

# **FDL-PCI**

## **User Manual**

**february 2009**

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## CONTENTS

personal computer minimum requirements .....	3
personal computer recommended requirements .....	3
scheme of the installation procedure .....	4
connecting the fdl interface card to the pc .....	5
library & fdl-pci installation	
windows xp .....	6
linux .....	10
windriver registration .....	12
index .....	15



## **PERSONAL COMPUTER MINIMUM REQUIREMENTS**

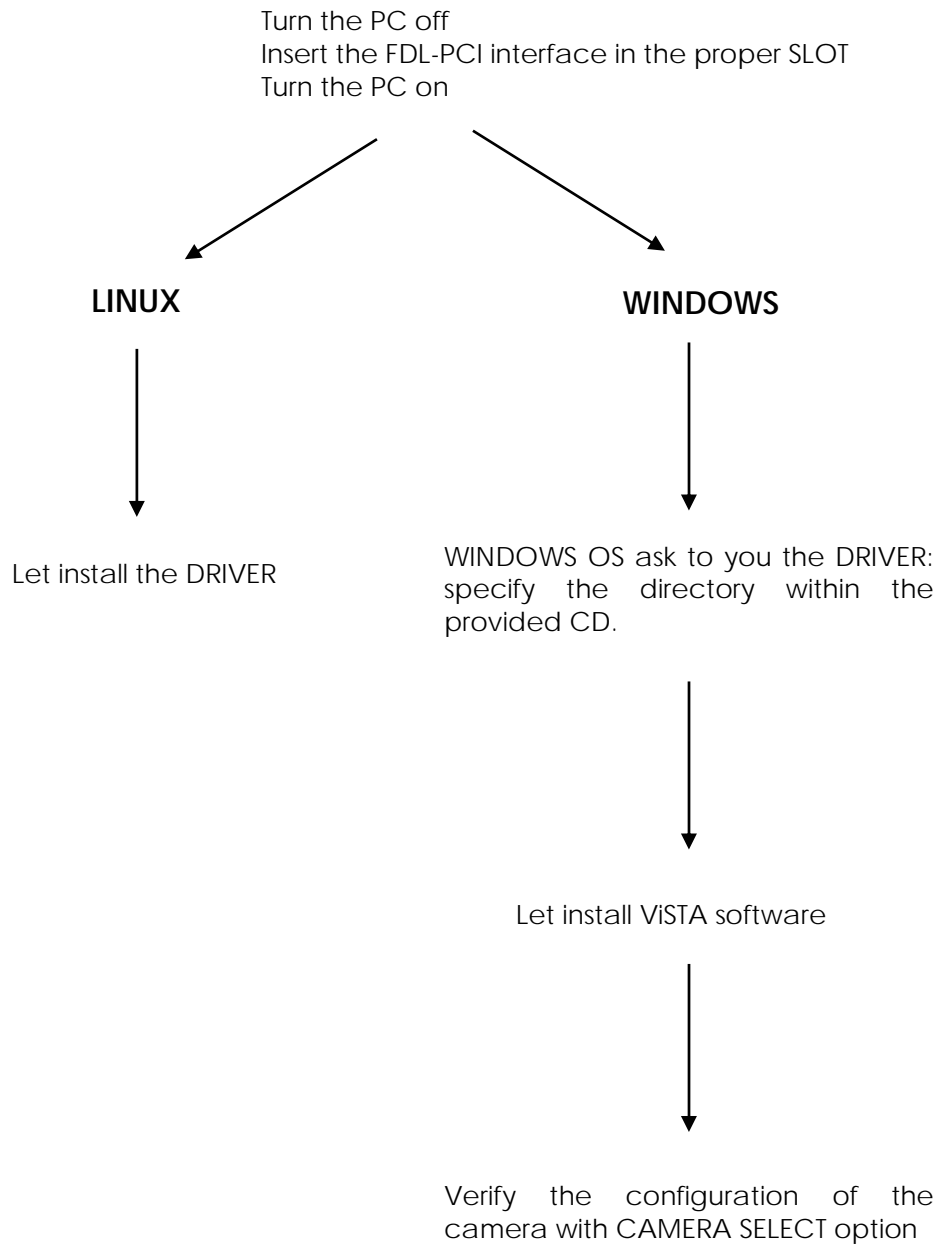
- CPU Celeron 1 Ghz .
- 256 Mb di RAM.
- Microsoft Windows 98, ME.
- A free PCI expansion slot for the connection between the PC and the camera

## **PERSONAL COMPUTER RECOMMENDED REQUIREMENTS**

- CPU Pentium IV 2 GHz
- 512 Mb RAM
- A free PCI expansion slot for the connection between the PC and the camera

