User's Manual

Glaive Pro
RT-660C Series
12"/15"
Fanless POS System

Copyright Notice

Safety and Warranty

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. Do not use liquid or spray detergents for cleaning. Use a damp cloth.

4. For pluggable equipment, the power outlet must be installed 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 could 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 over-voltage.

12. Never pour any liquid into an opening. This could cause fire or electrical shock.

13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

14. If any 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 users 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 UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20°C (-4°F) OR A BOVE 60°C (140°F). IT MAY DAMAGE THE EQUIPMENT.

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Chapter 1

Introduction

RT-660C Introduction

RT-660C is a flagship system of FEC POS solution. The extensible, robust and fanless design makes it a perfect solution for retail and hospitality market.

- ➢ Fanless Solution w/ ATOM 1.6GHz CPU & 945GME Strong Graphic Performance
- ➢ Easy Installation for 2nd Display
- ➢ 12V DC Out for 2nd Display Connection w/o Extra Adaptor Required
- ➢ Easy Maintenance for M/B Box
- ➢ Easy Access to RAM and COM Port Jumpers for Pin 9 RI/5V/12V Selectable
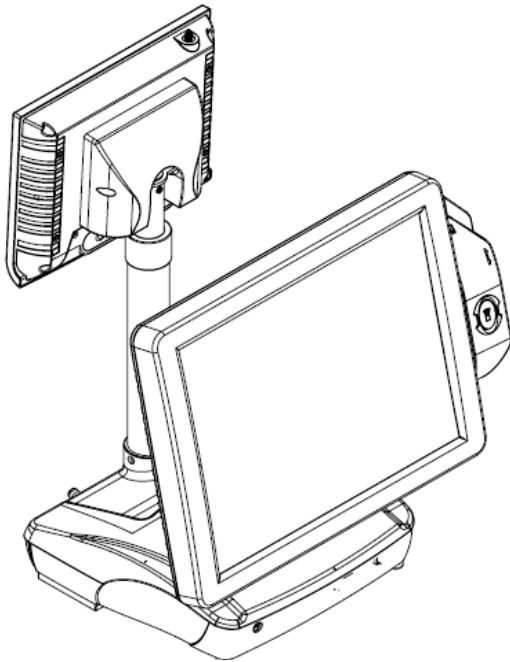
System w/2nd display   *System w/VFD*
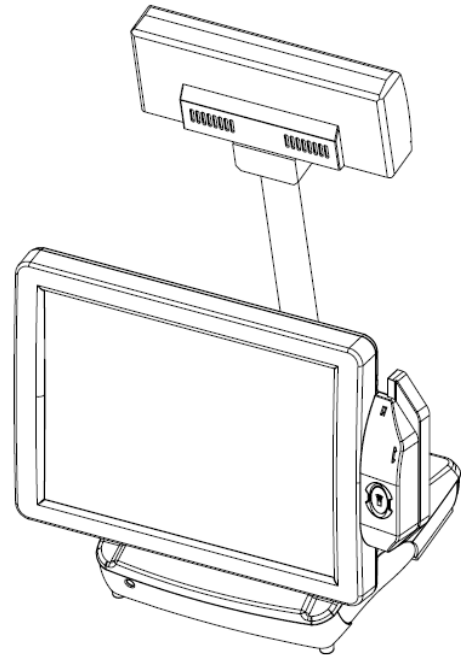
A Quick Tour of RT-660C

Before you start, take a moment to become familiar with **RT-660C**.

1st Display

2nd Display

Power LED

Identification Device

ELO-8"

Identification Device

HDD Location

Power Button

External I/O
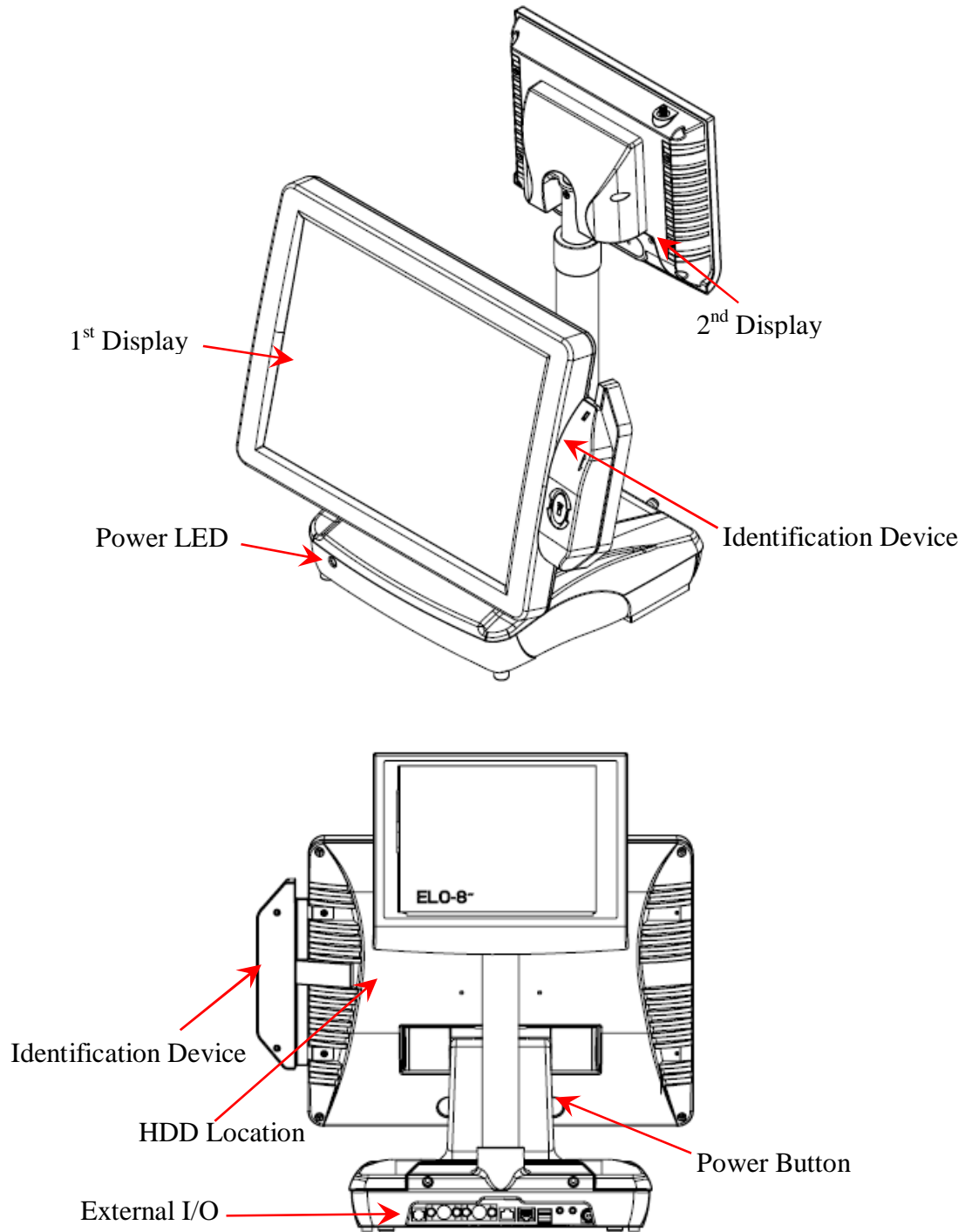
RT-660C Dimension
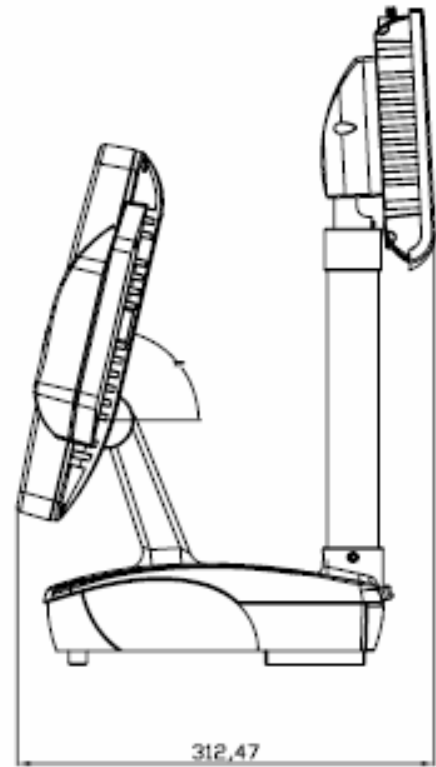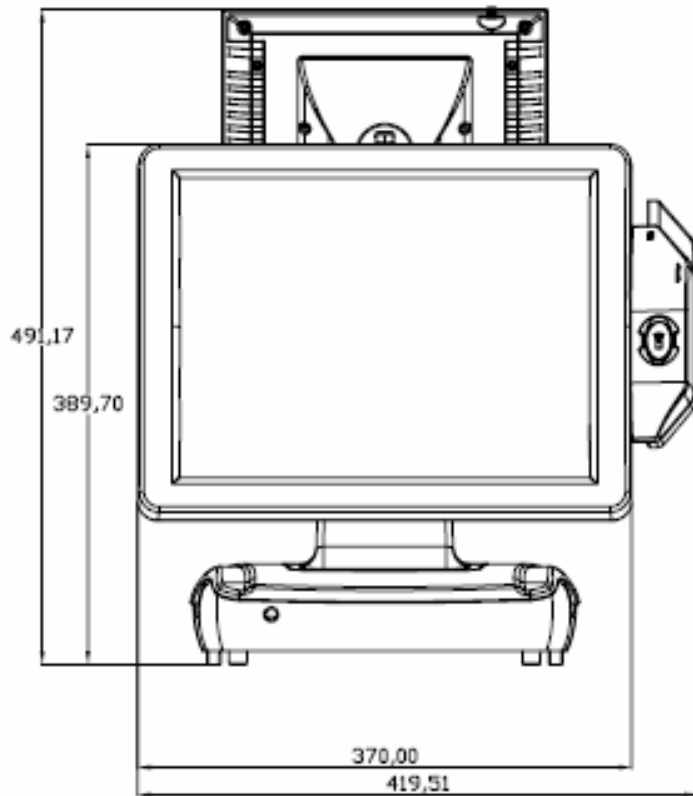
Rear I/O Panel

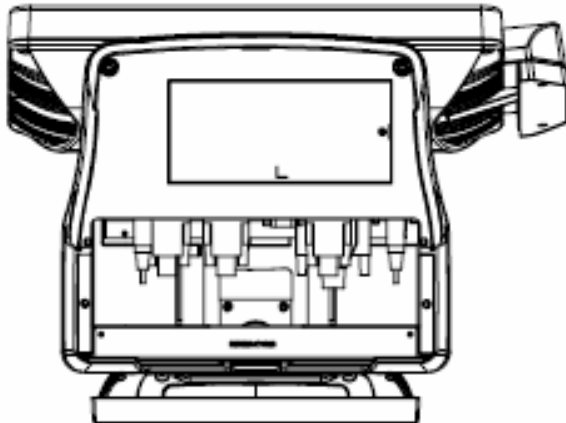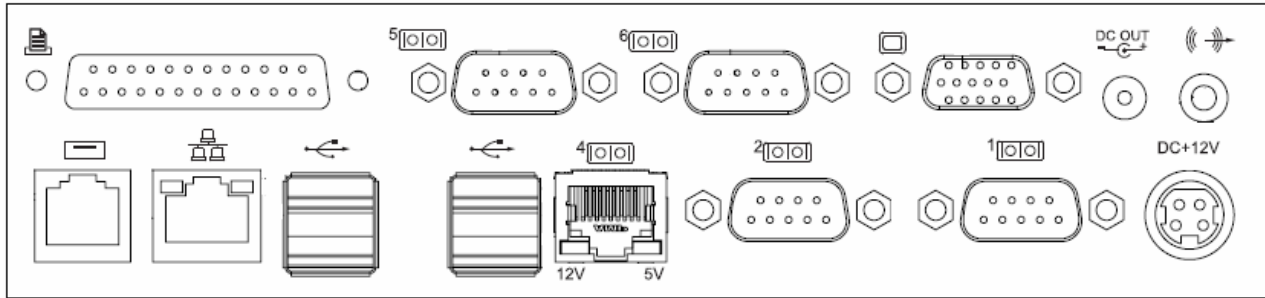| I/O Port	Connector Type	Description
📄	D-sub 25 Connector	Connect a parallel printer or a LPT-type Key Pro device.
5▫ 6▫ 2▫ 1▫	D-sub 9 connector	Connect serial devices such as a serial printer or a fax/modem.
▫	D-sub15 Connector	Connect the monitor or 2nd display to the terminal
DC OUT	12V DC Out Connector	Sustain the power of 2nd display
🔊	Earphone Connector	Connect the speakers to this port
▭	RJ11 Connector	Connect cash drawer, 12V actuation support
品	RJ45 Connector	Connect RT-660C to the Ethernet
⟵	USB Type A Connector	Connect external USB devices
4▫	RJ45 Connector with LED Indicators (5V/12V)	Connect the VFD customer display or serve as an additional serial port (switching cable can be requested by order). (Green LED for 5V/ Orange LED for 12V/ None for RI.)
DC+12V	DC Power Connector	Connect the adaptor to RT-660C

Packing List

- RT-660C Terminal x 1

- 150W Power Adapter x 1

- Driver & Manual CD x 1

- AC Power Cord x 1

- RAM Heatsink Module
  (for RAM height = 30mm type only)

Optional:

- 2nd LCD display (8.4"/12"/15")

- Identification Module (MSR/ RFID/ IC Card Reader/ Fingerprint Selectable)

- VFD Customer Display

- Wireless LAN Module

- 2nd DDRII SO-DIMM RAM (512MB/ 1GB / 2GB)

- RJ45 to DB9 Switching Cable

Chapter 2

Hardware Installation and Upgrading

Warning!

