# TPC-1260G

**12.1” TFT LCD Display Touch Panel Computer with Transmeta™ Crusoe™ 5800 1 GHz CPU**

# User Manual

**This Manual Covers the Following Models**

- TPC-1260G-A1
- TPC-1260G-A5
- TPC-1260G-D1
- TPC-1260G-D5
- TPC-1260GN-A1
- TPC-1260GN-A5
- TPC-1260GX-A1
- TPC-1260GX-A5

Part No. 2003126002 1st Edition

Printed in Taiwan January 2005

**Product Warranty (1 year)**

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

**CE**

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

**FCC Class A**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Technical Support and Assistance**

Step 1. Visit the Advantech web site at **www.advantech.com/support** where you can find the latest information about the product.

Step 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

**Packing List**

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- 1 x TPC-1260G-A1,or
  TPC-1260G-A5, or
  TPC-1260G-D1, or
  TPC-1260G-D5, or
  TPC-1260GN-A1, or
  TPC-1260GN-A5, or
  TPC-1260GX-A1, or
  TPC-1260GX-A5
- 8 x Panel mounting clampers
- 8 x Panel mounting screws
- 1 x 3-Pin power connector
- 1 x TPC-1260G support CD
- 1 x CompactFlash to IDE adapter board

**Safety Instructions**

1. Read these safety instructions carefully.
2. Keep this User's Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:

a. The power cord or plug is damaged.

b. Liquid has penetrated into the equipment.

c. The equipment has been exposed to moisture.

d. The equipment does not work well, or you cannot get it to work according to the user's manual.

e. The equipment has been dropped and damaged.

f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

**Wichtige Sicherheishinweise**

1. 1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die NetzanschluBsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daB diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim. AnschluB an das Stromnetz die AnschluBwerte.
9. Verlegen Sie die NetzanschluBleitung so, daB niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:

a - Netzkabel oder Netzstecker sind beschädigt.

b - Flüssigkeit ist in das Gerät eingedrungen.

c - Das Gerät war Feuchtigkeit ausgesetzt.

d - Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.

e - Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.

f - Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

15. VOSICHT: Explisionsgefahr bei unsachgemaben Austausch der Batterie.Ersatz nur durch densellben order einem vom Hersteller empfohlene-mahnlichen Typ. Entsorgung gebrauchter Batterien navh Angaben des Herstellers.

16. ACHTUNG: Es besteht die Explosionsgefahr, falls die Batterie auf nicht fach-männische Weise gewechselt wird. Verfangen Sie die Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.

# Contents

CHAPTER 1

# General Information

This chapter gives background information on TPC-1260G..

Sections include:

- Introduction
- Specifications
- I/O Ports Arrangement
- Panel Mounting
- Exploded Diagrams
- Dimensions & Cutout

# Chapter 1 General Information

## 1.1 Introduction

The TPC-1260G touch panel computer is a state-of-the-art HMI (Human Machine Interface). This operator interface with a 12.1" display is an x86-based platform with these key features:

- Fanless
  By using a low-power processor, the system does not have to rely on fans, which often are unreliable and causes dust to circulate inside the equipment.

- Bright Display
  The high-brightness TFT LCD display suits industrial demands for clear interfaces.

- Powerful Communication Capability
  TPC-1260G provides a powerful I/O interface for easily communicating with other devices. The I/O interface includes serial ports, a parallel port, Ethernet and USB 2.0 support. TPC-1260G also supports the expansion slot PC/104-Plus. This makes it easy to expand with the required PC/104-Plus modules.

- Windows CE Support
  In addition to the OS support of Windows 2000 and Windows XP, Advantech offers platform support for Windows CE. The optional Windows CE operating system specifically for the TPC-1260G is available for Windows CE application program builders.

## 1.2 Specifications

### 1.2.1 System Kernel

- **CPU:** Transmeta Crusoe TM5800 (clock rate 1 GHz)
- **BIOS:** Award 256 KB flash memory
- **South Bridge:** VIA 82C686B
- **VGA:** Silicon Motion SMI721 VGA/LCD controller; PCI 2.1 compliant; 4 MB embedded DRAM
- **Ethernet:** VIA VT6120 10/100/1000Base-T Ethernet controller; IEEE 802.3u protocol compatible
- **Watchdog Timer:** MAX706 watchdog timer; 1.6 second timeout period
- **IDE:** 1 EIDE channel supports one CompactFlash card

### 1.2.2 I/O Ports

- 1 parallel port: supports EPP/ ECP modes
- 4 serial ports: RS-232 (COM1, COM3, COM4) and RS-232/422/485 (COM5)
- 1 RJ-45 Ethernet port
- 1 PS/2 port: 6-pin mini-DIN ports for keyboard and mouse
- 2 USB ports: compliant with USB 2.0
- 2 PCMCIA slot
- 3 Audio ports: 1 microphone; 1 Line In and 1 Line Out.
- 1 PC/104-Plus expansion slot

### 1.2.3 Safety and Environment

**Safety**

- FCC Class A
- CE certificated
- BSMI certificated
- The front bezel is compliant with NEMA 4 and IP65

**Environment**

- **Operating Temperature:** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature:** -20 ~ 60° C (-4 ~ 140° F)
- **Humidity:** 40° C @ 10~95% relative humidity (non-condensing)
- **Vibration:** 10~18 Hz: 1.5 mm peak-to-peak displacement; 18~500Hz: 1 G acceleration

## 1.3 LCD Specifications

- **Display Type:** TFT color LCD
- **Size (diagonal):** 12.1”
- **Maximum Resolution:** 800 x 600 (SVGA)
- **Maximum Colors:** 256,000
- **Pixel Pitch (W x H, mm):** 0.3075 x 0.3075
- **Viewing Angle:** 90°
- **Luminance (cd/m² ):** 100
- **Contrast Ratio:** 150
- **Operating Temperature:** 0 ~ 50° C (32 ~ 122° F) (Ambient)
- **VR Control:** Brightness Adjustable
- **Backlight:** 1 CCFL
- **Backlight Life Time:** 20,000 hours

*Note* *There might be several bright or dark pixels on the LCD. This phenomenon is normal in today’s LCD manufacturing.*

## 1.4 Touchscreen Specifications

- **Touch Type:** Resistive
- **Base Glass Construction:** Tempered Glass
- **Resolution:** Continuous
- **Light Transmission:** 75% typical
- **Controller:** RS-232 Interface
- **Power Rating:** 3.3 to 5 V
- **Software Driver:** Windows CE (embedded)
- **Durability:** 100 million touches

## 1.5 Power

- **Input Voltage:** 24 V DC (the fuse will become an open circuit if the input level exceeds 33 V DC)
- **Maximum Current:** 2 A

## 1.6 I/O Ports Arrangement

The arrangement of the I/O ports is shown in Figure 1.1.

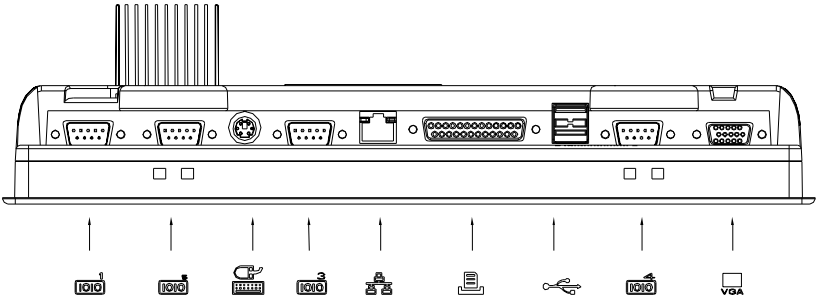


*Figure 1.1: I/O Ports Arrangement*

## 1.7 Panel Mounting

1. There is an adhesive waterproof gasket on the Mg-AL front bezel. Make sure the waterproof gasket is in position before installing TPC-1260G into the panel opening.
2. Install the TPC-1260G into the panel opening.
3. Find the eight clampers and eight long screws in the accessory pack. Hook the clampers to the holes around the four sides of the bezel. Insert the screws into every clamper and fasten them. These screws will push the mounting panel and fix the unit.
4. The suggested mounting panel thickness is less than 10 mm (0.236”).