## SCHEME OF THE INSTALLATION PROCEDURE

When you use the camera for the first time, you must install the library and the FDL-PCI interface. For this purpose, please follow the procedure described in the next pages and schematized in the diagram below:

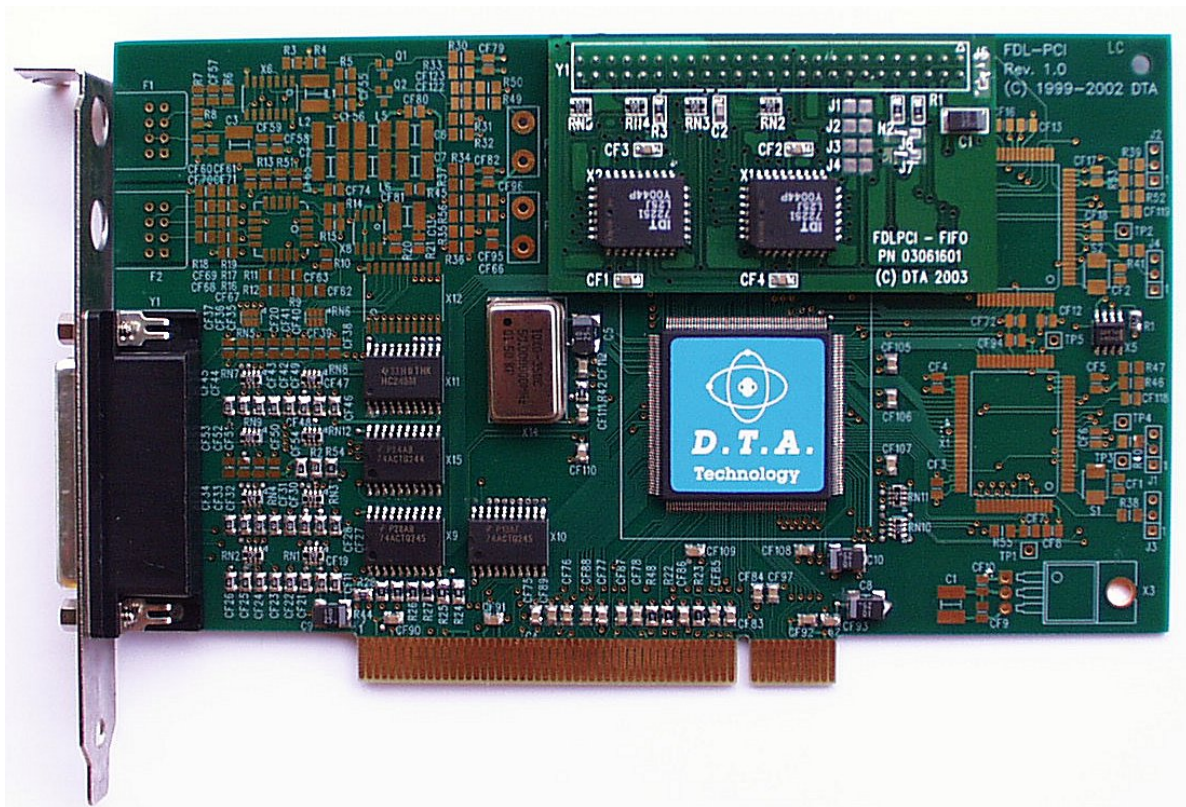


## CONNECTING THE FDL INTERFACE CARD TO THE PC

To install your FDL interface card, do as follow :

- ⇒ Turn your PC off, including any peripheral.
- ⇒ Remove the external case of the PC ( please see the relevant instructions in the PC Handbook).
- ⇒ Choose a free PCI expansion slot. Remove the relevant back cover by means of a screwdriver.
- ⇒ Insert the camera interface card into the expansion slot. Please make sure that the card is properly and fast inserted. Fix the card by screwing the relevant screw again.
- ⇒ Reassemble the PC case.

Turn the PC on once again. The interface card installation has been completed.



*FDL-PCI interface card*

In case of a fiber optic link connection, a dedicated FDL-PCI is provided with the proper connectors.