Do not remove the rear cover until you have verified that no power is flowing within the system. Power must be switched off and the power cord must be unplugged. Every time you service the system, you should be aware of this.

2.5" Hard Disk / SSD Drive Installation

1. **Turn off power and remove power cord from the system**

2. **Lay the LCD face down on a flat surface and remove the back cover of the 1ˢᵗ display by releasing 4 screws in the corners**
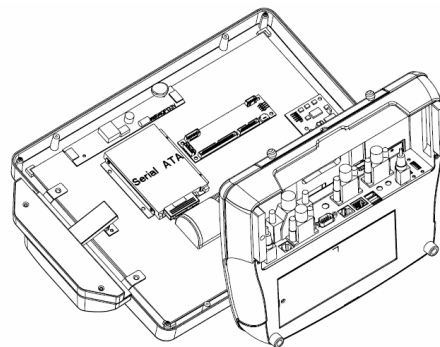
3. **Use the 4 screws provided to mount the HDD into the brackets and connect the SATA cable to the HDD.**
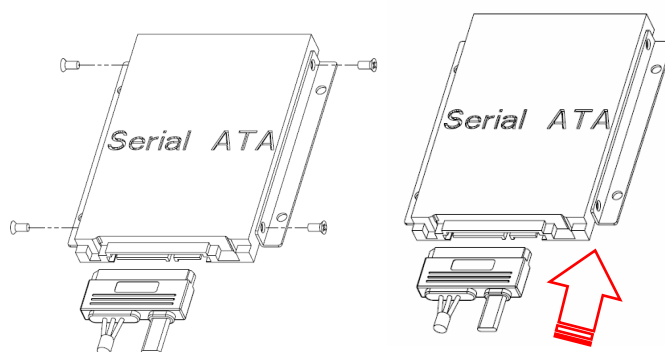
4. **Restore the back cover onto the 1ˢᵗ display.**

5. **Connect the power cord to the system**

Note: If the HDD does not work normally, please refer to **troubleshooting**

2nd Display Installation

1. **Remove the plastic cover above the rear I/O panel**
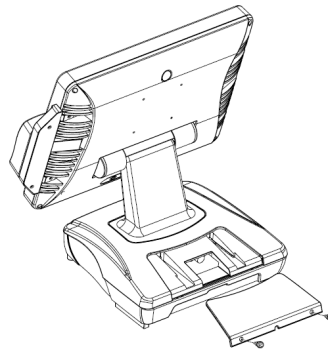
2. **Slide in the 2nd display set and screw it on the system**
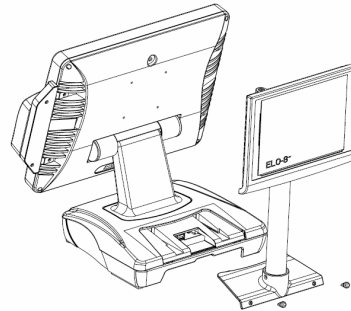
3. **Connect the VGA cable and power cable of 2nd display set to the rear I/O panel**
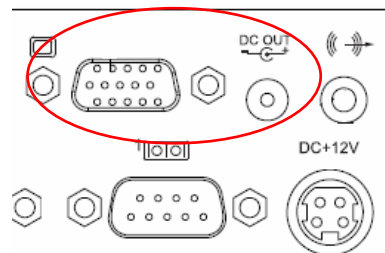
M/B Box Maintenance

1. **Turn off the system power.**

2. **Remove the 6 screws and the M/B box can be detached from the terminal.**
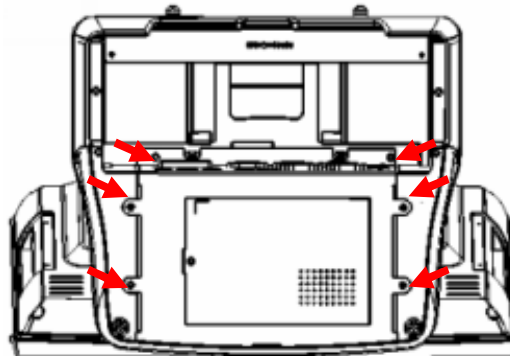
Jumper Setting Adjustment & Memory Installation

1. **Turn off the system power.**
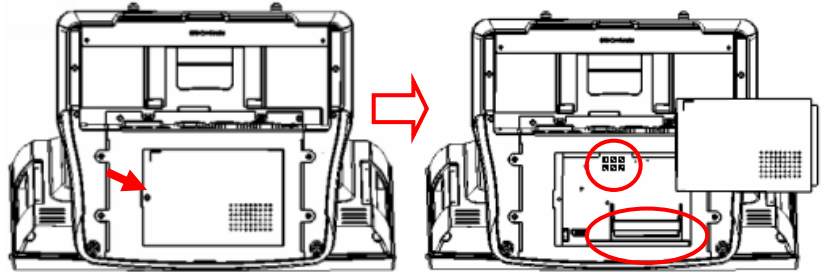
2. **Unscrew the cover and remove it from the base.**

   Note: When RAM x 2 are applied, the upper RAM is recommended to be installed with the RAM heatsink module.

POWER & RI MODE	JUMP SECECT SHORT
+5V	1-2
RI	3-4
+12V	5-6

JCOM1/2/4/5/6(COM1/2/4/5/6)

MODE	JUMP SECECT SHORT
RS232	1-3,2-4
VFD	1-2,3-5,4-6

JCOM4_SEL(COM4 Mode)

3. **Restore the cover and fix the screw.**
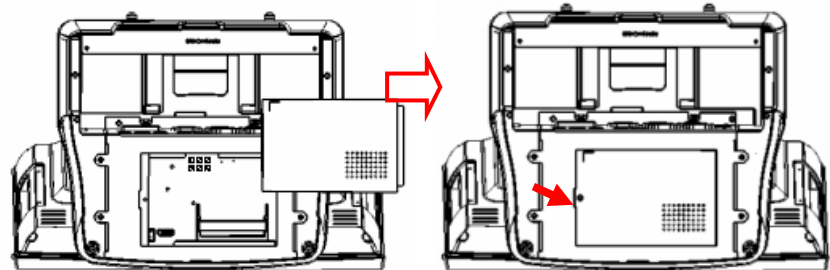
VFD Customer Display Installation

1. **Turn off system power.**

2. **Make sure that JCOM4_SEL and JCOM4 jumpers on the M/B are set correctly. It is important to note that the supply voltage settings for all the COM ports are set to RI as default. If a VFD customer display is applied, please set the JCOM4 to +12V. Otherwise, when a LCD customer display is chosen, please set the voltage to +5V instead.**

3. **Remove the plastic cover above the back I/O panel**
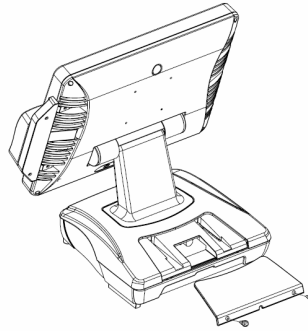
4. **Slide in the VFD set and screw it on the system**
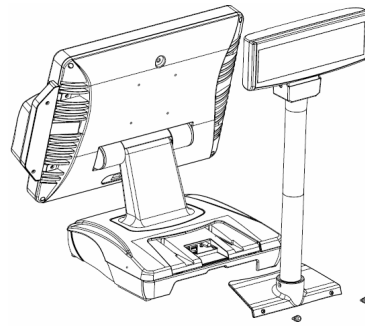
5. **Connect the VFD cable to Com4 port on the rear I/O panel**
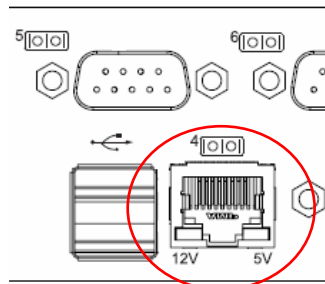
Note: If the VFD does not display correctly after an application is loaded, please refer to **troubleshooting**.

MCR Parameter Modification

This option is for users who need to customize the MCR configurations for a particular task.

To enter the Configuration Mode, please execute text editor program (such as Microsoft Word, Notepad…etc.) first, and then press [Ctrl] + [Alt] + [F10]. The following menu will appear accordingly.

```
**** CONFIGURATION MODE ****

1:SET INTERFACE

2:SET MAGNETIC STRING

3:SET STRING EDITING

4:SET BUZZER

5:RESET TO DEFAULT

6:SHOW STATUS

7:SET KEYBOARD CONFIGURATION

0:EXIT SETUP MODE
```

For detailed instruction, please refer to the MSR212 Programmer's Manual under the path below in the driver CD: \Utility\MCR\MCR util\Uniform\MSR212(Uniform) USER MANUAL(ENGLISH)

Cash Drawer Installation

Before connecting the cash drawer to the **RT-660C**, please make sure the drive voltage and cable pin assignment of the cash drawer matches the definition of the cash drawer port of **RT-660C**. Please refer to the mother board manual GPIO part for more information.

Plug cash drawer cable into the cash drawer port.
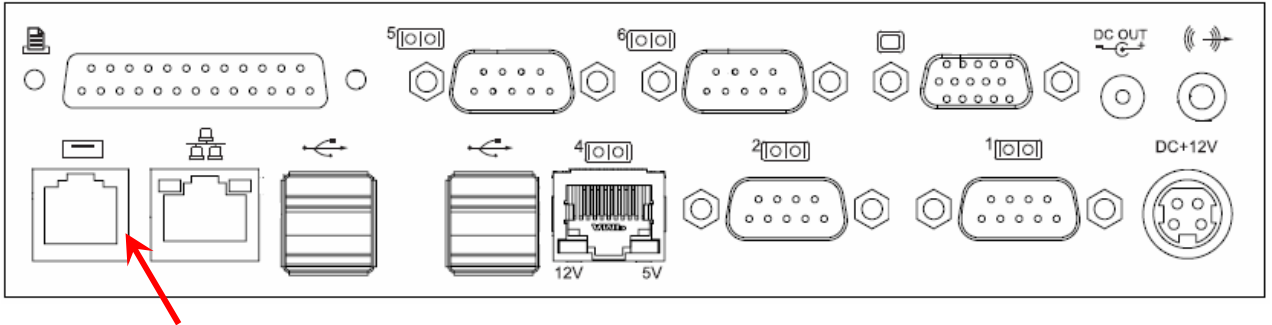
Note: If the cash drawer cannot be detected by the system, please refer to **troubleshooting.**

Up to two cash drawers may be driven from this port. Driving voltage of the solenoid is DC+12V. I/O port 2F is used for drawer operation. A test program is supplied, for Linux and Windows, source code of which is available on request by software developers. OPOS driver, test software and sample dll files can be found under the Utility folder in the system driver CD attached

(DLL Library: Utilities\Cash Drawer\cashdrawerdll\
  Test Program: \Utilities\Cash Drawer\cashdrawertest\)

To test for drawer open, read port **2F,** if bit 0=1 then drawer is open, if bit 0=0 drawer is closed.

Before testing the cash drawer function, ensure to initiate the GPIO port first referring to the command sets below:

initGPIO=2e,87,2e,87,2e,07,2f,07,2e,f1
  (2e stands for the address while '87', '07', 'f1' stands for the value to the address. All the values here are hexadecimal.)

Software Installation and Setup

Driver Installation

RT-660C comes with a variety of drivers for different operating systems.

You will find the CD with **RT-660C** which has all necessary drivers for this system.

Please follow this installation sequence.

Driver installation sequence:

Chipset Driver -> VGA Driver -> LAN Driver -> Audio Driver -> Touch Tools

The reason to follow our sequence is that IRQ settings will be changed by Windows 2000 and XP to non supported values, and you may encounter unnecessary problems later.