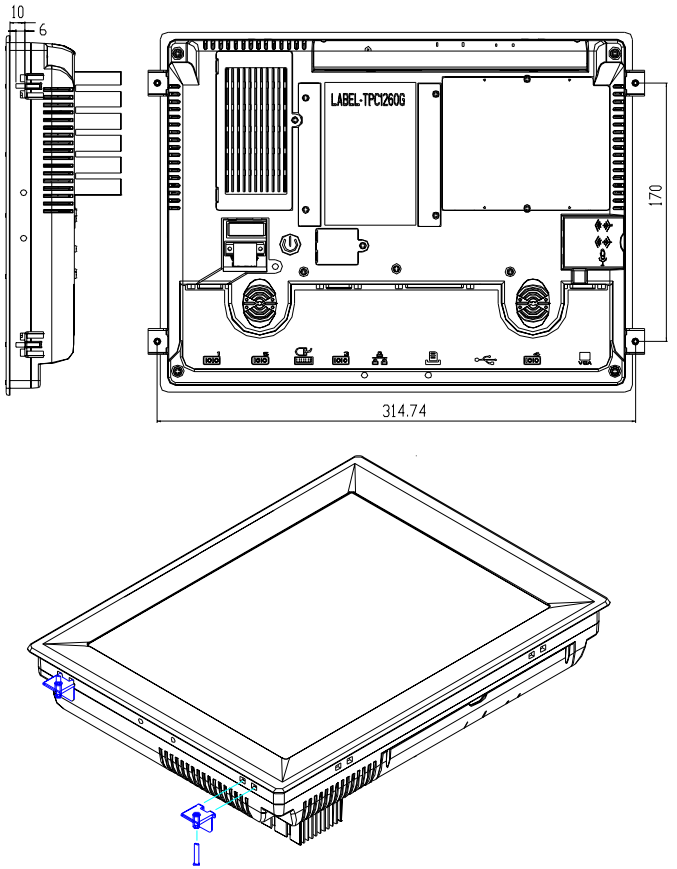


***Figure 1.2: Panel Mounting***

## 1.8 Exploded Diagrams

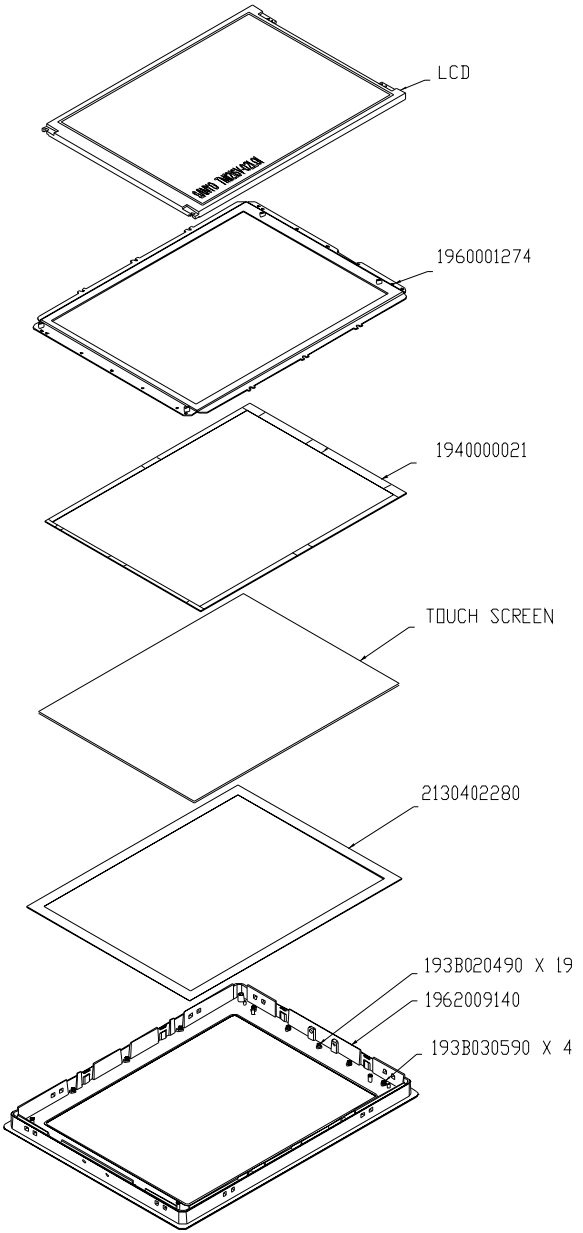


***Figure 1.3: Exploded LCD Diagram***

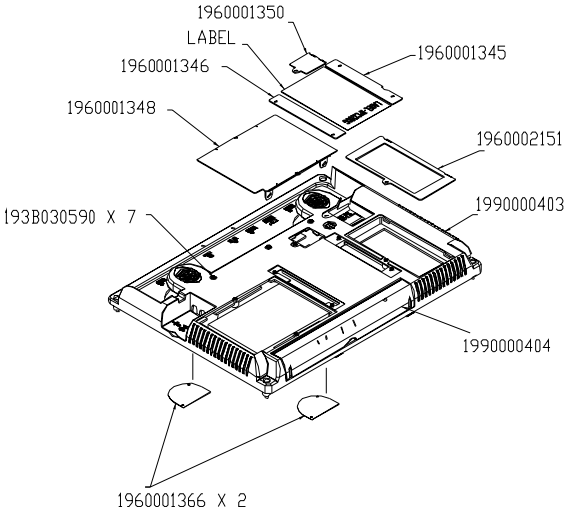


***Figure 1.4: Exploded Backside Diagram***

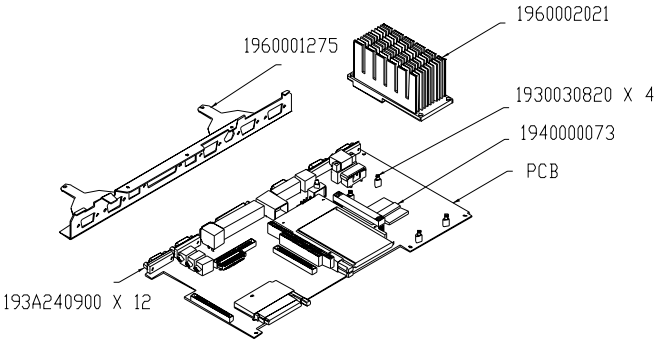


***Figure 1.5: Exploded Mainboard Diagram***

## 1.9 Dimensions and Cutout

- Weight: 2.2 kg (without HDD)
- Dimensions: 311 x 237 x 75.85 mm (W x H x D)
- Cutout: 302 x 228 mm (suggested)

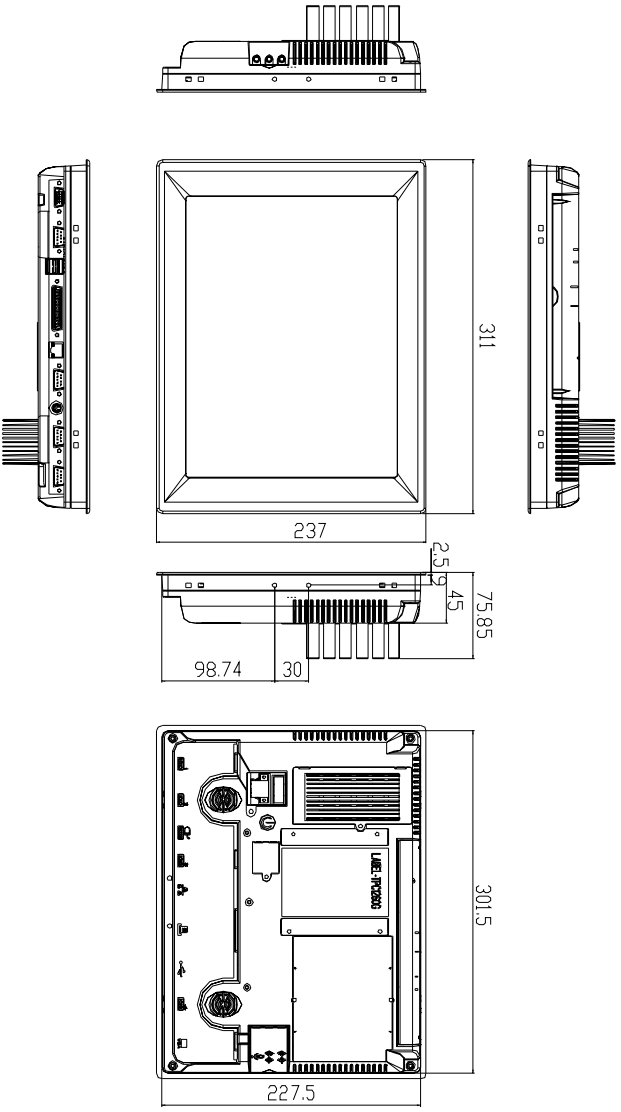


***Figure 1.6: Dimensions***

CHAPTER 2

# System Setup

This chapter provides a brief explanation for operating TPC-1260G.

# Chapter 2  System Setup

You can easily get TPC-1260G started by following the below steps.

- Step 1: Unpack the TPC-1260G package. Check the packing list at the beginning of this manual to make sure all items have been included.


***Figure 2.1: Unpack the Package***

- Step 2: Install a CompactFlash card containing Windows CE, embedded Windows XP or another operating system.

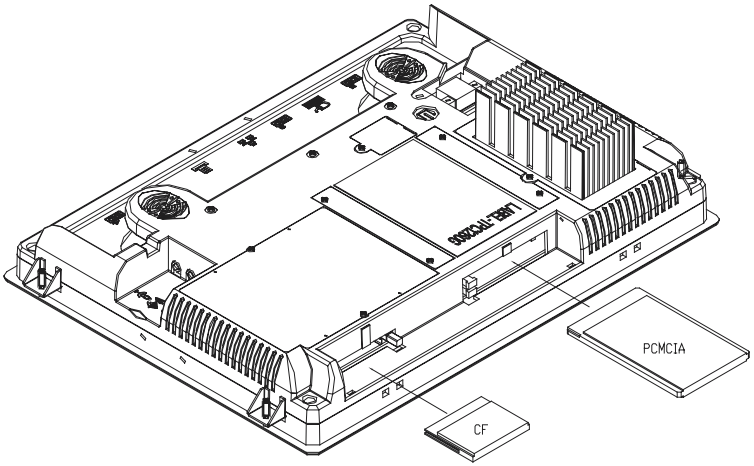


***Figure 2.2: Install CompactFlash Memory Card***

*Warning* *It is suggested to turn OFF system power as you plug in or pull out the memory card, even though the CompactFlash memory is hot swappable.*

- Step 3: Connect the power connector to the 24 V DC power lines. The power lines can either be of some power adapter or in-house power source.

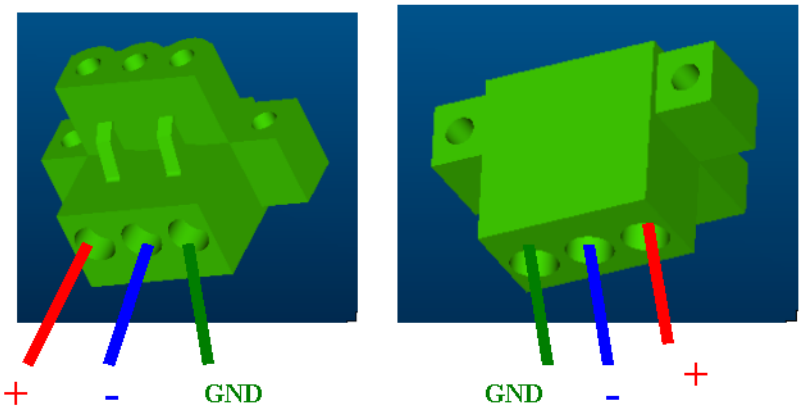


***Figure 2.3: Power Connector and Power Lines***

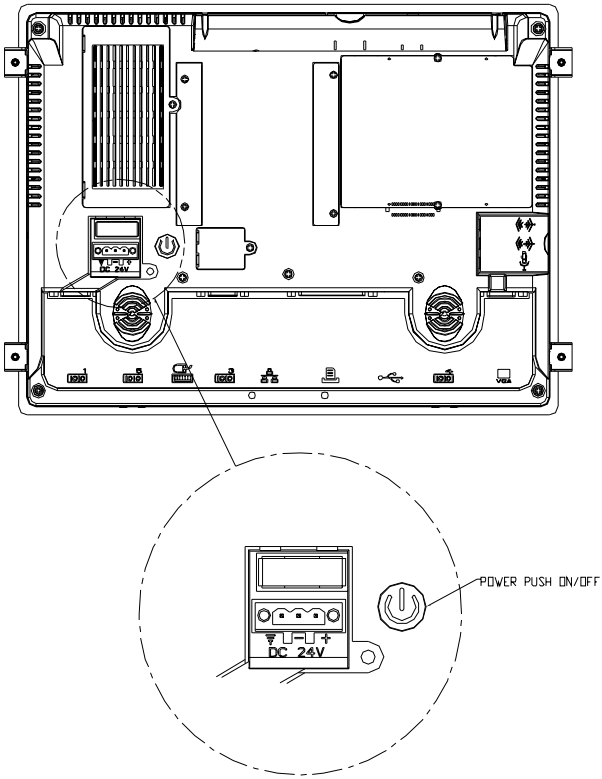


***Figure 2.4: Pin Assignments on the Power Receptor and Power Button***

- Step 4: Plug the power lines into the system power receptor.
- Step 5: Push the power button to power on the system as shown in figure 2.4.
- Step 6: Calibrate the touchscreen. Please go to “Start”, ”Programs”,‡”PenMount DMC9000 Utilities”->”Control Panel” as shown in figure 2.5. Then, click the tab “Calibrate” to calibrate by selecting standard calibration or advanced calibration.

