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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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions: This device may not cause harmful interference, and This device must accept any interference received, including interference that may cause undesired operation.

Korea Communications Commission (KCC)

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About this manual

The service manual provides service information for the EC-1559. This manual is designed to help train service personnel to locate and fix failing parts on the machine.

This manual consists of the following sections:

Chapter 1 Getting Started:

This section covers unpacking and checking the package contents, and identifying components.

Chapter 2 BIOS Setup Utility:

The BIOS chapter provides information on navigating and changing settings in the BIOS Setup Utility.

Chapter 3 Installing Drivers and Software:

This chapter provides information for installing drivers.

Chapter 4 Locating the Problem:

Refer to this chapter to locate the failing part or cause of the problem that requires servicing.

Chapter 5 Replacing Field Replaceable Units (FRUs):

This chapter provides drawings and instructions to replace all FRUs.

Appendix: Optional Components, Exploded Diagram, and Parts List:

The appendix includes an exploded diagram of the machine and the parts list and order number for each part.

Safety information

Before servicing the machine, read the safety information under "Safety and precautions" on page 45.

Revision history

Version 1.0, September 2016

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CHAPTER 1 GETTING STARTED

This chapter describes how to unpack and identifying components on the device. The following topics are described.

- Unpacking the machine on page 1
- Identifying components on page 2

Unpacking the machine

It is a good idea to save the packaging materials and shipping box in case that machine needs to be returned for service. Please un-pack and re-pack the machine terminal as shown in Figure 1.1.



Figure 1.1 Unpacking the machine

Identifying components

This section describes the parts and connectors on the machine.

Front-right view



Figure 1.2 Front-right view

Component	Description	
1	15-inch TFT LCD	
2	LED Power Indicator/ HDD Indicator	
3	IO Panel Cover	
4	IO Panel	
5	Power Button	

2 CHAPTER 1 GETTING STARTED



Figure 1.3 Rear view

Component	Description	
1	MSR (optional) Slot	
2	VFD Customer Display (optional) Slot	
3	Cable Compartment	
4	HDD Compartment	
5	Cable Compartment Cover	

I/O connectors



Figure 1.4 EC-1559 I/O connectors

Connector	Description
1	COM 4 port
2	VGA port
3	COM 1 port
4	USB ports
5	RJ-11 cash drawer port
6	DC 12V input connector
7	PS/2 port
8	COM 3 port
9	COM 2 port
10	LAN jack
11	Parallel port
12	DC 12V output connector (for 2nd LCD Monitor)

CHAPTER 2 BIOS SETUP

The primary function of the BIOS (Basic Input and Output System) is to identify and initiate component hardware. The BIOS parameters are stored in non-volatile BIOS memory (CMOS). CMOS contents don't get erased when the computer is turned off. The following topics are described in this chapter.

- About the Setup Utility on page 5
- Main Screen on page 8
- Advanced Settings on page 9
- Chipset Settings on page 19
- Boot Settings on page 25
- Security Settings on page 26
- Save & Exit on page 27

About the Setup Utility

The BIOS Setup Utility enables you to configure the following items:

- · Hard drives, diskette drives, and peripherals
- Video display type and display options
- · Password protection from unauthorized use
- Power management features

This Setup Utility should be used for the following:

- When changing the system configuration
- · When a configuration error is detected and you are prompted to make changes to the Setup Utility
- When trying to resolve IRQ conflicts
- When making changes to the Power Management configuration
- · When changing the User or Supervisor password

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to run Setup

Press the delete key <Delete> to access the BIOS Setup Utility:



Figure 2.1 Main BIOS screen

BIOS navigation keys

The BIOS navigation keys are listed below.

Кеу	Function
$\leftarrow \rightarrow$	Moves between the available menus
$\uparrow\downarrow$	Moves the cursor between the displayed parameters
+_	Modifies the selected field's values
Enter	Go to sub screen
F1	Displays a general help screen
F9	Loads the default configurations
F10	Saves the current configuration and exits Setup
Esc	Exits the current screen

Using BIOS

When you start the Setup Utility, the main screen appears. The main screen of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle \blacktriangleright) lead to sub screens that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the sub screen.

Main Screen

This screen includes System BIOS Information, Processor, System memory and displays the System Time and System Date.



Figure 2.2 Main Screen

System Overview

This screen displays System BIOS Information, Processor, System memory, System Time and System Date.

System Time/ System Date

The System Time and System Date items show the current date and time held by the machine.

To set the time and date use the Tab key to move from field to field. Simply type the new number required.

If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Time and Date Properties utility.

Advanced Settings

This setup screen includes sub-menus for APCI Configuration, CPU Configuration, SATA Configuration, USB Configurations, Super IO Configurations and Hardware Health Configuration.