Intel Chipset Driver Installation

1. Insert the CD into your CD ROM Drive.
2. Locate the folder of **D:\Driver\Chipset\XP2KVISTA**
3. Open **Setup.exe**

4. Click **Next**.

5. Read the License Agreement and click **Yes**.

6. Click **Next** and the drivers for the Intel Chip set will install.

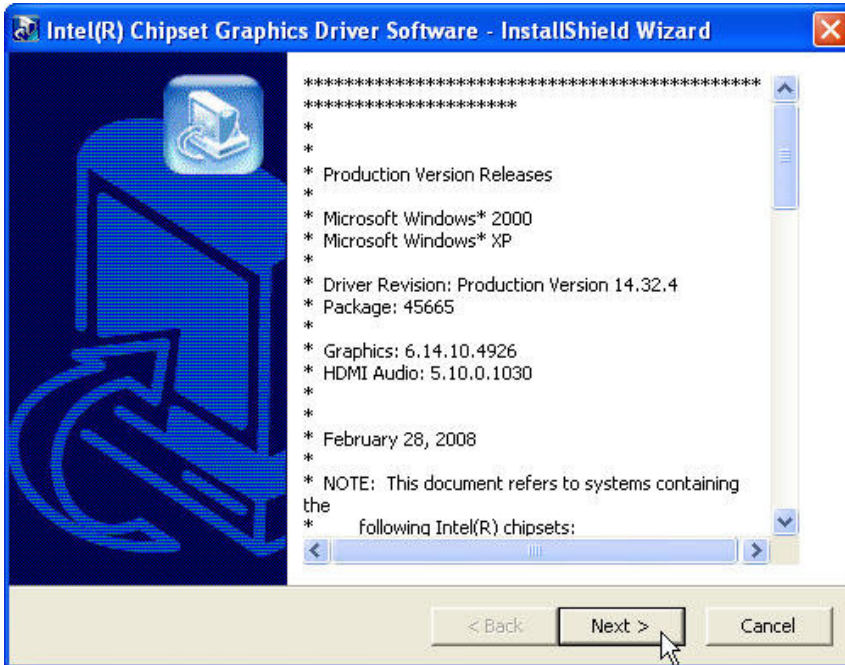**7.** Please wait while the setup program processing.

8. When the 'Setup COMPLETE' message appears click **Finish** to restart your computer.

VGA Driver Installation
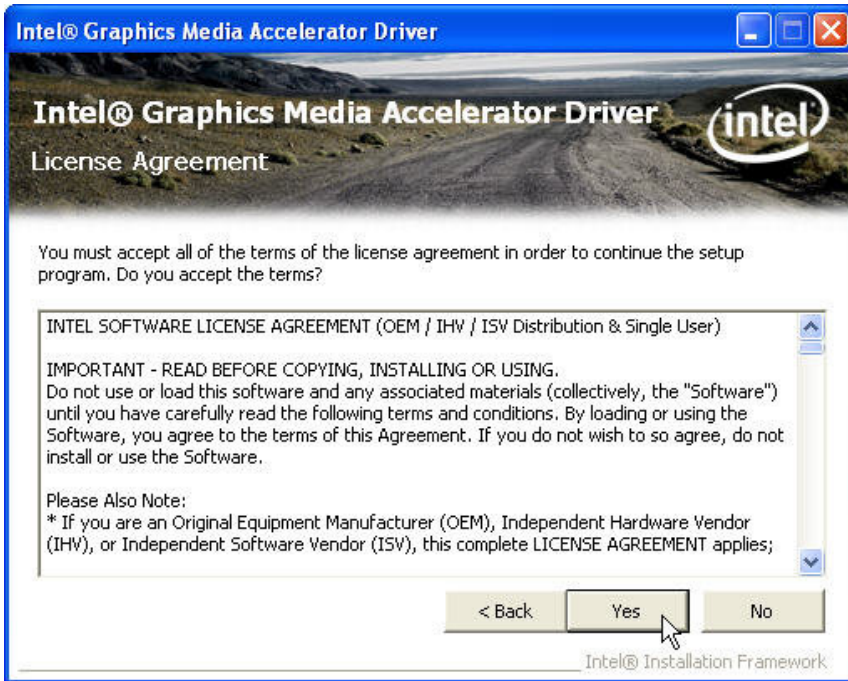
945GME driver installation for Windows XP

1. Locate the folder of **D:\Driver\VGA\XP2K**
2. Open **winxp_14324.exe**

    1. Select **Next** to continue.

    2. Select **Next** to continue.

Intel® Graphics Media Accelerator Driver
License Agreement

You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?

INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)

IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.

Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;

< Back   Yes   No

Intel® Installation Framework

3. Read the License Agreement and click **Yes**.

Intel® Graphics Media Accelerator Driver
Readme File Information

Refer to the Readme file below to view the system requirements and installation information.

```
*****************************************************
**********
*
*
*    Production Version Releases
*
*    Microsoft Windows* 2000

*    Microsoft Windows* XP
```

< Back   Next >   Cancel

Intel® Installation Framework

4. Click **Next** to see the setup progress.

15
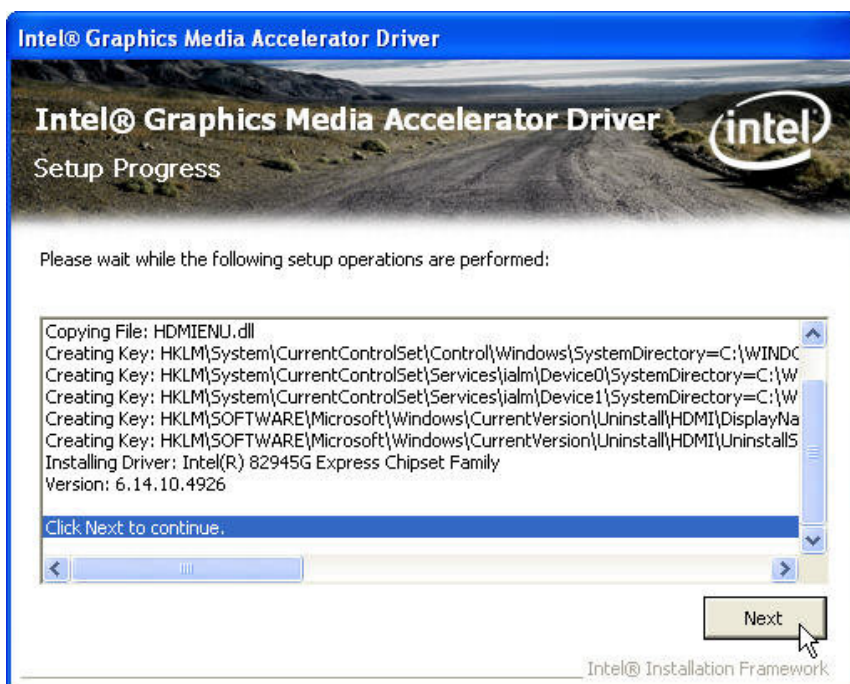
5. Select **Next** to continue.
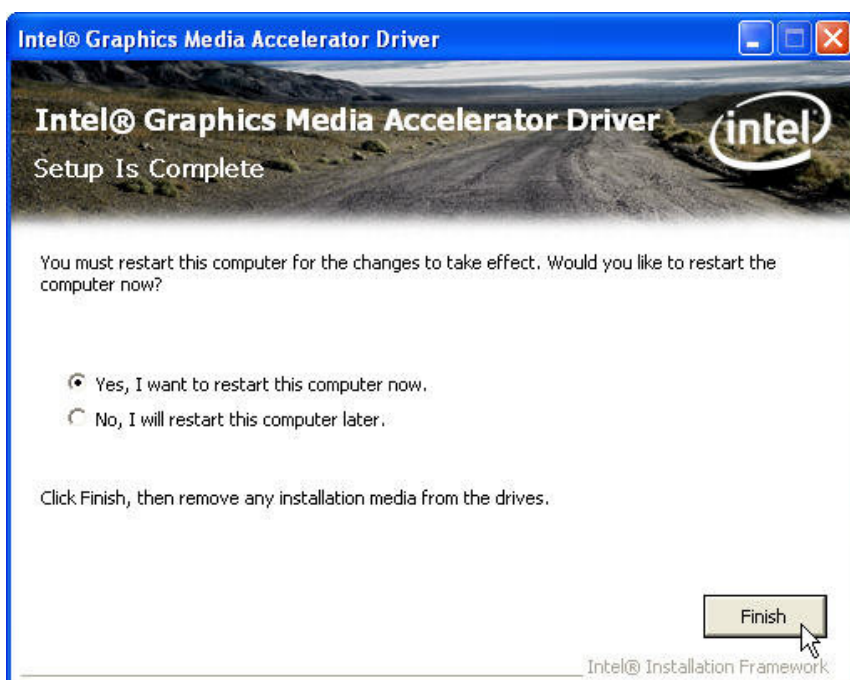
6. Click **Finish** to complete the installation procedure and restart the system.

LAN Driver Installation

LAN Driver Installation for Windows XP

1. Locate **D:\Driver\LAN\XP2K**

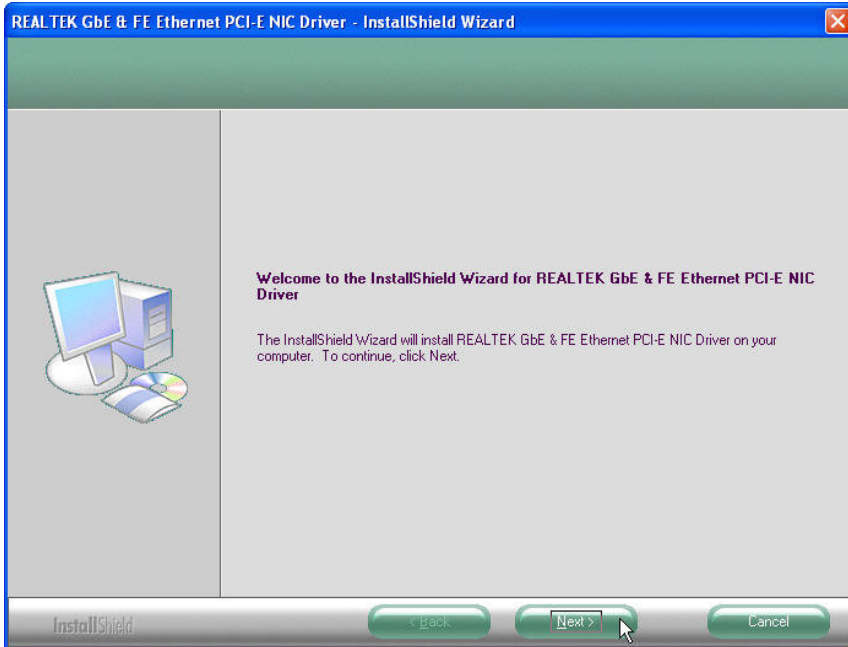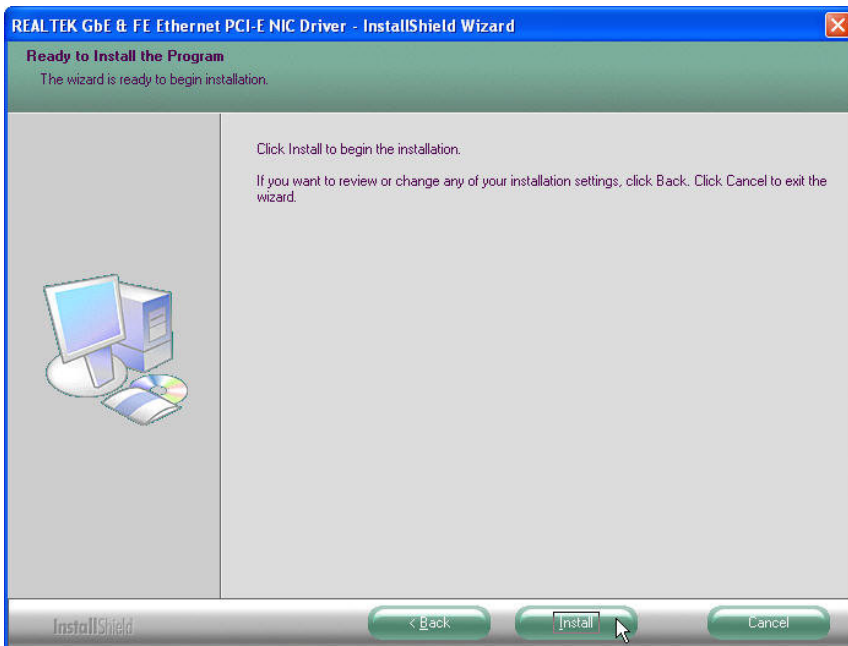2. Double click **Setup.exe**.

