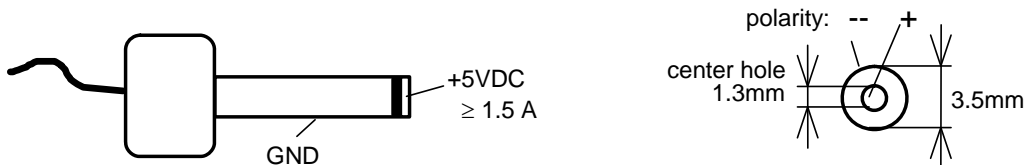
Ensure that there is a solid connection between the Molex connector on the module and the Development Board receptacle.

Make sure that the Dip-Switch S1_1 to S1_7 on the phyCORE-TC1796 is: S1_2 OFF and all others ON (default configuration when delivered).

- Check that the Jumpers on the Development Board are set as being shown below.



- Connect the RS-232 interface of your computer to the lower DB-9 RS-232 interface on the Development Board (P1) using the supplied serial cable.
- Connect an USB port of your computer to the mini USB port X11 on the Development Board using the supplied USB cable. Your computer should recognize and install the new USB device automatically.
- Using the supplied power adapter, finally connect the power socket on the board (X1) to the power supply.



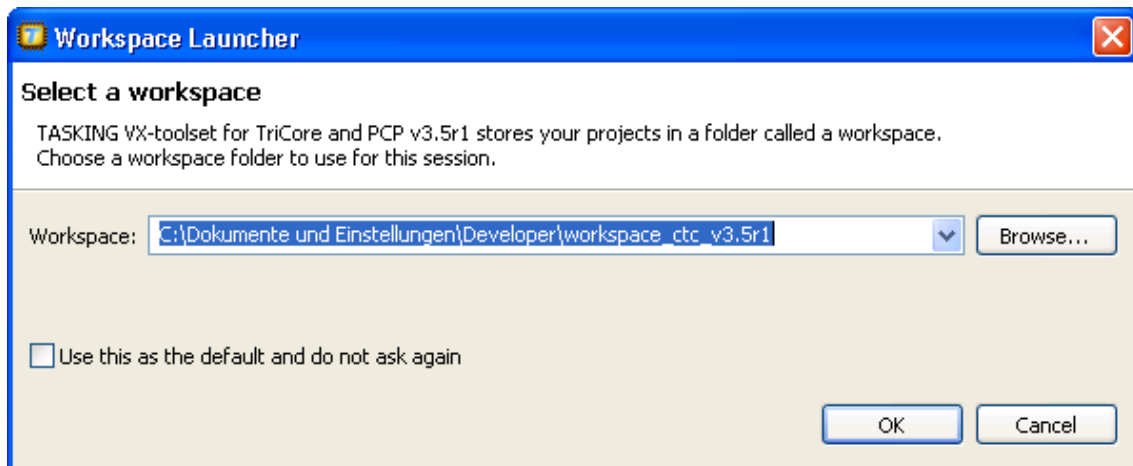
Caution:

Do not use a laboratory adapter to supply power to the Development Board! Power spikes during power-on could destroy the phyCORE module mounted on the Development Board! Do not change modules or jumper settings while the Development Board is supplied with power!

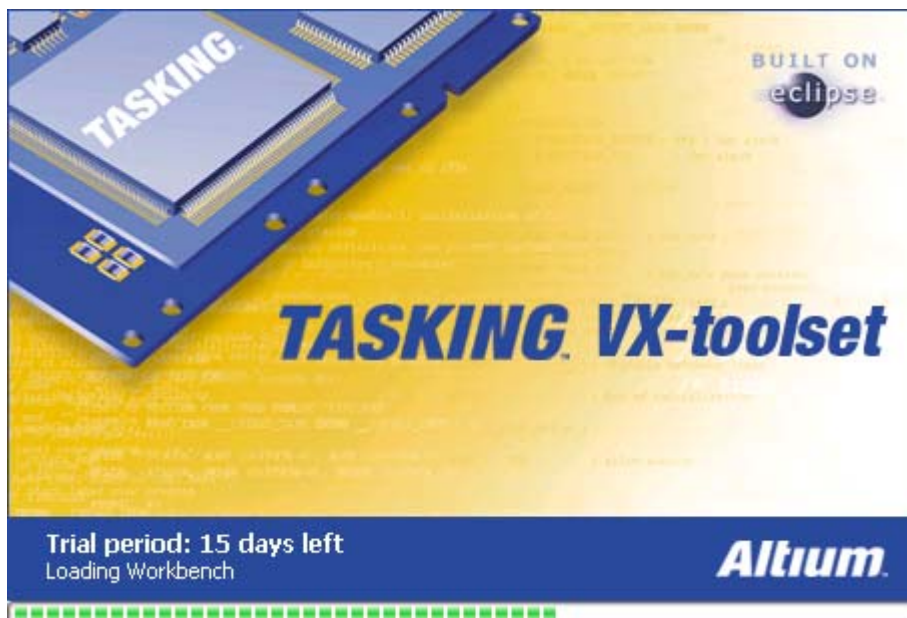
The phyCORE-TC1796 on the Development Board should now be properly connected to the host-PC and power supply. You are now ready to download a program to the phyCORE-TC1796.