Note *This calibration is for Windows 2000. If your operating system is Windows CE .NET, the detailed procedure is described in section 4.1.4.*

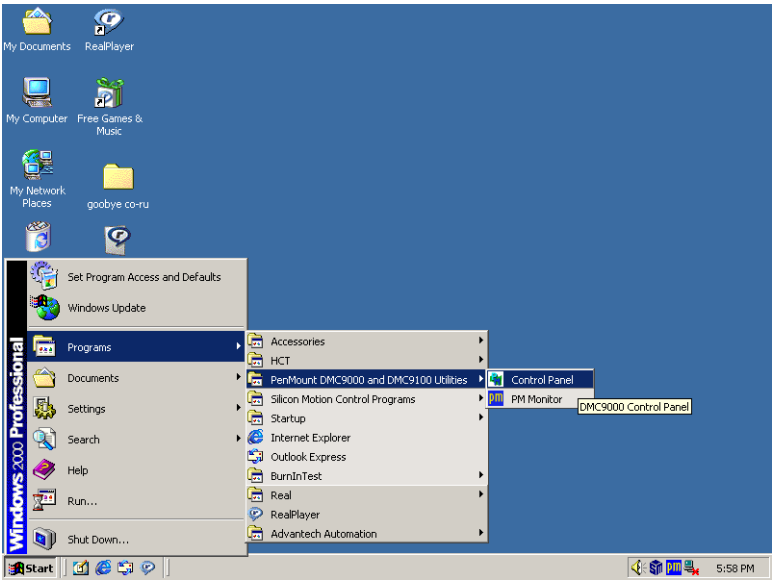


*Figure 2.5: Touch Screen Calibration-1*

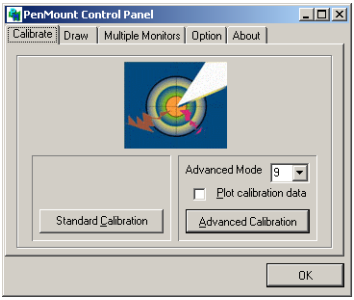


*Figure 2.6: Touch Screen Calibration-2*

CHAPTER 3

# System Engine

# Chapter 3 System Engine

Mainboard Connector and Jumper Setting List

| Label | Function |
|---|---|
| CN1 | COM3 |
| CN2 | COM4 |
| CN3 | POWER CONNECTOR |
| CN4 | BATTERY CONNECTOR |
| CN5 | COM5 |
| CN6 | AUDIO LINE IN |
| CN7 | SPEAKER CONNECTOR |
| CN9 | AUDIO MIC IN |
| CN10 | AUDIO OUT |
| CN11 | PC/104 CONNECTOR (2*32) |
| CN12 | PC/104 CONNECTOR (2*20) |
| CN13 | COM1 |
| CN14 | LAN CONNECTOR |
| CN15 (A,B) | CARDBUS SLOT |
| CN16 | PC/104-PLUS CONNECTOR |
| CN19 | PRIMARY IDE CONNECTOR |
| CN20 | COMPACT FLASH CONNECTOR |
| CN21 | LPT CONNECTOR |
| CN22 | PS/2 CONNECTOR |
| CN23 | TDM CONNECTOR |
| CN24 | VGA CONNECTOR |
| CN25 | FLAT PANEL DISPLAY CONNECTOR |
| CN27 | INVERTER CONNECTOR |
| CN30 | FLAT PANEL DISPLAY CONNECTOR<br>(FOR 48 BITS PANEL) |
| UJ1 | USB CONNECTOR |
| UJP1 | INTERNAL USB 1.1(1*4) |
| J1 | CLEAR CMOS JUMPER |
| J2 | POWER BUTTON |
| JP3 | DDR CONNECTOR |
| JP2 | RESET |
| JP7 | T/S CONNECTOR |
| JP8 | INTERNAL RS-232 |
| FS1 | FUSE CONNECTOR |

CHAPTER 4

# Windows CE

This chapter shows how to use Windows CE with TPC-1260G.

Sections include:

- TPC Utilities
- Networking
- Application Program Development

# Chapter 4  Windows CE

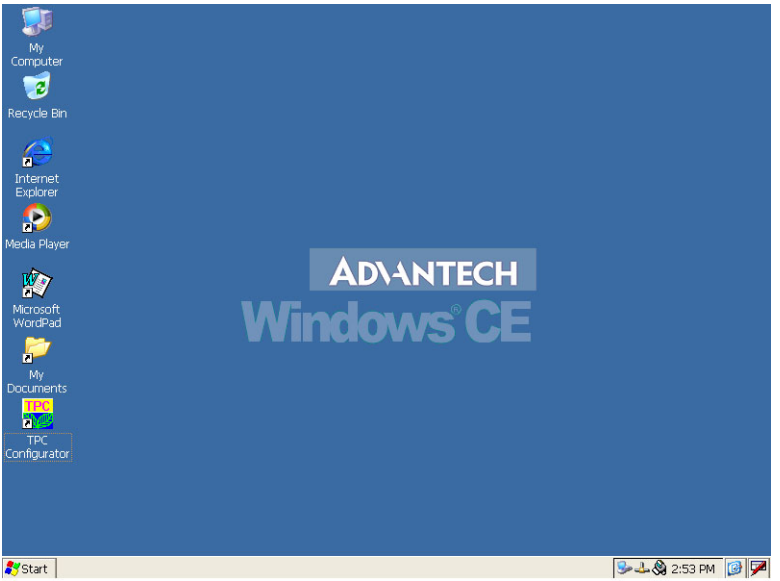


***Figure 4.1: Windows CE for TPC-1260G***

*Note* *The default Windows CE version for TPC-1260G is the English version. Please contact local Advantech representatives for local language support.*

## 4.1 TPC Utilities

There are several utilities built into the Windows CE .NET of TPC series.

### 4.1.1 Soft-Keyboard

TPC-1260 provides a software keyboard built into the standard TPC-1260 Windows CE .NET OS. Upon boot-up, a small keyboard icon will appear on the status bar. Tap this icon with the stylus to activate/hide this Soft-Keyboard.

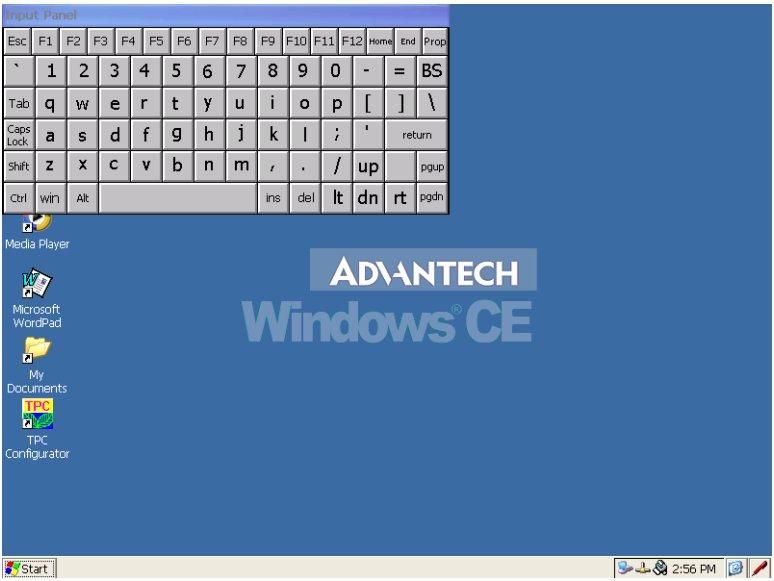


*Figure 4.2: Soft-Keyboard*

### 4.1.2 LCD Display Tuning

The display setting lets users control the backlight. Please go to “Start”, ”Setting”, ”Control Panel”, ”Display” as shown in Figure 4.3.

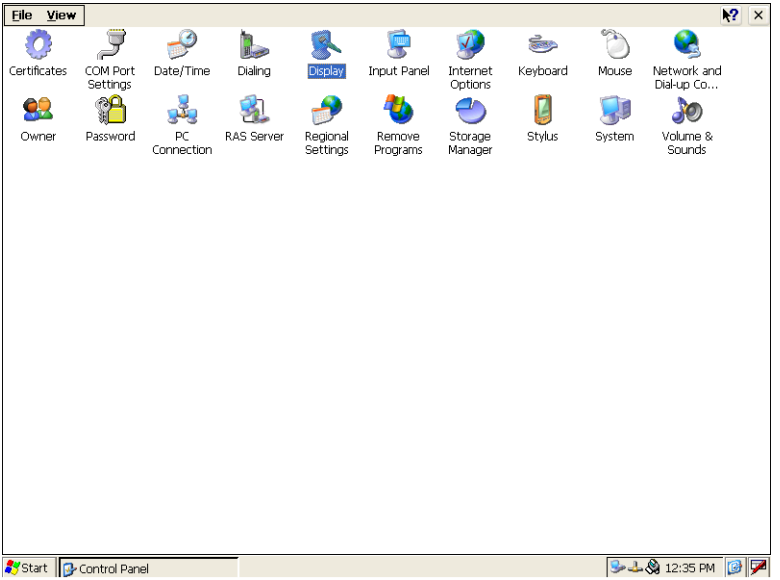


***Figure 4.3: Display***

After clicking the display icon, the display properties will appear as shown in Figure 4.4.

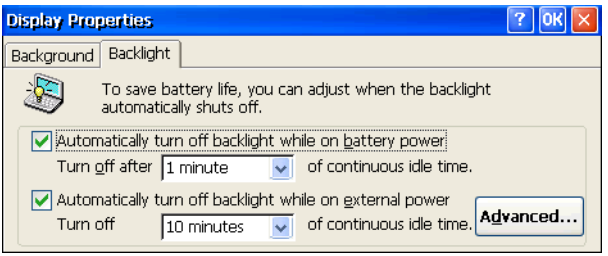


***Figure 4.4: Display Properties***

*Note* *TPC-1260G doesn't provide a screen saving function. It will not turn off backlight even though the user enables the above settings. This feature will be enabled in the coming version.*

Click the “Advanced” button to activate the advanced backlight utility as shown in Figure 4.5. Click the “+” button to increase the LCD brightness, or the “-“ button to decrease the LCD brightness. You can also click the slider, hold it, and move it to the designated value and then release the button.

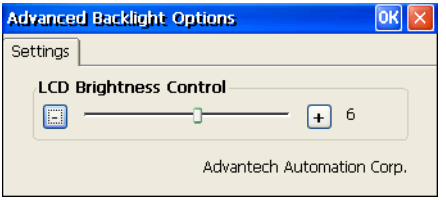


*Figure 4.5: Advanced Backlight Utility*

### 4.1.3 TPC Configurator

The TPC configurator is a tool for users to configure the setting in the Windows CE .NET platform of TPC-1260. It contains four tab pages including general, network, watchdog and misc. Execute it by clicking the TPC configurator icon on the desktop.

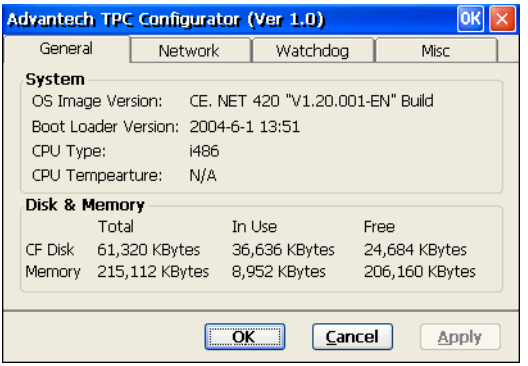


*Figure 4.6: TPC Configurator*

**General Page**

This page displays the basic system information. There are two main parts: system and memory. The system shows the version of the OS image and the CPU type. Memory includes the total capacity, the usage and the currently available capacity of the DRAM and the CompactFlash card.