3. Click **Next** to continue

4. Click **Next** to continue

5. Please wait while processing.

6. Click **Finish** to complete the installation procedure.

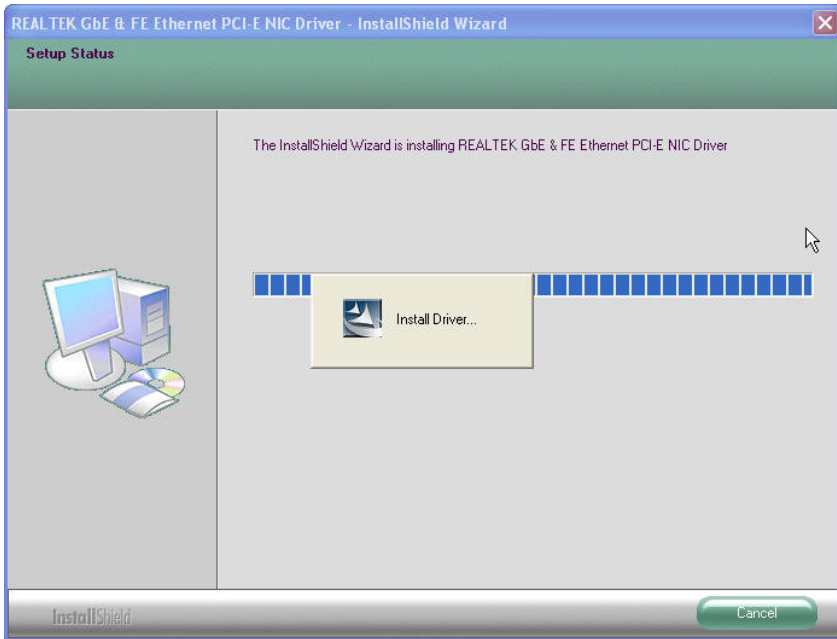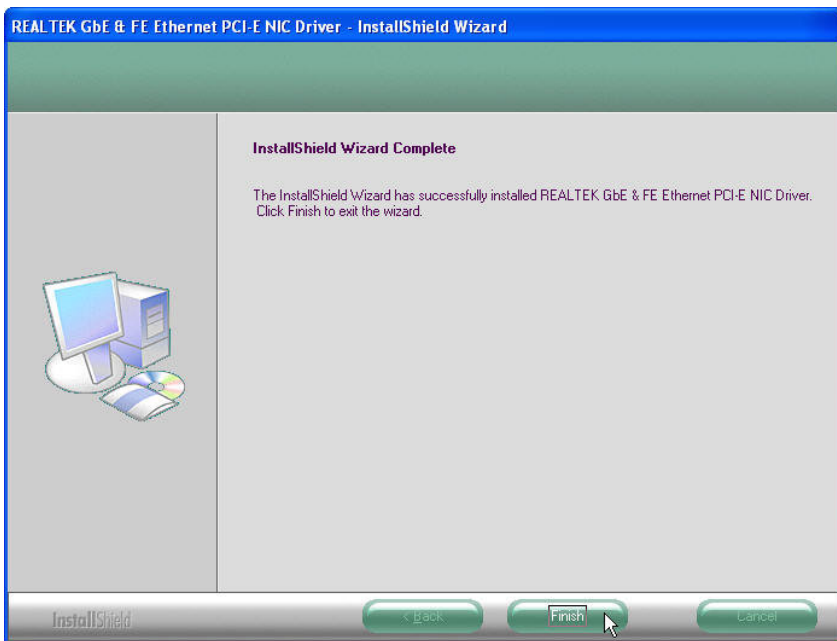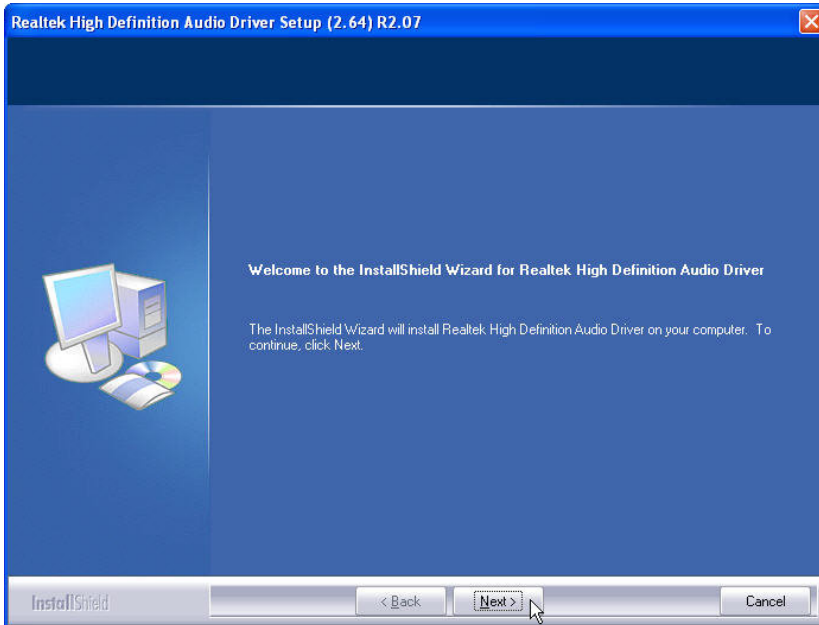# Audio Driver Installation

Audio Driver Installation for Windows XP

1. Locate **D:\Driver\Audio\XP2K**
2. Double click **Setup.exe**.

3. Click **Next** to continue.

4. Click **Next** to continue.

Realtek High Definition Audio Driver Setup (2.64) R2.07

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.

◉ Yes, I want to restart my computer now.

○ No, I will restart my computer later.

Remove any disks from their drives, and then click Finish to complete setup.

InstallShield   < Back   Finish   Cancel
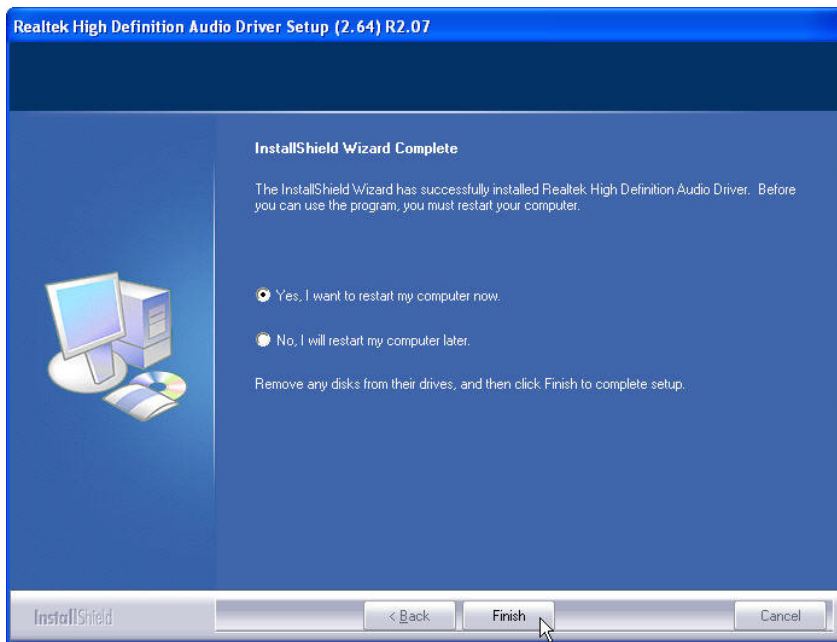
5. Click **Finish** and restart the system.

ELO Touch Tools Installation
ELO Touch Tools Installation for Windows XP

1.   Locate **D:\Utility\Touch Screen\ELO Touch\XP_Vista**

2.   Open **SW600650.exe**

3.   Click **OK** to continue.

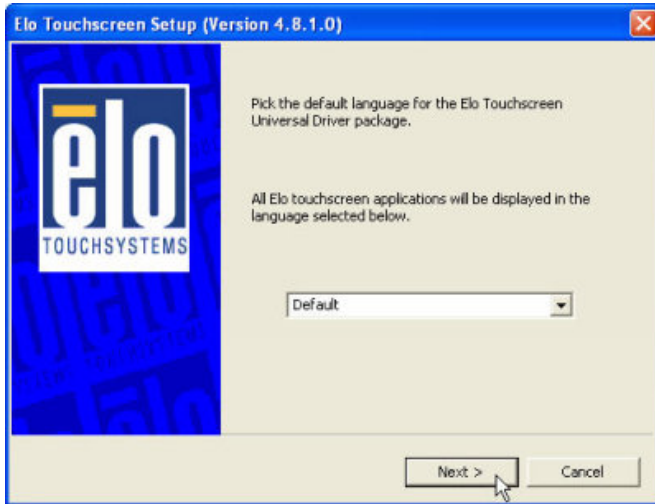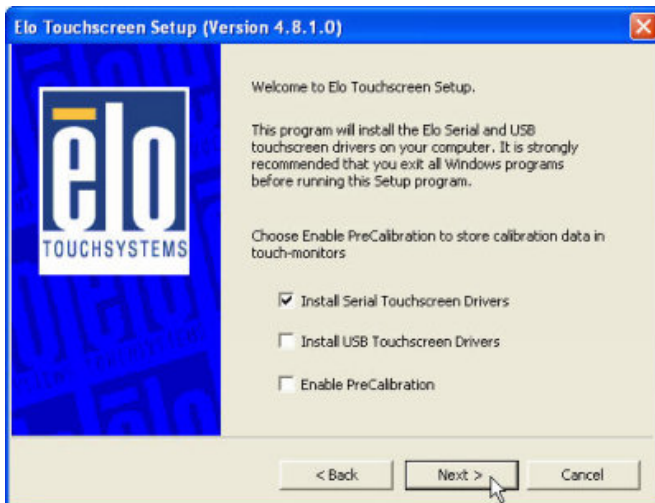4.   Click **Unzip** to continue the installation.

5.   Click **OK** to continue.

6. Pick the default language for the Elo Touchscreen and click **Next** to continue.

7. Check "Install serial Touchscreen Drivers" And click **Next**.
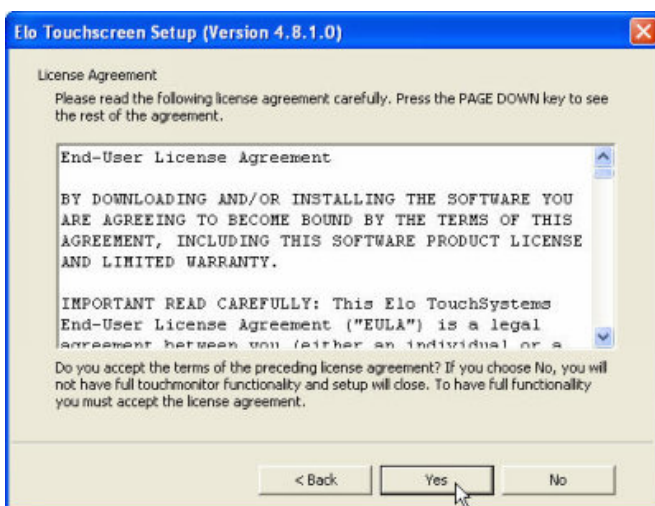
8. Read the *"License Agreement"* and click **Yes** if you accept it.
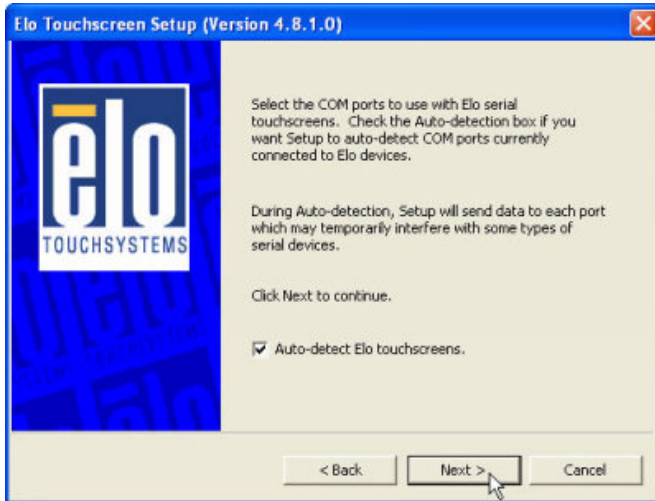
9. Select "Auto-detect Elo touchscreens" and click **Next.**
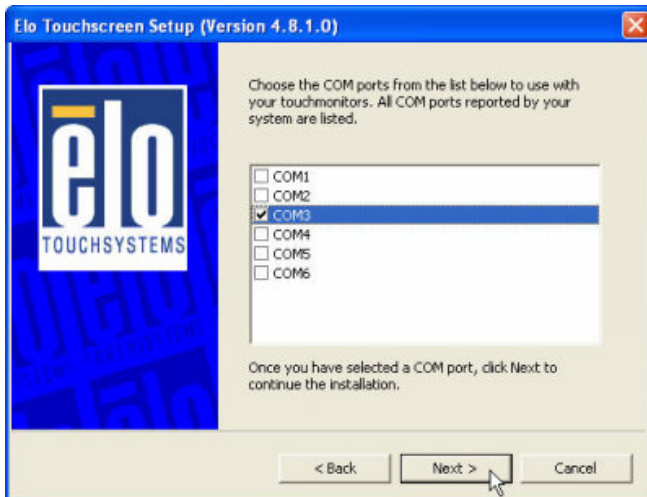
10. Select the COM port for the touch monitor. It is recommended that you select **COM3** for the touch screen, as this port is internally configured for touch operation. And click **Next** to continue.
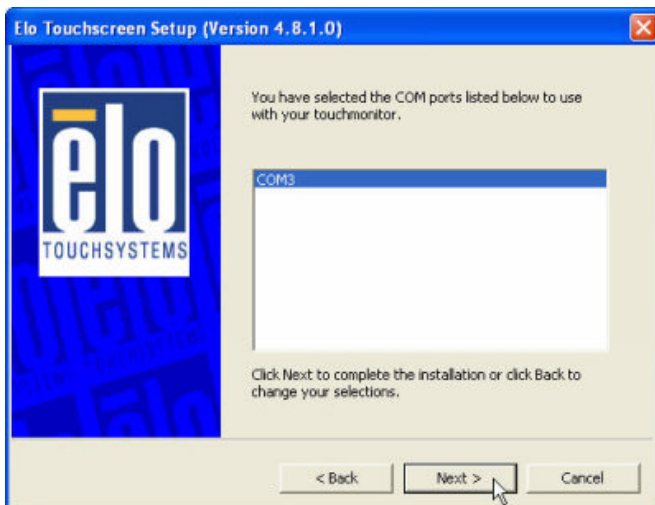
11. Make sure the COM port listed is the one you chose for your touch monitor. Press **Next** to continue.
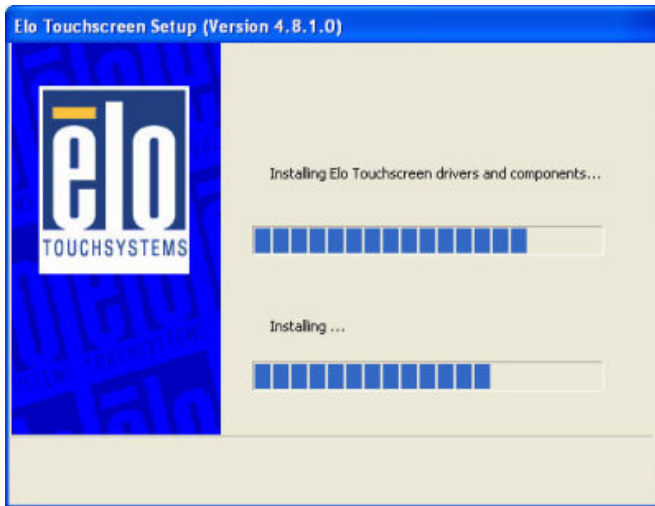
12. Wait until the ELO Touch Tools installation finished.
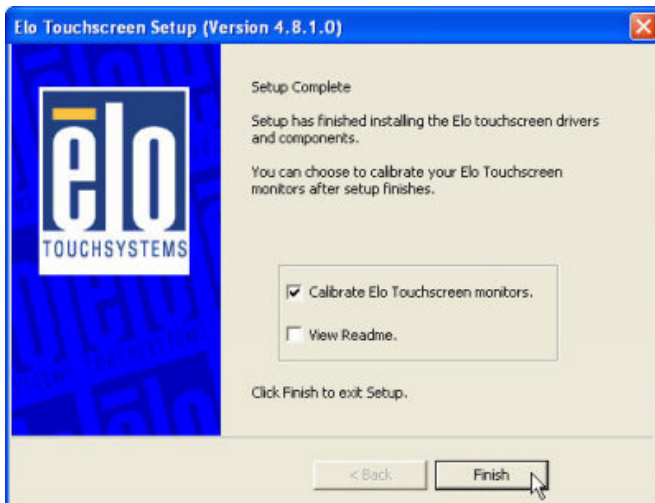
13. Select **"**Calibrate ELO Touchscreen monitors" and click **Finish**.
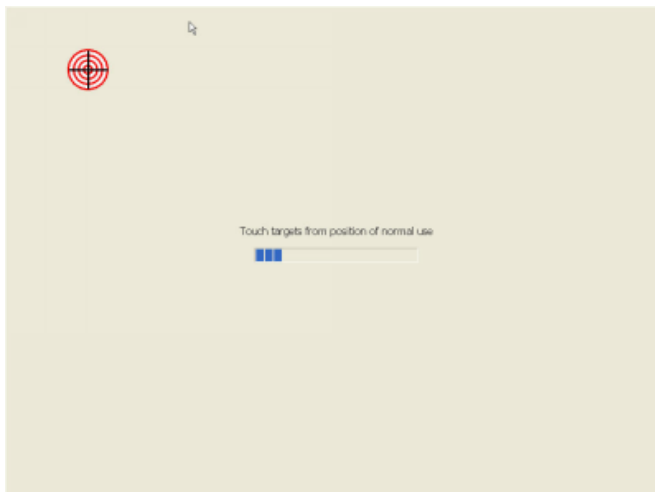
14. Start calibrating the touchscreen by touch the targets showed on the screen.