2.3 Starting TASKING VX-toolset for TriCore

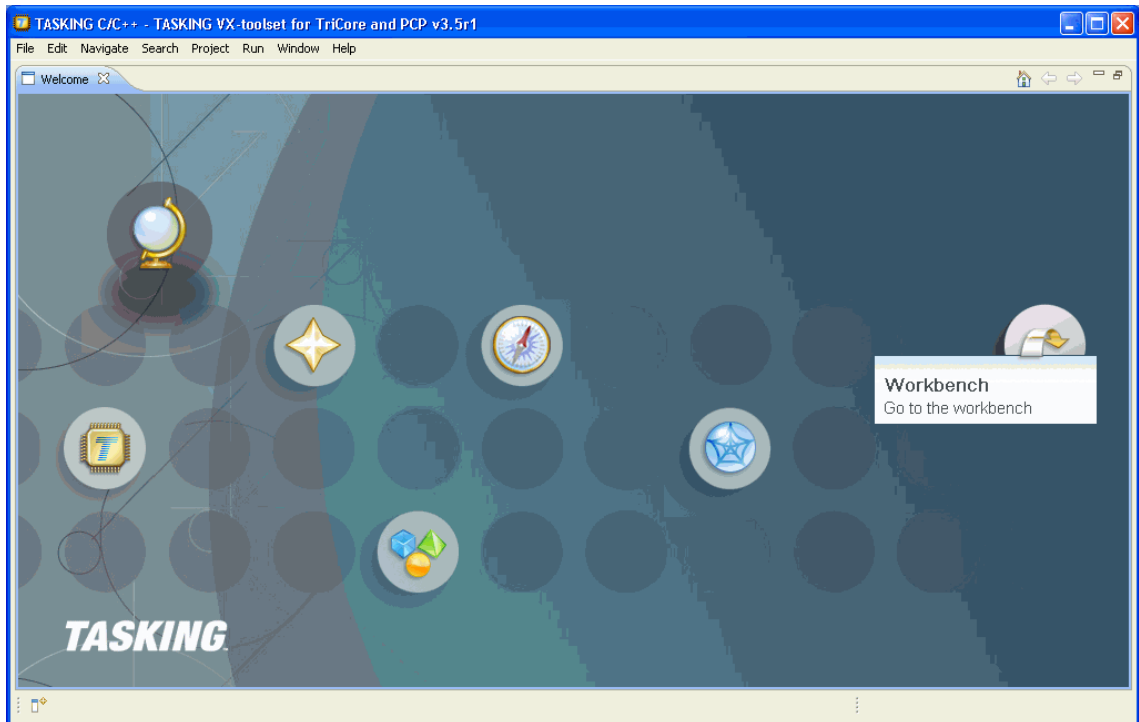
From the *Programs* menu using the Windows *Start* button select *TASKING VX-toolset for TriCore and PCB v3.5r1* and there *TASKING VX-toolset for TriCore*.



