

K875

Hardware Service Guide

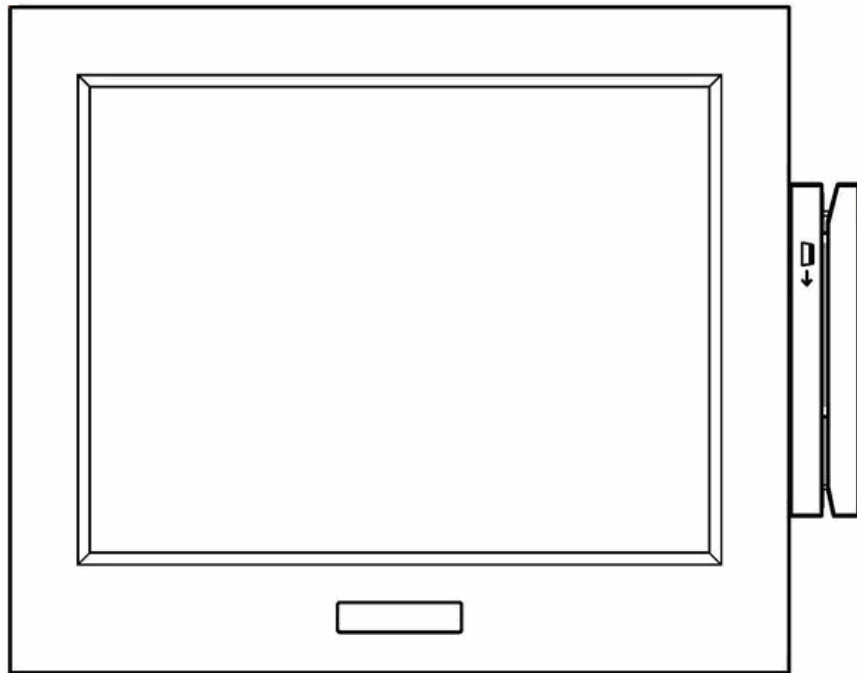


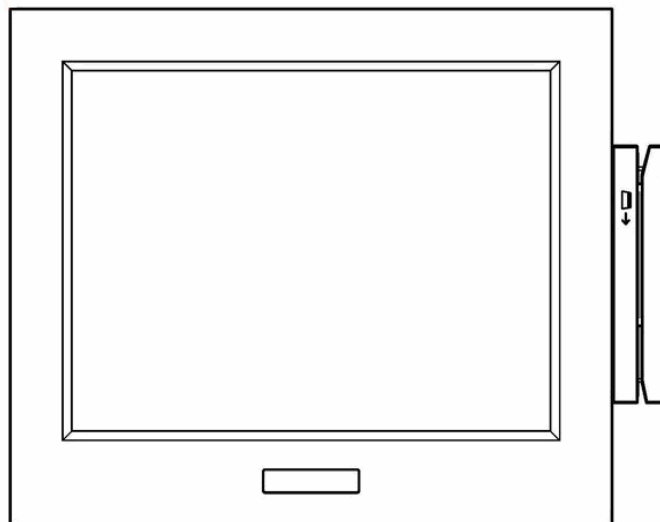
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Chapter 1: Product Overview

The K875 is a new milestone in Panel PC. Its ultra compact design and sleek appearance create a breakthrough image. Innovate tool-free serviceability allows you to change main board and HDD in minutes. The K875 uses Intel Mobile technology supporting a variety of CPU demands. It also combines advanced SAW touch technology providing reliable and durable touch interface. 15" display, motion sensor, WLAN, IrDA, rich I/O ports and optional MSR and scanner offer a flexible and multi-functional platform. Rugged retail-hardened design, NEMA 3 / IP 55 dust and water resistant display front fit it into severe in-store environments. With multiple mounting options, the K875 can be installed in wide range applications like retail, healthcare, transportation, travel / tourism, signage, government, banking, entertainment and other fields. K875 is everywhere. It surpasses your expectation.



Chapter 2: Power-On Self-Test (POST) Errors

During the power on self test (POST), if the BIOS detects an error requiring you to do something, it will either sound a beep code or display a message. If a message is displayed, it will be accompanied by the following:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

Currently there is only one beep code in the BIOS. A single long beep followed by two short beeps indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information.

One or more of the following messages may be displayed if the BIOS detects an error during the POST.

Error Message	Corrective Action
BIOS ROM checksum error-System halted	The checksum of the BIOS code in the BIOS chip is incorrect, indicating the BIOS code may have become corrupt. Replace the BIOS.
CMOS battery failed	CMOS battery is no longer functional. Replace battery.
CMOS checksum error Defaults loaded	Checksum of CMOS is incorrect, so the system loads the default equipment configuration. A checksum error may indicate that CMOS has become corrupt. This error might have been caused by a weak battery. Check the battery and replace if necessary.
CMOS Checksum Error Dick Boot Failure, Insert System Disk and press [ENTER]	Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.
CPU at nnnn	Displays the running speed of the CPU.

Error Message	Corrective Action
Diskette Drivers or Types Mismatch Error-Run Setup	Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.
Display switch is set incorrectly.	The display switch on the motherboard can be set to either monochrome or color. This message indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper; or, enter Setup and change the VIDEO selection.
Display Type has changed Since Last Boot Changed.	Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.
EISA Configuration Checksum Error	The EISA nonvolatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA nonvolatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.
EISA Configuration Is Not Complete	The slot configuration information stored in the EISA nonvolatile memory is incomplete.
Error Encountered Initializing Hard Drive	Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.
Error Initializing Hard Disk Controller	Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