Figure 2.3 Advanced Settings Screen

ACPI Settings



Figure 2.4 ACPI Settings sub-menu

Enable Hibernation

This item allows user to enable or disable the hibernation feature for OS. This option may be not effective with some OS.

ACPI Sleep State

Use this item to define how the system suspends. In the default, S1 only (CPU Stop Clock), the suspend mode is equivalent to a software power down. If you select S3 only (Suspend To RAM), the suspend mode is a suspend to RAM - the system shuts down with the exception of a refresh current to the system memory.

Soft-Off by PWR-BTTN

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the normal power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec. then you have to hold the power button down for four seconds to cause a software power down.

Restore AC Power Loss

This item sets the system status after restore on AC power loss.

PME Wake up from S5

This feature allows the system wakeup on PME (Power Management Event).

Wake system with Fixed Time

This function is for setting the Date and Time for your computer to boot up. When enabled, more options will appear for you to specific the Date and Time.

Power Button

When disabled, the power button can't turn the system power off. When enabled, the power button can be used to turn off the system.

CPU Configuration



Figure 2.5 CPU Configuration sub-menu

Active Processor Cores

This feature allows you to increase or decrease the number of active processor cores.

Limit CPUID Maximum

When enabled, the processor will limit the maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value. When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

Execute-Disable Bit

This feature is used to protect certain system memory data regions from insertion and execution of potentially harmful code.

Intel Virtualization Technology

This feature allows you to enable or disable Intel Virtualization Technology support that allow multiple OS to run simultaneously on the same system.

Hardware Prefetcher

When enabled, the processor will automatically analyzes and prefetch data and code.

Adjacent Cache Line Prefetch

When enabled, the processor will retrieve the current requested cache line, as well as the subsequent cache line. When disabled, the processor will only retrieve the currently requested cache line.

TCC Activation offset

This item is used to set the TCC activation temperature.

SATA Configuration



Figure 2.6 SATA Configuration sub-menu

SATA Controller(s)

Use this item to enable or disable the on-chip SATA controller. The default setting is Enabled.

SATA Mode Selection

This item is used to configure SATA mode. The default setting is IDE.

IDE Legacy / Native Mode Selection

This item allows you to select IDE mode. Select Legacy mode for old OS such as Windows 98/2000. Select Native mode for Windows XP and later version.

SMART Self Test

This item is used to enable monitoring of hard disks that support the S.M.A.R.T. (Self-Monitoring And Reporting Technology) feature, which can allow the hard disk to report, under some circumstances, impending failures of the hard disk.

USB Configuration



Figure 2.7 USB Configuration sub-menu

Legacy USB Support

When enabled, the BIOS will enable legacy support for USB keyboards, mice and floppy drives. You will be able to use these USB devices even with operating systems that do not support USB.

EHCI Hand-Off

This item allows you to enable support for operating systems without an EHCI hand-off feature.

USB transfer time-out

This item allows you to specific the USB transfer timeout value for control, bulk, and interrupt transfers.

Device reset time-out

This item allows you to specific the timeout periods for USB device initialization and the Start Unit command to enable mass storage access operations.

Device power-up delay

This item allows you to select the time for devices report themselves to the Host Controller, including through USB hubs. When set to Auto, root port devices will be given 100 ms, while devices connected to hubs will be given time as specified in the Hub descriptor When this parameter is set to Manual, a delay from 1 to 40 seconds can be selected.

Super IO Configuration



Figure 2.8 Super IO Configuration sub-menu

Serial Port x Voltage select

This item allows you to set voltage for a serial port.

Watch Dog Degree

This item allows you to determine the functional degree of Watch Dog.

Watch Dog Timer

When select any time period, the Watchdog Timer will be enabled after that time period passes, every time the system boots up. It will monitor the time taken for each task performed by the operating system. Any timeout will cause it to reboot the computer.

CHASIS OPEN

This function allows you to enable/ disable case open detection.

Serial Port x Configuration



Figure 2.9 Serial Port x Configuration sub-menu

Serial Port x

This item allows you to enables or disables a serial port.

Change Settings

This item allows you to specific IO address and IRQ for the serial port.

Parallel Port Configuration



Figure 2.10 Parallel Port Configuration sub-menu

Parallel Port

This item allows you to enables or disables the parallel port.

Change Settings

This item allows you to specific IO address and IRQ for the parallel port.

Device Mode

This item allows you to set the data transfer protocol for the parallel port. There are four options: Standard Parallel Port Mode, EPP Mode (Enhanced Parallel Port), ECP Mode(Extended Capabilities Port), and ECP & EPP Mode. The default setting is Standard Parallel Port Mode. Extended Capabilities Port (ECP) and Enhanced Parallel Port (ECP) are bidirectional modes, allowing both data input and output. ECP and EPP modes are only supported with EPP- and ECP-aware peripherals.