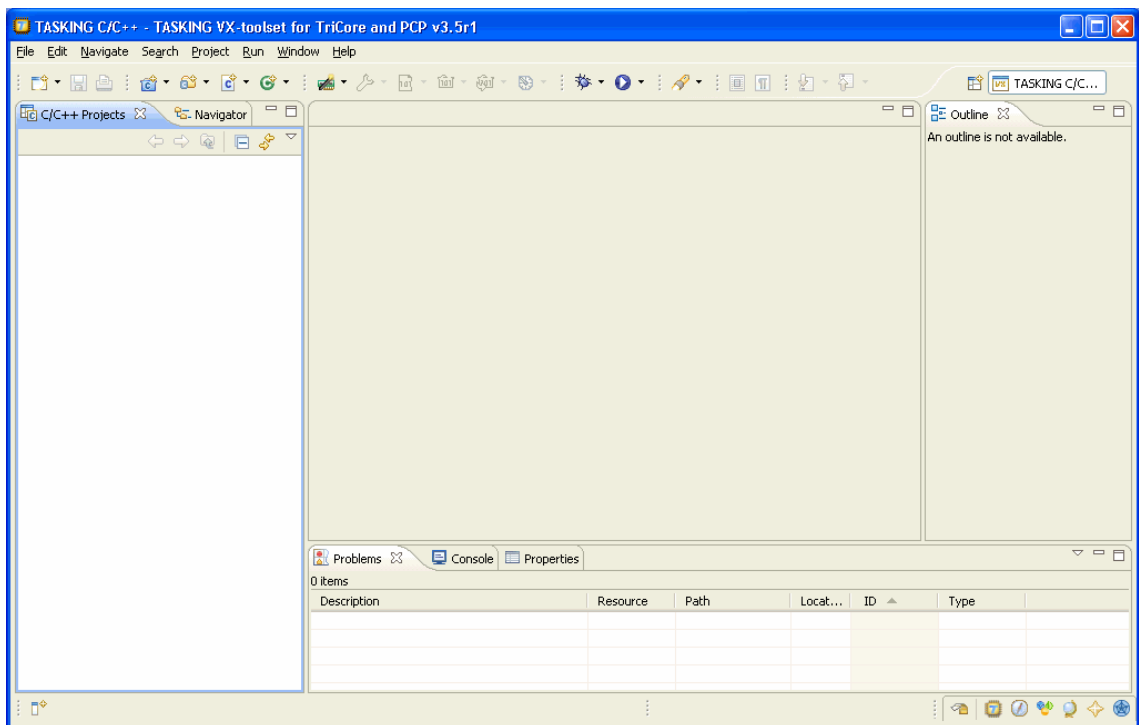
Click *OK*.



TASKING VX-toolset for TriCore evaluation version will start.



Select *Workbench*.