Touch the screen. Does the cursor follow your finger?
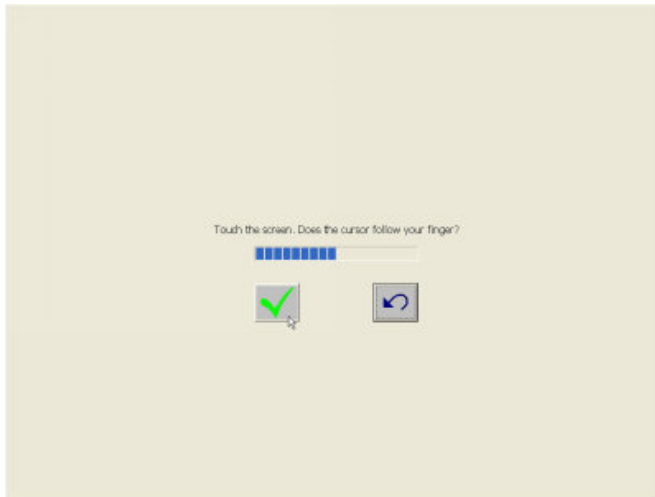
15. If the cursor is working fine, click to finish the setting; if not, click to calibrate the screen again.

IT MAY BE NECESSARY TO RESTART YOUR COMPUTER TO UTILIZE YOUR TOUCHSCREEN FEATURES.
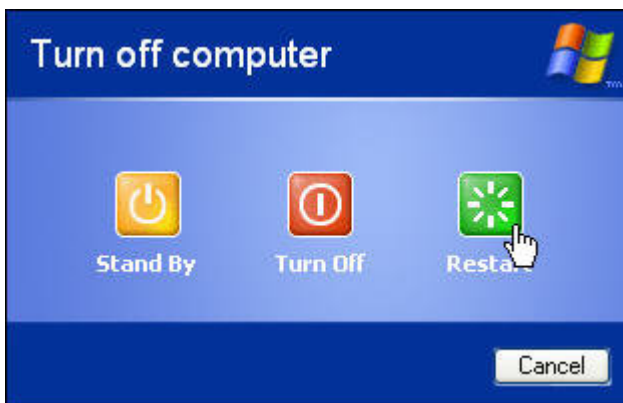
16. Click **Restart** to reboot your computer again.

ELO Control Panel

This section explains the different options in the ELO control Panel.

General tab

The general tab allows you to:

- Change the COM port your touch screen is set to.
- Calibrate the touch screen with the **Align** button.
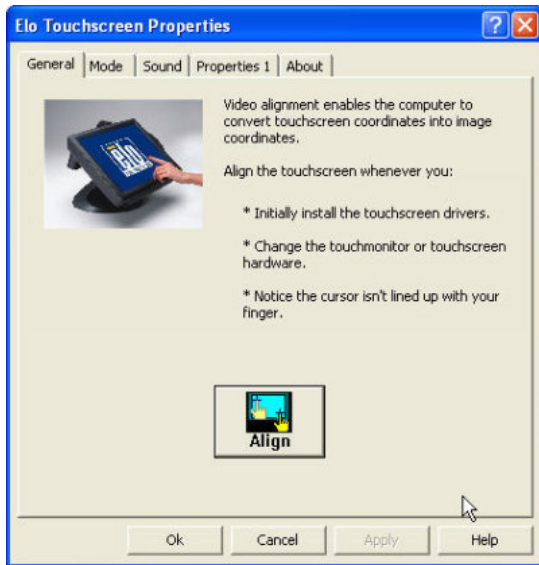
Mode tab

The Buttons tab allows you to:

- Adjust all mouse emulation controls.
- Change cursor properties
- Enable or disable right mouse button utility.
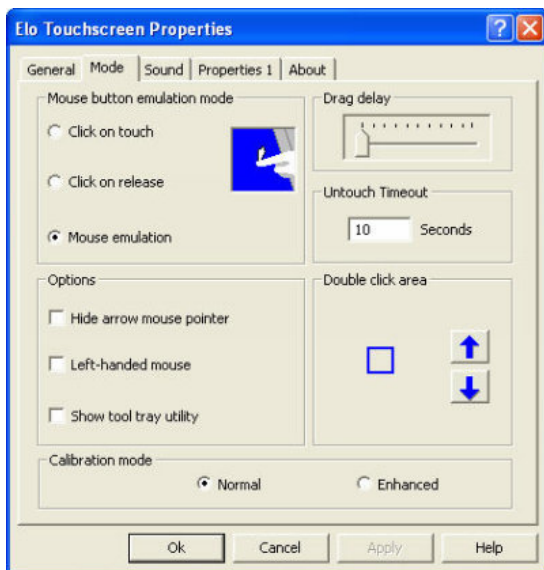
Sound tab

The Sound tab allows you to:

- To change sound properties for ELO touch tools.
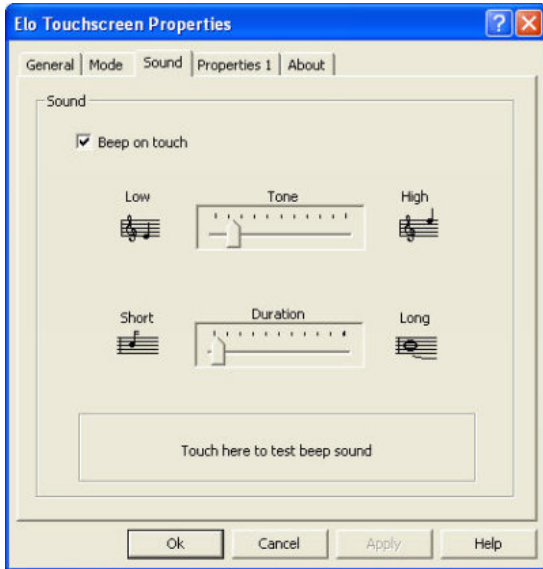
Properties tab

The Diagnostics tab allows you to:

- View Controller Information.
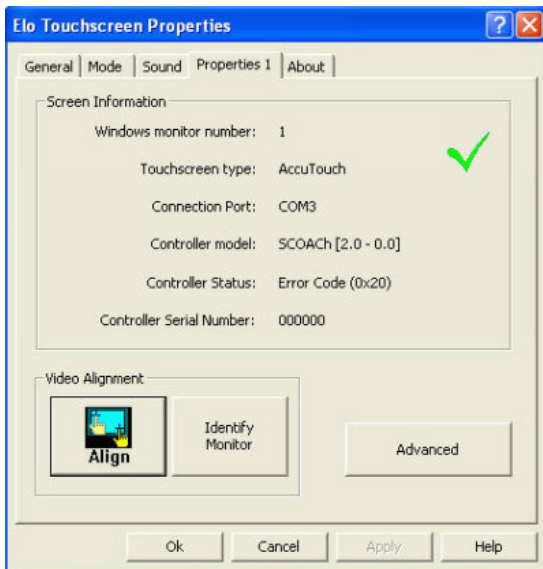
About tab