H/W Monitor

Pc Health Status ShutDown Temperature GPU temperature : 436 °C GPU temperature : 436 °C GPU Fan Speed : N/A System temperature : 40.852 V DPU Yoore : 41.524 V +EV : 41.524 V +EV : 41.525 V YCC ID : 41.068 V + SVSB : 45.157 V VCC PCH : 41.068 V + SVSB : 41.068 V F1 General Heip F1: General Heip F2: General Heip F3: Gotinized Defaults F3: Optinized Defaults F3: Cotinized Defaults F3: Cotinized Defaults F3: Stit	Aptio Setup Util Advanced	ity – Copyright (C) 2012 An	merican Megatrends, Inc.
	PC Health Status ShutDown Temperature CPU temperature System temperature CPU speed System Fan Speed CPU vcore DRAH Voltage +12V + 5V Vcc IO + 5VSB Vcc PCH	[0 isabled] : +36 ¹ C : N/A : N/A : +0.852 V : +1.524 V : +1.552 V : +1.552 V : +5.157 V : +5.157 V : +1.066 V	ShutDown Temperature **: Select Screen 11: Select Item Enter: Select +/-: Change Qot. F1: General Help F3: Qotimized Defaults F10: Save & Exit ESC: Exit

Figure 2.11 Hardware Monitor sub-menu

Shutdown Temperature

This item allows setting the shutdown temperature. Once enabled, the machine will automatically shutdown when the temperature reaches the limit specified.

CPU PPM Configuration



Figure 2.12 CPU PPM Configuration sub-menu

EIST

This item allow you to enable or disable EIST (Enhanced Intel Speedstep Technology). When enabled, CPU will reduce power consumption.

CPU C3 Report

This item is used to enable or disable CPU C3 report to OS.

CPU C6 Report

This item is used to enable or disable CPU C6 report to OS.

CPU C7 Report

This item is used to enable or disable CPU C7 report to OS.

ACPI T State

This item is used to enable or disable Processor Throttling States.

Chipset Settings

This screen allow you to configure the chipset options.



Figure 2.13 Chipset Settings Screen

System Agent (SA) Configuration



Figure 2.14 System Agent (SA) Configuration submenu

PCH IO Configuration



Figure 2.15 PCH IO Configuration sub-menu

Onboard LAN

Use this item to enable or disable the onboard LAN controller. The default setting is Enabled.

Onboard LAN OPROM

This feature allows you to enable or disable the onboard LAN boot ROM to boot system.

Mini PCI Express Port

This item allows you to enable or disable the Mini PCI Express device.

ASPM

This item is used to select the level of PCI Express Active State Power Management.

PCIe Speed

This item is used to select Gen1 or Gen2 speed for PCIe.

Detect Non-Compliance Device

When enabled, system will detect non-compliance PCIe device, and take longer at POST time.

EuP Control

When enabled, the system will meet EuP requirement.

High Precision Timer

This item allows you to enable or disable the High Precision Timer feature.

USB Configuration



EHCI1, EHCI2

These item allow you to enable or disable USB 2.0 support.

Figure 2.16 USB Configuration sub-menu

Graphics Configuration



Figure 2.17 Graphics Configuration sub-menu

GTT Size

This field allows you to select how much system memory can be allocated to GTT.

Aperture Size

This field allows you to select how much system memory can be allocated to graphics chip for video purposes. The aperture is a portion of the memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the graphics chip without any translation.

DVMT Pre-Allocated

This item allows you to adjust system memory that can be pre-allocated as graphics memory.

DVMT Total Gfx Mem

This item allows you to set the maximum amount of system memory that can be allocated as graphics memory.

Boot Display Device

This option allows you to set the video device will enable during the POST.

LCD Panel Type

This item allows you to select the LCD panel type.

Panel Color Depth

This item allows you to select the color depth of the LCD panel.

Panel Scaling

This item allows you to determine how various resolutions appear on your screen.

Option	Description
Auto	The scaling unit on your graphics card will rescale the image before it reaches your LCD display. This option results in the best image quality.
Off	The image isn't scaled at all, but instead your LCD display will run at its maximum resolution and the image will display in the centre of your LCD display. This may result in a black border around the sides of the image.
Office Scaling	This option will maintain the original aspect ratio of the chosen resolution and display it with black bars to the sides/above/below the on-screen image as required.

LVDS Backlight

This feature allows you to adjust the backlight of the LCD monitor.

Backlight Control

This feature allows you to select the backlight control interface.

Spread Spectrum clock Chip

When the motherboard clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at Off for optimal system stability and performance.

Memory Configuration



Figure 2.18 Memory Configuration sub-menu

Memory Frequency Limiter

This item allows you to set the maximum frequency of system memory.

Max TOLUD

This field allows you to select the maximum value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

MRC Fast Boot

MRC Fast Boot can speed up system cold booting. This item allows you to enable or disable it.