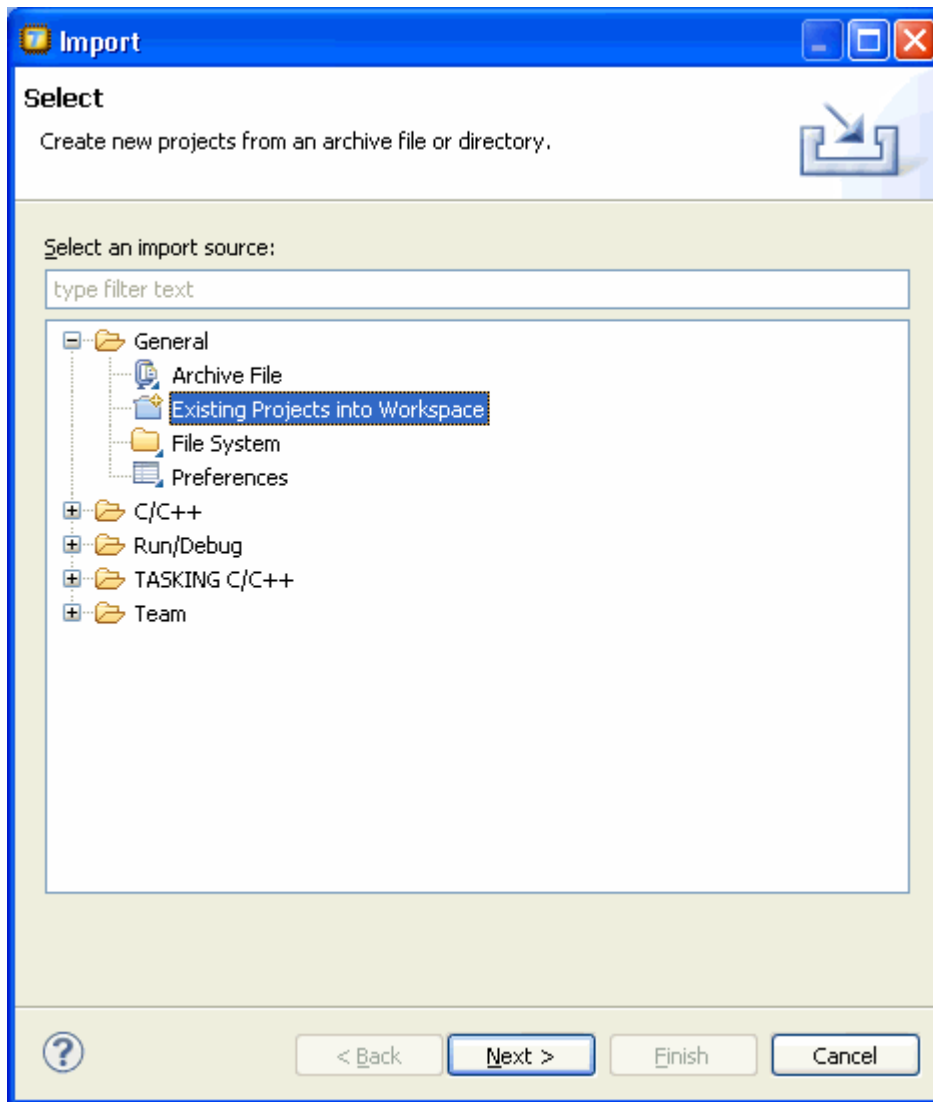


2.4 Copying an Example to the Target

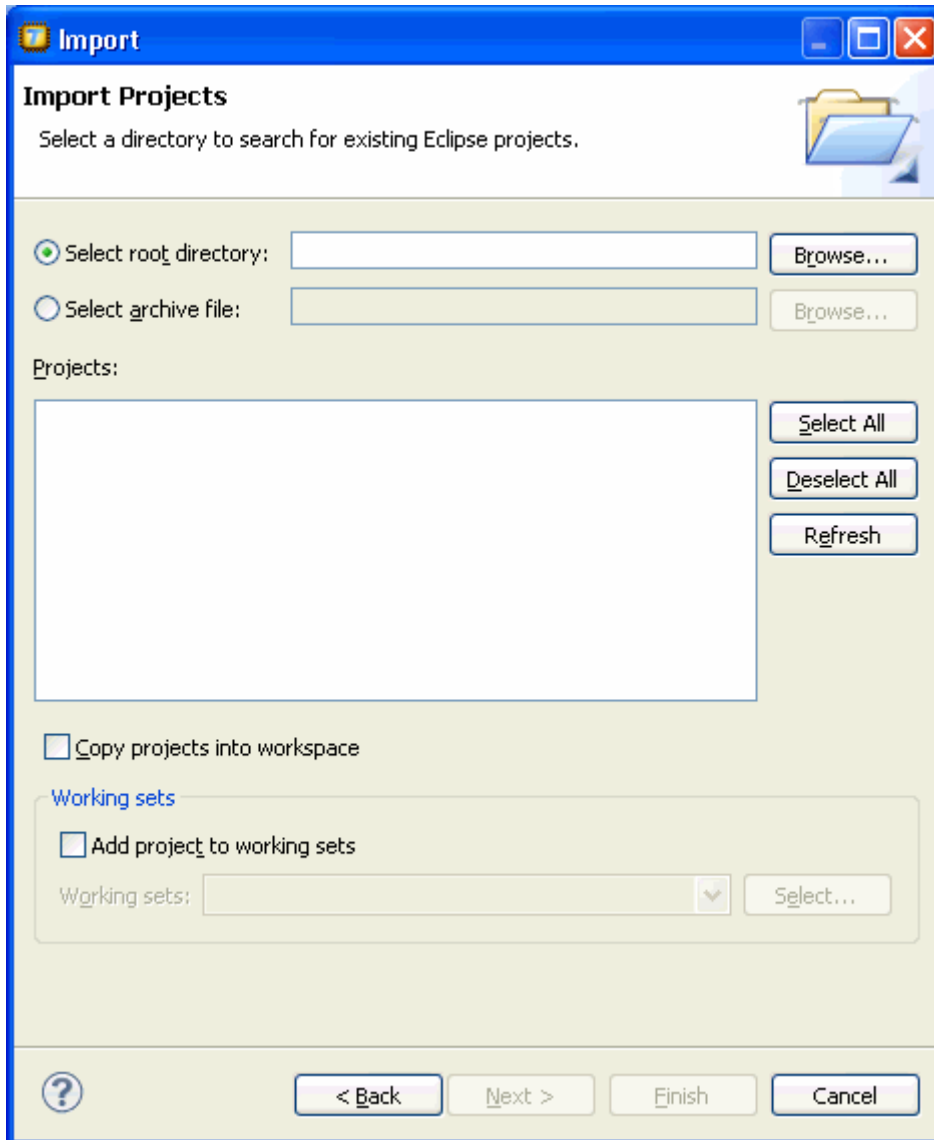
In this section you will learn how to copy an example program to the target. After that it will execute on the target.

