
Installation Guidelines

DOS - Windows9x/ME - WindowsNT/2000/XP - Linux

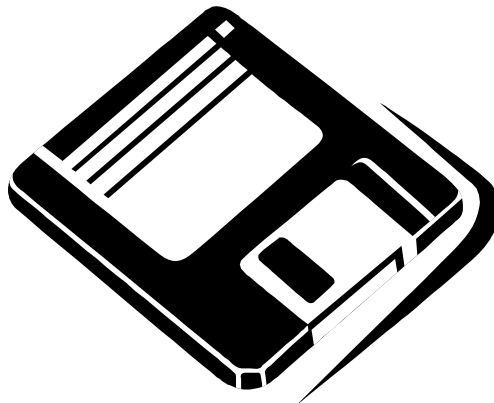
Driver and Interface Libraries

**ARINC 429 intelligent Interface Boards
A429USB | A429PCC | A429EPC |
A429PCI | A429PCI-2G**

and A429IPM IP-Module

Version 3.64

CIG-XPC-T-364, Rev F-1



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Product ARINC 429 PC-Interface boards - A429xPC
Document Installation Guidelines Driver/Interface Library
DOS - Windows 9x/ME - WindowsNT/2000/XP - Linux
Document# CIG-XPC-T-364

Filed under

\\Bigmama\WORK\ToBeReleasedAndPublished\7_Modules\702096_A429USB\Records\Paperwar
e\UserManual\INSTALL_364.DOC

Revision F-1
Date 19-Dec-06

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Preface

This document guides you through the installation of the driver and interface library files for the ARINC 429 interface boards **A429EPC** (ISA), **A429PCI** (PCI), **A429PCI-2G** (PCI 2nd-generation) and **A429PCC** (PCMCIA) and **A429USB** (USB)

A429VME is not yet included.

For **A429PC104** and **A429VXI** (HPVISA) different documents apply.

Prerequisites [only Microsoft environment]:

- create a temporary directory – through this document this directory is referenced as **[tmp]**

- copy **a429usb.zip**, **a429epc.zip**, **a429pcc.zip**, **a429pci.zip** or **a429pci-2g.zip** from floppy/CD into this directory.

- unzip with winzip maintaining subfolders.

- follow the instructions of this document dependent on your target system and hardware.

A429EPC [ISA]

This section outlines the installation procedure for the A429EPC type interface board..

Windows NT/2000/XP

The WindowsNT installation is done by running batch files in the DOS-box. A windows based installation procedure is currently under development. The installation is performed in two steps, the driver and the interface library.

Driver

To install the WindowsNT/2000 driver for the A429EPC type interface board, please change the working directory to **[tmp]\drv\epc\nt** and run the `setup.bat` file. Setup will install the driver file in the directory `%SystemRoot%\system32\drivers` on your system and put the necessary information into the registry. The syntax for the invocation of `setup.bat` is:

```
setup [ndev] [port0] [port1] ... [portn]
```

where **[ndev]** is the number of A429EPC boards installed, **[port?]** are the port addresses of the installed boards. You have to specify a port address for each board.

Example: `setup 2 0x380 0x390`
will setup the driver to support two boards with the port addresses 0x380 and 0x390.

Interface Library

To install the WindowsNT/2000 dynamic link library (DLL) for the A429EPC type interface board, please change the working directory to **[tmp]\lib\epc\dll32**. Setup will install the DLL file and the header/lib file(s) to the location you specified on the command line. A little demonstration program (source `xpcd.c` and binary `epcd32.exe`) is copied as well. The syntax for the invocation of `setup.bat` is:

```
setup [destdir]
```

where **[destdir]** is the destination directory on your hard disk, where to put the header and library files.

Example: `setup c:\epc`

The header file will be copied to `c:\epc\include` and the `.lib` and `.dll` file, as well as the sample executable `epcd32.exe` to `c:\epc\dll32`. The demonstration program will be copied to `c:\epc\samples`.

Note: instructions above also apply to the DLL/LIB for PASCAL Calling Convention – [DELPHI] dll32p

Windows 9x/ME

There is no driver required for the A429EPC with Windows9x/ME.