The About tab displays Information about ELO Touch systems

TouchKit Tools Installation

Fuji TouchKit Installation for Windows XP

1. Locate **D:\Utility\TouchScreen\TouchKit(Fujitsu)\Windows 2000 XP**

2. Select the relevant folder for the operating system that you are using.

3. Open **Setup.exe**
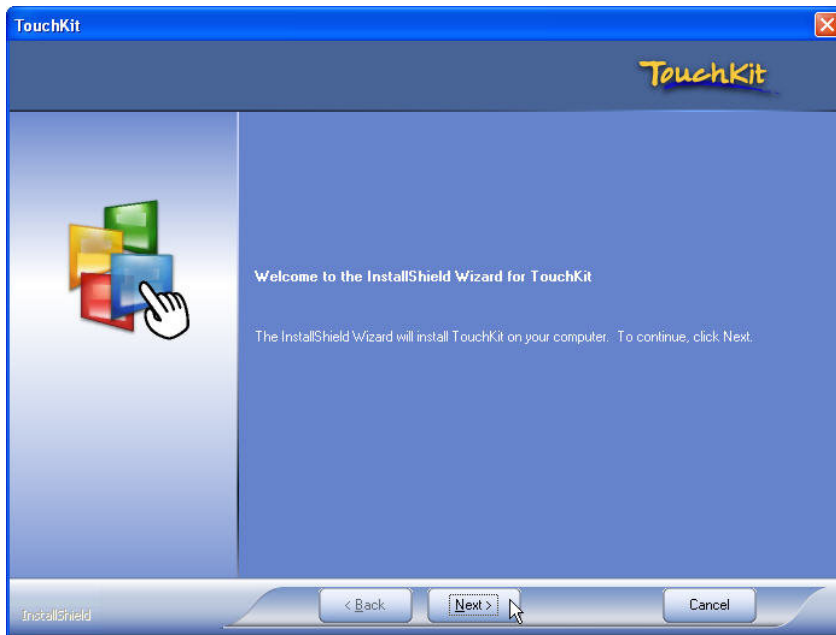
4. Click **Next**
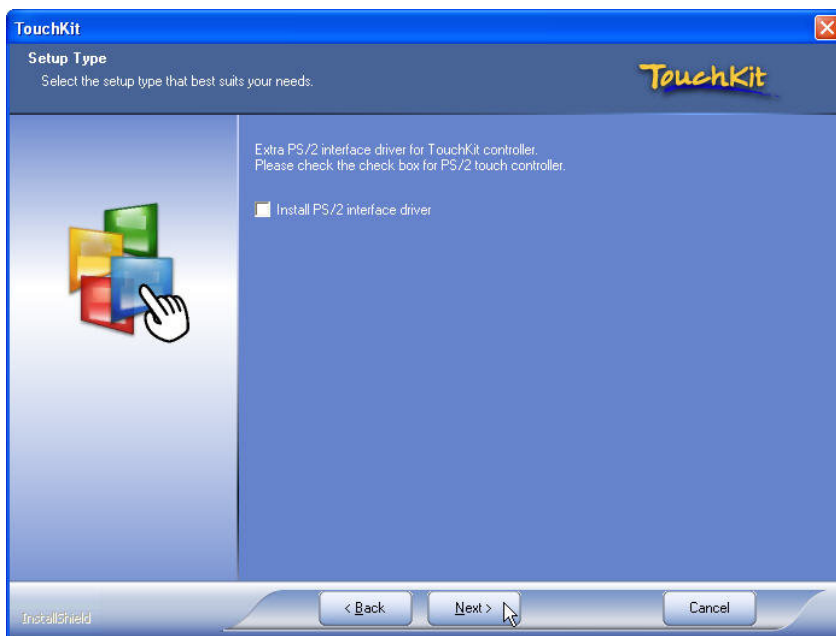
5. Click **Next**
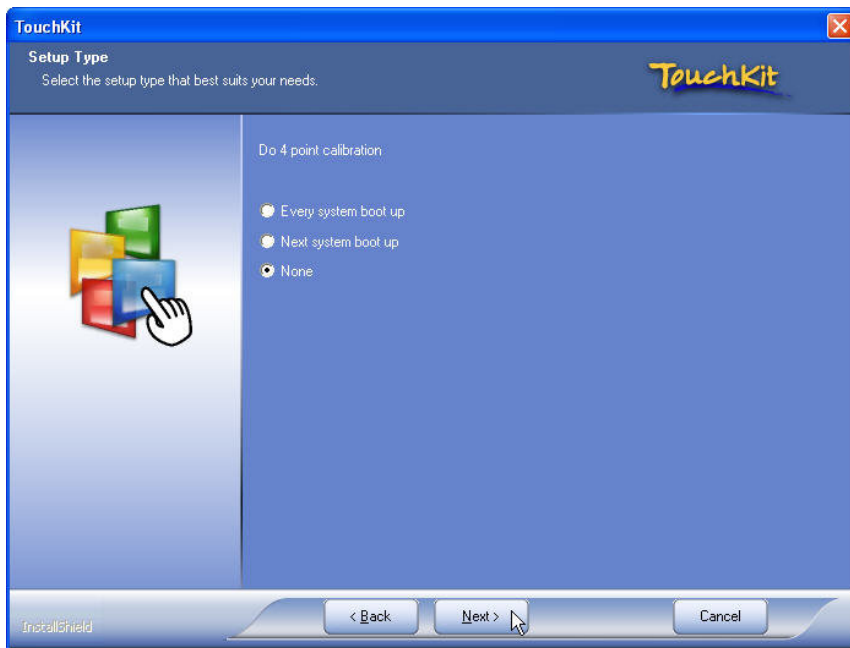
6. Click **Next**

7. Click **OK** to close the pop-up dialog.
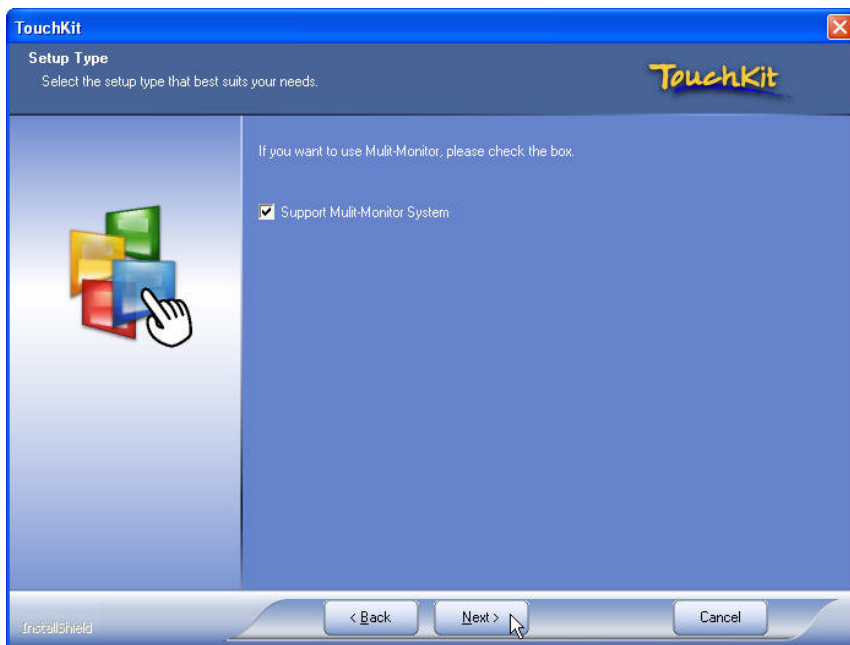
8. Click **"Support Multi-Monitor System"** and then **Next** to continue.
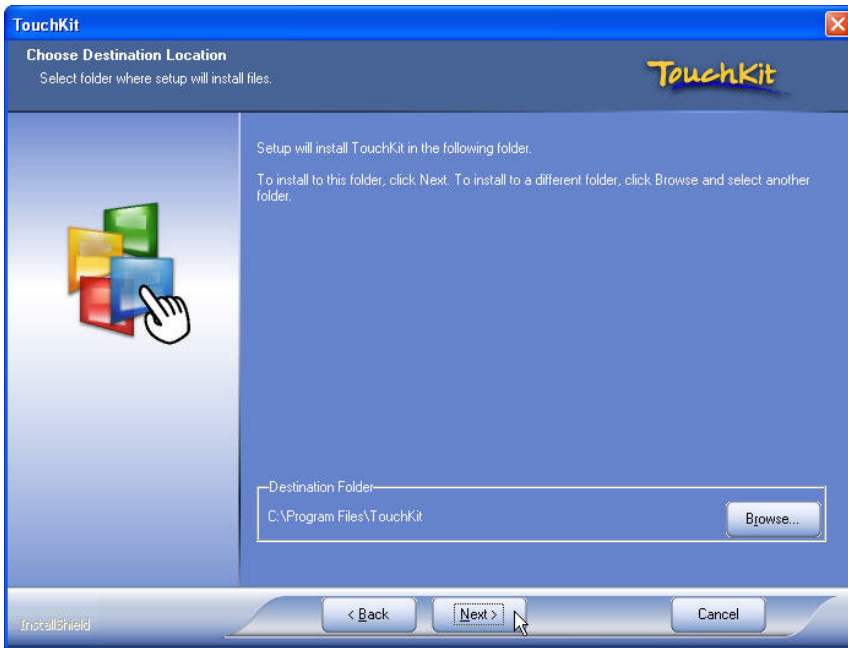
9. Click **Next**
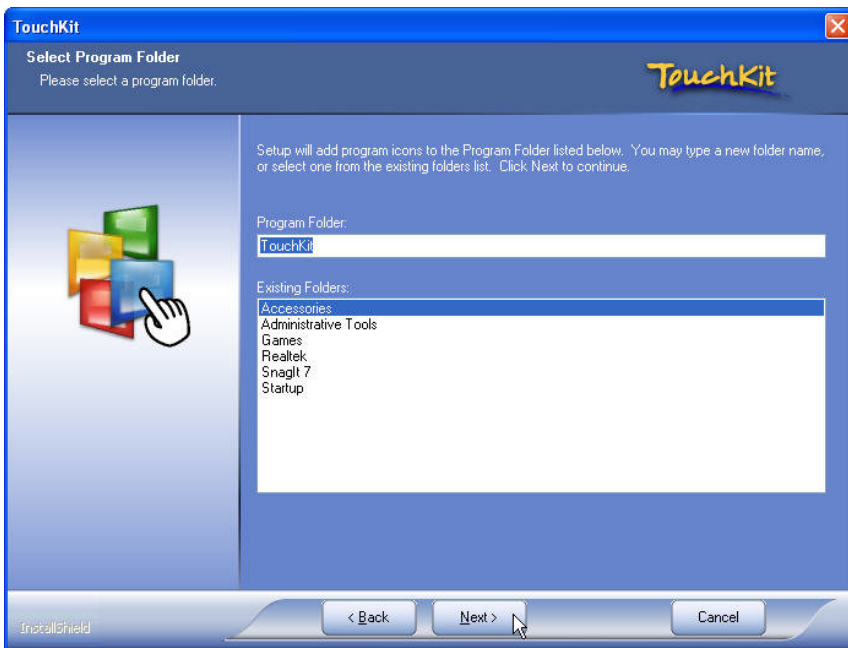
10. Click **Next**
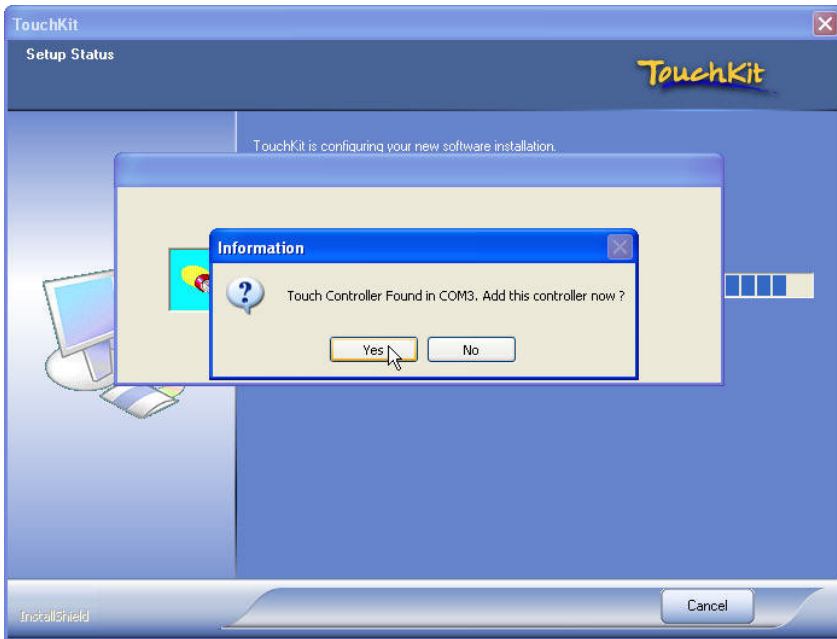
11. Click **Yes**
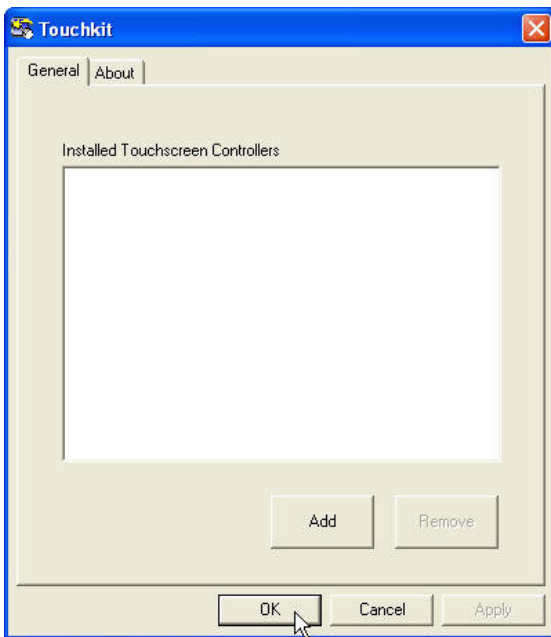
12. Click **OK** and turn off the computer to restart your system again.

After the system finish rebooting follow the directions to calibrate the Touch screen.

TouchKit Control Panel

This section explains the different options in the TouchKit control Panel.