Therefore at first please insert the PHYTEC Tricore Tools CD into your CD-ROM drive, go to *TC1796 \ QuickStart \ Demos* and extract *phyCORE-TC1796_TASKING_example.zip* onto your hard drive *C:*

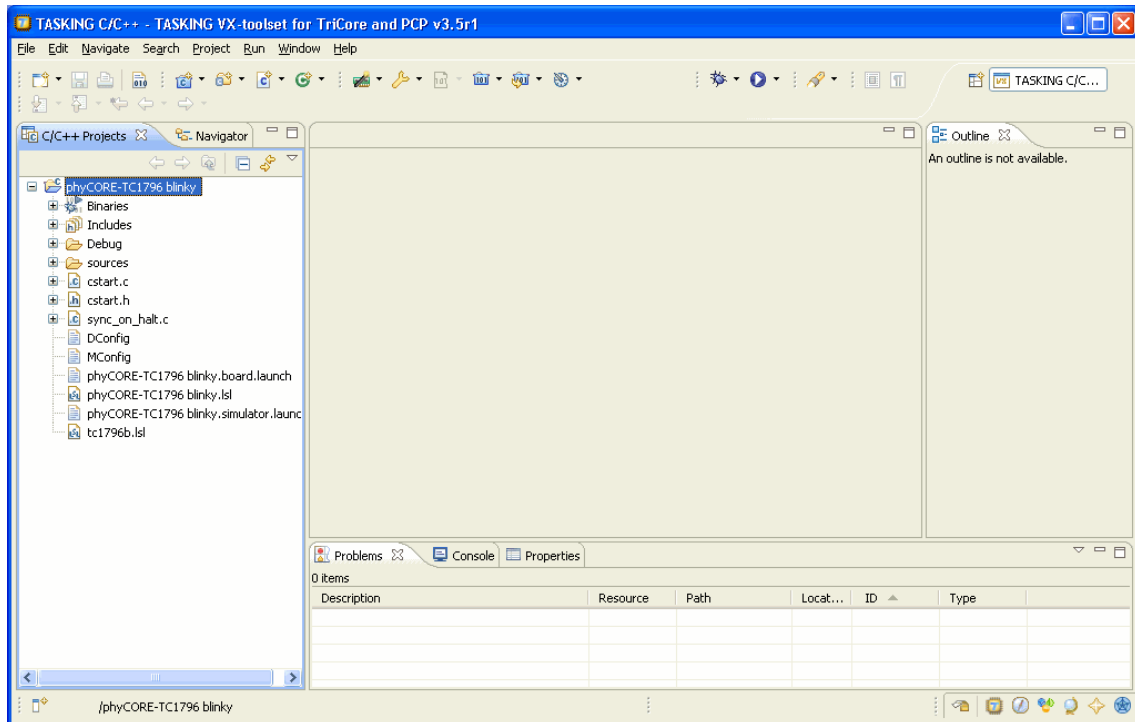
From the menu select *File* and then *Import....*



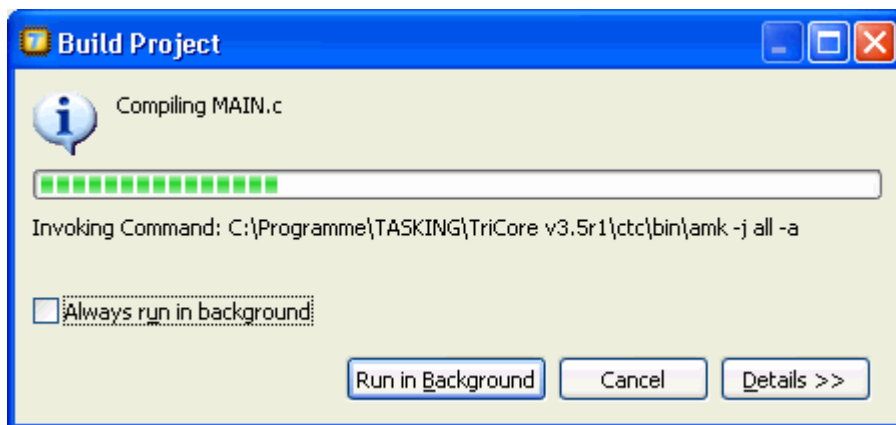
Select *General* and *Existing Projects into Workspace*, then click *Next*.



