
TPCI868-SW-65

Windows 2000/XP Device Driver

16 Channel Serial Interface

Version 1.0.x

User Manual

Version 1.0.1

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1 Introduction

The TPCI868-SW-65 Windows WDM (Windows Driver Model) device driver is a kernel mode driver which allows the operation of the TPCI868 on an Intel or Intel-compatible x86 Windows 2000, Windows XP operating systems.

The standard file input and output (I/O) functions (CreateFile, CloseHandle, ReadFile, ReadFileEx, WriteFile, and WriteFileEx) provide the basic interface for opening and closing a communications resource handle and for performing read and write operations.

The TPCI868 device driver is full compatible to the standard Windows 2000/XP serial device driver (*serial.sys*).

2 Installation

Following files are located on the distribution media:

tpci868.sys	Windows 2000/XP driver binary (TPCI868 channel driver)
tserbus.sys	Windows 2000/XP driver binary (TEWS serial channel bus driver)
tpci868.inf	Windows 2000/XP installation script (channel driver)
tserbus.inf	Windows 2000/XP installation script (bus driver)
TPCI868-SW-65.pdf	This document
Release.txt	Information about the Device Driver Release

2.1 Software Installation

2.1.1 Windows 2000/XP

This section describes how to install the TPCI868 Device Driver on a Windows 2000/XP operating system.

After installing the TPCI868 card(s) and boot-up your system, Windows 2000/XP setup will show a "**New hardware found**" dialog box.

1. The "**Upgrade Device Driver Wizard**" dialog box will appear on your screen. Click "**Next**" button to continue.
2. In the following dialog box, choose "**Search for a suitable driver for my device**". Click "**Next**" button to continue.
3. Insert the TPCI868 distribution media; select the appropriate drive in the dialog box. Click "**Next**" button to continue.
4. Now the driver wizard should find a suitable device driver on the media. (TSEBUS) Click "**Next**" button to continue.
5. Now a window "**Digital Signature Not Found**" will appear. To install the driver continue with installation and Click "**Yes**" button to continue.
6. Complete the upgrade device driver and click "**Finish**" to take all the changes effect. The driver will create the TPCI868 devices.

Now the bus driver for TEWS *TECHNOLOGIES* serial modules is installed. The system will now ask for the serial device driver and Windows 2000/XP setup will show a "**New hardware found**" dialog box again.

7. The "**Upgrade Device Driver Wizard**" dialog box will appear on your screen. Click "**Next**" button to continue.
8. In the following dialog box, choose "**Search for a suitable driver for my device**". Click "**Next**" button to continue.
9. Insert the TPCI868 distribution media; select the appropriate drive in the dialog box. Click "**Next**" button to continue.
10. Now the driver wizard should find a suitable device driver on the media. (TPCI868) Click "**Next**" button to continue.
11. Complete the upgrade device driver and click "**Finish**" to take all the changes effect.
12. Now copy all needed files (TPCI868.h, TPCI868-SW-65.pdf) to the desired target directories.

After successful installation the TPCI868 device driver will start immediately and creates devices (TPCI868_1, TPCI868_2 ...) for all recognized TPCI868 modules.

2.1.2 Confirming Windows 2000/XP Installation

To confirm that the driver has been properly loaded in Windows 2000/XP, perform the following steps:

1. From Windows 2000/XP, open the "**Control Panel**" from "**My Computer**".
2. Click the "**Properties**" icon and choose the "**Hardware**" tab, and then click the "**Device Manager**" button.
3. Click the "+" in front of "**Multi-port serial adapters**".
The driver "**TEWS TECHNOLOGIES - TSERBUS (Serial Channel Enumerator)**" should appear.
4. Click the "+" in front of "**Ports (COM & LPT)**".
The 16 serial devices "**TEWS TECHNOLOGIES - TPCI868 (serial port) (COMx)**" should appear.

3 FIFO Configuration

After Installation of the TPCI868 Device Driver the trigger level for transmit and receive FIFO are set to their default values.

Default values are:

Receive FIFO	Transmit FIFO
56	8

If the default values are not suitable the configuration can be changed by modifying the registry, for instance with regedt32.

To change the transmit trigger level the following value must be modified.

HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\TPCI868\TxFIFO

Valid trigger levels are 8, 16, 32 and 56.

To change the receiver trigger level the following value must be modified.

HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\TPCI868\RxFIFO

Valid trigger levels are 8, 16, 56 and 60

The configuration of the FIFO trigger level is used for all TPCI868 devices in common. To make the changes current the system must be restarted.

4 TPCI868 Device Driver Programming

The TPCI868 device driver is full compatible to the standard Windows serial device driver (*serial.sys*) and therefore programming of the TPCI868 driver is the same as the standard Windows serial driver.

The standard file input and output (I/O) functions (CreateFile, CloseHandle, ReadFile, ReadFileEx, WriteFile, and WriteFileEx) can be used for opening and closing a communications resource handle and for performing read and write operations.

The Microsoft® Win32® application programming interface (API) also includes a set of functions that provide special communication services like reading and setting communication parameter, transmitting immediate characters, setting timeouts and so on.

All of these standard Win32 communication functions are described in detail in the Windows Platform SDK Documentation (Windows base services / Communication).

For details refer to the Win32 Programmers Reference of your used programming tools (C++, Visual Basic etc.)

The windows name of the first port is `Device\TPCI868_0` of the second port `Device\TPCI868_1` and so on.

The DOS device name for TPCI868 devices is COM1, COM2, COM3 and so on. If there other serial devices in the system the prefix starts with a higher number (see windows name).

The mapping between windows device names and DOS devices names for TPCI868 devices can be retrieved from the Registry.

HKEY_LOCAL_MACHINE\Hardware\DEVICEMAP\SERIALCOMM

and

HKEY_LOCAL_MACHINE\Hardware\RESOURCEMAPLOADED TPCI868 ...