General tab

The general tab allows you to:

- Manage the touch screen controller you installed.
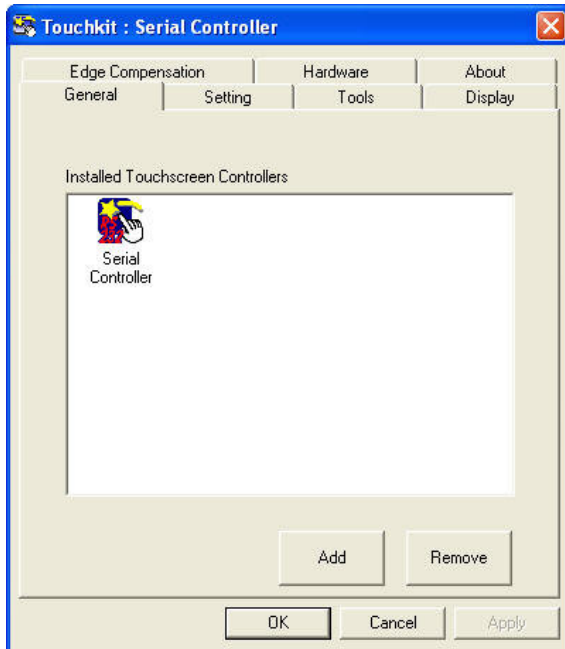
Tools tab

The tools tab allows you to:

- Calibrate the touch screen with the **4 Points Calibration** button.
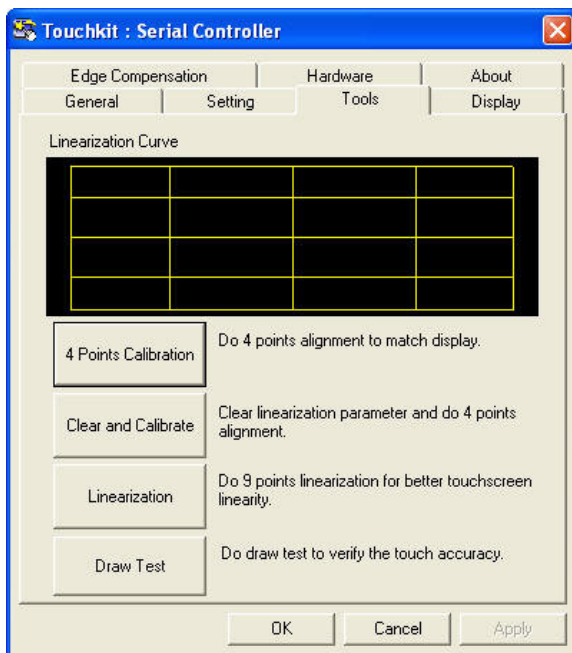
Wireless LAN Driver Installation

1. Locate **D:\Utility\Wireless Lan\Ralink**

2. Open **RALINK(3.0.7.0).exe**
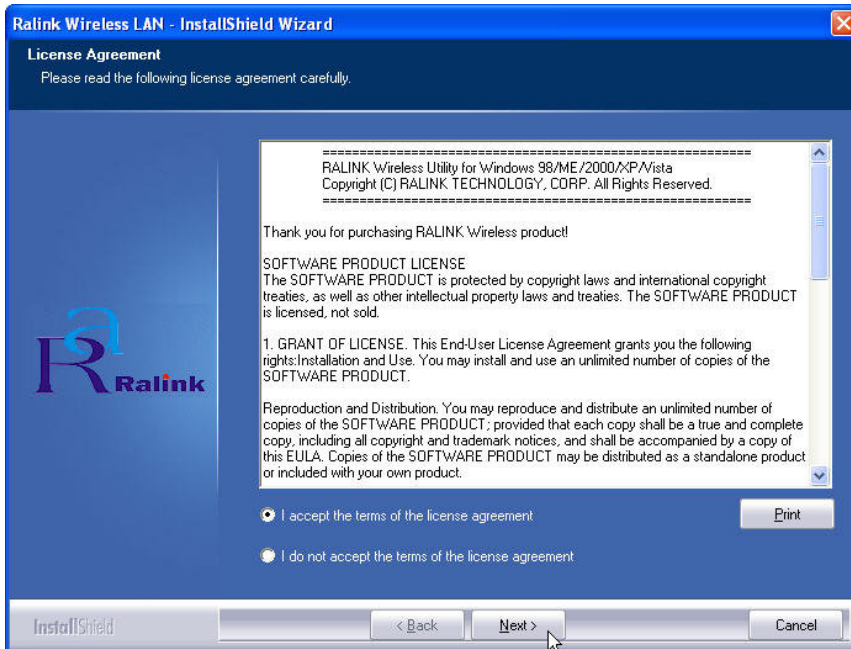
3. Click **"Next"** and start the installation
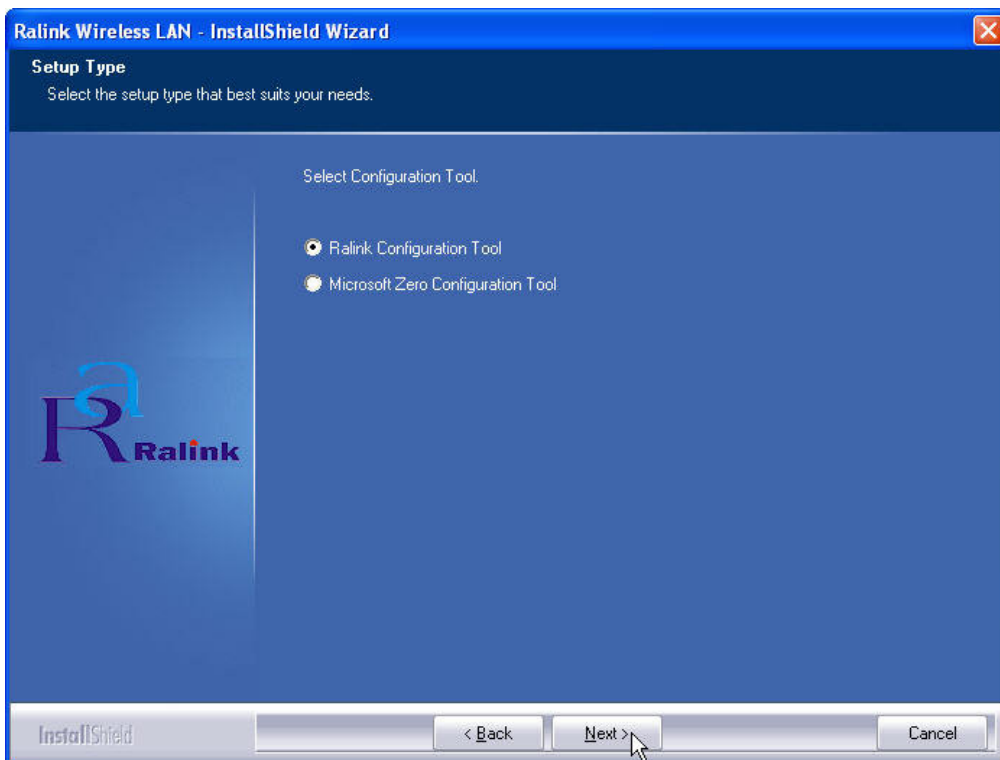
4. Select **"Ralink Configuration Tool"** and click **Next** to continue.
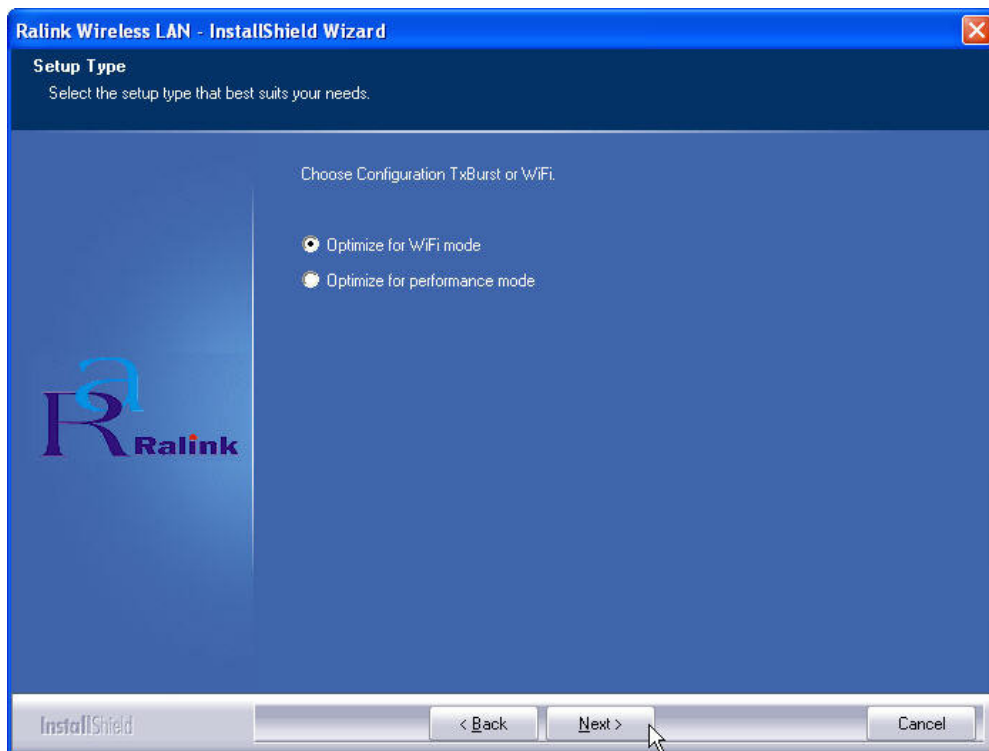
5. Select **"Optimize for WiFi mode"** and click **Next** to continue.
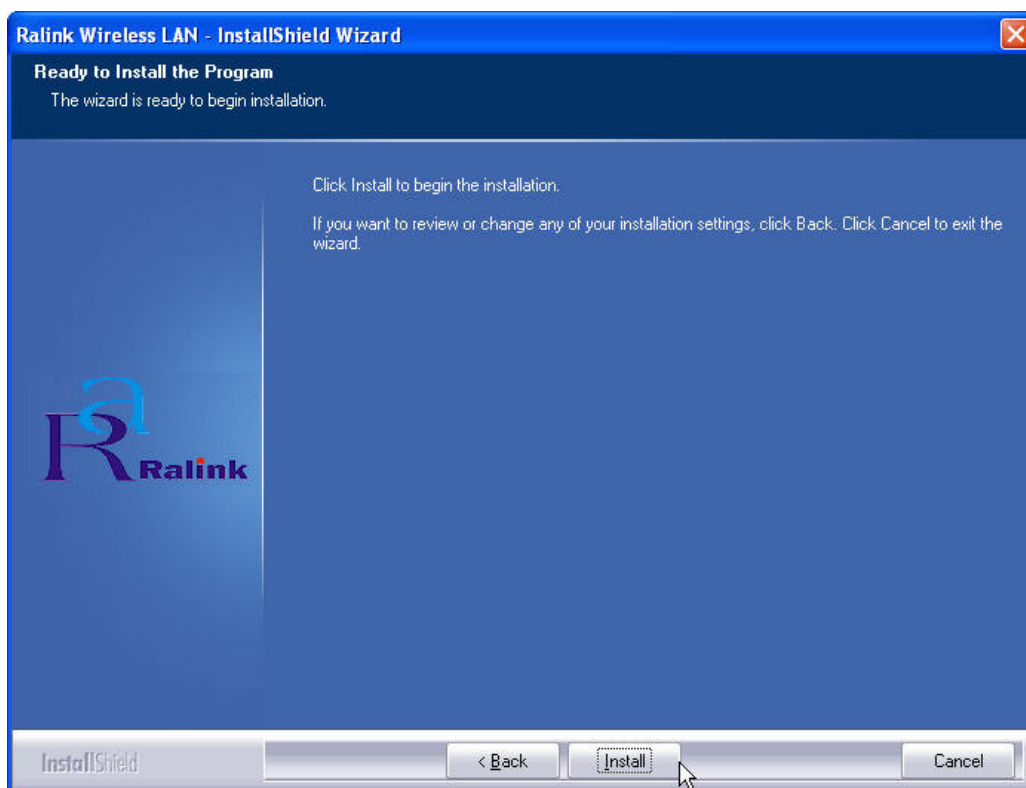
6. Click **Install** to continue.
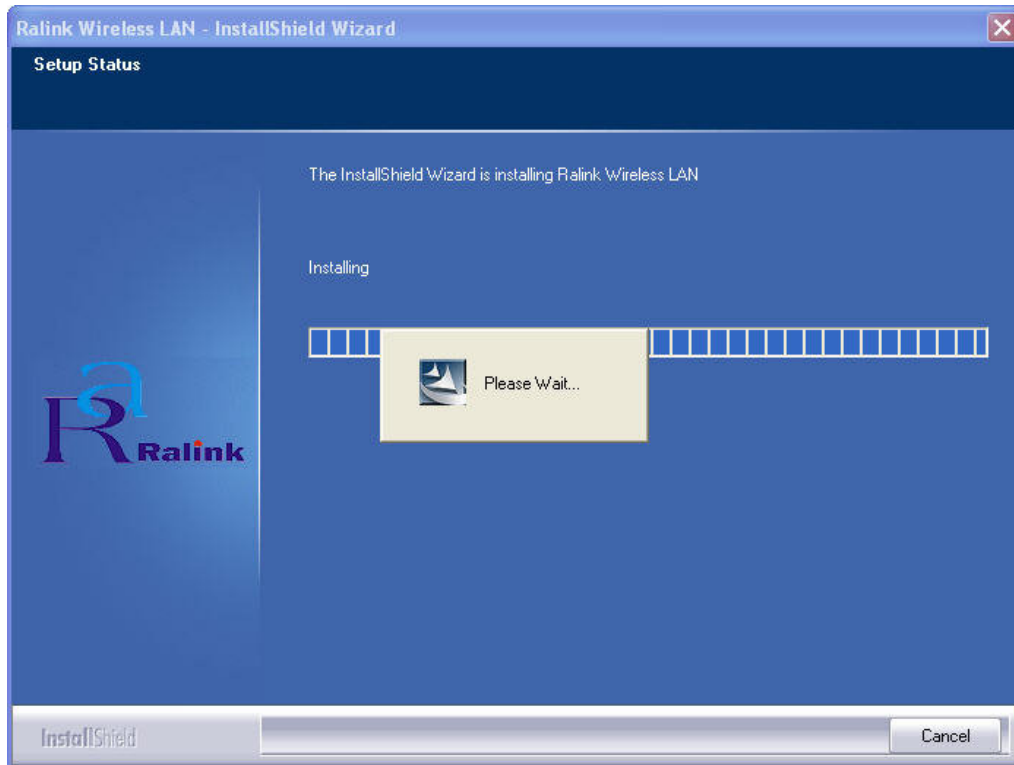
7. Wait while the installation is processing.
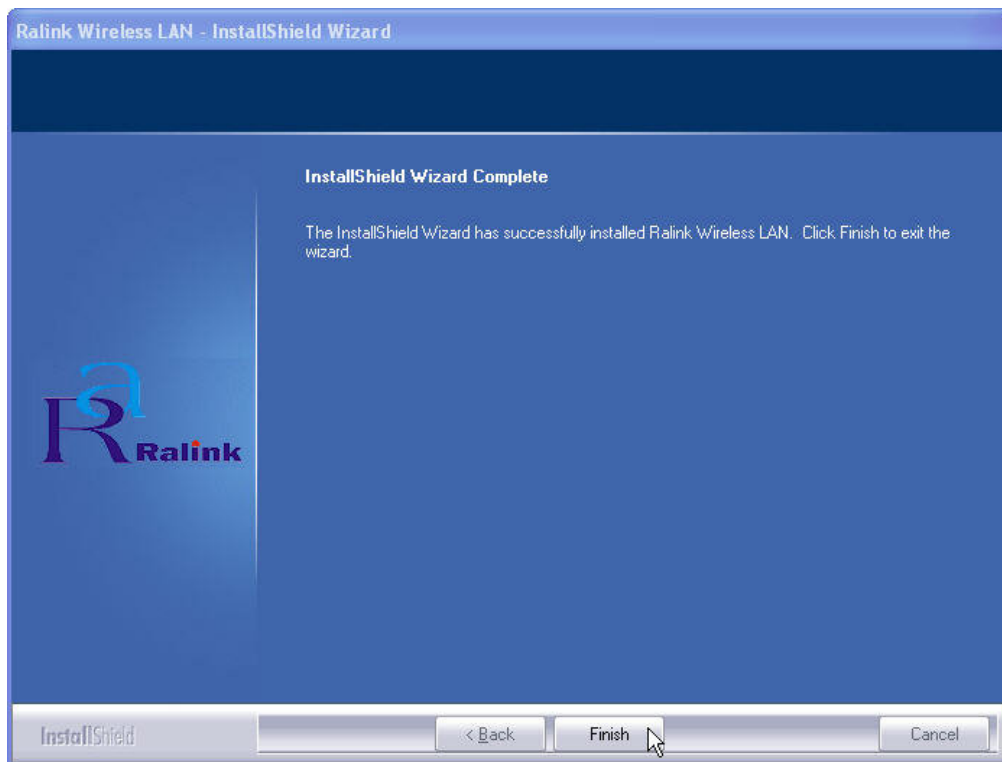
8. Click **"Finish"** to complete the installation.