## LIBRARY & FDL-PCI INSTALLATION

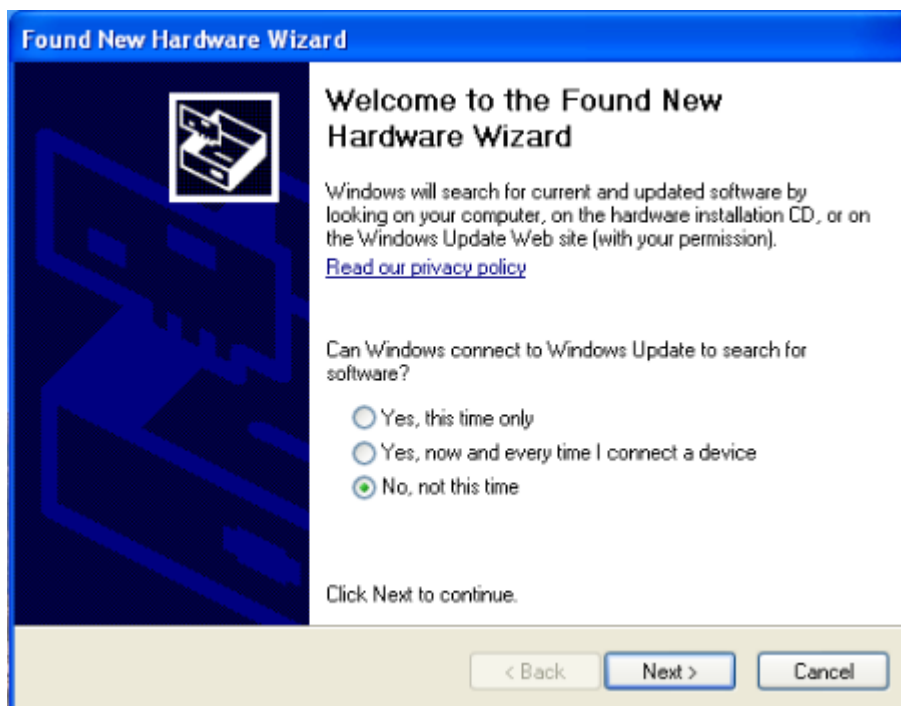
The installation of the library is always linked to the installation of the camera, of course. For this purpose you just need to install the PCI interface as well.

Let's analyse the sequence of operations to be carried out. It will be shown the example with WINDOWS XP Operating System. The operation are similar for the other Operating Systems.

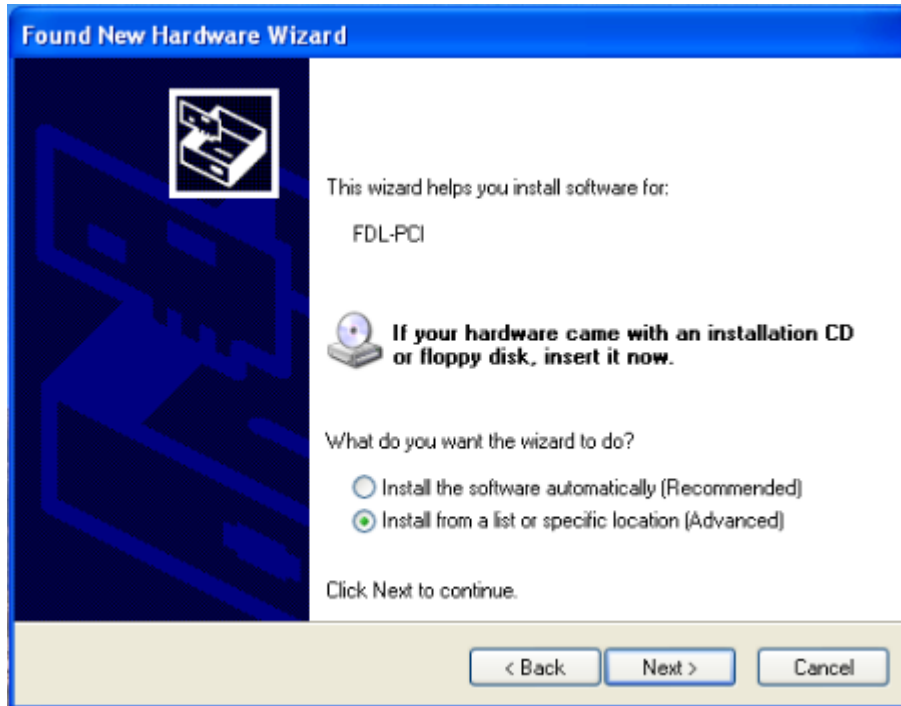
Once you turn the system on for the first time with the FDL-PCI interface on, you will be asked to specify where the available drivers are. Follow the steps on the basis of your Operative System.