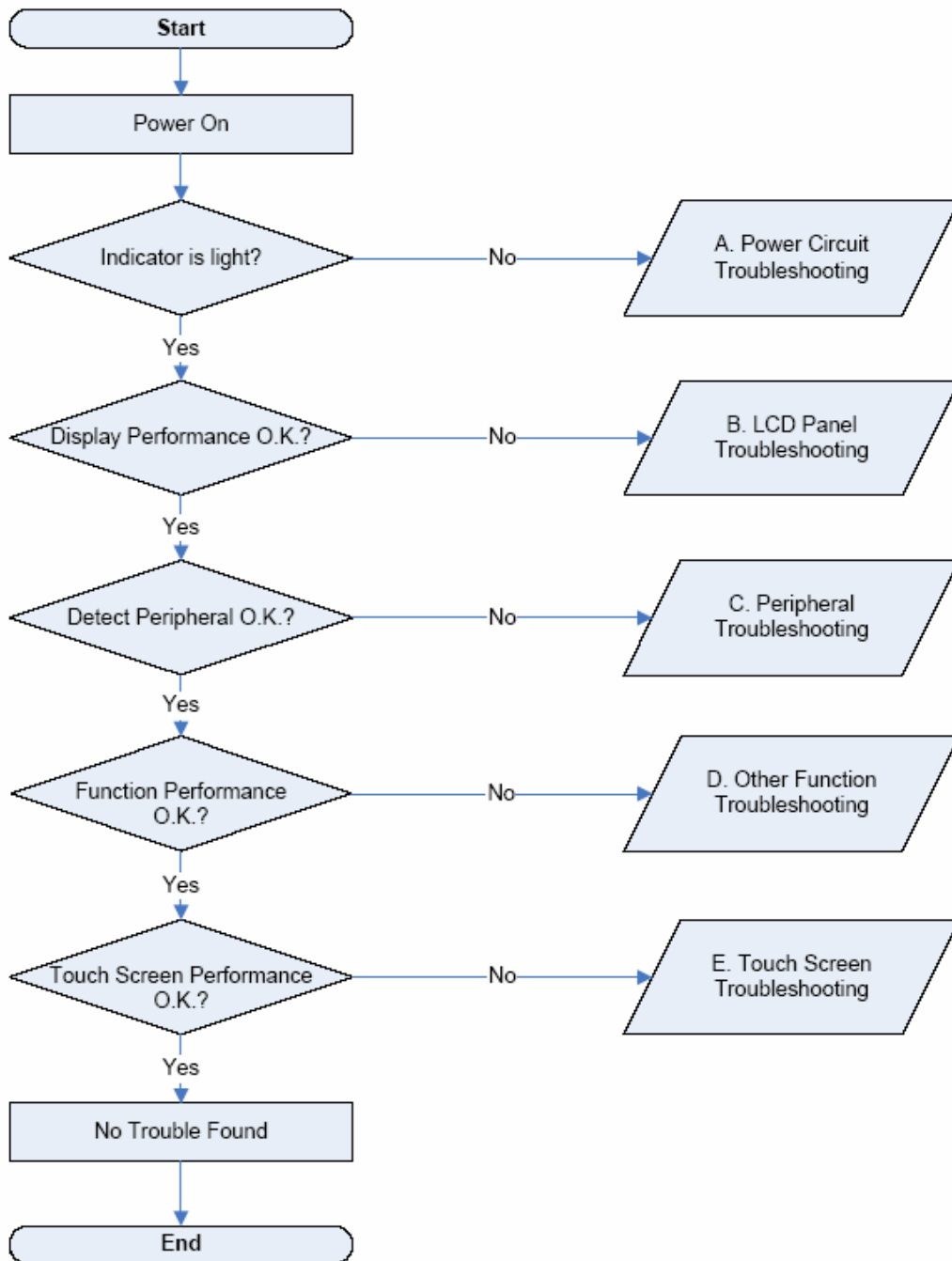
Error Message	Corrective Action
Floppy Disk CNTRLR Error or No CNTRLR Present	Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.
Floppy disk(s) fail	Cannot find or initialize the floppy drive controller or the drive. Make sure the controller is installed correctly. If no floppy drives are installed, be sure the Diskette Drive selection in Setup is set to NONE or AUTO.
Hard Disk Initializing Hard Disk Install Failure	Cannot find or initialize the hard drive controller or the drive. Make sure the controller is installed correctly. If no hard drives are installed, be sure the Hard Drive selection in Setup is set to NONE.
Hard Disk(s) diagnosis fail	The system may run specific disk diagnostic routines. This message appears if one or more hard disks return an error when the diagnostics run.
Invalid EISA Configuration	The nonvolatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Return EISA configuration utility to correctly program the memory.
Keyboard error or no keyboard present	Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot. If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Error Message	Corrective Action
Keyboard is locked out unlock the key	This message usually indicates that one or more keys have been pressed during the keyboard tests. Be sure no objects are resting on the keyboard.
Memory Address Error at...	Indicates a memory address error at a specific location. You can use this locating along with the memory map for your system to find and replace the bad memory chips.
Memory parity Error at...	Indicates a memory address error at a specific location. You can use this locating along with the memory map for your system to find and replace the bad memory chips.
Memory Size has Changed Since Last Boot	Memory has been added or removed since the last boot. In EISA mode, use configuration utility to reconfigure the memory configuration. In ISA mode, enter Setup and enter the new memory size in the memory fields.
Memory Test	This message displays during a full memory test, counting down the memory areas being tested.
Memory test fail:	If POST detects an error during memory testing, additional information appears giving specifics about the type and location of the memory error.
Memory Verify Error at...	Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

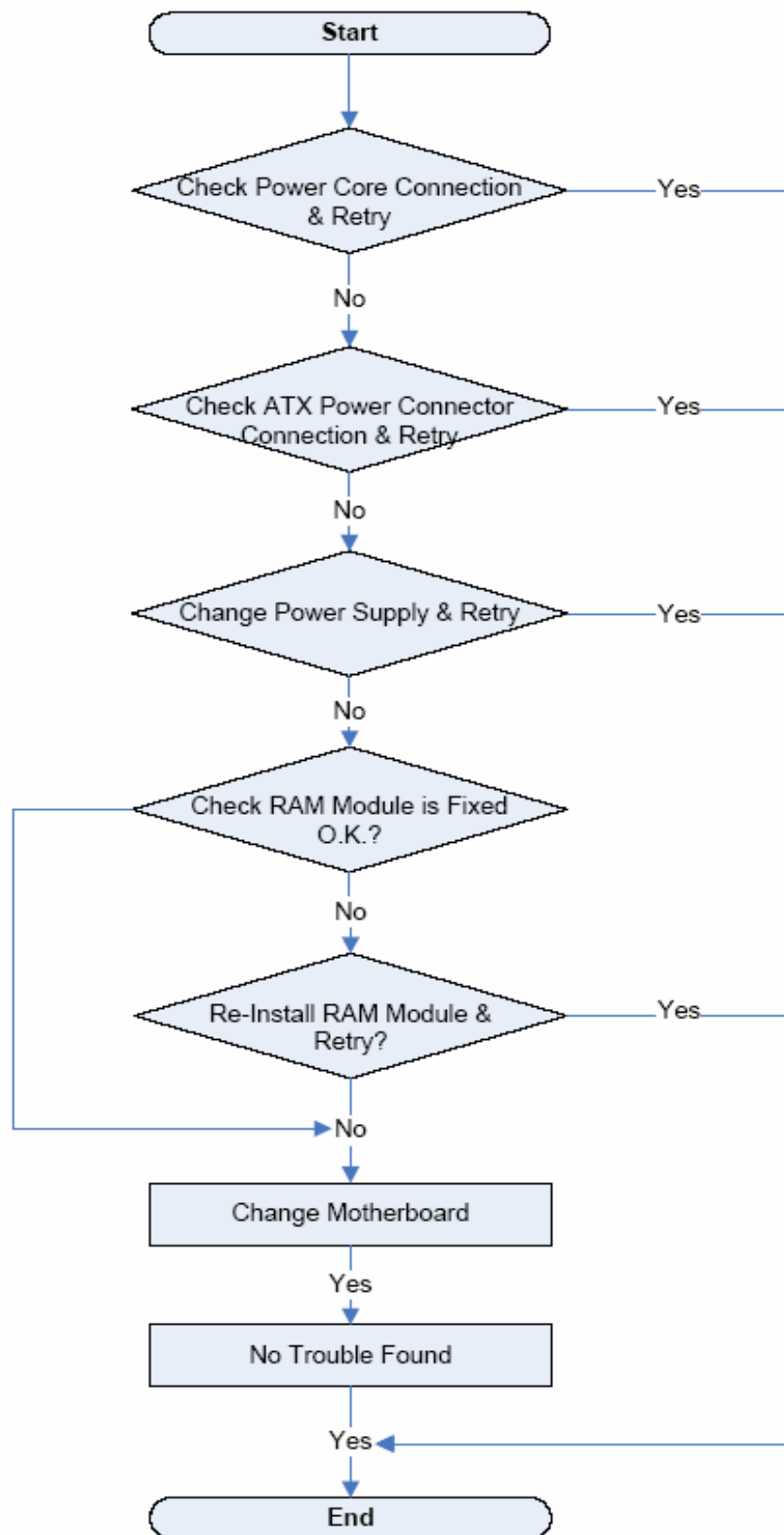
Error Message	Corrective Action
No boot device was found	This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into drive A: and press Enter. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.
Offending Address Not Found	This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.
Offending Segment:	This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.
Override enabled defaults loaded	If the system cannot boot using the current CMOS configuration, the BIOS can override the current configuration with a set of BIOS defaults designed for the most stable, minimal-performance system operations.
Press a Key to Reboot	This will be displayed at the bottom of the screen when an error occurs that requires you to reboot. Press any key to reboot the system.
Press ESC to skip memory test	You can press ESC to skip the full memory test.
Press [F1] to Disable NMI, [F2] to Reboot	When BIOS detects a non-maskable interrupt condition during boot, this will allow you to disable the NMI and continue to boot; or you can reboot the system with the NMI enabled.