Specifications

RT-660C Specifications

System Configuration	
CPU (BGA)	INTEL ATOM N270 (1.6GHz with 512K L2 cache)
Chipset	INTEL 945GME
South Bridge	INTEL ICH7-M
Memory	Two 200-pin SODIMM support DDRII SDRAM up to 4GB
VGA controller	GMA950 Integrated in 945GME, shares system memory up to 224MB
Primary LCD Panel	12" /15" TFT LCD Panel (800X600/1024x768)
Primary Touch Panel	12" with 4-wire or 15" with 4/5-wire resistive touch panel
Storage	Internal 2.5" SATA hard disk drive or 2.5" SATA SSD
Power	150 watt external power adapter
I/O Port	
Serial Port	5 User available COM ports (COM1 / 2 / 4 / 5 / 6) ➢ D-SUB9 (RS-232): COM1, COM2, COM5, COM6 ➢ RJ-45 (VFD or RS-232): COM4 for VFD or RS-232 device. (LED Indicators: Green for 5V / Orange for 12V / Non for RI) 1 System assigned COM port (COM3) ➢ COM3: for primary touch screen
Parallel Port	One Bi-directional Parallel Port supports ECP/EPP (IEEE1284).
USB port	8 USB 2.0 ports (4*Internal, 4*External)

Cash drawer port	RJ11 Cash drawer port,12V actuation. Controlled through GPIO port 2F
LAN Port	10/100/1000Mbps Ethernet Controller, Realtek RTL8111C
VGA Port	Standard D-SUB 15PIN VGA Port for second LCD panel.
Audio Port	Integrated Sound Blaster compatible, AC97 Audio Codec. (Realtek ALC662)
DC Out Port	2PIN 12V DC Out for 2nd Display Power Connection
Optional Features	
Customer display	Integrated VFD/LCD customer display
MSR	External Magnetic Stripe Card Reader track 1/2/3
Identification Device	External Finger Print Receiver or RFID receiver(USB)
Wireless	Internal Wireless Module(USB)
Power Consumption	
Power consumption	60W Idle (Standard system with secondary LCD panel while accessing HDD).
Operating temperature	
Operating temperature	0 ℃ ~ 40 ℃

I/O board Configuration

The RG9000CB0880 board carries the following signals to the main board, including LVDS, inverter, COM3, Keyboard and two USB ports.

RG9000CB0880 I/O Board Pin Definition
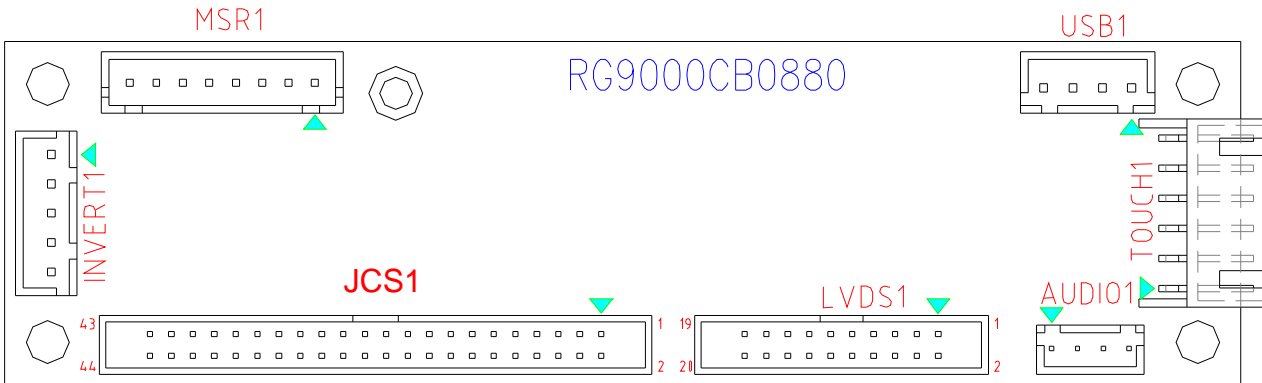
JCS1   *Multi Signal connector*

PIN No.	Description	PIN No.	Description
1	DSR3	23	+5V
2	TX3	24	GND
3	RX3	25	PC Clock
4	RTS3	26	KB Clock
5	GND	27	PC Data
6	+5V	28	KB Data
7	Line Out L	29	PVDD
8	Line Out R	30	PVDD
9	GND	31	RX0+
10	GND	32	RX0-
11	Vin (+12V)	33	RX1+
12	Vin (+12V)	34	RX1-
13	ON/OFF (+5V)	35	GND
14	GND	36	GND
15	Vcc	37	RX2+
16	GND	38	RX2-
17	USB Data-	39	RX Clock+
18	USB Data+	40	RX Clock-
19	USB Data-	41	RX3+
20	USB Data+	42	RX3-
21	GND	43	GND
22	Vcc	44	GND

MSR1   *K/B Wedge MCR/USB connector*

PIN No.	Description
1	USB Data+
2	GND
3	PC DATA
4	KB DATA
5	PC Clock
6	KB Clock
7	VDD
8	USB Data-

USB1   *USB connector*

PIN No.	Description
1	VDD
2	DATA-
3	DATA+
4	GND

INVERTER1   *LCD Back Light connector*

PIN No.	Description
1	DC+12V
2	DC+12V
3	Back Light Enable (+5V)
4	GND
5	GND

LVDS1   *LVDS connector*

PIN No.	Description	PIN No.	Description
1	PVDD	11	RX2-
2	PVDD	12	RX2+
3	GND	13	GND
4	GND	14	RXCLK-
5	RX0-	15	RXCLK+
6	RX0+	16	GND
7	GND	17	RX3-
8	RX1-	18	RX3+
9	RX1+	19	GND
10	GND	20	GND

TOUCH1   *RS232 connector*

PIN No.	DESCRIPTION
1	GND
2	TX
3	RTX
4	RS
5	DSR
6	+5V

AUDIO1   *AUDIO connector*

PIN No.	DESCRIPTION
1	Line Out R
2	GND
3	GND
4	Line Out L

Troubleshooting

Please note that the following troubleshooting guide is designed for people with strong computer hardware knowledge such as System Administrators and Engineers.

Power is on, but there is no Panel Display

A) Check if the motherboard Power LED is on when the power adapter is connected properly.

B) If the LCD backlight is on but no content showed on the screen, please make sure the SATA cable is properly connected to the HDD.

C) Reset CMOS DATA by shorting motherboard JCMOS PIN2 and PIN3 for a few seconds (Please refer to **page 10** in the **FEB-9457** User's Manual).

D) Check if the system is beeping.

    D-1) A single long beep indicates that a DRAM error has occurred. Please make sure the DRAM is properly installed, or please replace the DRAM.

    D-2) One short beep after power on means the system works normally, but the LCD panel or LVDS interface could be defective.

        D-2-1) The Boot Display setting in COMS setup should be set to [CRT+LFP1].

        D-2-2) LVDS board connection to motherboard LVDS1 could be defective..

        D-2-3) The LCD cable could be defective.

        D-2-4) The Inverter is not working.

        D-2-5) The LCD panel could be defective.

To check where the problem could be:

Please connect a VGA monitor to the VGA port. If the VGA monitor displays normally, one of the problems above is occurring, otherwise the motherboard may not function properly.

Cannot Detect HDD

A) Check if the SATA cable is connected properly to the motherboard SATA Connector or it could be defective.

B) Check CMOS setup, and set SATA HDD to [Auto].

C) On-board SATA port could be defective.

Touch Panel Does Not Work

A) Check CMOS settings, COM3 needs to be "Enabled". The correct settings are "3E8h" and "IRQ10".

B) Check if there are any conflicts between COM3 IRQ10 and other devices.

C) Check if the ELO driver or the TouchKit driver has been properly installed. Or try to re-install the driver (Please refer to the ELO driver installation or the TouchKit part).

D) Check if the ELO controller or the TouchKit driver on COM3 has been detected during the ELO driver or the TouchKit driver installation. If yes, then check whether the flat cable from the ELO touch screen or the TOUCHKIT touch screen has been properly connected to the ELO controller or the TouchKit controller (**Attention:** Pin1 mark should be on the same side as the ELO controller).

E) Check if the ELO controller or the TouchKit controller Green LED is blinking.

 If not, there is no DC+5V support for the ELO controller or the TouchKit controller from the motherboard.

E-1) Check if the COM3 cable is properly connected between the motherboard and the Touch screen controller.

F) Touch screen controller could be defective or the touch panel could be defective.

Touch Panel Cannot Calibrate Correctly

A) Please replace the touch controller, and re-calibrate. If this works, change back to the original touch controller, and re-calibrate.

B) If the touch panel still cannot calibrate correctly after changing to a new touch controller, the touch panel may not be installed properly or it could be defective.

MCR Is Not Functioning Properly

A) Check if the green MCR LED is on.

A-1) Check if the MCR is properly connected to the MCR connector board on main system.

A-2) Make sure the MSR cable is properly connected between RG9000CB0880 I/O board MSR1 and the MCR connector board.

A-3) The MCR connector board could be defective.

A-4) The MCR module could be defective.

VFD Display Is Not Functioning Properly

A) Ensure that COM4 is set to [Enabled] in the CMOS setup, and data is written to COM4 in the application.

B) Check if there is any display when system power is on. If the screen is blank, please follow the steps below.

B-1) Make sure the power switch on the VFD display is on before powering the main system.

B-2) Make sure the motherboard JCOM4_SEL & JCOM4 jumper settings are correct.

The proper settings are:

JCOM4: Pins 5-6 shorted (+12V)

JCOM4_SEL: Pins 1-2, Pins 3-5 and Pins 4-6 shorted (VFD Mode)

C) The on-board COM4 I/O chips could be defective.

LAN Is Not Functioning Properly

A) Check if the LAN driver is installed properly. (Please refer to the LAN driver installation)

B) Check if there are any IP Address conflicts.

C) Check if the RJ45 cable is properly connected.

D) The on board LAN chip could be defective.

COM1, COM2, COM5 & COM6 Are Not Functioning Properly

A) Check if the I/O ports are enabled in the CMOS setup.

B) Check if there are any IRQ conflicts.

C) The motherboard could be defective.

Cash Drawer Port Is Not Functioning Properly

A) Make sure the pin assignment matches between the cash drawer and the RJ11 cash drawer port.

B) Verify the GPIO port address and the bit is "2F". Check other details from the system manual **page 10** and **FEB-9457** User's Manual **page 50**.

C) The motherboard could be defective.

USB device is not functioning properly

A) Ensure that the USB controller is "enabled" in the CMOS setup.

B) Ensure that the USB Legacy is "enabled" in the CMOS setup. (Windows 98、Windows 2000、Window XP Professional)

C) Ensure that the USB Legacy is "Disabled" in the CMOS setup. (Embedded OS: Windows XP Embedded、Window CE. NET、Linux RedHat 9)