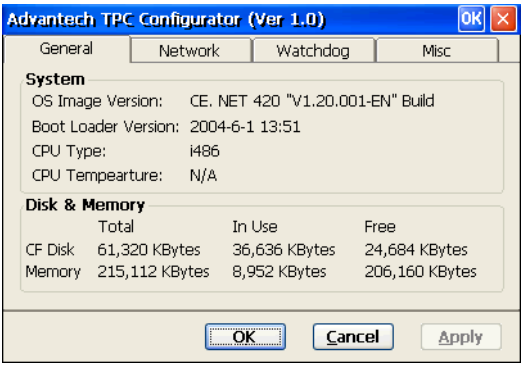


*Figure 4.7: General*

### Network

This page shows information about the active network adapter. You can select the network adapter from the combo box as shown in Figure 4.7. Click the "Renew" button to release the current IP and retrieve the new IP. The "Ping" button is used to test the connection with the specified IP address.

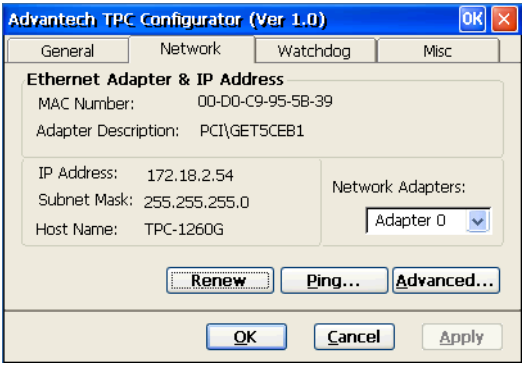


*Figure 4.8: Network Utility*

To get more detailed IP information click "Advanced...". This will display the default gateway, DHCP server, WINS and DNS server addresses as shown in Figure 4.8 below.

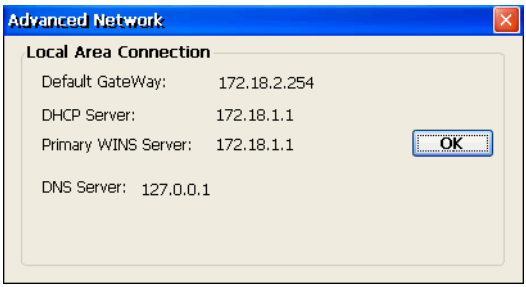


*Figure 4.9: Advanced Network*

### Watchdog Timer

A watchdog timer automatically resets TPC-1260G if the system freezes. A program that does not respond in time will make the watchdog restart the machine automatically. This is useful for systems that are not frequently monitored, but need to be restarted quickly if anything is wrong.

The watchdog timer will only be active if a time span is selected and the watchdog timer is enabled. When the watchdog is enabled, there is a "NO" reset signal periodically sent to the watchdog hardware. If the system freezes, the "NO" reset signal will not reach the watchdog hardware and the system will reset. If the "Test" button is pressed, the watchdog will act as if the machine is frozen and reboot it after the watchdog response time. If the machine reboots as expected after the watchdog response time, the watchdog is proven to be working properly.

The response time can be set with a combo box as shown below.


*Figure 4.10: WatchDog Timer Setting*

*Note* *When the watchdog is enabled, if the user clicks the "**TEST**" button, then NO resetting signal will be sent to the watchdog hardware on board periodically, and the watchdog will suppose the machine to be deadlocked and reboot it in the watchdog response time. If the machine reboots as expected in the watchdog response time, the watchdog is proved to be working properly.*

**Misc**

There are several functions provided in the Misc page as shown in the figure below.

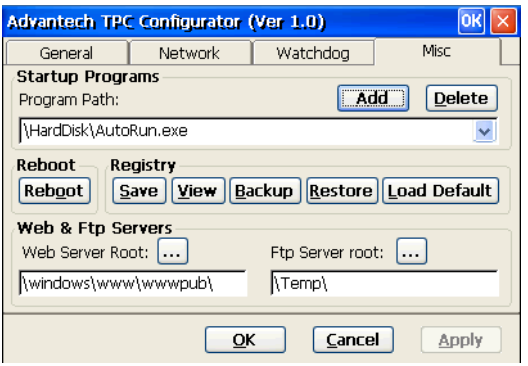


***Figure 4.11: Misc Page***

Startup Programs: You can easily setup startup programs. The programs listed in the combo box will be automatically executed after the system has successfully booted. Click the "Add" button to insert a file to the startup. If you would like to remove the file from the startup or the combo box, please click "Delete".

*Note* *Do NOT try to add a Non-Executable file into the startup program.*

Reboot: Reboot TPC-1260G by clicking the “Reboot” button. Once this button is clicked, the dialog below will be displayed.

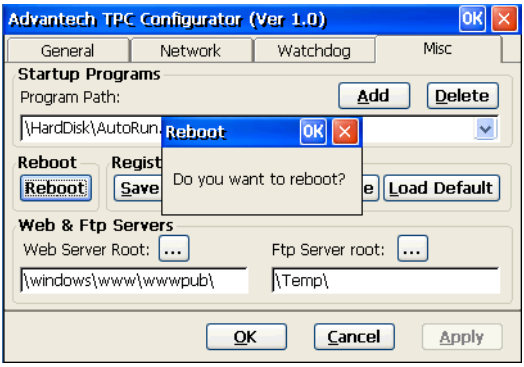


***Figure 4.12: Reboot***

There are two additional ways to reboot the system. One is to click the small machine icon on the status bar and the other is to execute a command, reboot.exe, through the command line program.

Registry: Click the “Save” button to save the registry to a flash card. Please see Figure 4.13. Also, click the “View” button to view, edit, create, or delete registry information as shown in figure 4.14.

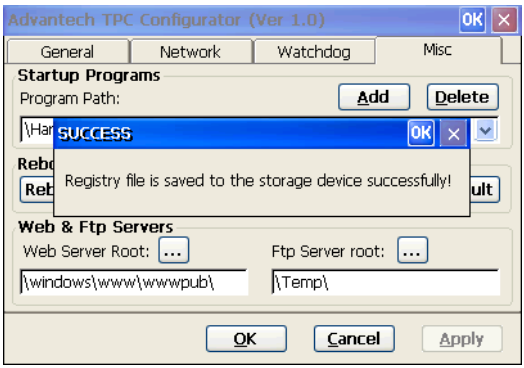


***Figure 4.13: Successful Registry Saving***

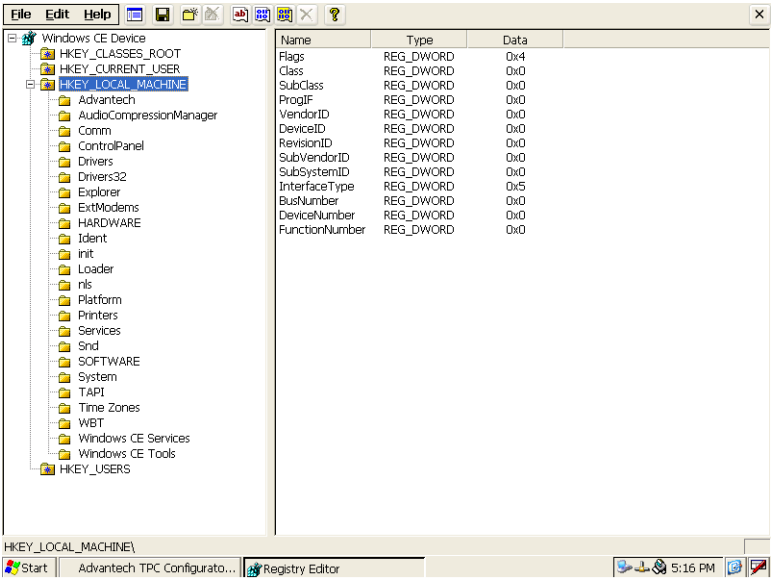


***Figure 4.14: Registry Editor***

The "Backup" button is for backup of registry data. It will save the registry data in the selected folder. The window, "Browse for Folder", will display as Figure 4.15 after the "Backup" button is clicked. The default filenames are AdvSystem.hv and AdvUser.hv. If the two files already exist in the selected folder, the pop-up window will show and ask whether the user want to replace the file.

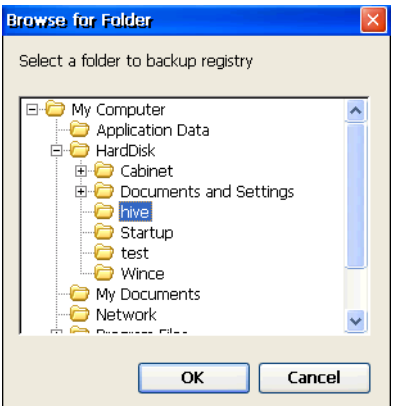


***Figure 4.15: Registry Backup***

If you want to restore the registry data, press the “Restore” button and then select the folder where the registry data was saved. A reboot is required after the registry data is restored.

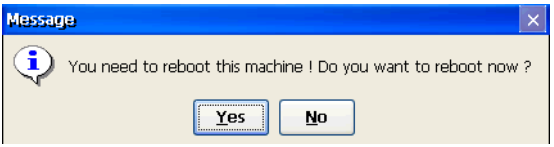


***Figure 4.16: Registry Restore***

If you want to have the default contents of the registry, please click the “Load Default” button. It will load the default registry into ROM. A reboot is required as well.

Web Server Root: You can input the root path of the web server here. The root path will only be effective if the machine has been rebooted after this operation.

FTP Server Root: Input the root path of the ftp server here. The root path will only be effective after the machine has been rebooted.

*Warning* *Do NOT try to key the folder name directly into the text box. If the CompactFlash card is renamed to some name that beyond the given list, there will be irreversible problems for users’ application program setting.*

### 4.1.4 Advantech Tools

There are several useful programs in the Advantech program. Please go to “Start”, “Programs”, “Advantech” to run the tools as shown in Figure 4.17. The tools include: “ActiveSync”, “Registry Editor”, “Registry Saver”, “Remote Display Application”, "Touch Screen Calibration", “TPC CE Notepad”, “TPC Configurator” and “TPC Version Information”.

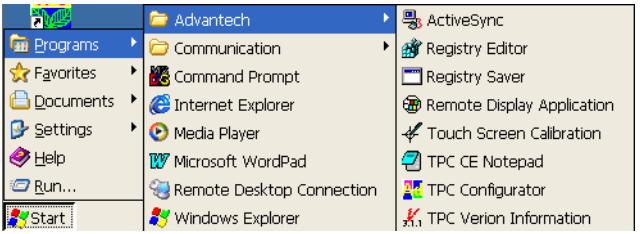


*Figure 4.17: Advantech Tools*

**TouchScreen**

The touch screen calibration can be executed by opening “Start”, “Programs”, “Advantech”, “Touch Screen Calibration” as shown in Figure 4.18.