Error Message	Corrective Action
Press TAB to show POST screen	System OEMs may replace the Award BIOS POST display with their own proprietary display. Including this message in the OEM display permits the operator to switch between the OEM display and the default POST display.
Primary master hard disk fail	POST detects an error in the primary master IDE hard drive.
Primary slave hard disk fail	POST detects an error in the secondary master IDE hard drive.
RAM Parity Error Checking for Segment	Indicates a parity error in RAM.
Resuming from disk, Press TAB to show POST screen	Award offers a save-to-disk feature for notebook computers. This message may appear when the operator restarts the system after a save-to-disk / shutdown. See the Press Tab ... message earlier for a description of this feature.
Secondary master hard disk fail	POST detects an error in the primary slave IDE hard drive.
Secondary slave hard disk fail	POST detects an error in the secondary slave IDE hard drive.
Should Be Empty But EISA Board Found	A valid board ID was found in a slot that was configured as having no board ID.
Should HAVE EISA Board But Not Found	The board installed is not responding to the ID request, or no board ID had been found in the indicated slot.
Slot Not Empty	Indicates that a slot designated as empty by the EISA configuration utility actually contains a board.
System Halted, [CTRL-ALT-DEL] to reboot...	Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the Ctrl and Alt keys and press Del.
Wrong Board In Slot	The board ID does not match the ID stored in the EISA nonvolatile memory.