## WINDOWS XP

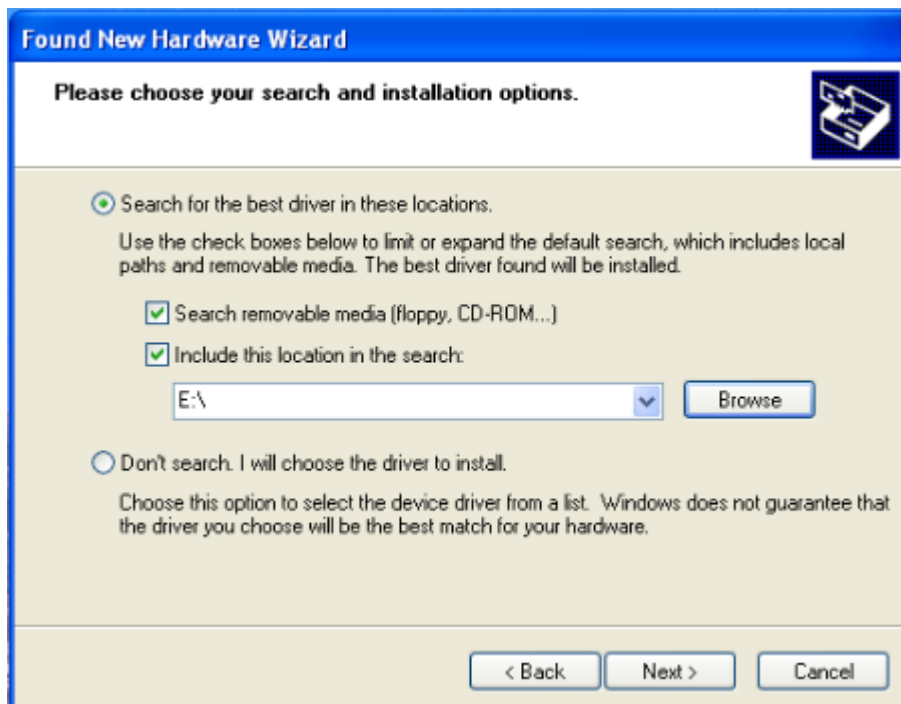
- 1) Insert the FDL-PCI card into the slot of the motherboard and turn the PC on. As soon as the system gets started, a window (like the one shown below) will appear, noticing you a new hardware was found. You'll be requested to connect for Windows update, let select: "No, not at this time".



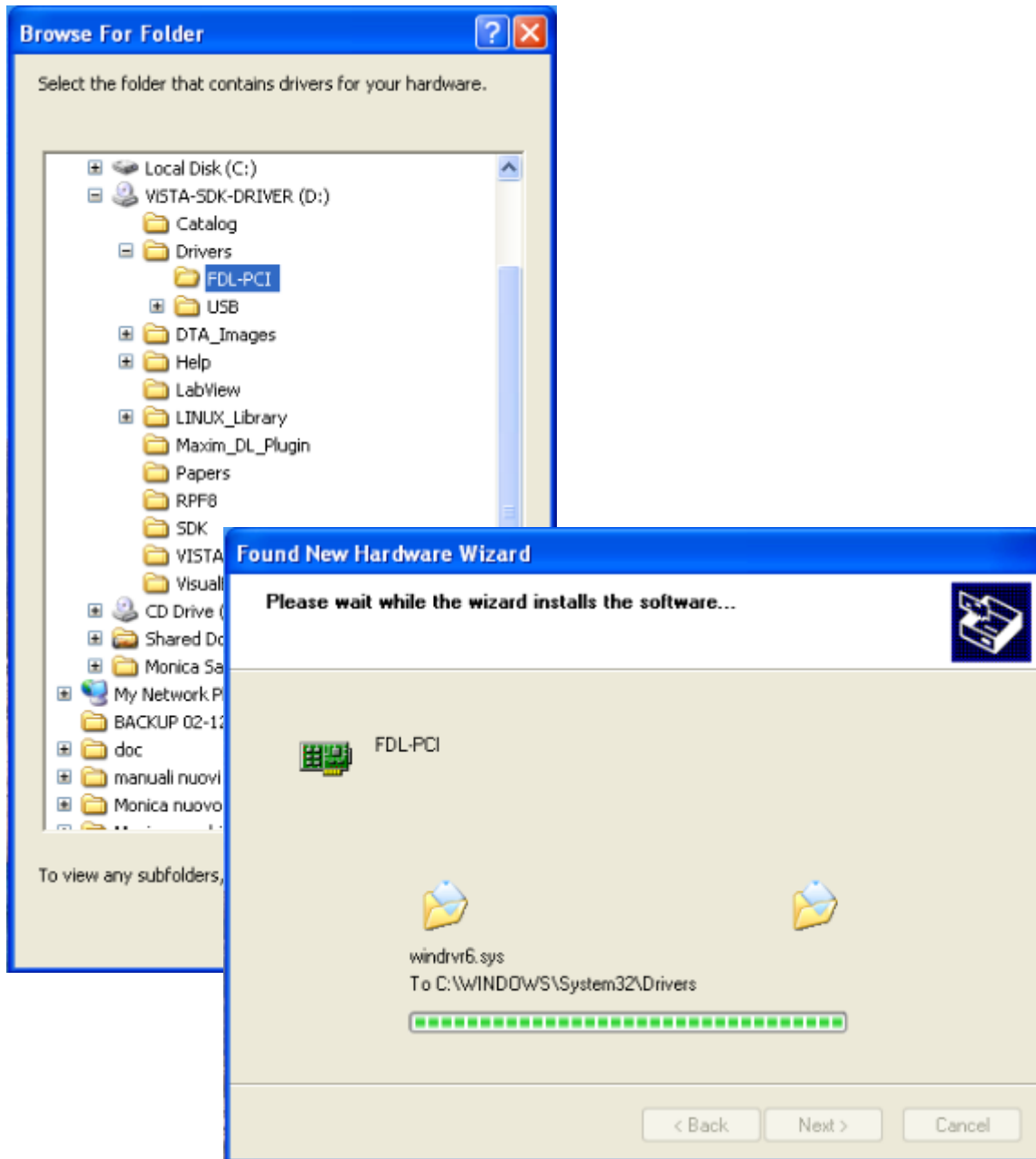
- 2) Insert the "VISTA" CD into the CD-ROM reader, close the "Quick Install" (it may open due to the CD autorun). Select the option "Install from a list or specific location (Advanced)" (recommended choice). Then click on "Next" to continue the installation.