Interface Library

To install the Windows9x dynamic link libraries (DLLs – 16-bit and/or 32-bit) for the A429EPC type interface board, please change the working directory to **[tmp]\lib\epc\dll9x** (32-bit) or **[tmp]\lib\epc\dll16** (16-bit). Setup will install the DLL files and the header/lib file(s) to the location you specified on the command line. A little demonstration program (source [xpcd.c] and binary [epcd16.exe or epcd9x.exe]) is copied as well. The syntax for the invocation of setup.bat is:

```
setup [destdir]
```

where **[destdir]** is the destination directory on your hard disk, where to put the header and library files.

Example: `setup c:\epc`

The header files will be copied to `c:\epc\include` and the .lib and .dll file, as well as the sample executables `epcd16.exe` or `epcd9x.exe` to `c:\epc\dll16` or `c:\epc\dll9x`. The demonstration program will be copied to `c:\epc\samples`.

MS-DOS

The MS-DOS installation is done by running batch files supplied.

Interface Library

To install the MS-DOS interface library for the A429EPC type interface board, please change the working directory to **[tmp]\lib\epc\lib16**. Setup will install the header/lib file(s) to the location you specified on the command line. A little demonstration program (source and binary) is copied as well. The syntax for the invocation of setup.bat is:

```
setup [destdir]
```

where **[destdir]** is the destination directory on your hard disk, where to put the header and library files.

Example: `setup c:\epc`

The header files will be copied to `c:\epc\include` and the .lib file to `c:\epc\lib16`. The demonstration program will be copied to `c:\epc\samples`.

A429PCI [PCI]

This section outlines the installation procedure for the A429PCI type interface board.

IMPORTANT NOTES :

- the define "PCI" of former versions has changed into a "PCI40" define (for PCI-40 carrier) and "PCI60" (for the PCI-60 carrier)
- the interface-library[DLL NT]/shared object version is now V3.40 and names have changed from PCI... to PCI4... and PCI6...
- a new header file a429ipm.h has been introduced (is included by a429pci.h)
- the prototypes for all general purpose IP-module access-functions changed from _epc_... to _ipm_...
- prototype for _ipm_scan_ipm function changed
- the LINUX kernel sources are required for proper installation (independency from LINUX kernel versions now supported)

Windows NT/2000/XP

The WindowsNT/2000 installation is performed in two steps, the driver and the interface library.

Driver

Windows NT/2000 Driver (Windriver/Jungo) V5.03 installation A429PCI (PCI-40/60A with A429IPM).

The location of the driver windrvr after having unzipped the System Software floppy : **[tmp]\drv\pci\nt**

Windows NT:

- login as administrator
- unzip A429PCI.ZIP in new or existing directory
- copy driver **[tmp]\drv\pci\nt\windrv.sys** into

%SystemRoot%\system32\drivers

- adjust registry entry of SystemPages [use *start - run - regedit*]
not necessary for XP !

HKEY_LOCAL_MACHINE\System\CurrentControlSet\
Control\Session Manager\Memory Management\SystemPages

replace default 0 with 100.000(decimal)

rule of thumb:

(PC RAM in MByte + 2x64M for PCI40/60 + pagefile.sys size in MByte) x 256

-> round up to next 100.000

- power-down - install A429PCI-board

- install driver: enter DOS-window and go into **[tmp]\drv\pci\nt**
enter: `wdreg install` – should get 2 x ok [if you had a previous version installed it is necessary to remove it: `wdreg remove`]

Windows 2000: Install driver: enter DOS-window and go into **[tmp]\drv\pci\nt**
enter: `wdreg install` – should get 2 x ok [if you had a previous version installed it is necessary to remove it: `wdreg remove`].

Plug'n Play – select **pci40.inf [pci60.inf]** in **[tmp]\drv\pci\nt**

After reboot of the system the A429PCI Windows NT/2000 driver is installed.

To verify: use **[tmp]\lib\pci\nt\pci432d.exe** [**pci632d.exe** for the PCI-60 carrier] – this is a basic user interface to access all A429IPM specific ARINC 429 functions and general purpose IP functions (read/write IP-IO/ID/Memory space)

Interface Library

To install the WindowsNT/2000 dynamic link library (DLL) for the A429PCI type interface board, please change the working directory to **[tmp]\lib\pci\nt**. Setup will install the DLL files and the headers/lib files to the location you specified on the command line. A little demonstration program (source `xpcd.c`) and binary [`pci432d.exe` and `pci632.exe`] is copied as well. The syntax for the invocation of `setup.bat` is:

```
setup [destdir]
```

where **[destdir]** is the destination directory on your hard disk, where to put the header and library files.