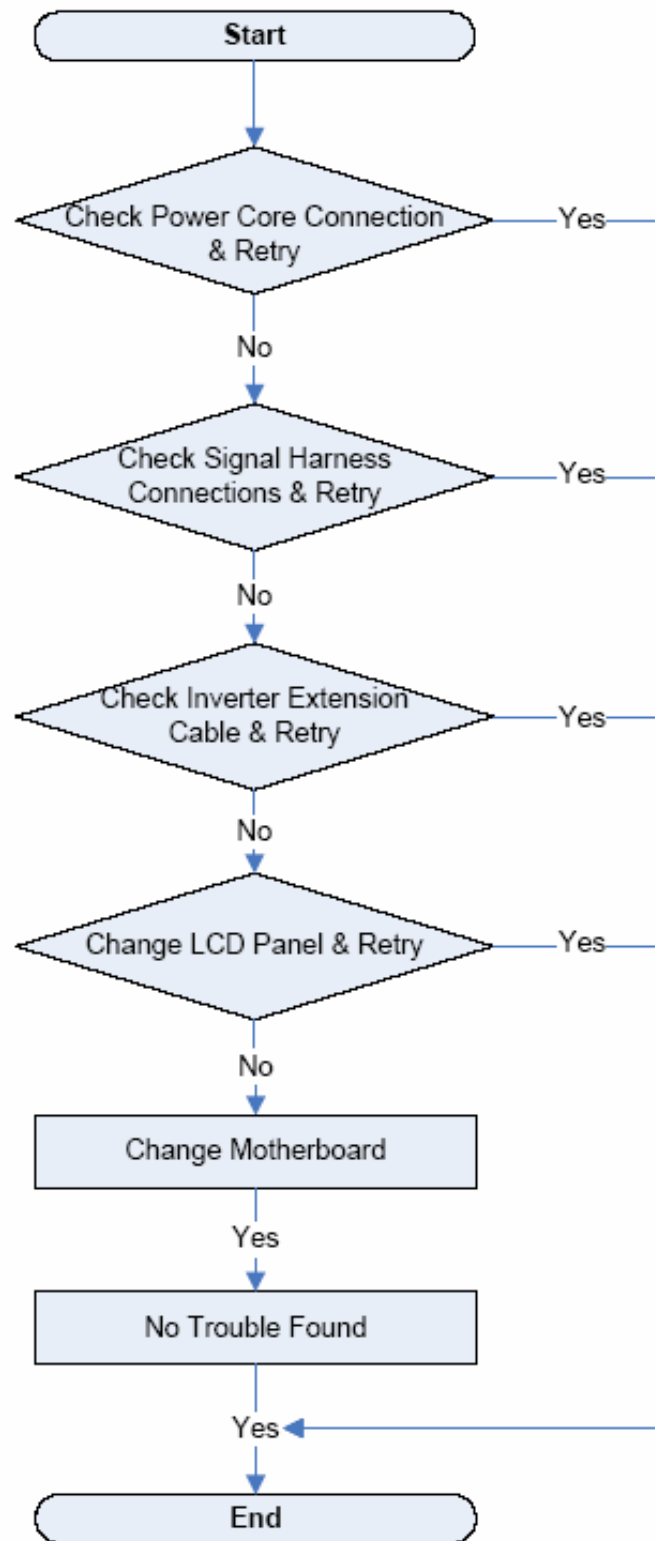
Chapter 3 : Troubleshooting



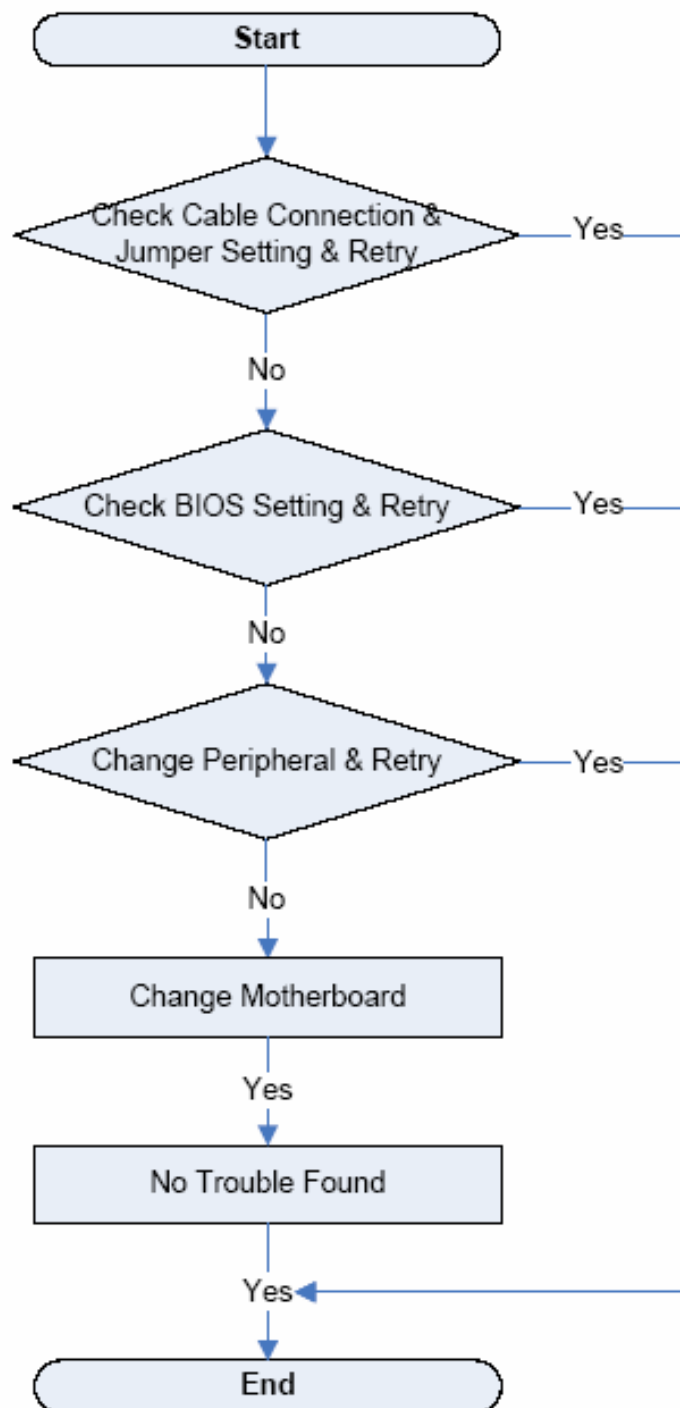
Power Circuit Troubleshooting



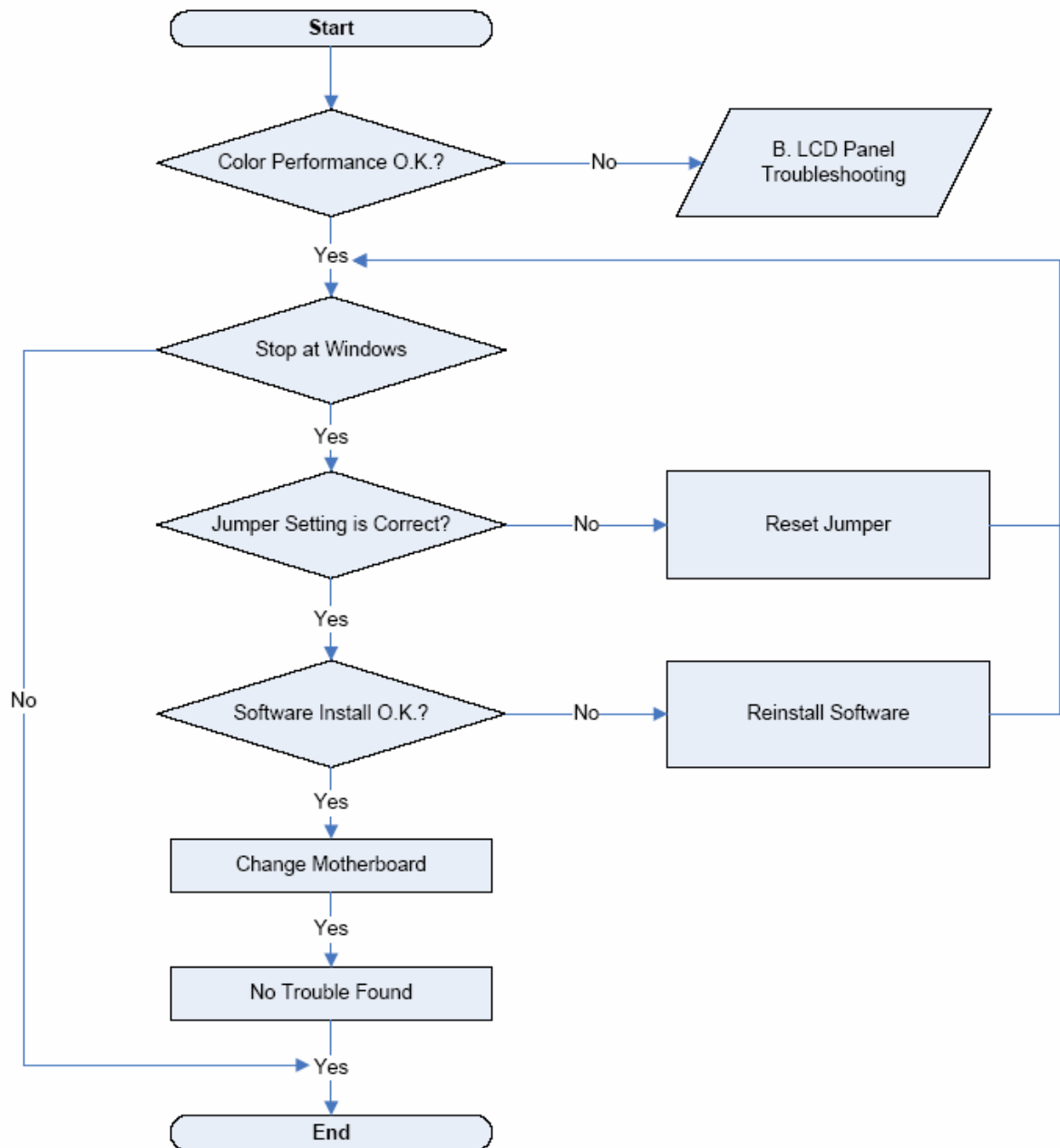
LCD Panel Troubleshooting



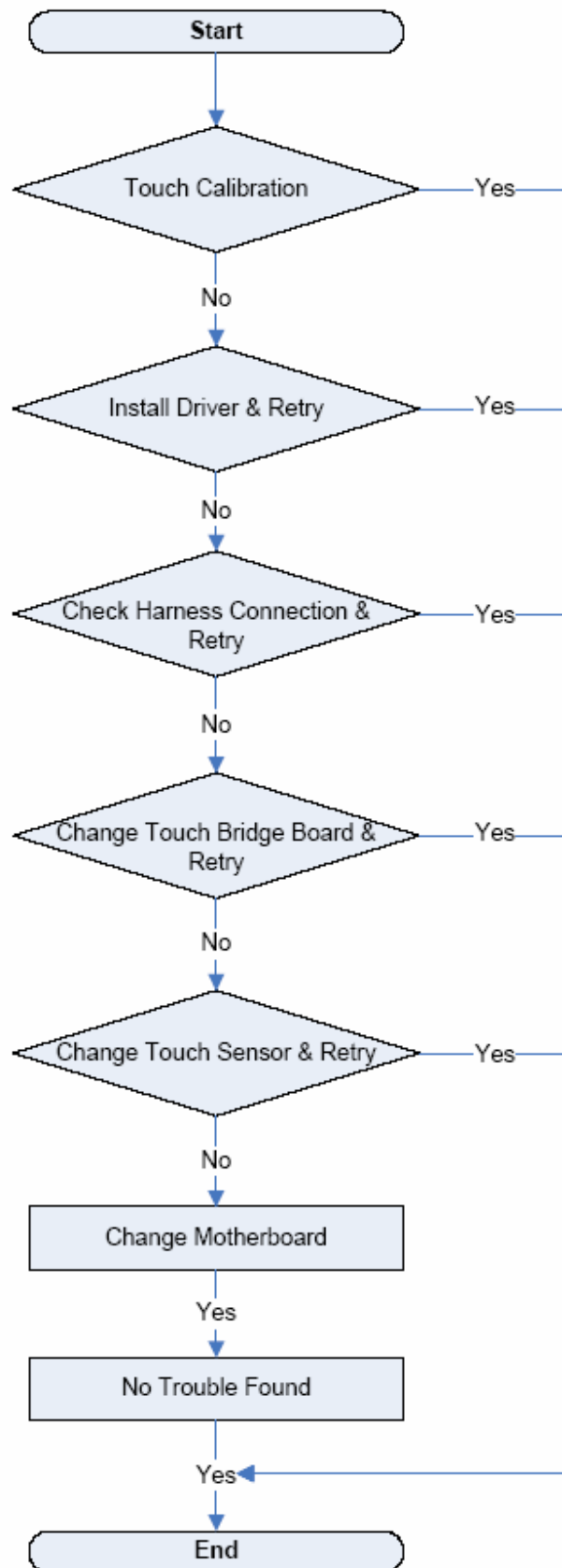
Peripheral Troubleshooting



Other Function Troubleshooting



Touch Screen Troubleshooting



Chapter 4 : Hardware Service

Introduction

This chapter discusses procedures for disassembling the K875 hardware for servicing.

Topics include:

- Safety requirements
- Tools used
- Back Panel Cable connectors
- Disassembly procedures
- Board strapping information

Safety requirements

Caution: This product does not contain user serviceable parts. Servicing should only be performed by a qualified service technician.