Memory Remap

This item allows you to enable or disable Memory Remap feature.

Boot Settings

This screen allow you to configure the boot options.



Figure 2.19 Boot Settings Screen

Setup Prompt Timeout

This item allows you to select the number of seconds to wait for setup activation key.

Bootup Numlock State

This item is used to select the Power-on state for Numlock.

Full Logo Screen display

This item enables you to show the full screen logo on the bootup screen.

Option ROM Messages

This item allows you to set the display mode for option ROM.

Security Settings

This screen allows you to configure the system security settings.



Figure 2.20 Security Settings Screen

Create or Change Adminitrator/ User Password

An administrator password takes precedence over a user password, and the administrator can limit the activities of a user. To create or change a password, follow these steps:

- 1. Highlight the item Administrator/ User Password on the Security menu and press <Enter>.
- 2. The password dialog box appears.



- 3. If you are creating a new password, type in the password. You can type alphanumeric characters. Symbols are ignored. The Administrator/ User Password item differentiates between upper and lower case characters. Press <Enter> after you have typed in the password. To confirm the password, type the password again and press <Enter>.
- 4. Write the passwords down and keep them in a safe place.

Clear Adminitrator/ User Password

To clear the password, leave the dialog box blank, press <Enter>, when the confirm box appears, press <Enter> again.

Save & Exit

This screen allows you to load default setting values, save changes and discard changes.



Figure 2.21 Save & Exit Screen

Discard Changes and Exit

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit. When the dialog box appears, press <Yes> to discard changes and reset, or press <No> to return to the menu.

	-
	- N
	=
	_
N	OTE

If you have made settings that you do not want to save, use the "Discard and Reset" item and press Yes to discard any changes you have made.

Save Changes and Reset

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and restart the system. When the dialog box appears, press <Yes> to save and exit, or press <No> to return to the menu.

Restore Defaults

This option opens a dialog box that lets you load optimized defaults for all appropriate items in the Setup Utility. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. If you only want to load setup defaults for a specific option, select and display that option, and then press <F9>.

Follow these instructions to load the optimized defaults:

- 1. From the Save & Exit screen, scroll to Restore Defaults.
- 2. Press <Enter> to open the Load Optimized Defaults screen.
- 3. Select <Yes>.
- 4. Press <Enter> to load the defaults.
CHAPTER 3 INSTALLING DRIVERS AND SOFTWARE

This section explains how to install the drivers for the EC-1559.

The following topics are described.

- Driver auto installation on the page 29
- Intel Chipset Driver on the page 30
- Intel Chipset Graphics Driver on the page 32
- LAN Driver on the page 34
- Touch Screen Driver on the page 36

Driver auto installation

Use an external CD-ROM drive to install the drivers or copy the drivers to a USB flash drive and then plug to the machine. When you insert the CD ROM the following screen appears.



Check EC-1559 that is listed under the "Install Terminal Drivers" and "Install Device Drivers" menus.

Intel Chipset Driver

The Intel Chipset Device Software updates the Windows XP/7 INF files so that the Intel chipset is correctly configured. Follow these instructions to install the chipset software :

- 1. Browse to the \DRIVER\chipset\Intel\Inf folder.
- 2. Double-click setup.exe. The following screen appears. Click Next to continue.



3. Read the license agreement, then click Yes.



4. Browse the ReadMe Information, then click Next.

Intel® Chipset Device Software	
Intel® Chipset Device Software Readme File Information	intel
Refer to the Readme file below to view the system requirements and Press the Page Down key to view the rest of the file. * Product: Intel(R) Chipset Device Softw * Release: * Version: * Target: *	installation information.
* Date:	
< Back	Next > Cancel The Cancel The Cancel Cancel

5. The Intel Chipset Software Utility files are installed to the system. When prompted to restart, select **Yes, I want to restart my computer now.** Then click **Finish** to restart the system.



Intel Chipset Graphics Driver

This utility installs the Intel Extreme Graphics 2 drivers for Windows XP/2000. To install the drivers.

- 1. Browse to the \DRIVER\VGA\intel\ folder.
- 2. Double-click the executable file. The following screen appears. Click Next to continue.



3. Read the license agreement, then click Yes.



4. Browse the ReadMe Information, then click Next.

Intel® Graphics Media Accelerator Driver	- • ×
Intel® Graphics Media Accelerator Driver	
Readme File Information	intel
Refer to the Readme file below to view the system requirements and installation	on information.
Production Version Release Driver Revision: Display Audio Driver:	< III
* * * NOTE: This document refers to systems containing the * folic ssors/chipsets:	Cancel
	installation Framework

5. When installation is completed, select **Yes**, **I want to restart my computer now.** Then click **Finish** to restart the system.