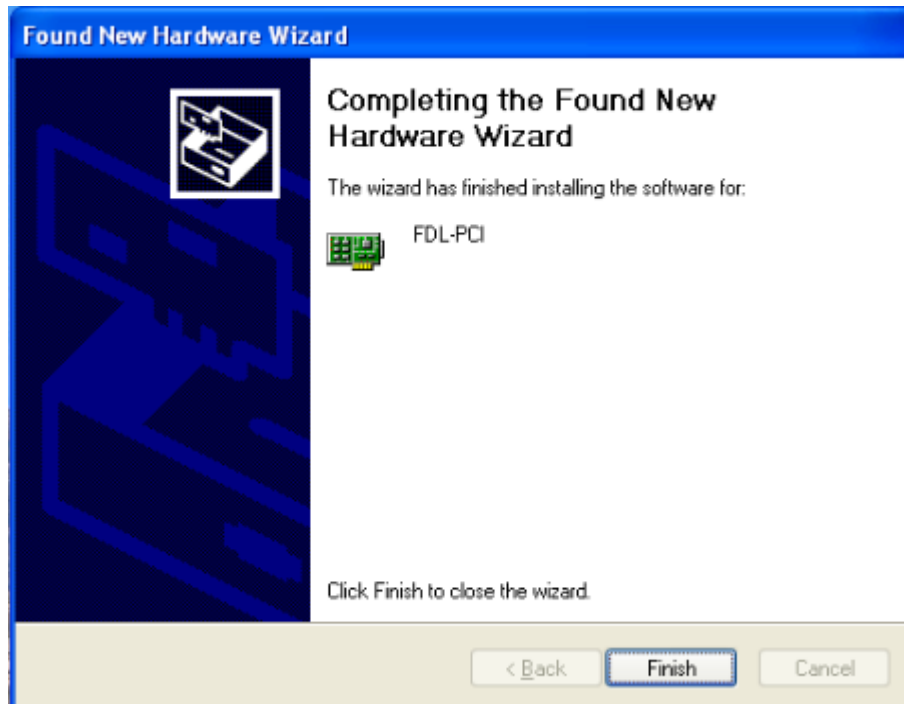
- 3) Check the function selected in the window (recommended choice) below (in this case, E:\ indicates the CD-ROM drive) and click on next to continue. The PC will start to search for the most suitable driver to the peripheral.



- 4) Select the folder that contains drivers for FDL-PCI hardware and click on OK. Then, wait while the wizard installs the software (just few seconds).



- 5) When the installation has been completed, a window like the one below will appear. Click on finish to close the wizard and restart the PC (recommended choice).



## System Requirements

- Linux 2.0.31 or higher (can be embedded Linux or Linux 2.4x)
- An x86 processor.
- Any 32-bit development environment supporting C (such as GCC).

## Preparing the system for installation

In Linux, kernel modules must be compiled with the same header files that the kernel itself was compiled with. Since WinDriver installs the kernel module **windr6.o**, it must compile with the header files of the Linux kernel during the installation process.