Fuse Replacement

Caution: For continued protection against risk of fire, replace only with the same type and ratings of fuse.

Lithium Battery Warning

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

IT Power System

This product is suitable for connection to an IT power system with a phase-to-phase voltage not exceeding 240V.

Peripheral Usage

This terminal should only be used with peripheral devices that are certified the appropriate safety agency for the country of installation (UL, CSA, TUV, VDE).

Caution: DO NOT connect or disconnect a printer, keyboard, or any other terminal-powered peripheral while the terminal is powered on. Doing so may result in peripheral or system damage.

Grounding instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment – grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment – grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment – grounding conductor to a live terminal. Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if you are in doubt as to whether the product is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the product's plug. **Repair or replace damaged or worn cords immediately.**

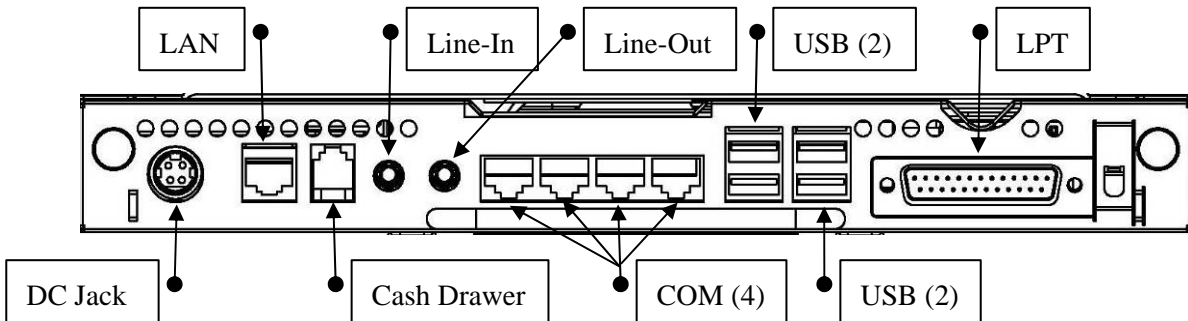
Tools Used

The tools used for servicing are the following:

- 3.5mm Precision Screwdriver – This is used for all flat-head screws.
- 3/16 Hex Screwdriver – This is used for all hex-screws located at the back of the terminal.
- #1 and #2 Philips Screwdrivers – It is highly recommended to use screwdrivers that are magnetized at one end in order to handle the screws easily.
- 4IN Slot Screwdrivers – This is used for the slot screws.

Back Cable Connectors

The peripherals connect to the Back Connectors.



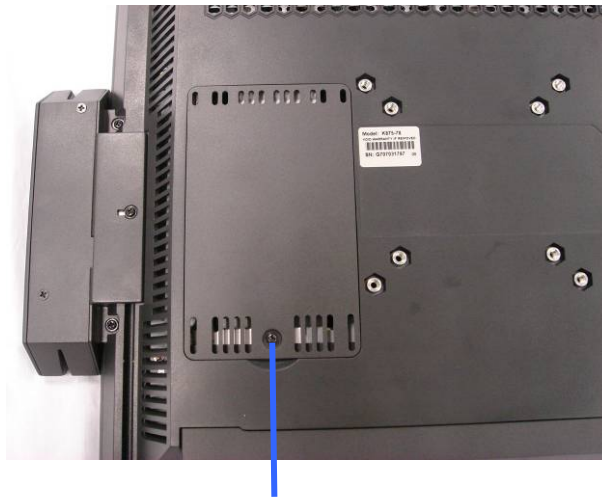
Terminal Disassembly Procedure

This section explains how to disassemble the K875 for service purposes.

Warning: Disconnect the AC power cord before disassembling the Terminal.

Removing the HDD

1. Remove the screw (1).



Screw (1)

2. Remove the HDD door.



3. Remove the HDD by pulling on the tag.



4. Disconnect the HDD cable (1).



HDD cable (1)

Removing the Motherboard Tray

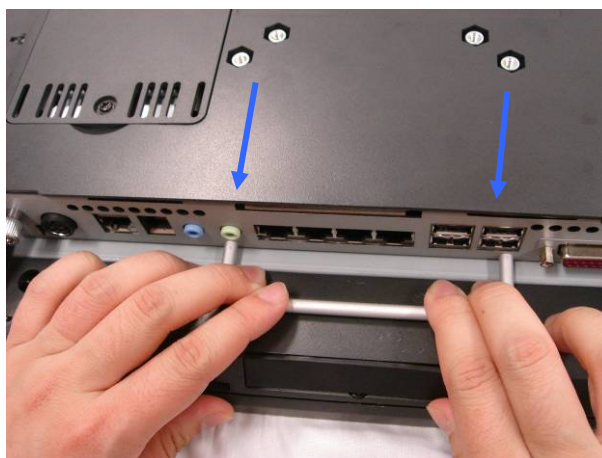
1. Loosen the thumbscrews (2) to remove the cable cover.



2. Loosen the thumbscrews (2).



3. Remove the Motherboard tray by pulling on the handle.

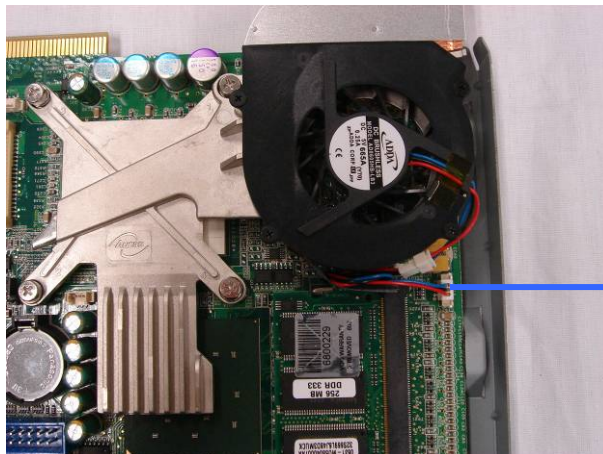


4. Remove the Motherboard tray.



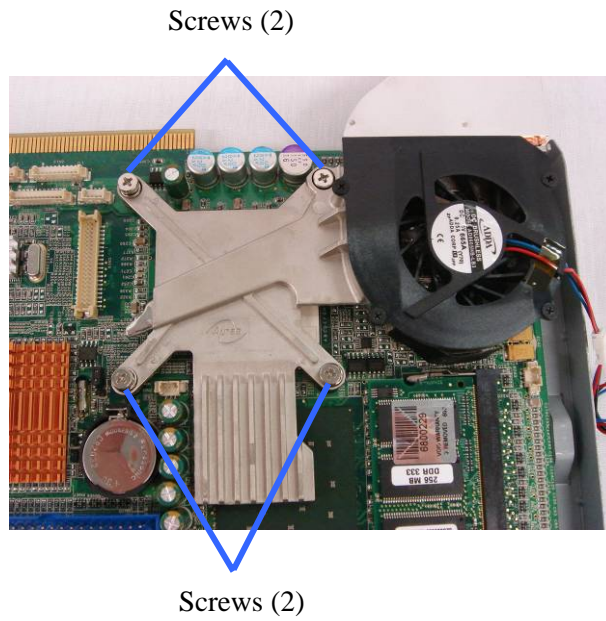
Removing the CPU

1. Disconnect the fan cable (1).

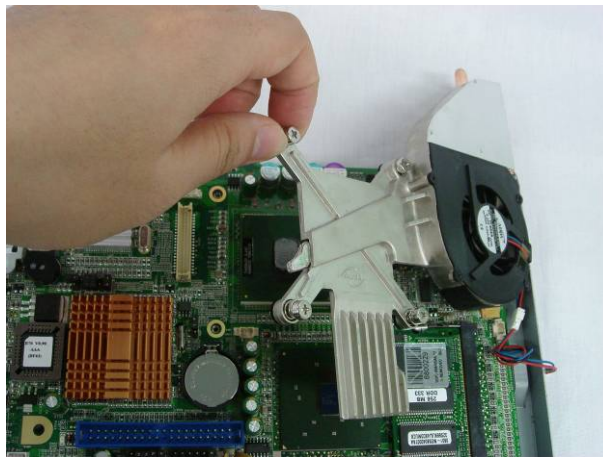


Fan Cable (1)