LAN Driver

The network driver support Windows XP/2000. Refer to the following to install the drivers.

- 1. Browse to the \DRIVER\LAN\RealTek folder.
- 2. Double-click the executable file. The following screen appears. Click Next to continue.



3. Click Install to begin installation.



4. When installation is completed, click **Finish**.

Realtek Ethernet Controller Driver	
	instalismetu wizaru complete
	The InstallShield Wizard has successfully installed Realtek Ethernet Controller Driver. Click Finish to exit the wizard.
InstallShield	< <u>B</u> ack Finish Cancel

Touch Screen Driver

Refer to the following to install the touch screen driver.

- 1. Browse to the \DRIVER\Touch\eGalax folder.
- 2. Double-click setup.exe. The following screen appears. Click Next to continue.

eGalaxTouch		×
	Welcome to the InstallShield Wizard for eGalaxTouch The InstallShield Wizard will install eGalaxTouch on your computer. To continue, click Next.	
	< Back Next > Cance	I

3. Read the license agreement, check "I accept the term of the license agreement". Click Next to continue.

eGalaxTouch	×
License Agreement	
Please read the following license agreement carefully.	
	_
Declaration and Disclaimer	<u> </u>
The programs, including but not limited to software and/or firmware (hereinafter referred to "Programs" or "PROGRAMS"), are owned by eGalax_eMPIA Technology Inc. (hereinafter referred to EETI) and are compiled from EETI Source code. EETI hereby grants to licensee a personal, non-exclusive, non-transferable license to copy, use and create derivative works of Programs for the sole purpose in conjunction with an EETI Product, including but not limited to integrated circuit and/or controller. Any reproduction,	
copies, modification, translation, compilation, application, or representation or Programs except as specified above is prohibited without the express written permission by EETI.	
Disclaimer: EETI MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED,	Ŧ
I accept the terms of the license agreement Print	
I do not accept the terms of the license agreement	_
InstallShield	
Cance	:

4. Check the box for Install PS/2 interface drive and then click Next to continue.

eGalaxTouch	— ×
Setup Type Select the setup type that best suits your needs.	
Extra PS/2 interface driver for eGalaxTouch controller. Please check the check box for PS/2 touch controller.	
☑ Install PS/2 interface driver	
InstallShield	
< Back	Next > Cancel

5. System will give you a warning, click **OK** to continue.

eGalaxTou	ch - InstallShield Wizard	×
<u>^</u>	Warning: The PS/2 mouse port was selected. The PS/2 mouse may be disabled when the computer is restarted.	
	ОК	

6. Uncheck the box for Install RS232 interface drive and then click Next to continue.

eGalaxTouch	—
Setup Type Select the setup type that best suits your needs.	
Extra RS232 interface driver for eGalaxTouch controller. Please check the check box for RS232 touch controller.	
Install RS232 interface driver	
InstallShield	
< Back	Next > Cancel

7. Check the box for None and then click Next to continue.

eGalaxTouch	(x
Setup Type		
Select the setup type that best suits your needs	λ.	
Do 4 point calibration after system reboot		
🗇 Every system boot up		
Next system boot up		
None		
InstallShield		
	<back next=""> Cancel</back>	

8. System will give you a warning, click OK to continue.



9. Uncheck the box for Support Mulit-Monitor System and then click Next to continue.

eGalaxTouch	×
Setup Type Select the setup type that best suits your needs.	
If you want to use Multi-Monitor, please check the box.	
Support Multi-Monitor System	
InstallShield	
< Back Next > Cance	

CHAPTER 3 INSTALLING DRIVERS AND SOFTWARE

10. Click Next to continue.

eGalaxTouch		×
Choose Destination Location		
Select folder where setup will install files.		
Setup will install eGalaxTouch in the following) folder.	
To install to this folder, click Next. To install to another folder.	a different folder, click Browse and select	
Destination Folder		
C:\Program Files\eGalaxTouch	Browse	
InstallShield		
	<pre></pre>	

11. Click Next to continue.

eGalaxTouch	×
Select Program Folder Please select a program folder.	
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.	
rtogram rouer: leGalaxTouch	
Existing Folders: Administrative Tools Adhobe Games Maintenance Startup Tablet PC	
InstallShield	
Cancel	

12. Click Next to continue.



13. Click Yes, I want to restart my computer now and then click Finish.

eGalaxTouch	
	InstallShield Wizard Complete Setup has finished installing eGalaxTouch on your computer. Yes, I want to restart my computer now. No, I will restart my computer later. The eGalaxTouch driver has been installed. To ensure proper operation the computer needs to be restarted.
	< Back Finish Cancel

Calibrating the touchscreen

Follow these instructions to calibrate the touchscreen using the TouchKit application:

- 1. Launch the TouchKit application from the Windows desktop by clicking on **Start > All Programs** > eGalaxTouch > Configure Utility.
- 2. Select the **Tools** page.