Example: `setup c:\pci`

The header file will be copied to `c:\pci\include` and the .lib and .dll files, as well as the sample executables `pci432d.exe`/`pci632d.exe` to `c:\pci\dll32`. The demonstration program will be copied to `c:\pci\samples`.

Windows 9x/ME

The Windows9x/ME installation is performed in two steps, the driver and the interface library.

Driver

Windows 9x/ME Driver (Windriver/Jungo V5.03) installation A429PCI (PCI-40/60A with A429IPM).

The location of the driver windrvr after having unzipped the System Software floppy : **[tmp]\drv\pci\w9x**

Plug'n Play – select **pci40.inf** [**pci60.inf**] in **[tmp]\drv\pci\w9x**

Copy file **[tmp]\drv\pci\w9x\windrvr.vxd** into directory

%SystemRoot%\System\Vmm32

enter DOS-window and go into **[tmp]\drv\pci\w9x**

enter: `wreg install` – should get 2 x ok [if you had a previous version installed it is necessary to remove it: `wreg remove`]

After reboot of the system the A429PCI Windows 9x/ME driver is installed.

To verify: use **[tmp]\lib\pci\w9x\pci432d.exe** [**pci632d.exe** for the PCI-60 carrier] – this is a basic user interface to access all A429IPM specific ARINC 429 functions and general purpose IP functions (read/write IP-IO/ID/Memory space)

Interface Library

To install the Windows9x/ME dynamic link library (DLL) for the A429PCI type interface board, please change the working directory to **[tmp]\lib\pci\w9x**. Setup will install the DLL files and the headers/lib files to the location you specified on the command line. A little demonstration program (source [`xpcd.c`] and binary [`pci49xd.exe` and `pci69xd.exe`]) is copied as well. The syntax for the invocation of `setup.bat` is:

`setup [destdir]`

where **[destdir]** is the destination directory on your hard disk, where to put the header and library files.

Example: `setup c:\pci`

The header file will be copied to `c:\pci\include` and the .lib and .dll files, as well as the sample executables `pci49xd.exe`/`pci69xd.exe` to `c:\pci\dll9x`. The demonstration program will be copied to `c:\pci\samples`.

LINUX [V2.0 and upper]

Please follow the instructions below for the LINUX Driver installation [only LINUX > V2.0]:

Starting with V3.40 the 6-slot PCI-60 carrier is supported (in addition to the 4-slot carrier PCI-40) The following procedure refers to the PCI-40 carrier - differences for the PCI-60 are indicated in {}.

If previous versions of the driver have been installed please perform the following actions prior to install version V3.40:

- remove directory /usr/bin/windriver
- remove "old" startup.txt add-on from rc.local

Installation:

- a) login as root
- b) create directory a429pci:
mkdir a429pci
- c) mount floppy-drive:
mount -t vfat /dev/fd0 /mnt/floppy
- d) copy zip-file a4pci46_li.zip into this directory:
cd a429pci
cp /mnt/floppy/a4pci46_li.zip .
- e) unmount floppy:
umount /mnt/floppy
- f) unpack a4pci46_li.zip
unzip a4pci46_li.zip
make sure file *version.h* is accessible:
 - (i) **cd /usr/src**
 - (ii) **ls -l**
 - (iii) if directory *linux* is not existing make a link to the main directory :
ln -s linux-2.4.2
- g) Install Driver [WinDriver from KRFTech/Jungo] and shared object pci4lnx.so {pci6lnx.so} [in /usr/lib]:
./Install4 {./Install6}
Finally you get the message: **Installation completed**
- h) add entry (see file Startup.txt) to your /etc/rc.d/rc.local; if you use cat-command:
cat Startup.txt >>/etc/rc.d/rc.local
(-> necessary that the driver starts upon each boot-up)
Do not use *cat* if last command in Startup.txt is *touch*. Use *vi* to edit Startup.txt.
- i) move a429pci directory to /home/[user name] (if necessary adjust permissions):
mv a429pci /home/[user name]
- j) reboot your system and login as [user name]

k) change to a429pci:

cd a429pci

l) start sample-/test-program:

./pci4lnxd {./pci6lnxd}

A Menu pops up that allows you to manually execute (nearly) all available functions of the A429IPMs installed on the PCI-40/PCI-60 carrier.