2. Remove the screws (4).



3. Lift the heatsink and fan up.

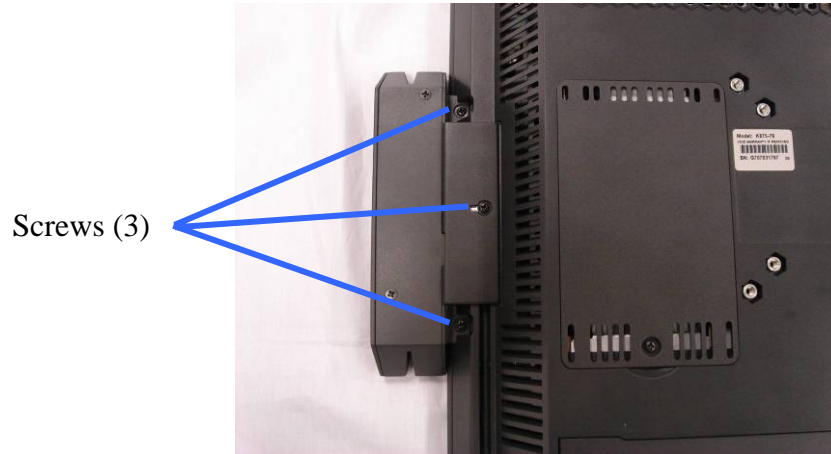


4. Turn the knob 180 degrees to open the key lock to remove the CPU by a slot screwdriver

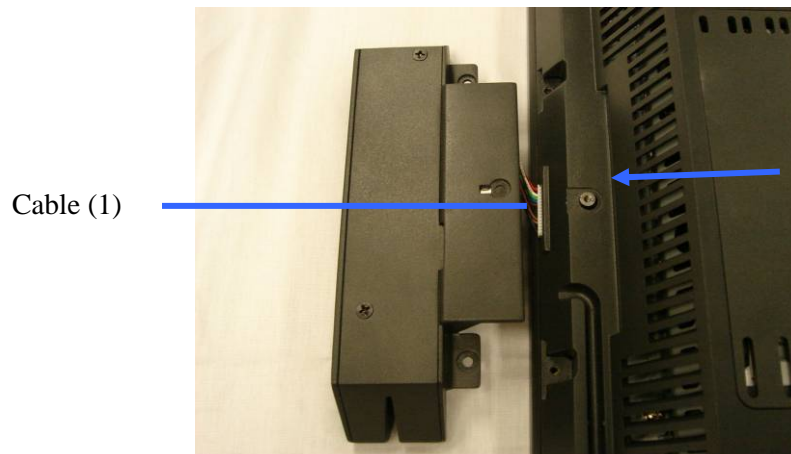


Removing the EMI Cover

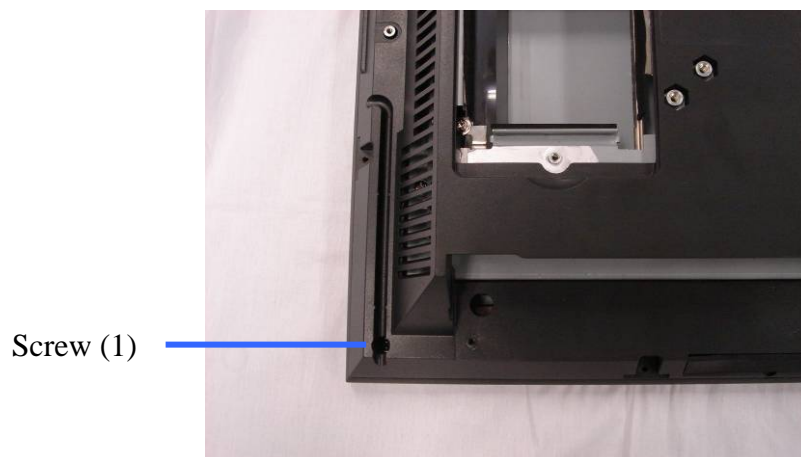
1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the screws (3).



4. Slide the MSR cover out and disconnect the cable (1).



5. Remove the screw (1).



6. Remove the screw (1).



Screw (1)

7. Open the button cover and remove the screw (1).

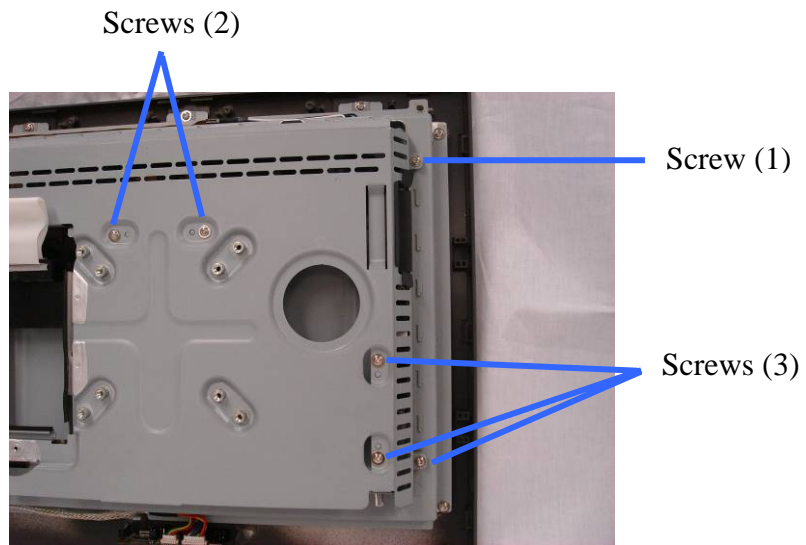


Screw (1)

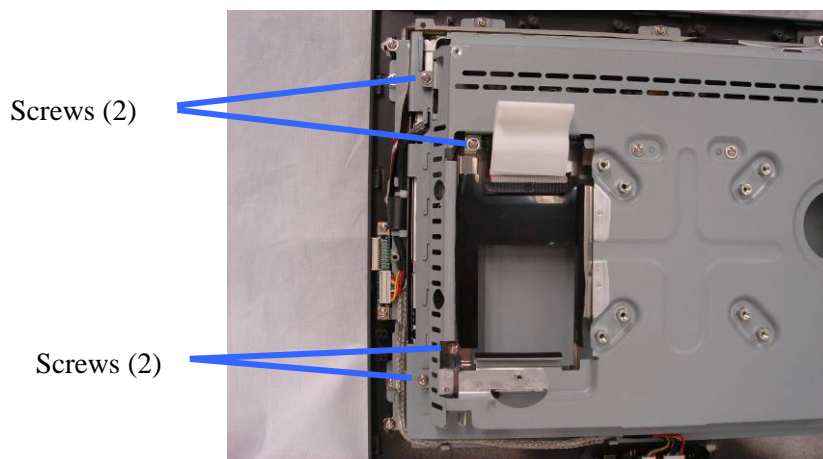
8. Separate the rear bezel and front bezel.