🔄 eGalaxTouch : PS/2 Controller 🛛 📀 🔁					×		
General	Setting	Tools	S Edge Compensation Hardware About				
Linea	arization Cur	/e					
4 F	Points Calibra	bo 4 points		alignment	to mate	ch display.	
Cle	Clear and Calibrate Clear linearization parameter and do 4 points alignment.			and do 4 points			
	Linearization Do 9 points linearization for better touchscreen linearity.			'n			
	Draw Test Do draw test to verify the touch accuracy.						
			OK		Cance	el App	ly –

- 3. Click the 4 Points Calibration button.
- 4. Use your finger to touch the blinking X Symbol on the screen until stop blinking.



5. Click **OK** to complete the 4 points calibration.





You may also use this application to adjust the touch settings.

CHAPTER 4 LOCATING THE PROBLEM

Refer to this section to locate the problem with the machine. The following topics are described.

- General checkout guidelines on the page 43
- Cash drawer checkout on the page 43
- LCD symptoms on the page 44
- Touch screen symptoms on the page 45
- Power symptoms on the page 45
- Network symptoms on the page 45
- USB symptoms on the page 46
- · Peripheral-device symptoms on the page 46
- Boot symptoms on the page 46
- Mainboard jumper on the page 47
- Mainboard connectors on the page 49
- Inverter connectors on the page 49

General checkout guidelines

Use the following procedure to troubleshoot problems:

- · Identify as many symptoms as possible in detail.
- · Verify symptoms by recreating them.
- Follow the corrective procedures in order.
- If you replace an FRU and the symptom remains, reinstall the original FRU before going to the next step. Do not replace non-defective FRUs.

Cash drawer checkout

Refer to the following to check for a cash drawer problem.



The cash drawer RJ-11 connector is DC+24V. Ensure the cash drawer to be connected matches this power specification.

1. Connect the RJ-11 cable from the cash drawer to the RJ-11 connector on the machine as shown in Figure 4.1.



Figure 4.1 Connecting a cash drawer

2. Turn on the machine .

Refer to the following to prevent incorrect cash drawer status detection by the system:

Port	I/O Port Address	Bit	Condition	Note
Cashdrawer A Control port	50E	8	$High(1) \rightarrow Close$ $Low(0) \rightarrow Open$	If Bit is set to Low to open the cash drawer, after it must be set back to High to prevent the system as always detecting the drawer as open.
Cashdrawer B Control port	50E	20	$High(1) \rightarrow Close$ $Low(0) \rightarrow Open$	
Cashdrawer A Status port	53A	4	$\begin{array}{l} \text{High}(1) \rightarrow \text{Close} \\ \text{Low}(0) \rightarrow \text{Open} \end{array}$	
Cashdrawer B Status port	53A	10	$\begin{aligned} \text{High}(1) &\to \text{Close} \\ \text{Low}(0) &\to \text{Open} \end{aligned}$	

LCD symptoms

Symptom	Corrective Procedure
 LCD backlight is not working but text is still visible on screen 	 Reseat the LCD cable. Reseat the inverter cables. Replace the inverter cables. Replace the inverter.
• LCD backlight is working but text is not visible on screen	 Reseat the LCD cable. Reseat the inverter cables. Replace the LCD.
 LCD screen is garbled Characters are missing pixels Screen is distorted Screen displays wrong color Screen displays extra vertical/horizontal lines 	 Reseat the LCD cable. Replace the inverter cables. Replace the LCD panel. Replace the mainboard.

Touch screen symptoms

Symptom	Corrective Procedure
Touchscreen does not function	1. Install and run the touchscreen calibration program from the driver CD.
 No virtual mouse 	2. Reseat the panel cable.
Cursor doesn't follow when	3. Reseat the touchscreen board-to-touch panel cable.
touching the screen	4. Replace the touch control board.
	5. Replace the touch panel.

Power symptoms

Symptom	Corrective Procedure
 Power shuts down unexpectedly Cannot turn the system on	 Reseat the power AC adapter cable. Reseat the power AC adapter. Replace the mainboard.
• Cannot turn the system off	 Hold down the power button for four seconds. Replace the mainboard.

Network symptoms

Symptom	Corrective Procedure	
Cannot access LAN	1. Confirm that network hub/switch (if present) is functioning correctly.	
	2. Reseat the RJ-45 cable.	
	3. Confirm green and orange LED activity of the RJ-45 jack	
	4. Check the network TCP/IP settings.	
	5. Remove and reinstall the driver.	
	6. Replace the network cable.	
	7. Replace the mainboard.	

USB symptoms

Symptom	Corrective Procedure
• USB device does not function	1. Check that the USB device is detected in Windows Device Manager.
	2. Reinstall the USB device driver.
	3. Replace the mainboard.