A429PCI-2G [PCI-2G]

This section outlines the installation procedure for the A429PCI-2G type interface board.

Windows NT

Driver

Windows NTDriver (PLX):

The location of the driver after having unzipped the System Software floppy :
[tmp]\drv\drvnt

- insert the A429PCI-2G board in any available PCI-slot
- login as administrator
- unzip A429PCI-2G.ZIP in new or existing directory
- manually copy driver **[tmp]\drv\drvnt\Pci9050.sys** into
%SystemRoot%\system32\drivers
- manually copy the DLL **[tmp]\drv\drvnt\PlxApi.dll** into
%SystemRoot%\system32
- double-click **[tmp]\drv\drvnt\Pci9050.reg**. The registry entries of the Windows NT installation are extended.
- power-down and reboot

After reboot of the system the A429PCI-2G Windows NT driver is installed.

To verify: use **[tmp]\lib\pci2gd.exe** – this is a basic user interface to access all A429IPM specific ARINC 429 functions and general purpose IP functions (read/write IP-IO/ID/Memory space).

It is necessary to reset the card before executing any other function:

[E - PCI2G features and R - Reset PCI2G]

Interface Library

The A429PCI-2G Windows DLL is **[tmp]\lib\pci2g.dll**. This DLL contains the User level driver that calls functions from the PlxApi.dll.

An C-source example xpcd.c and the required header files are in subdirectory **[tmp]\lib\Common**.

Windows 9x/ME/2000/XP

Driver

The location of the Windows 9x/ME/2000/XP driver after having unzipped the System Software floppy : **[tmp]\drv\DRV9x2k**

standard ***Plug'n Play*** – select **Pci2g42.inf**

After reboot of the system the A429PCI-2G Windows 9x/ME/2000/XP driver is installed.

To verify: use **[tmp] \lib\pci2gd.exe** – this is a basic user interface to access all A429IPM specific ARINC 429 functions and general purpose IP functions (read/write IP-IO/ID/Memory space).

It is necessary to reset the card before executing any other function:

[E - PCI2G features and R - Reset PCI2G]

Interface Library

[see Windows NT]

LINUX [V2.0 and upper]

[in preparation]

A429PCC [PCMCIA]

This section outlines the installation procedure for the A429PCC type (PCMCIA) interface card.

Windows NT/2000/XP

Driver

The user has to be logged on as administrator.

Windows NT:: the location of the driver VARINCD after having unzipped the System Software floppy : **[tmp]\drv\pcc\nt**

Enter Explorer and select Inf-File **arincnt.inf**.

Press right mouse-button and select **install** from the pop-up window.

After reboot of the system the A429PCC Windows NT driver is installed.

Windows 2000: Plug'n Play – select arincWDM.inf in **[tmp]\drv\pcc\W2000**

to verify: use **[tmp]\lib\pcc\win9xnt\cas95ntd.exe** – this is a basic user interface to access all A429PCC specific ARINC 429 functions.

NOTE: It is a precondition that the CIS (Card Interface Structure) of the A429PCC has been programmed. All A429PCCs delivered before June 1998 must be programmed. In directory **[tmp]\lib\pcc\dll9xnt\makecis** all necessary utilities can be found. Please refer to the A429PCC User Manual.

Interface Library

(see Windows 9x installation)

Windows 9x/ME

Driver

Upon insertion on the ARINC 429 PCMCIA-card A429PCC Windows 95/98 is looking if the appropriate Plug'n Play driver VARINCD is already installed on the system. If not, it prompts for the path where to find the driver for installation.

The location of the driver VARINCD after having unzipped the System Software floppy : **[tmp]\drv\pcc\win9x**

Please also refer to A429PCC PCMCIA II Interface-card Users Guide for installation fo Plug'nPlay Driver VARINCD

to verify: use **[tmp] \lib\pcc\win9xnt\cas95ntd.exe** – this is a basic user interface to access all A429PCC specific ARINC 429 functions.

NOTE: It is a precondition that the CIS (Card Interface Structure) of the A429PCC has been programmed. All A429PCCs delivered before June 1998 must be programmed. In directory **[tmp] \lib\pcc\dll9xnt\makecis** all necessary utilities can be found. Please refer to the A429PCC User Manual.