9. Remove the screws (6).



10. Remove the screws (4).

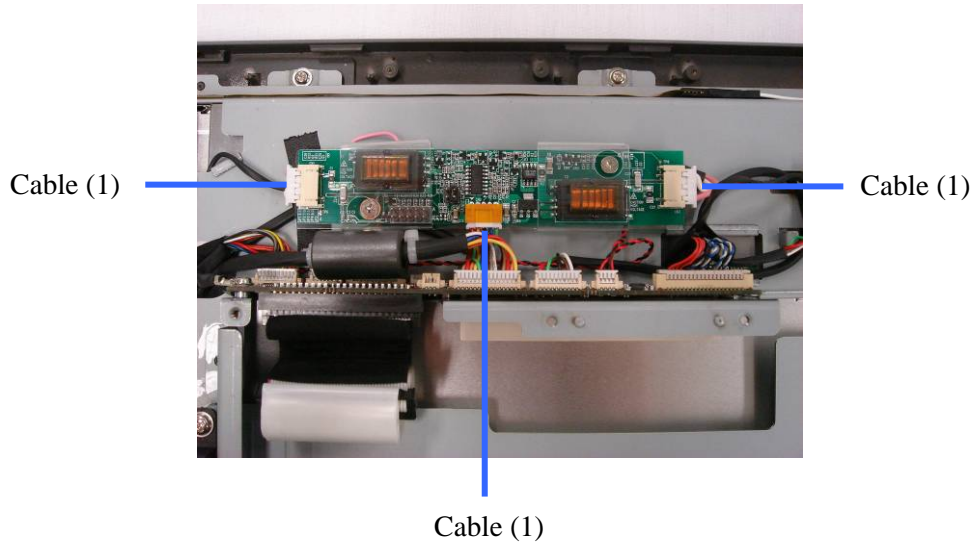


11. Lift the EMI cover up.



Removing the Inverter Board

1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the EMI cover.
4. Disconnect the cables (3).



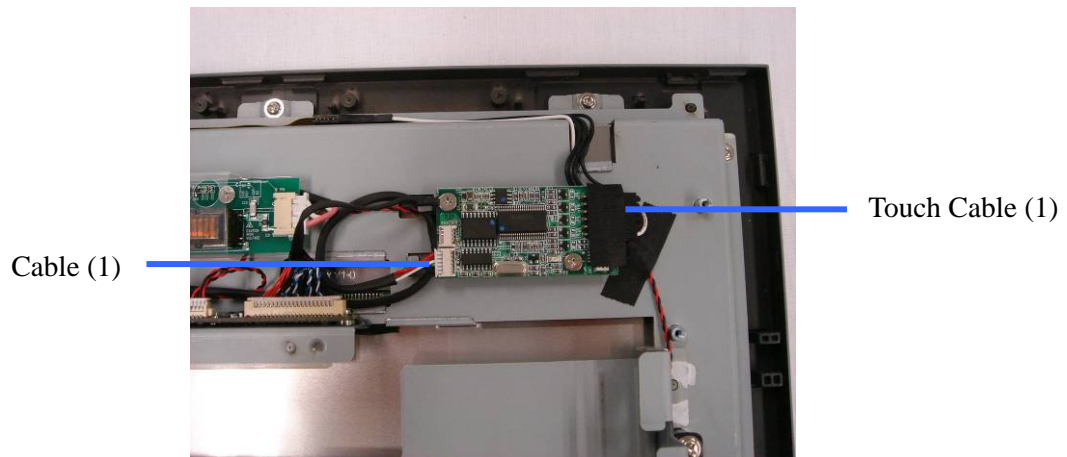
5. Remove the screws (2).



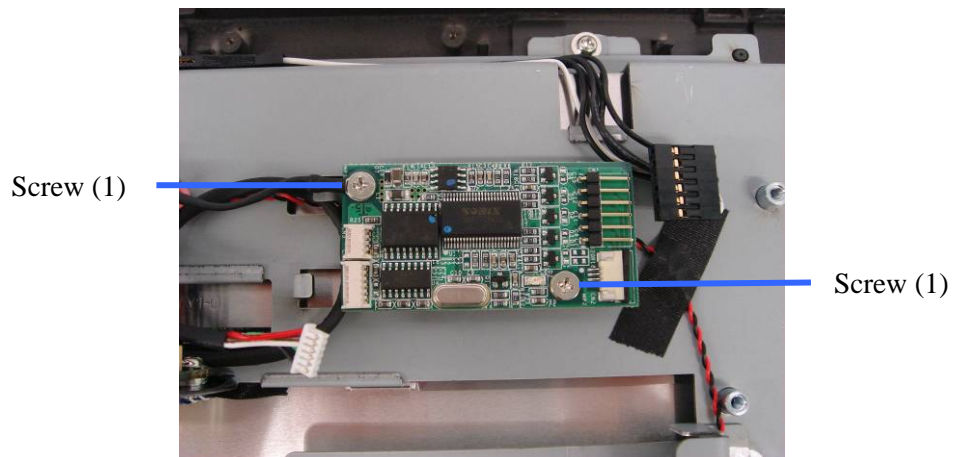
Removing the Touch Board

1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the EMI cover.

4. Disconnect the cables (2).



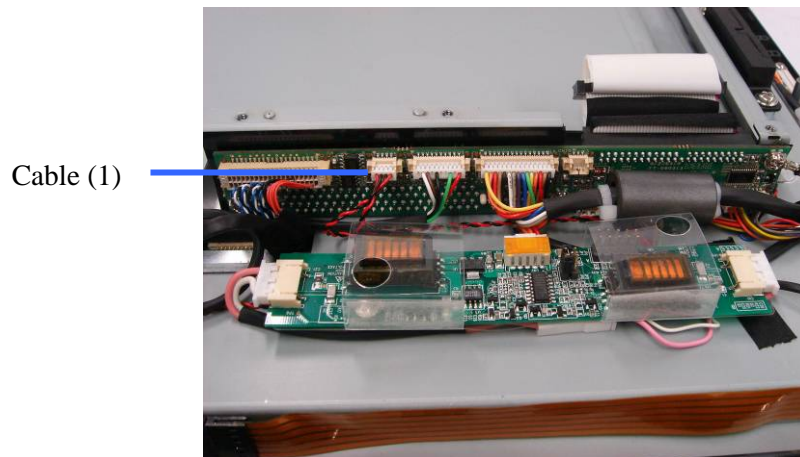
5. Remove the screws (2).



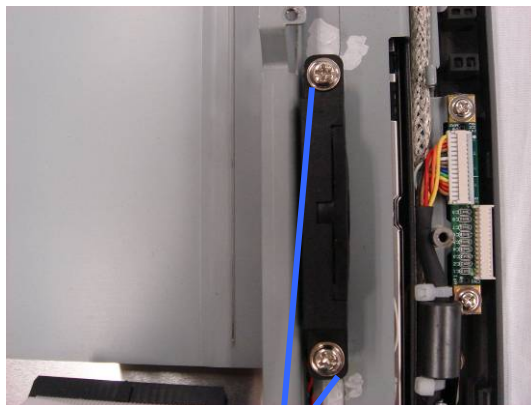
Removing the Speakers

1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the EMI cover.

4. Disconnect the speaker cable (1).



5. Remove the screws (4).



Screws (2)

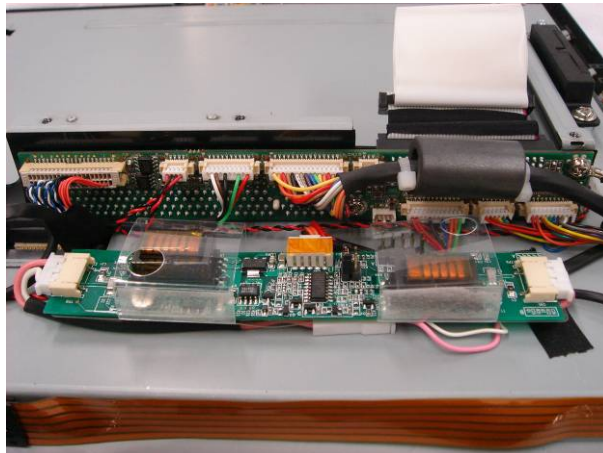


Screws (2)

Removing the Docking Board

1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the EMI cover.