In *Select root directory* click *Browse...*, choose *C:\ phyCORE-TC1796_TASKING_example\phyCORE-TC1796 blinky* and click *OK*. Check *Copy projects into workspace* and click *Finish*. The project is now imported.

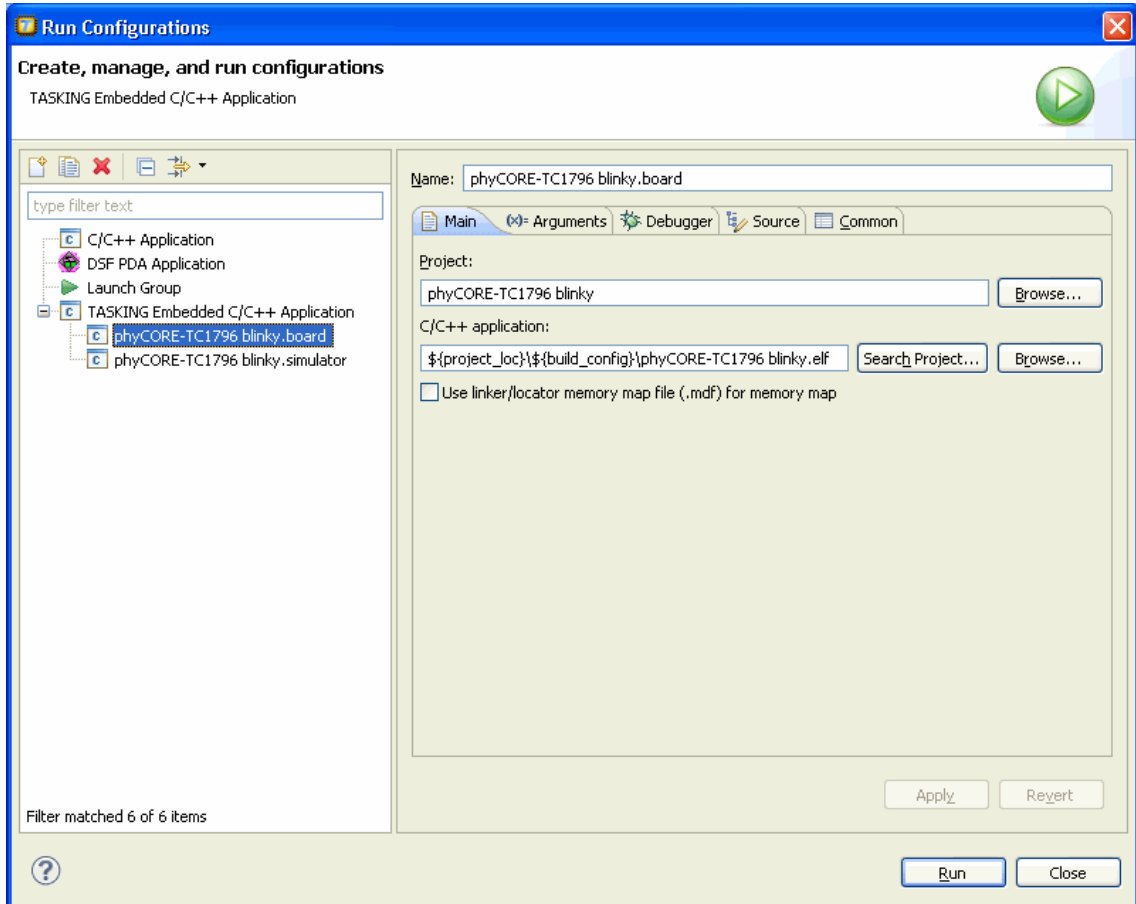


Double-click *phyCORE-TC1796 blinky* project to see the files.



Rebuild the Project by selecting *Project* and then *Build Project*.