Peripheral-device symptoms

Symptom	Corrective Procedure
USB ports do not work	1. Reseat the I/O cable.
COM ports do not work	2. Reinstall the drivers.
	3. Replace the mainboard.

Boot symptoms

Symptom	Corrective Procedure
System continually reboots on power up	 Restore the BIOS defaults. Remove all I/O device drivers, then reinstall the drivers one by one. Reseat the SATA cable. Reseat the memory card. Reseat the power adapter. Replace the mainboard.

Mainboard jumper



Jumper	Setting	Description
JLV1	1-2 Closed	5V
(LCD Backlight Inverter Power Select Jumper)	2-3 Closed	12V
JLV2	1-2 Closed	3.3V
(LCD Panel Power Select Jumper)	2-3 Closed	5V
JLV3	1-2 Closed	Voltage Level Mode
(Backlight Control Mode Select Jumper)	2-3 Closed	PWM Mode

Jumper	Setting	Description
JP2 (COM3 Power Select Jumper)	1-2 Close	5V
	3-4 Close	RING
	5-6 Close	12V
JP3 (COM4 Power Select Jumper)	1-2 Close	5V
	3-4 Close	RING
	5-6 Close	12V
JCMOS1 (Clear CMOS Jumper)	1-2 Close	Keep Data
	2-3 Close	Clear CMOS
J1 (CN2 USB Power Select Jumper)	1-2 Close	5V
	2-3 Close	3.3V

Mainboard connectors



Figure 4.3 EC-1559 mainboard connectors

Inverter connectors



Figure 4.4 Inverter connectors

CHAPTER 5 REPLACING FIELD REPLACEABLE UNITS (FRUs)

This chapter provides instructions for replacing FRUs. The following topics are described.

- · Safety and precautions on the page 51
- Before you begin on the page 52
- Replacing parts on the page 52
- HDD on the page 53
- IO Panel Cover on the page 54
- Stand Base Back Cover on the page 54
- Stand Base on the page 55
- Back Cover on the page 56
- Speaker on the page 57
- Power Button on the page 58
- COM4 port and PS/2 Port on the page 58
- I/O Shield on the page 59
- Memory on the page 59
- Battery on the page 60
- Mainboard on the page 60
- · Inverter on the page 61
- Panel Bracket on the page 62
- Waterproof Seal, Touch Panel, Touch Cover, LCD Panel on the page 62

Safety and precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow these guidelines to avoid damage to the computer or injury to yourself.

- Always disconnect the unit from the power outlet.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.



Only qualified personnel should perform repairs on the EC-1559. Damage due to unauthorized servicing is not covered by the warranty.



If the LCD breaks and fluid gets onto your hands or into your eyes, immediately wash with water and seek medical attention.



Under no circumstances touch the inverter while power is connected to the machine. Unplug the power cord before attempting to replace any FRU.



To prevent static damage to components, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.



Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board. Do not hold components such as a processor by its pins; hold it by the edges.

Before you begin

Make sure you have a stable, clean working environment. Dust and dirt can get into the EC-1559 components and may cause malfunction. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the electrical and mechanical connections can be disconnected by using your fingers. It is recommended that you do not use needle-nosed pliers to disconnect connectors as these can damage the soft metal or plastic parts of the connectors.



To prevent scratching the case of the EC-1559, make sure the worktop surface is clean and flat. If you need to put the display facing down, be sure to use a foam mat.

Replacing parts

Take note of the following when replacing parts:

- If you replace an FRU and the symptom remains, reinstall the original FRU before going to the next step. Do not replace non-defective FRUs.
- When replacing a malfunctioning component, other parts that have to be removed before the failing part are listed at the top of the page.
- The arrows in the following procedures show the direction of movement to remove/replace a part, or to turn a screw or key to release a device.
- Always use the correct screw size as indicated in the procedures.
- Always use new screws.
- To replace a part, reverse the removal procedure.

HDD

Refer to the following to remove and replace the hard drive.



To replace the hard drive, reverse the above procedure.

IO Panel Cover

- 1. Flip up the LCD panel
- 2. Remove two screws from the IO panel cover and remove the cover.



Stand Base Back Cover



Stand Base



Back Cover





To avoid the thermal issue. When you replace the back cover, check the thermal pads should be complete and stuck on the CPU and chip. If the thermal pads damaged, replace them.

When replace the back cover, the two standoff screws must be installed as shown below. Tighten both of the screws until they resist and stop.



Speaker



Power Button



COM4 port and PS/2 Port



I/O Shield



Memory

Before proceeding, remove the following FRUs.

- "Back Cover" on page 56.
- 1. Open the clips.
- 2. Pull out the memory module.



Battery

Before proceeding, remove the following FRUs.