Therefore, before you install WinDriver for Linux, verify that the Linux source code and the file **versions.h** are installed on your machine:

### Install linux kernel source code

- If you have yet to install Linux, please choose **Custom** installation when performing the installation and then choose to install the source code.
- If Linux is already installed on the machine, you must check to see if the Linux source code was installed. You can do this by looking for linux in the **/usr/src** directory. If the source code is not installed, you can either reinstall Linux with the source code, as described above, or you can install the source code by following these steps:
  1. Login as super user.
  2. Type:
 

```
/$ rpm -i /<source location>/ <Linux distributor>/RPMS/kernel-source-<version number>
```

 (For example: to install the source code from the Linux installation CD-ROM, for RedHat 7.1, type:
 

```
/$ rpm -i /mnt/cdrom/RedHat/RPMS/kernel-source-2.4.2.-2.i386rpm)
```

**TIP!**  
 If you do not have an RPM with the source code, you may download it from: <http://rpmfind.net/linux/RPM/>.

### Install version.h

- The file **version.h** is created when you first compile the Linux kernel source code. Some distributions provide a compiled kernel without the file **version.h**. Look under **/usr/src/linux/include/linux/** to see if you have this file. If you do not, please follow these steps:
  1. Type:
 

```
/$ make xconfig
```
  2. Save the configuration by choosing **Save and Exit**.
  3. Type:
 

```
/$ make dep.
```

Before proceeding with the installation, you must also make sure that you have a linux symbolic link. If you do not, please create one by typing:

```
/usr/src$ ln -s <target kernel>/ linux
```

(For example: for Linux 2.4 kernel type:

```
/usr/src$ ln -s linux-2.4/ linux)
```

## Installation

1. Insert the **DTA SDK CD** into your Linux machine CD drive or copy the downloaded file to your preferred directory.
2. Change directory to your preferred installation directory (your home directory, for example):  
/\$ **cd ~**
3. Extract the file **WDxxxLN.tgz** (where xxx is the version number):  
~\$ **tar xvzf /<file location>/WDxxxLN.tgz**  
For example:
  - o From a CD:  
~\$ **tar xvzf /mnt/cdrom/LINUX/WDxxxLN.tgz**
  - o From a downloaded file:  
~\$ **tar xvzf /home/username/WDxxxLN.tgz**
4. Change directory to WinDriver (this directory gets created by tar):  
~\$ **cd WinDriver/**

### NOTE:

From version 5.x and above this directory gets created by tar, but in versions preceding 5.x the WinDriver directory does not get created by the extraction. Therefore, when working with versions preceding 5.x (version 4.33, for example) first create a directory (e.g., WinDriver) before proceeding with the installation.

(/\$ **mkdir ~/WinDriver**)

5. Install WinDriver:
  - a. ~/WinDriver\$ **make**
  - b. Become super user:  
~/WinDriver\$ **su**
  - c. Install the driver:  
~/WinDriver# **make install**
6. Create a symbolic link so that you can easily launch the DriverWizard GUI  
~/WinDriver\$ **ln -s ~/WinDriver/wizard/wdwizard/ usr/bin/wdwizard**
7. Change the read and execute permissions on the file **wdwizard** so that ordinary users can access this program.
8. Change the user and group ids and give read/write permissions to the device file **/dev/windr6** depending on how you wish to allow users to access hardware through the device.
9. You can now start using WinDriver to access your hardware and generate your driver code!

## Restricting Hardware Access on Linux

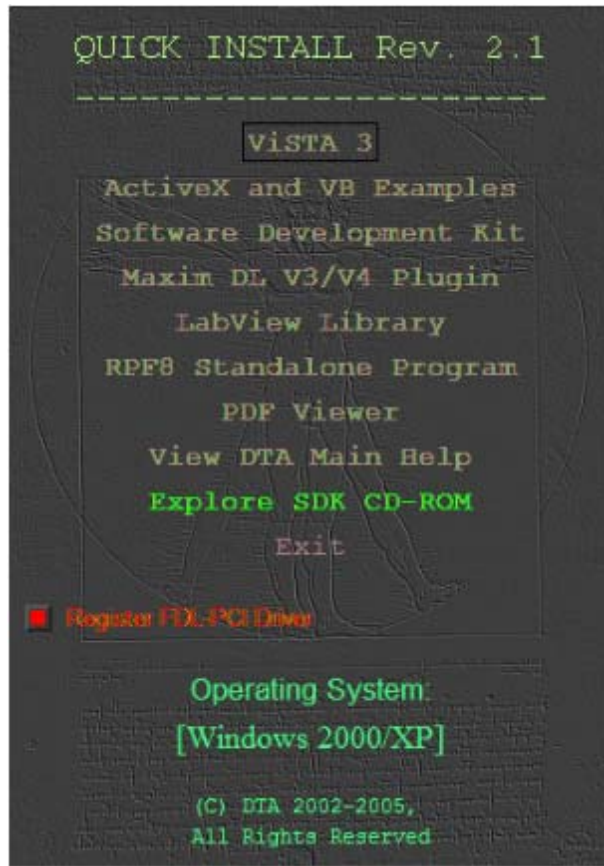
### CAUTION:

Since **/dev/windr6** gives direct hardware access to user programs, it may compromise kernel stability on multi-user Linux systems. Please restrict access to the DriverWizard and the device file **/dev/windr6** to trusted users.

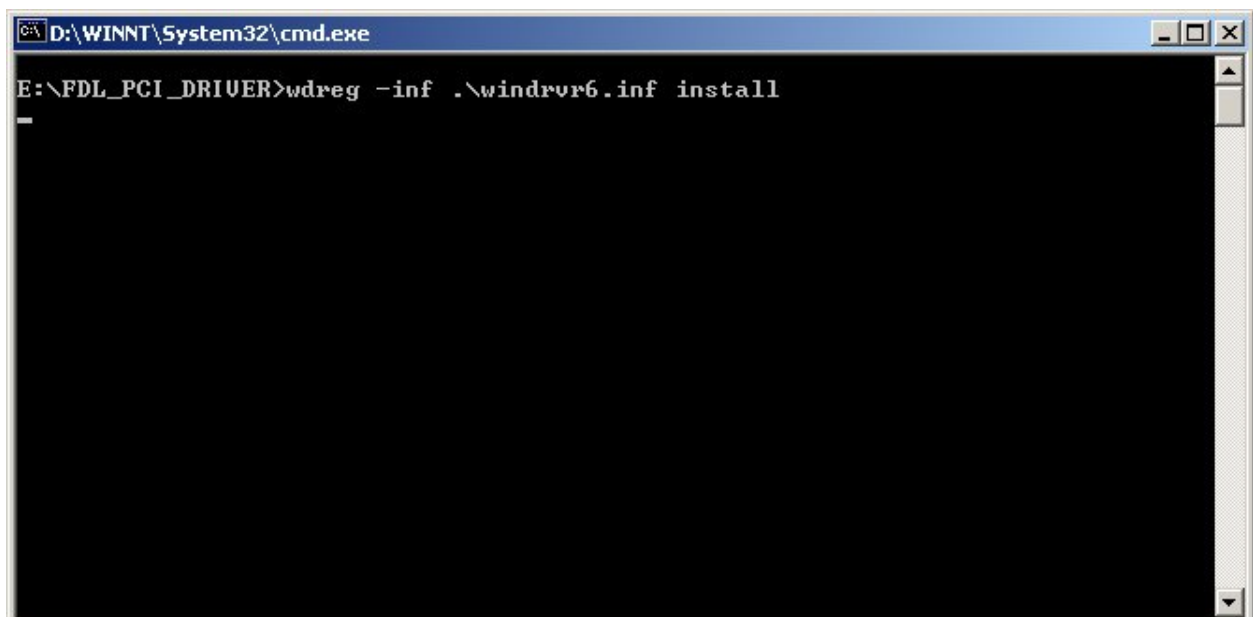
For security reasons the WinDriver installation script does not automatically perform the steps of changing the permissions on **/dev/windr6** and the DriverWizard executable (**wdwizard**).

## WINDRIVER REGISTRATION

- 1) After the installation of the drivers for the FDL-PCI card, we need to record the files to make them work properly. Insert the "ViSTA 3" CD into the CD-ROM reader, wait a few seconds so as to allow the PC to load the "QUICK INSTALL" menu.



- 2) Once the PC has loaded the "QUICK INSTALL" menu, enable the function "Register FDL-PCI Driver", then click on "ViSTA 3". The PC will start the installation of the necessary drivers by loading a window like the one shown below.