Interface Library

To install the Windows9x/NT dynamic link library (DLL - 32-bit) for the A429PCC type interface board, please change the working directory to **[tmp]\lib\pcc\dll9xnt**. Setup will install the DLL files [**cas95.dll**, **arincard.dll** and **varincd.dll**] and the header/lib file(s) to the location you specified on the command line. A little demonstration program (source [**xpcd.c**] and binary [**cas95ntd.exe**]) is copied as well.

The syntax for the invocation of setup.bat is:

```
setup [destdir]
```

where **[destdir]** is the destination directory on your hard disk, where to put the header and library files.

Example: `setup c:\pcc`

The header file will be copied to `c:\pcc\include` and the .lib and .dll files to `c:\pcc\dll9xnt`. The demonstration program will be copied to `c:\pcc\samples`.

MS-DOS

The MS-DOS installation is done by running batch files supplied.

Interface Library/16-bit DLL

To install the MS-DOS interface library for the A429PCC PCMCIA interface card, please change the working directory to **[tmp]\lib\pcc\lib16**. Setup will install the header/lib file(s), firmware files [***.sbn**] and loadcard.ini [please refer to **A429PCC User Manual**] to the location you specified on the command line. A little demonstration program (source and binary) is copied as well. The syntax for the invocation of setup.bat is:

```
setup [destdir]
```

where **[destdir]** is the destination directory on your hard disk, where to put the header and library files.

Example: `setup c:\pcc16`

The header files will be copied to `c:\pcc16\include` and the .lib file to `c:\pcc16\lib16`. The demonstration program **pcc16d.exe** will be copied to `c:\pcc16\samples`.

Note: For Windows 3.x/9x installations in order to run 16-bit Windows applications the DLL16 directory contains 16-bit DLL and environment. Installation works similar as described above.

A429USB [USB]

This section outlines the installation procedure for the A429USB type (USB) interface device.

Windows 2000/XP

Driver

The A429USB device-driver is installed similar to any other device driver. After unpacking the A429USB System Software the driver for Windows 2000/XP is in **<Install Directory>\DRV\W2kXP_Install**. This driver is good for both Windows 2000 and XP.

Current Driver Version number:

Device Type: ARINC-429 USB Device Driver

Manufacturer: TechSAT

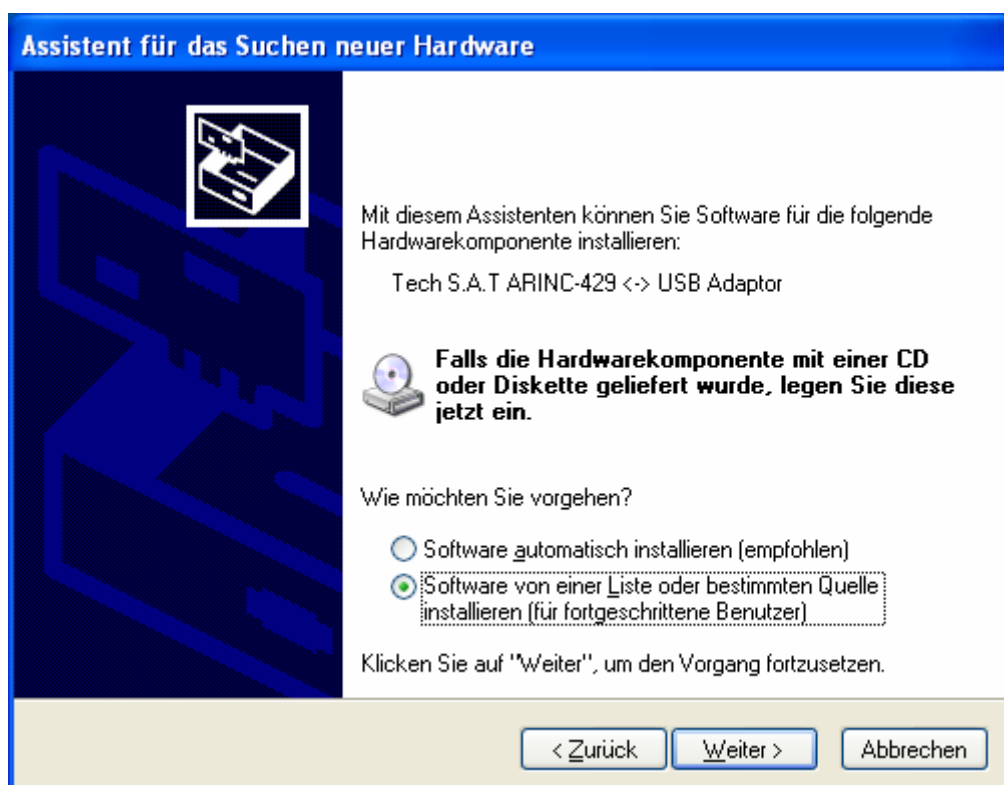
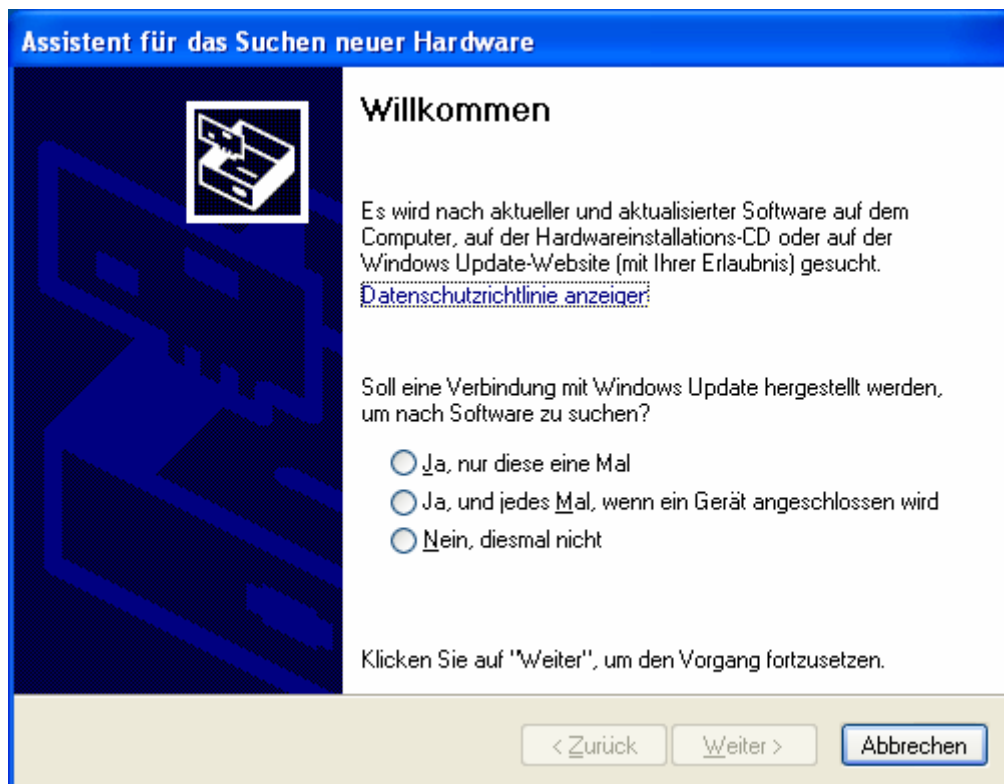