- "Back Cover" on page 56.
- 1. Open the hock.
- 2. Pull out the battery.



Mainboard

Before proceeding, remove the following FRUs.

- "Back Cover" on page 56.
- "COM4 port and PS/2 port" on page 58.
- "I/O Shield" on page 59.
- 1. Disconnect all cables from the mainboard.
- 2. Remove eight screws.
- 3. Remove the mainboard.



Inverter



Panel Bracket



Waterproof Seal, Touch Panel, Touch Cover, LCD Panel



APPENDIX PART LIST AND SPECIFICATION



Figure 6.1 Exploded diagram main parts



Figure 6.2 Exploded peripheral parts
Part list

(*) is option

NO.	DESCRIPTION	ITEM NO
1	Front Cover AL	2100050470001
2	Waterproof seal	25005500B0004
3	HT Tocuh/15"	2619040300007
4	Touch Holder	25003500B0002
5	TFT LCD/15"	2614550150104
6	MB Bracket	2610550085300
7	LED Lans	2500350470000
8	Inverter	2614571150108
9	MB PCB	2610550085001
10	Inverter Cover	2100450030045
11	IO Bracket	2100450085010
12	Power Switch	2500305013004
13	Switch Bracket	2100450470000
14	Power button	2500350080305
15	W/O MSR Cover (*)	2500350470103
16	Speaker	1379999000019
17	IO COVER	2500350080307
18	W/O VFD Cover (*)	2500350470101
19	Panel Back Cover AL	2100050470000
20	WiFi Cover	2500350470104
21	2.5" HDD Bracket	2100450085002
22	Impact Buffering	2509040500852
23	2.5" HDD 160GB	2611571101604
24	Panel HDD Cover	2500350470100
25	Hinge Mount Cover	2500350085103
26	HDD Cable Bracket	21004500S0006
27	Hinge Mount Cover	2500350470300
28	Hinge Left	2108100000025
29	Stand base cover	2500250470300
30	Cuscapi Logo	2507450470000

NO.	DESCRIPTION	ITEM NO
31	Hinge right	210810000024
32	Stand base AL	2100250470000
33	Foot	2509030503011
34	Cable	1721209110009
35	Cable	1721211090009
36	DC Jack Cable	1721212000006
37	Inverter Cable	1721217000016
38	LCD cable	1721217230005
39	Power Switch Cable	1721217240002
40	MSR Cable	1721317171714
41	SATA Cable	1721300282809
15-*	MSR Module	7705008591000
15-1	MSR Front Cover	2500050470100
15-2	MSR	2690605100011
15-3	MSR Bracket	25003500M2102
15-4	MSR PCB	7005000001015
15-5	MSR Back Cover	25002500M2001
18-*	VFD Module	770500\$590000
18-1	VFD Top Cover	2500050410010
18-2	VFD winder	25070500B0001
18-3	VFD PCB	7005503213110
18-4	VFD Hinge	210810000023
18-5	VFD Hinge Bracket	21004500B0050
18-6	VFD Base Cover	2500250410008
18-7	VFD Foot	2509030500B02
18-8	VFD Holder	2500350470102
18-9	VFD Cable	1721200170011

Specifications

Item	EC-1559	
CPU Type	Intel [®] Processor Celeron [®] 1.8 GHz dual core fanless design	
Chipset	Intel chipset	
LCD	15" LCD, resolution 1024 x 768 LED backlight	
Touch	ELO 5-wire resistive touch screen, ELO Touch control board(RS-232 interface)	
Memory	2GB RAM	
Ethernet	Onbaord 10/100/1000 BASE-T Gigabit Ethernet	
Storage	Internal 2.5" 320G HDD	
	4 * COM ports (COM1~3 on rear I/O, COM1~2 powered with DC+0/5/12v, BIOS selection COM3~4 powered with DC+0/5/12v, Jumper selection)	
	1 * DB-15 VGA port	
	1 * RJ11 port supports 2 cash drawer (DC+24v)	
External I/O Interface	1 * DB-25 for LPT port	
	1 * PS/2 KB	
	1 * RJ-45 LAN port with activity and link LEDs	
	1 * DC+12v out	
	4* USB 2.0	
	1 * DC +12V input power-jack	
Operation System	POS Ready 2009, POS Ready7,Windows XP, Windows 7, Windows 8.1 Industry Pro Retail, Linux (ubuntu)	
Power Supply	AC100~240V/DC+12V, 90 watt power adaptor	
Physical Dimensions	356mm (W) x220mm (D) x 335mm (H)	
Operating Temp	$0^{\circ}C \sim +40^{\circ}C$	
Storage Temperature	$-20^{\circ}C \sim +60^{\circ}C$	
Humidity	$15\% \sim 80\%$	
Certification	CE, FCC, LVD, VCCI, BSMI, 3C, Class A	