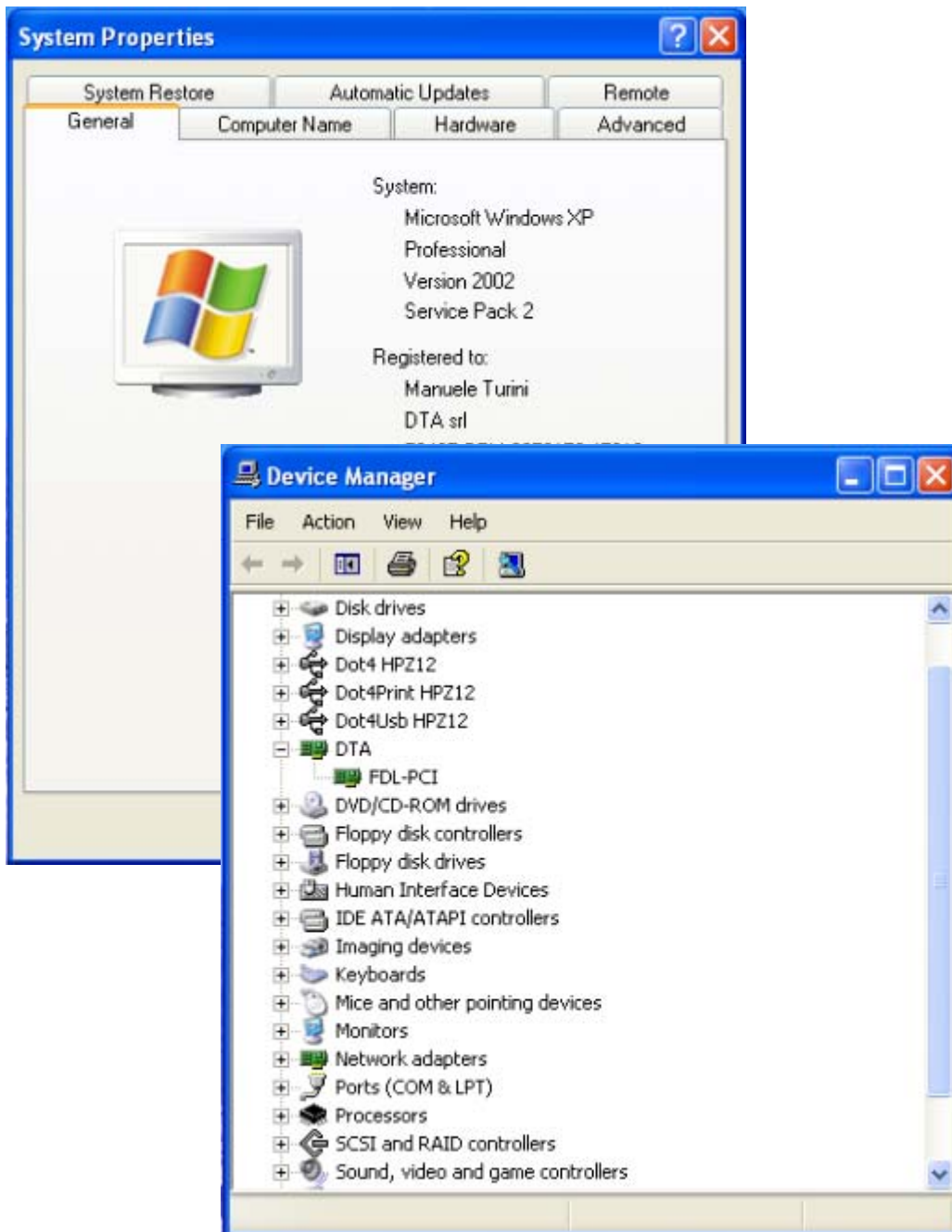


Once you have installed the drivers and the "ViSTA 3" software, restart the PC.

When you restart the PC, it is suggested to check the correct installation of the peripheral, that is if the installation of the necessary drivers for the FDL-PCI card and WINDRIVER has been carried out good.

According to the different Operating Systems, you have to click on "System Properties" by means of the right key of the mouse. The images below refer to the case you use Windows XP as OS.

A menu with different options will open; click on "Hardware" by means of the left key of the mouse and on "Device Manager". Then check if the FDL-PCI peripheral has been installed correctly (see the images below).



The tests have been carried out with the following OS:

WINDOWS 98 SECOND EDITION

WINDOWS 2000 WITHOUT SERVICE PACK

WINDOWS 2000 WITH SERVICE PACK 3/4/5

WINDOWS ME

WINDOWS XP WITHOUT SERVICE PACK

WINDOWS XP WITH SERVICE PACK 1/2

**INDEX**

	<b>c</b>
connecting the FDL-PCI interface card to the PC .....	5
	<b>l</b>
library & fdl-pci installation .....	6
linux .....	10
	<b>p</b>
personal computer minimum requirements .....	3
personal computer recommended requirements .....	3
	<b>s</b>
scheme of the installation procedure .....	4
	<b>w</b>
windows xp .....	6
windriver registration .....	12