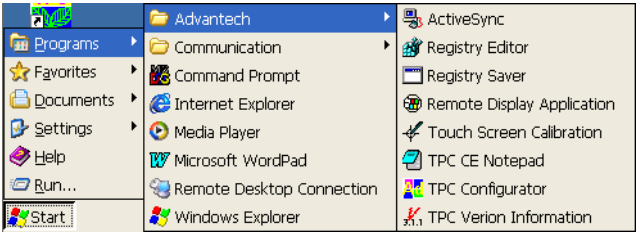


*Figure 4.18: Touch Screen Calibration*

*Note* *Do NOT try to calibrate with the stylus in the control panel.*

As shown in the Figure 4.19, the screen will turn to white. An arrow appears at the upper end of the screen. Use a stylus or finger to touch the end point. When the end point is touched, the arrow moves to different positions of the screen. Continue to touch the end point of the arrows to complete the calibration.

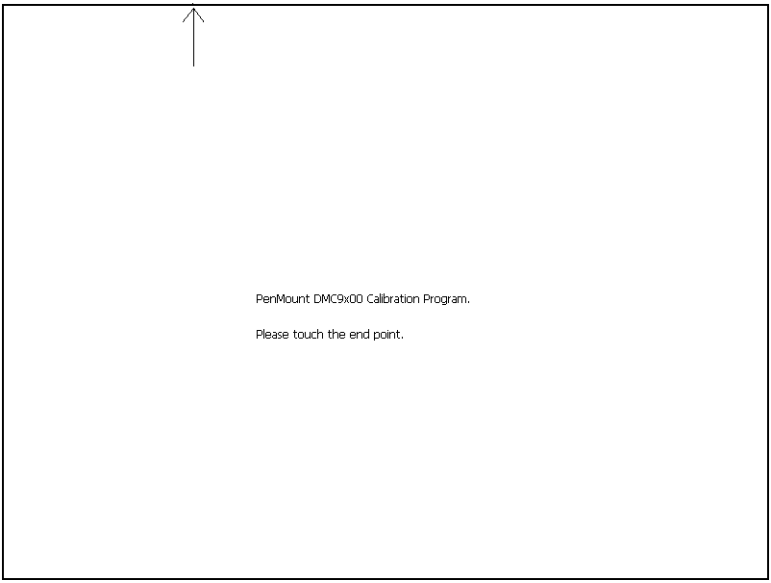


***Figure 4.19: Touch Screen Calibration Utility***

**ActiveSync**

This program synchronizes data and monitors the connection between TPC-1260 and a host computer. Click the "Active Sync" button to make an ActiveSync connection. For more information on how to make an ActiveSync connection, please refer to the "ActiveSync User Guide of TPC".

**Registry Editor**

When the Registry Editor is executed as shown in the Figure 4.14, the user can use this program to view, edit, create, delete or save registry data.

**Registry Saver**

This is to save the system registry settings. The registry can also be saved through the command-line environment. Type the command regsave.exe, or regsave.exe- s for the silence mode.

### Remote Display Application

Remote Display Application is used to display a Windows CE device screen on a remote desktop. It works with the Windows CE Remote Display Host application. The connection is through the network, thus the network function of the host machine and TPC-1260G must work properly. Users can see the display of TPC-1260G and control TPC-1260G from a host machine via the remote display application.

Remote Display Host Application (cerhost.exe) must be executed on a remote host desktop as shown in the Figure 4.20.

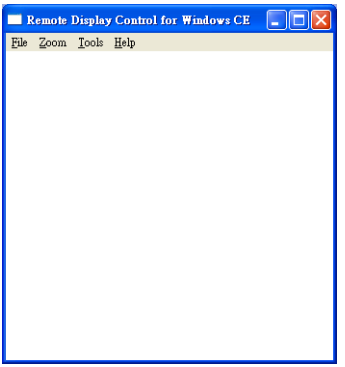


***Figure 4.20: Remote Display Host Application***

In addition, users must run Remote Display Application on TPC-1260G as shown in Figure 4.21. Click the "Connect" button and key in the host name or IP address as shown in Figure 4.22.

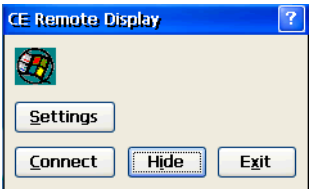


***Figure 4.21: Remote Display Application***

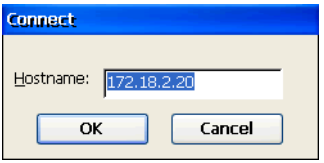


*Figure 4.22: Connect*

Once the connection is successfully established, you can see the display of TPC-1260G and control it from the host machine as shown in Figure 4.23.

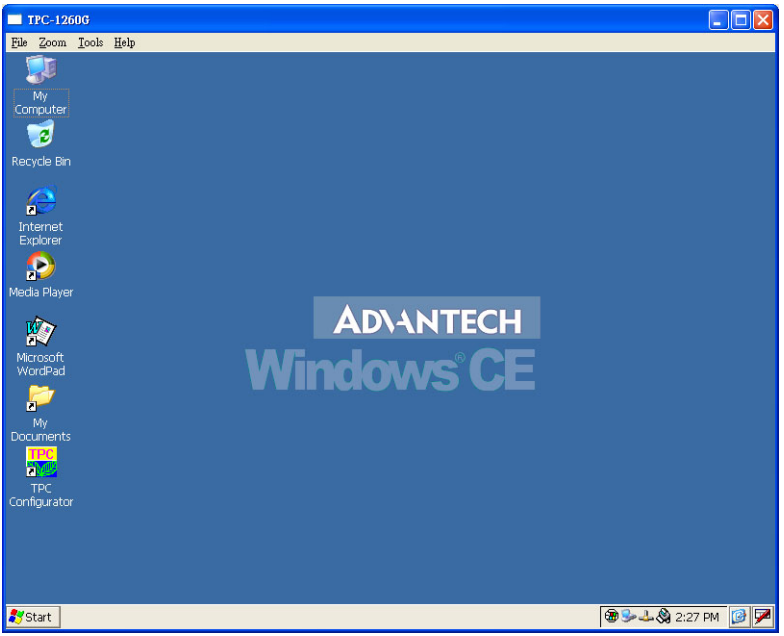


*Figure 4.23: Remote Display Host Application with the display of TPC-1260G*

### TPC CE Notepad

TPC CE Notepad is a text editor as shown in the Figure 4.24.

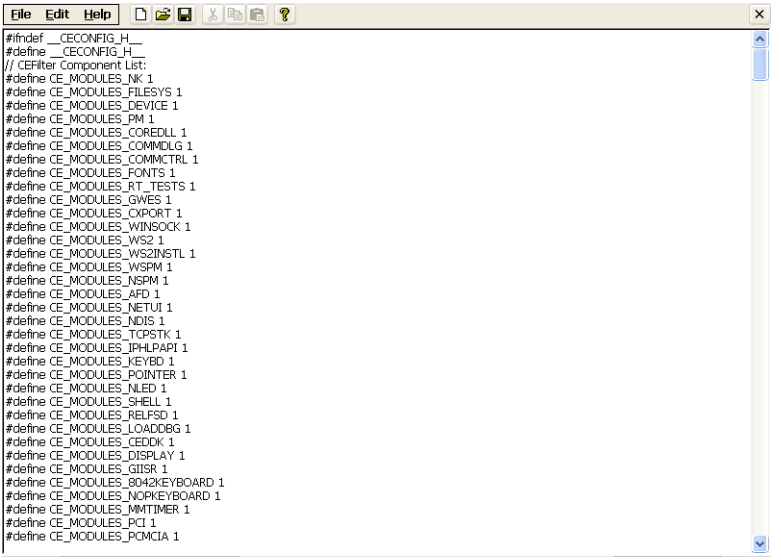


***Figure 4.24: TPC CE Notepad***

### TPC Configurator

TPC Configurator is an integrated utility to configure the basic settings of TPC-1260G. Please refer to section 4.1.3.

### TPC Version Information

TPC Version Information shows the version information of the operating system in TPC-1260G as shown in Figure 4.25.

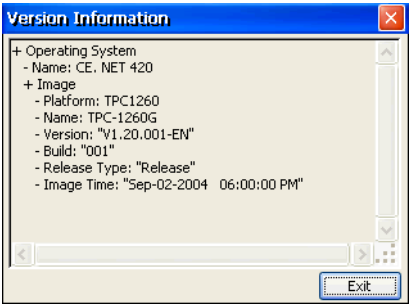


***Figure 4.25: TPC Version Information***

## 4.2 Networking

### 4.2.1 Network via Ethernet

This section states how to configure the Ethernet port of TPC series properly. The procedure is listed step by step below.

1. Press 'Start' in the task bar of Windows and select "Setting" -> "Networking and Dial-up connections".

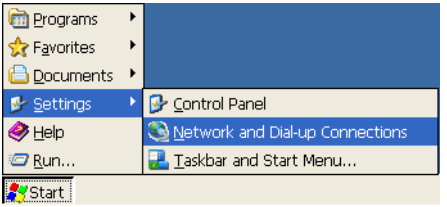


*Figure 4.26: Network and Dial-up Connections*

2. A window that shows all available connections will pop up. Double click the icon that you want to configure the settings for. For example, double click the PCI-GETCEB1 icon to configure.

*Note* *PCI-GETCEB1 is the device name of the network device on the TPC-1260G*

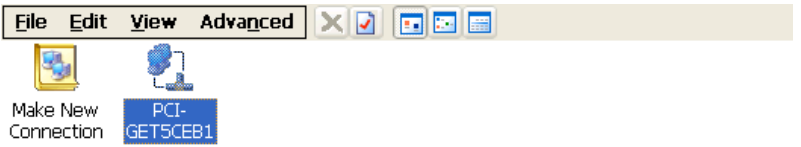


*Figure 4.27: Selected Connection*

3. Select the “IP Address” tab.

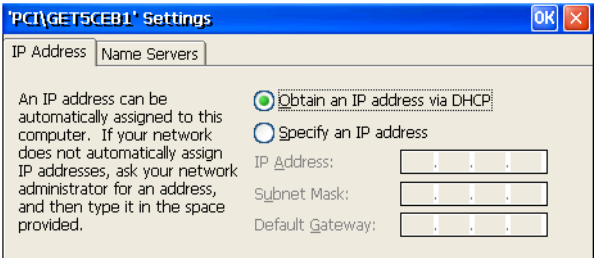


***Figure 4.28: Setting IP Address***

4. Select “Name Server” tab.

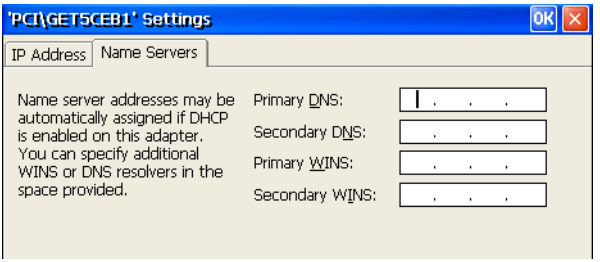


***Figure 4.29: Setting Name Servers***

5. Press ‘Start’ in the task bar of Windows and select “Run”. Execute “regsave” to save the registry settings to the storage card.

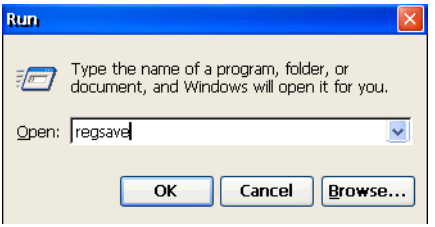


***Figure 4.30: Save Registry***

### 4.2.2 Network via Serial Port

This section introduces how to build the connection between a TPC product and a host PC via Microsoft ActiveSync.