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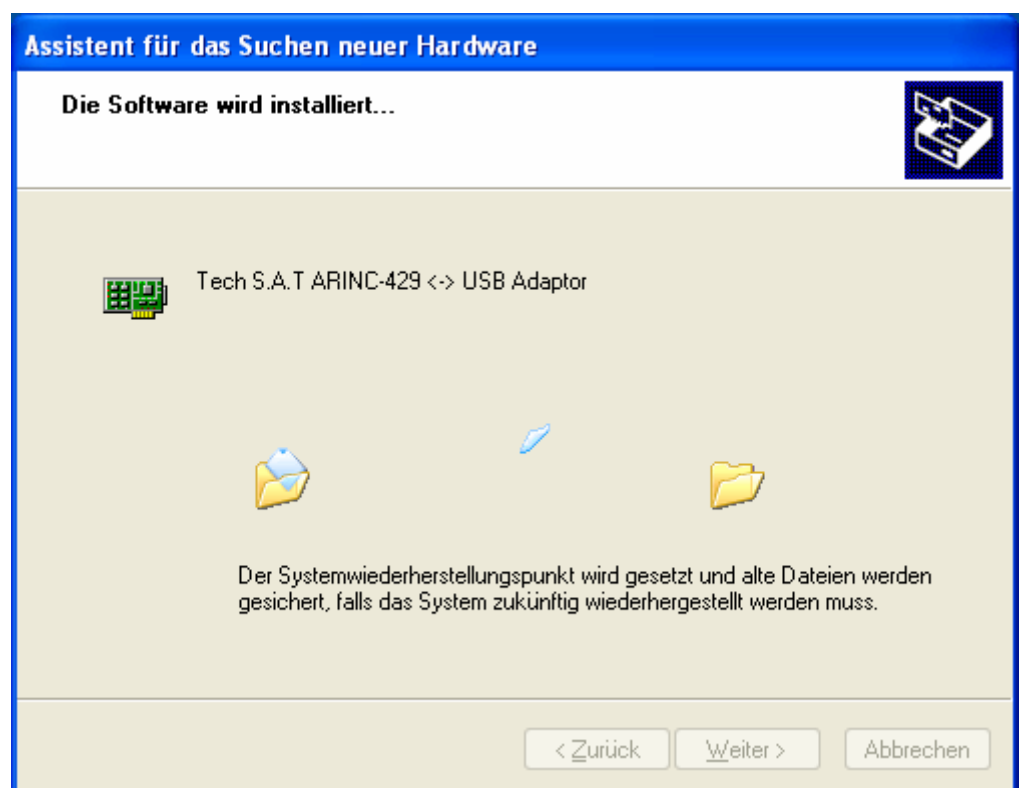
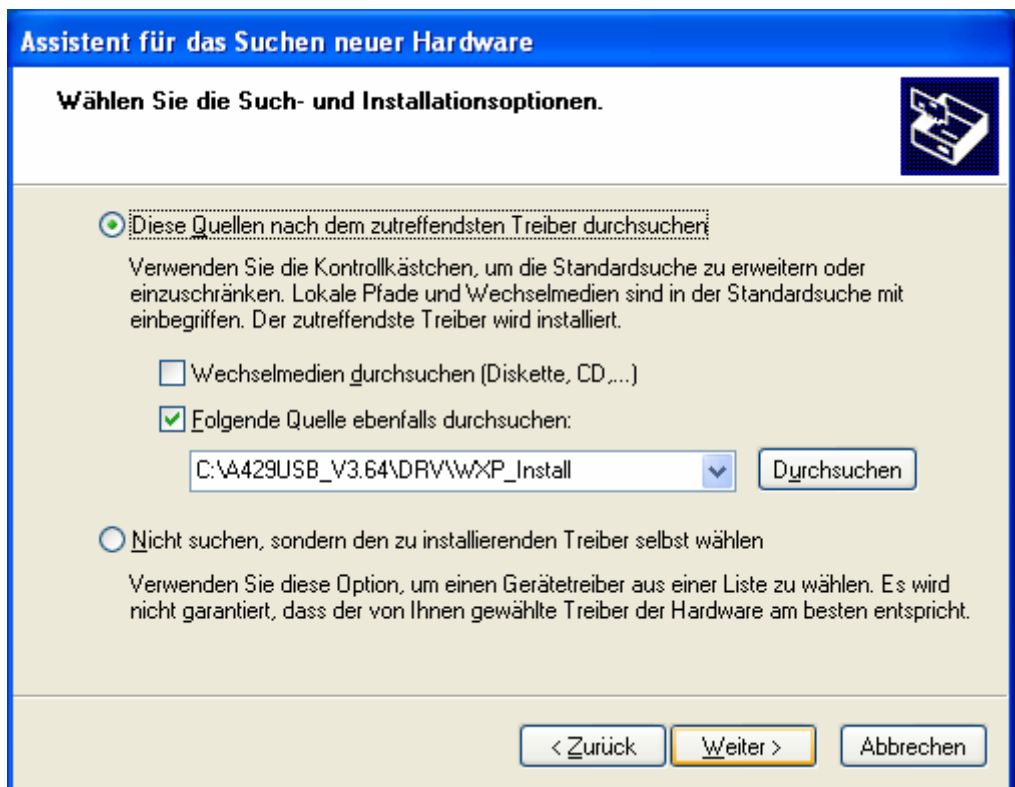
Driverversion: 1.2.0.0