From the menu select *Run* and then *Run Configurations...*



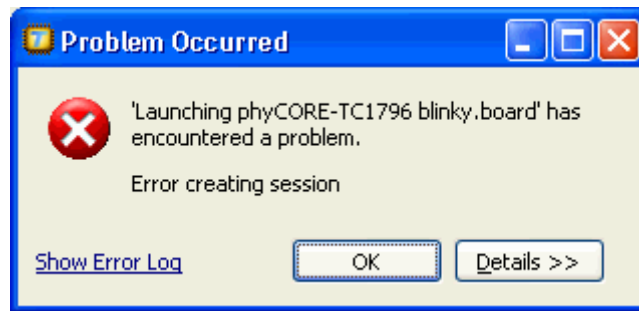
Select *phyCORE-TC1796 blinky.board* under *TASKING Embedded C/C++ Application* and click *Run*.

The example will be flashed into the internal Flash of the TC1796, what will take some time.



Troubleshooting:

If you get the Messagebox



please just retry to run the application. Therefore from the menu choose *Run* and then *Run*.

After the example has been flashed into the internal Flash of the TC1796, it will start automatically, what means if you don't have a micro-SD card inserted you'll see the red LED D1 on the phyCORE-TC1796 blinking.



You have successfully copied and executed an example application on the target.

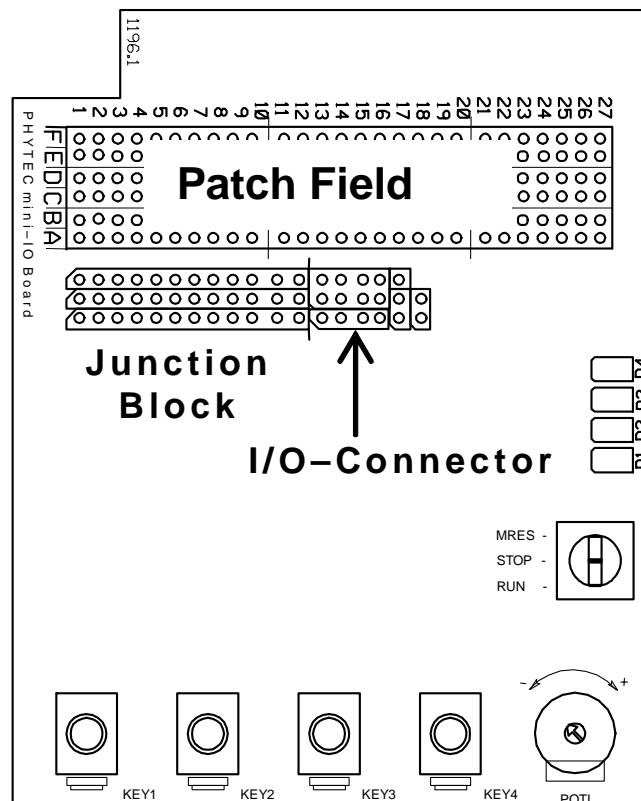
2.5 Checking different functions of the Example

Given that the example is flashed into the internal Flash of the TC1796, it starts everytime when the phyCORE-Module gets a reset or poweron (stand alone applikation).

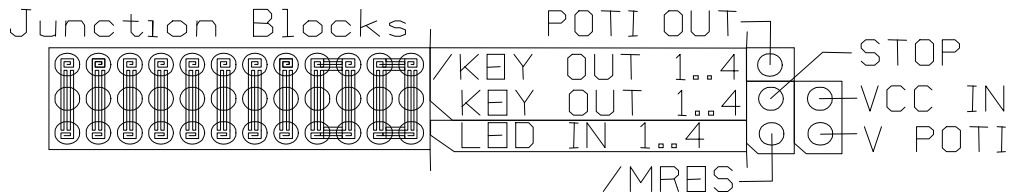
In this section you will see how the different functions of the example are working.

2.5.1 GPIOs and Analogue Signals

Within the kit you'll find the phyCORE-mini-I/O board. In addition you'll find several patch cables. They're needed in order to make some wiring between the patch field and the I/O-connector of the phyCORE-mini-I/O.



The following figure shows the pin assignments for the I/O-connector. You'll also find it printed on the phyCORE-mini-I/O board.