**ActiveSync Setting Procedure**

1. Insert the TPC CD into the CD-ROM drive of the host PC.
2. Install the TPC software development kit for eVC++.
3. Install Microsoft ActiveSync.
4. Connect the host computer and TPC with a null modem cable (included in the package). Make sure the connection is solid on both RS-232 serial ports.
5. Setup the communication environment of the TPC and the host

**Setup the Communication Environment of TPC**

1. Press “Start”->”Setting”->”Control Panel” and “PC Connection”

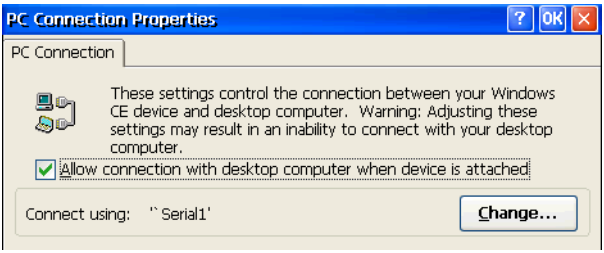


*Figure 4.31: Set PC Connections*

2. Select your network communication. For example, change the network communication to “Serial1”.

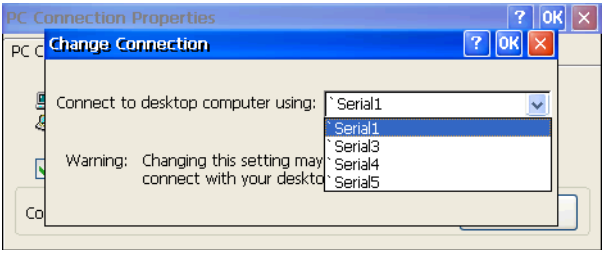


*Figure 4.32: Change Connection*

3. Please press ‘Start’ in the task bar of Windows and select “Run”. Execute “regsave” to save the registry settings to a storage card.

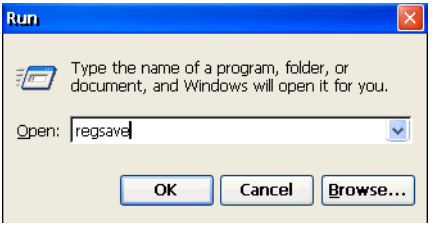


***Figure 4.33: Save Registry***

**Setting the Communication Environment of the Host**

1. Double click the icon for ActiveSync on your host computer.

***Figure 4.34: Microsoft ActiveSync***

2. Select “File”->”Connection Settings”

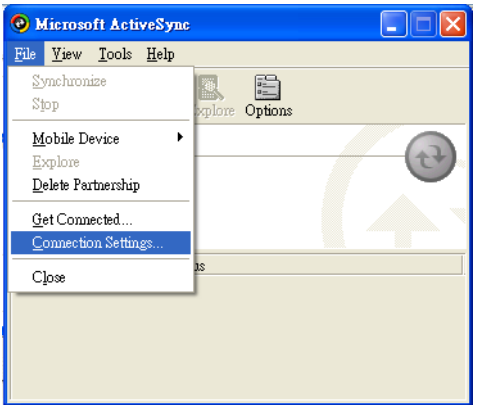


***Figure 4.35: Select Connection Setting***

3. Configure the connection setting.

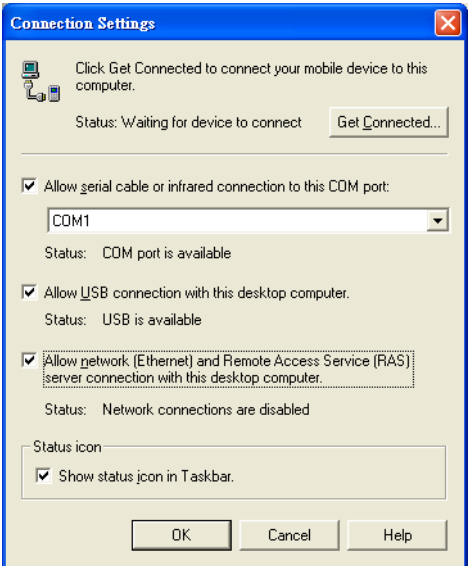


***Figure 4.36: Configure Connection Setting***

4. A window will pop up after you press “Get Connected”.

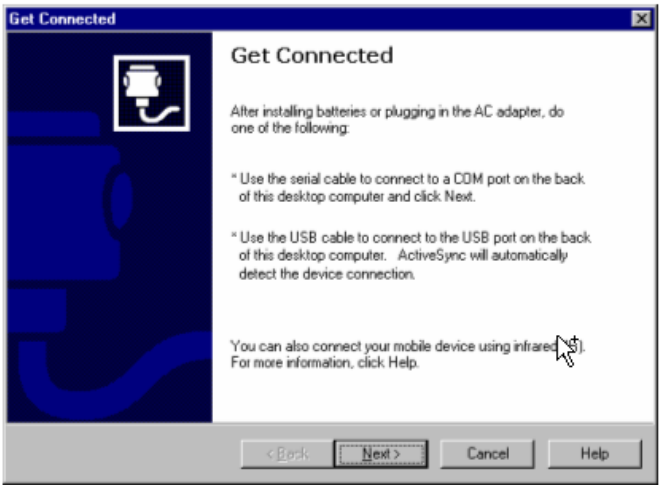


***Figure 4.37: Get Connected***

5. Please run “repllog.exe” on the TPC.

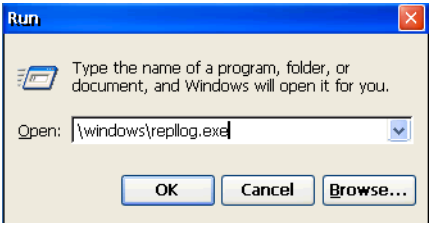


***Figure 4.38: Run Repllog.exe on the TPC***

6. Press the “Next” button on your host computer.

7. The message shown below will display on the TPC once the TPC and the host PC are connected.


***Figure 4.39: Connection on the TPC***

8. Once the TPC and the host PC are connected, a window will pop up as shown below on the host computer. Select “No” and then press “Next”.

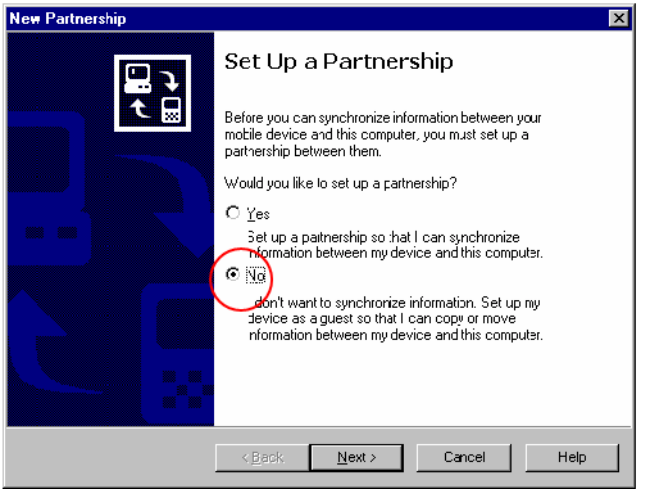


***Figure 4.40: Connection on the Host PC***

9. Select “Explore” in the Microsoft ActiveSync window, the window, Mobile Device, will pop up to display the file resources and information of TPC. For example, you could click the icon “My documents” to see the contents stored in TPC.

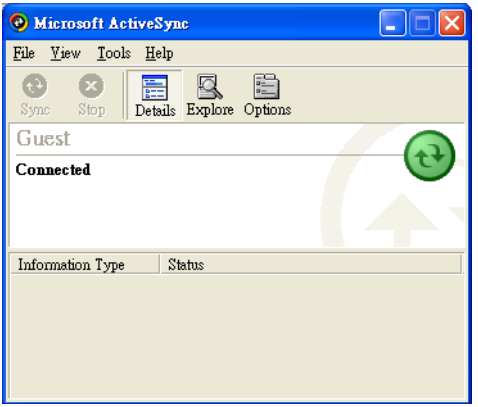


*Figure 4.41: Exploring the TPC*

## 4.3 Application Program Development

### 4.3.1 System Requirements for Developers

The list below are requirements to use Microsoft eMbedded Visual C++ 4.0.

- A desktop computer with a Pentium II-class processor, 450 MHz or faster.
- Microsoft Windows 2000 Professional SP2 or above, Microsoft Windows 2000 Server SP2 or above, or Microsoft Windows XP Professional.
- 96 MB (128 MB recommended) memory for Windows 2000 Professional or Windows XP Professional. 192 MB (256 MB recommended) memory for Windows 2000 Server.
- CD-ROM drive required.
- VGA or higher-resolution monitor. A Super VGA (800 x 600 or larger) monitor is recommended.
- Mouse or compatible pointing device.
- 200 MB hard disk space

.

*Note* *If you choose to install the Common files or Microsoft eMbedded Visual C++ 4.0 on a partition other than the system partition, the figure representing the amount of space required reflects only the amount of space for files being installed on that non-system partition. It does not reflect the total amount of space required to install the entire product. This is because some files must be installed on the system partition, regardless of where other files are installed.*

### 4.3.2 Building Windows CE .NET Runtime

Users can build the Windows CE.NET runtime by the eMbedded Visual tools. This section demonstrates step by step how to develop custom applications.

1. Install Microsoft eMbedded Visual C++: The Microsoft eMbedded Visual C++ tool is a desktop development environment for creating applications and system components for Windows CE .NET-powered devices. This version features new capabilities such as C++ exception handling, Run Time Type Information (RTTI), and a plethora of new debugger functionalities. Before you begin to develop your application, you must install Microsoft eMbedded Visual C++ first.
2. Insert the TPC CD into the CD-ROM of the host PC.
3. Install the TPC Software Development Kit for eMbedded Visual C++ from the support CD-ROM.
4. Install Microsoft ActiveSync from the support CD-ROM.
5. Build the connection between the host and TPC via ActiveSync. For further information about ActiveSync, please refer to section 5.2.2.
6. Execute eMbedded Visual C++.

7. Select “File”->”New” to open a new project. Select your project type in the left side of the window and enter the new project name/ location in the right side of the window.