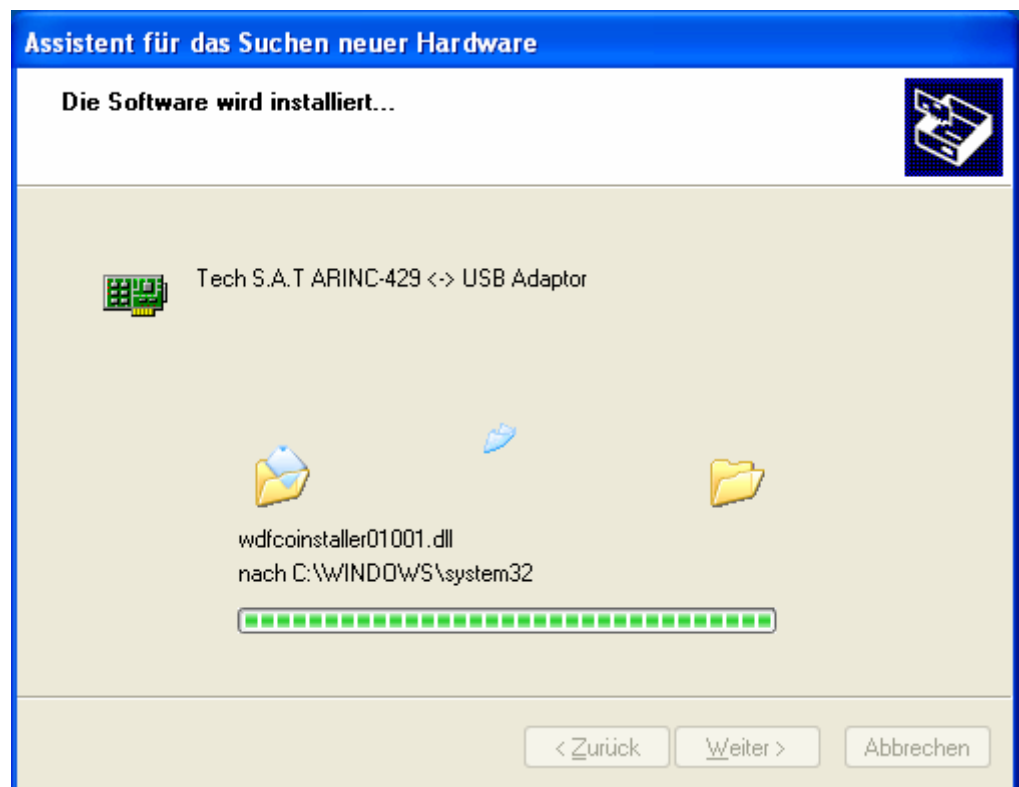
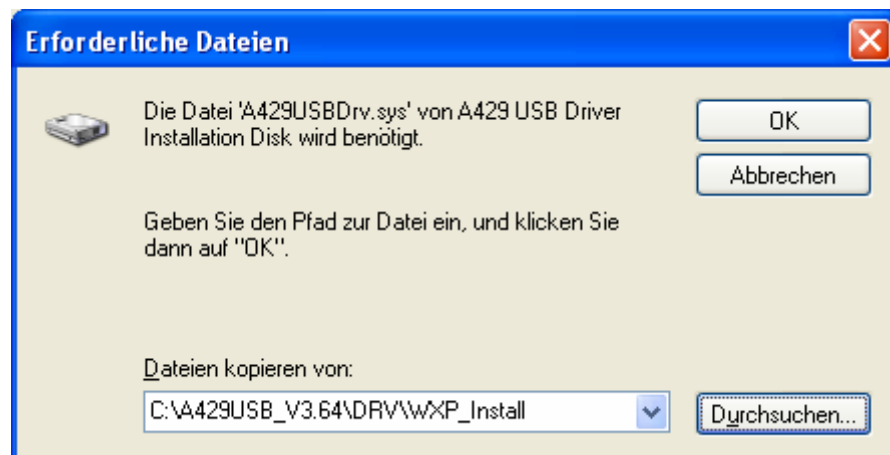
The current firmware version (required for this Driver Version) is V2.1.

See below the sequence of screens during driver installation. In this example Windows XP (german) is used – the sequence for Windows 2000 is very similar.

After having plugged in the A429USB the operating system detects new hardware and want to install a driver.







Assistent für das Suchen neuer Hardware



Fertigstellen des Assistenten

Die Software für die folgende Hardware wurde installiert:



Tech S.A.T ARINC-429 <-> USB Adaptor

Klicken Sie auf "Fertig stellen", um den Vorgang abzuschließen.

< Zurück

Fertig stellen

Abbrechen