Please use the patch cables in order to establish the following connections between patch field and I/O-connector:

- C1 – VCC IN (3V3 supply to LEDs and buttons)
- A1 – V POTI (3V3 supply to Poti)
- A27 – POTI OUT (CPU pin AN0 to Analogue output)
- F16 – LED IN 4 (CPU pin P73 to LED 4 input)
- B16 – LED IN 3 (CPU pin P72 to LED 3 input)
- E16 – LED IN 2 (CPU pin P71 to LED 2 input)
- C16 – LED IN 1 (CPU pin P70 to LED 1 input)

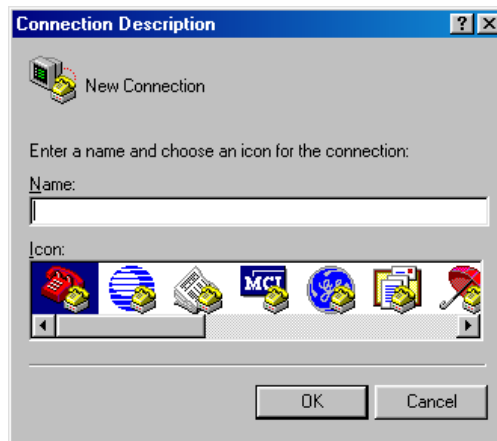
Power off the Development Board if not already done. Then please mount the phyCORE-mini-I/O to its X2 connector C/D. X2 connector A/B will furthermore NOT be used!

Be sure that you still don't have a micro-SD card inserted. Then power on the Development Board again. You'll now see the four LEDs of the phyCORE-mini-I/O blinking in a row. With the poti you can adjust the speed from extremely slow up to extremely fast.

2.5.2 Serial Interface

For this step you need a terminal program like HyperTerminal.

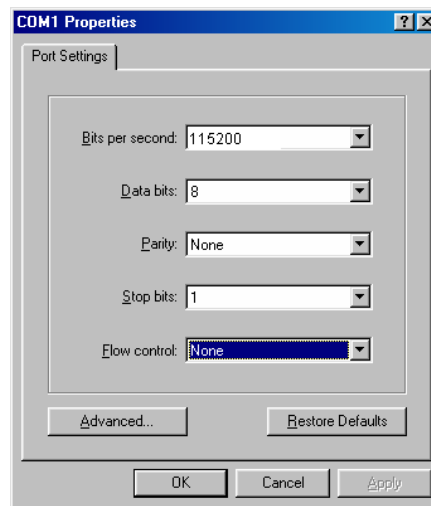
From the *Programs* menu using the Windows *Start* button select *Accessories*, then *Communication* and then *HyperTerminal*.



The Connection Description window will now appear. Enter anything in the *Name* text field and click *OK*. This creates a new HyperTerminal session.



A connection parameter window will now appear. Select the right COM port from the *Connect Using* pull-down menu.



Set the following COM parameters: Bits per second = 115200; Data bits = 8; Parity = *None*; Stop Bits = 1; Flow Control = *None*. Then click *OK*.

Now power on the Development Board, still without micro-SD card inserted. You should get an *Hello World* message within the terminal window.

2.5.3 Micro-SD card slot

Power off the Development Board again, insert a micro-SD card and power on it again. You'll get some information about the file system of the micro-SD card. If it contains a FAT partition, you'll also get its root directory listed.

Then the example tries to open a file named *test.txt*. If such one exists, you'll get its content listed.

After that a new file *test.txt* will be created with some test content, erasing the existing one.

Finally the example tries to open and list the file *test.txt* again.

Note that this example is only able to handle filenames in 8.3 format. PHYTEC gives no support to it. The sources had been published under the GNU Lesser General Public License in the internet and only slight modifications had been done by PHYTEC.

2.5.4 External RAM

After accessing the micro-SD card, you'll get a message that the system is waiting for any key pressed. Please press any key in order to proceed.

Now the example will write some values into one of the two banks of the external RAM, read them back and list them within the terminal window. At least now it's time for you to look into the sources in order to see how this all works...

Document: phyCORE-TC1796 with phyCORE-mini-I/O
Quick Start Instructions
Document Number: L-770e_1 June 2012

How would you improve this manual?

Did you find any mistakes in this manual? _____ page

Submitted by:

Customer number: _____

Name: _____

Company: _____

Address: _____

Return to:

PHYTEC Messtechnik GmbH

Robert-Koch-Str. 39

D-55129 Mainz

Fax: +49 (6131) 9221-26