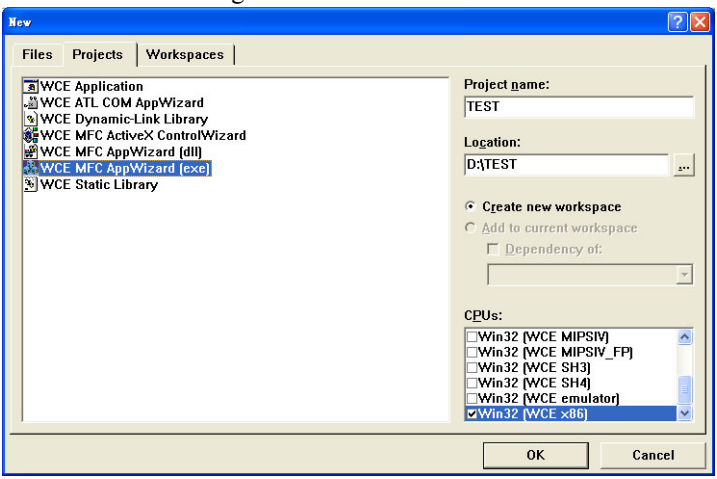


***Figure 4.42: Starting a New Project***

*Note* *For the CPU type, Win32 (WCE X86) must be selected.*

8. Select “TPC1260G” in the main window of embedded Visual C++.

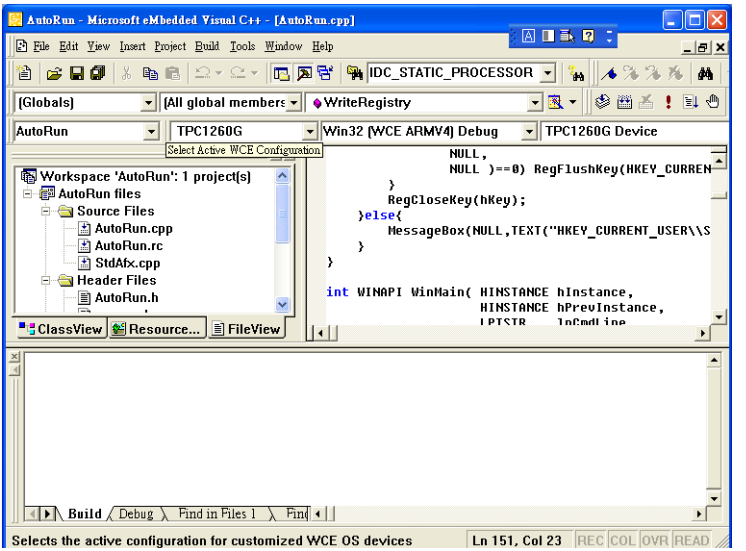


*Figure 4.43: Selecting*

9. After you complete the configuration procedure, you can start to develop your application. Press "Build" to compile your program to an .exe file and download it to TPC.

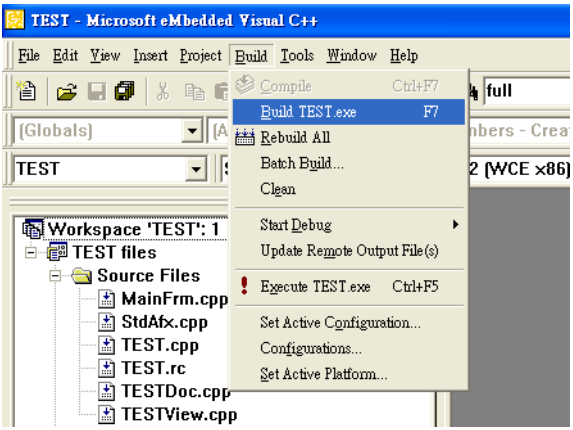


*Figure 4.44: Compiling your Program*

APPENDIX A

# Serial Port Settings

# Appendix A Serial Port Settings

The serial port COM5 on TPC-1260G is adjustable. It can be set to RS-232, RS-422 or RS-485. This port is designed with auto data flow control capability. In other words, the TPC-1260G can automatically detect the data flow direction at this port when the two-wired RS-485 communication is activated. Both the jumper and software settings are required to set the serial port.

## A.1 Jumper Settings

| S1 | RS-232 | RS-422 | RS-485 |
|---|---|---|---|
| 1-16 | ON | OFF | OFF |
| 2-15 | OFF | OFF | ON |
| 3-14 | OFF | ON | OFF |
| 4-13 | ON | OFF | OFF |
| 5-12 | OFF | ON | ON |
| 6-11 | ON | OFF | OFF |
| 7-10 | OFF | ON | ON |
| 8-9 | OFF | ON | ON |

## A.2 Software Setting

This section uses Windows XP as an example to demonstrate how to set the serial port via software. Please open “My Computer”->”Control Panel”->”System”->”Device Manager”->”PCI Communication Port (COM5)”->”Settings” as shown in Figure A.2.

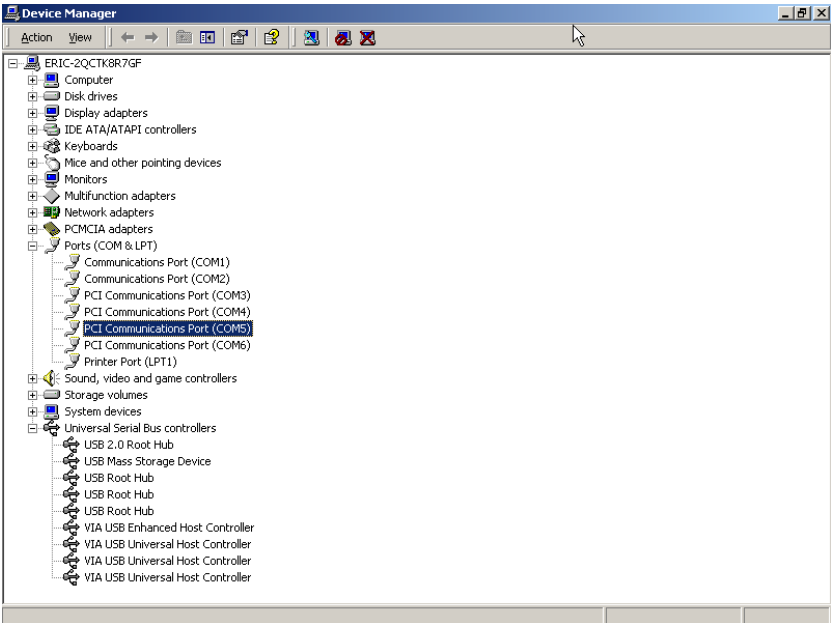


*Figure A.1: Device Manager*

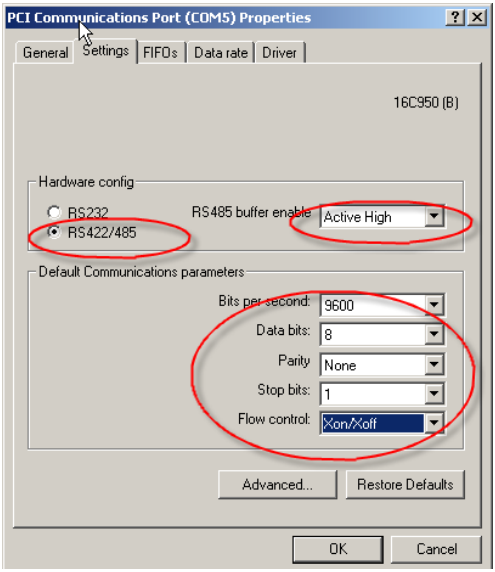


*Figure A.2: COM5 Properties*

APPENDIX B

# Fuse Specifications

# Appendix B  Fuse Specifications

## B.1  Fuse Specifications

**Rating:** 250 V AC, 5 A

**Size:** 5 x 20 mm

*Note* *For your protection, the fuse is set to break if the input voltage exceeds 33 V DC.*

## B.2  Fuse Replacement

Step 1: Remove the fuse cover

Step 2: Replace the damaged fuse with a new one

Step 3: Replace the fuse cover

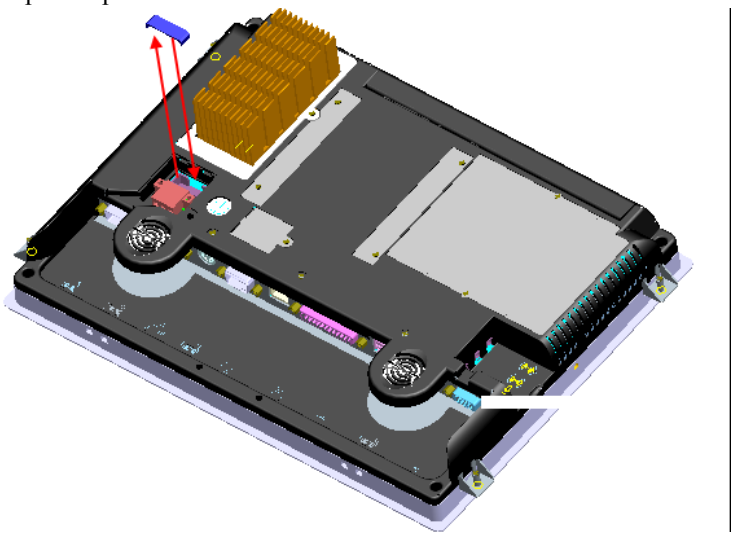

***Figure B.1: Fuse Replacement***

*Warning* *Do NOT replace the fuse unless it is damaged.*
*Do NOT replace the fuse with a different rated fuse.*

APPENDIX C

# Watchdog Timer Programming

# Appendix C Watchdog Timer Programming

There is a built-in watchdog timer in Windows CE 4.2 for TPC-1260G. You can access it through the WIN32 API. TPC-1260G provides a WDT driver to allow users to enable/disable the watchdog timer. The driver name is "WDT1:". Programmers must open this driver before using the resources. Then programmers can use DeviceIOControl functions to enable/disable the watchdog timer. The introduction below includes DeviceIOControl, the definition of the parameter and an example.

## C.1 DeviceIOControl

This function sends a control code directly to a specified device driver, causing the corresponding device to perform the specified operation.

BOOL DeviceIoControl(
HANDLE hDevice,
DWORD dwIoControlCode,
LPVOID lpInBuffer,
DWORD nInBufferSize,
**LPVOID lpOutBuffer,**
DWORD nOutBufferSize,
LPDWORD lpBytesReturned,
LPOVERLAPPED lpOverlapped );

### C.1.1 Parameters

- hDevice
  [in] Handle to the device that is to perform the operation. Call the CreateFile function to obtain a device handle.
- dwIoControlCode
  [in] Specifies the control code for the operation. This value identifies the specific operation to be performed and the type of device on which the operation is to be performed. No specific values are defined for the dwIoControlCode parameter. However, the writer of a custom device driver can define IOCTL_XXXX control codes, per the CTL_CODE macro. These control codes can then be advertised, and an application can use these control codes with DeviceIoControl to perform driver-specific functions.
- lpInBuffer
  [in] Long pointer to a buffer that contains the data required to perform the operation. This parameter can be NULL if the dwIoControlCode parameter specifies an operation that does not require input data.
- nInBufferSize
  [in] Size, in bytes, of the buffer pointed to by lpInBuffer.
- lpOutBuffer
  [out] Long pointer to a buffer that receives the operation.s output data. This parameter can be NULL if the dwIoControlCode parameter specifies an operation that does not produce output data.
- nOutBufferSize
  [in] Size, in bytes, of the buffer pointed to by lpOutBuffer.
- lpBytesReturned
  [out] Long pointer to a variable that receives the size, in bytes, of the data stored into the buffer pointed to by lpOutBuffer. The lpBytesReturned parameter cannot be NULL. Even when an operation produces no output data, and lpOutBuffer can be NULL, the DeviceIoControl function makes use of the variable pointed to bylpBytesReturned. After such an operation, the value of the variable is without meaning.
- lpOverlapped
  [in] Ignored; set to NULL.
- Return Values
  Nonzero indicates success. Zero indicates failure. To get extended error information, call GetLastError.

## C.2 How to Use the Control Code

There are 6 control codes for the operation codes in the WDT driver.

### C.2.1 IOCTL _WDT_ENABLE:

Enables the watchdog timer of your application. By default, if the watchdog timer is enabled, the WDT driver will automatically trigger itself after the specified period and your application does not need to trigger the watchdog timer.

lpInBuffer: unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

### C.2.2 IOCTL _WDT_DISABLE:

Disables the watchdog time of your application.

lpInBuffer : unsed.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

### C.2.3 IOCTL_WDT_STROBE:

Triggers the watchdog. If your application uses IOCTL_WDT_ENABLE to enable the watchdog first and then sends IOCTL_WDT_REBOOT to the WDT driver, your application must trigger the watchdog once during the watchdog timer period. If your application has not triggered at the specified period, the device will reboot automatically.

lpInBuffer: unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

### C.2.4 IOCTL_WDT_GETTIMEOUT:

Gets the Watchdog time setting.

lpInBuffer: unused.

nInBufferSize: unused.

lpOutBuffer: The DWORD points to your watchdog time setting. The Watchdog time setting is just a number. 0 means 2 seconds, 1 means 5 seconds, 2 means 10 seconds, 3 means 15 seconds, 4 means 30 seconds, 5 means 45 seconds and 6 means 60 seconds. The default setting is 5 seconds.

nOutBufferSize: unused.

### C.2.5 IOCTL_WDT_SETTIMEOUT:

Sets the watchdog time setting.

lpInBuffer : The DWORD points to your watchdog time setting. The watchdog time setting is just a number. 0 means 2 seconds, 1 means 5 seconds, 2 means 10 seconds, 3 means 15 seconds, 4 means 30 seconds, 5 means 45 seconds and 6 means 60 seconds. The default setting is 5 seconds.

nInBufferSize:.unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

### C.2.6 IOCTL_WDT_REBOOT:

If you want your application to trigger the watchdog by itself, please use IOCTL_WDT_REBOOT to notify the watchdog driver timer (WDT). Otherwise, the WDT will trigger itself automatically.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

## C.3 Examples

```
#define WDT_CODE(ID)
CTL_CODE(FILE_DEVICE_UNKNOWN,ID,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define IOCTL_WDT_ENABLE WDT_CODE (0x900)
#define IOCTL_WDT_DISABLE WDT_CODE(0x901)
#define IOCTL_WDT_STROBE WDT_CODE(0x902)
#define IOCTL_WDT_GET_TIMEOUT WDT_CODE(0x903)
#define IOCTL_WDT_SET_TIMEOUT WDT_CODE(0x904)
#define IOCTL_WDT_REBOOT WDT_CODE(0x905)
// for compatibility reasons, you can define IOCTL as below:
// #define IOCTL_WDT_ENABLE 0x1001
// #define IOCTL_WDT_DISABLE 0x1002
// #define IOCTL_WDT_STROBE 0x1003
// #define IOCTL_WDT_GETTIMEOUT 0x1004
// #define IOCTL_WDT_SETTIMEOUT 0x1005
// #define IOCTL_WDT_REBOOT 0x1006
HANDLE m_hWDT=NULL;
TCHAR szClassName[60];
// assign the WDT driver name
wsprintf(szClassName, TEXT("WDT1:"));
// Open the WDT driver
m_hWDT = CreateFile(szClassName, GENERIC_READ
GENERIC_WRITE, 0, NULL, OPEN_EXISTING,
FILE_ATTRIBUTE_NORMAL, NULL);
if ( m_hWDT == INVALID_HANDLE_VALUE ) {
DebugMsg(CString("WDT driver fail"));
return;
}
DWORD dwTemp;
DWORD nIndex=2;
```

```
// Set the Watchdog Timer as 10 seconds. Number 2 means 10 seconds.
DeviceIoControl(m_hWDT, IOCTL_WDT_SET_TIMEOUT, &nIndex,
sizeof(nIndex), NULL, 0, &dwTemp, NULL);
// Enable the Watchdog timer
DeviceIoControl(m_hWDT, IOCTL_WDT_ENABLE, NULL, 0, NULL,
0, &dwTemp, NULL);
While (1) {
// do your job here.
Sleep(8000);
DeviceIoControl(m_hWDT, IOCTL_WDT_STROBE, NULL,0,
NULL, 0, &dwTemp, NULL);
}
DeviceIoControl(m_hWDT, IOCTL_WDT_DISABLE, NULL, , NULL,
0, &dwTemp, NULL);
CloseHandle(m_hWDT);
```

APPENDIX D

# Accessory Kit Assembly Procedure

This appendix shows how to connect to a CD-ROM via the CompactFlash slot.:

# Appendix D  Accessory Kit Assembly Procedure

## D.1  CompactFlash to IDE Transfer Kit

Please follow this assembly procedure to use the CompactFlash slot to connect with a CD-ROM drive.

1. Connect the IDE cable to the adapter board.

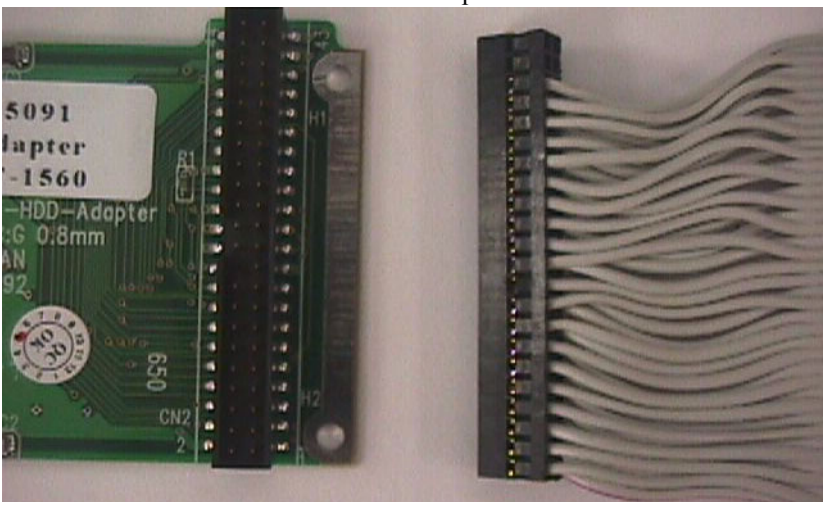


***Figure D.1: Adapter Board and IDE Cable***

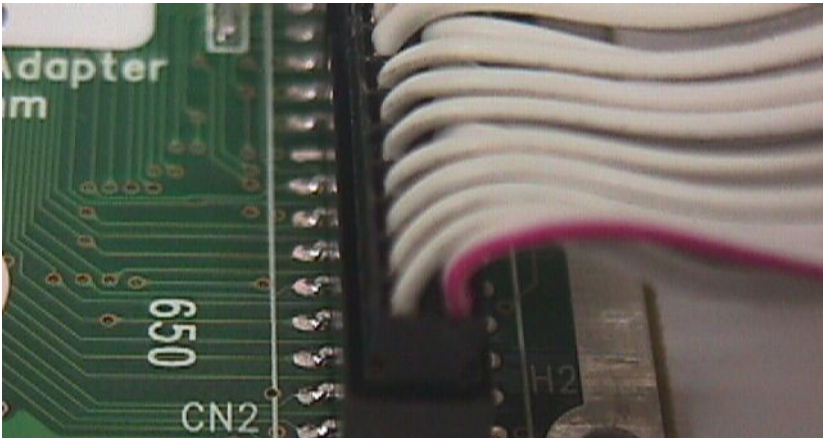


***Figure D.2: Connect the Adapter Board with the IDE Cable***

*Note* *Pin 1 is marked red*

2. Insert the adapter board into the CompactFlash slot.

***Figure D.3: CompactFlash Slot***

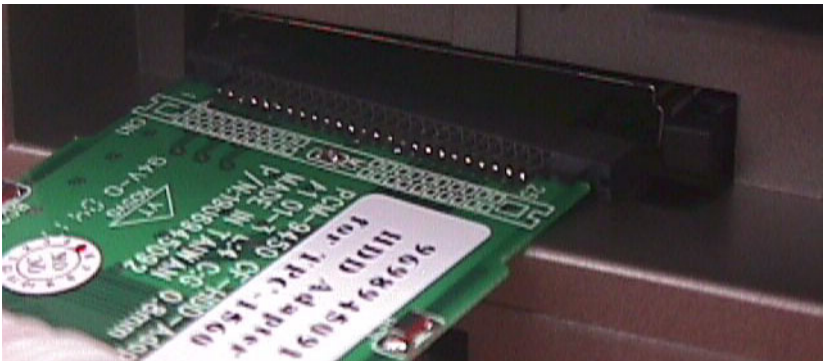

***Figure D.4: Insert the Adapter Board into the CF slot***

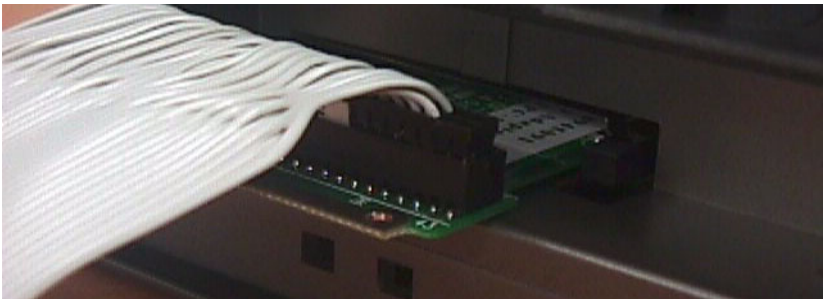

***Figure D.5: Inserted Adapter Board***

Connect the CD-ROM to the adapter board via the IDE cable and then connect the external power line to the CD-ROM.

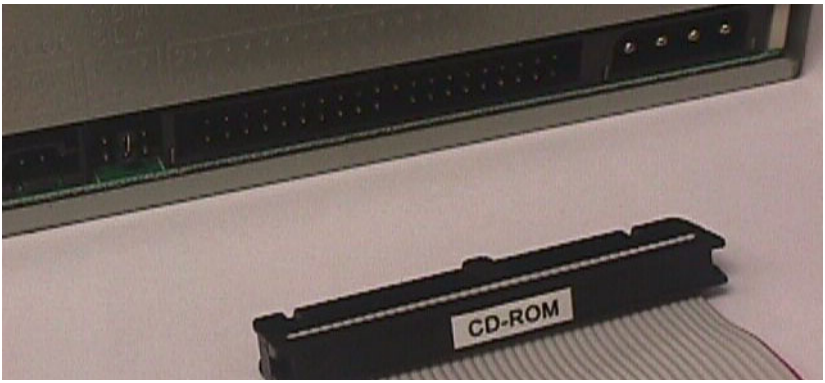


***Figure D.6: Connect the CD-ROM via the IDE Cable***


***Figure D.7: Plug the Power Line into the CD-ROM Drive***

## D.2 USB Driver Installation Notice

It is required to install the service pack if you want to install the USB 2.0 driver on Windows 2000/XP

*Note* *Please make sure Windows 2000 Service Pack 4 is installed before you install the USB 2.0 driver on Windows 2000. Service Pack 1 must be installed on Windows XP before you install the USB 2.0 driver.*