4. Disconnect the cables (7).



5. Remove the screws (3) to replace the docking board.

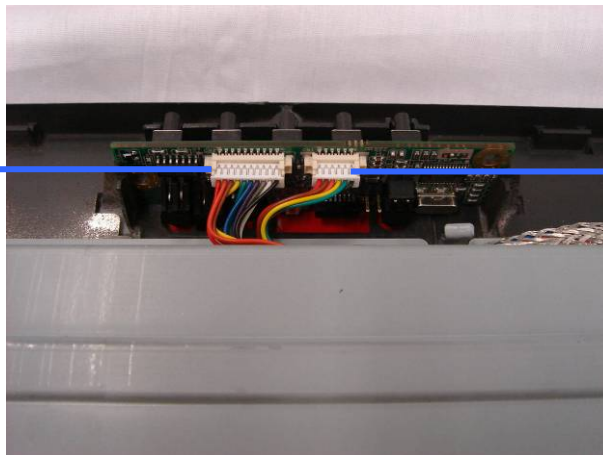


Removing the LED Sensor Board

1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the EMI cover.

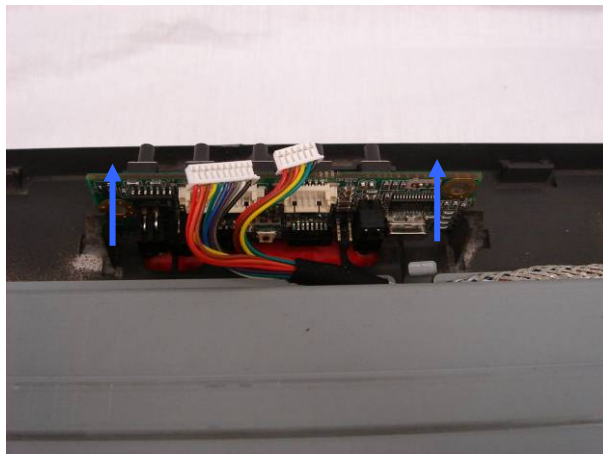
4. Disconnect the cables (2).

LED Interface (1)



IrDA Cable (1)

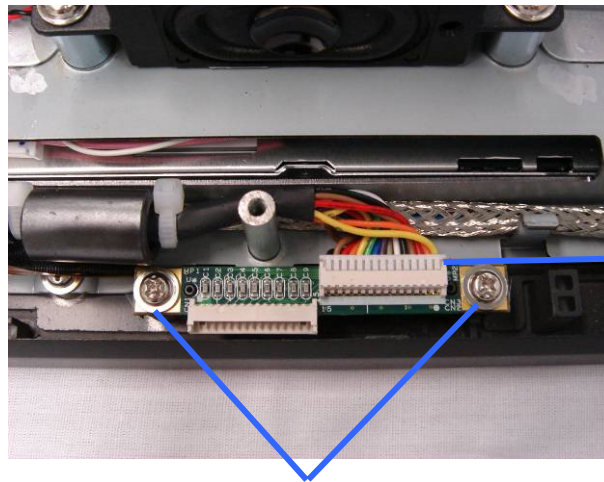
5. Lift the LED sensor board up.



Removing the MSR Board

1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the EMI cover.
4. Disconnect the cable (1) (see the picture below).

5. Remove the screws (2).



Cable (1)

Screws (2)

Removing the LCD Panel and Touchscreen

1. Remove the HDD.
2. Remove the motherboard tray.
3. Remove the EMI cover.
4. Remove the MSR board.
5. Remove the LED sensor board.
6. Disconnect the cables (2).



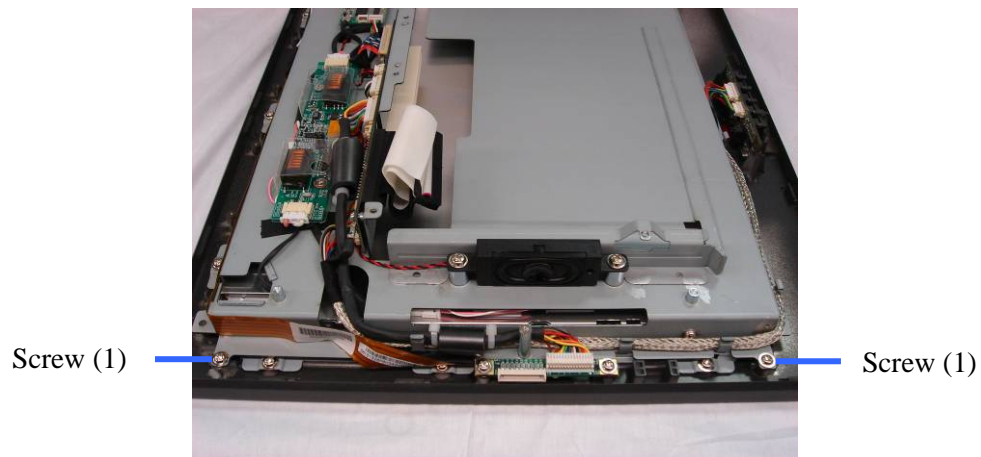
LCD Cable (1)

Touch Cable (1)

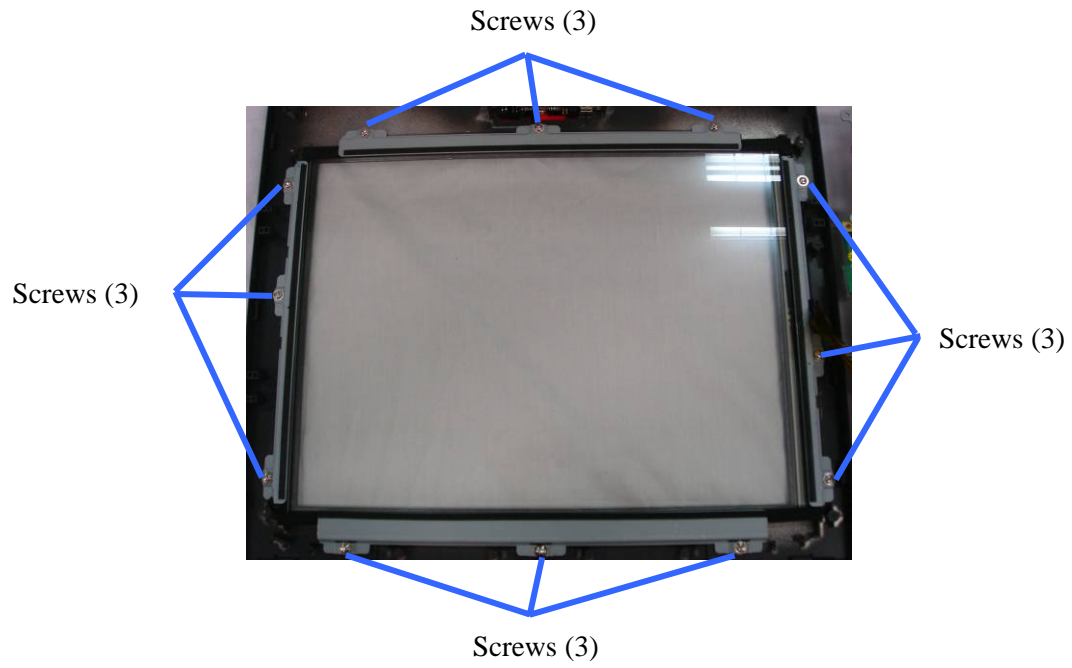
7. Remove the screws (2).



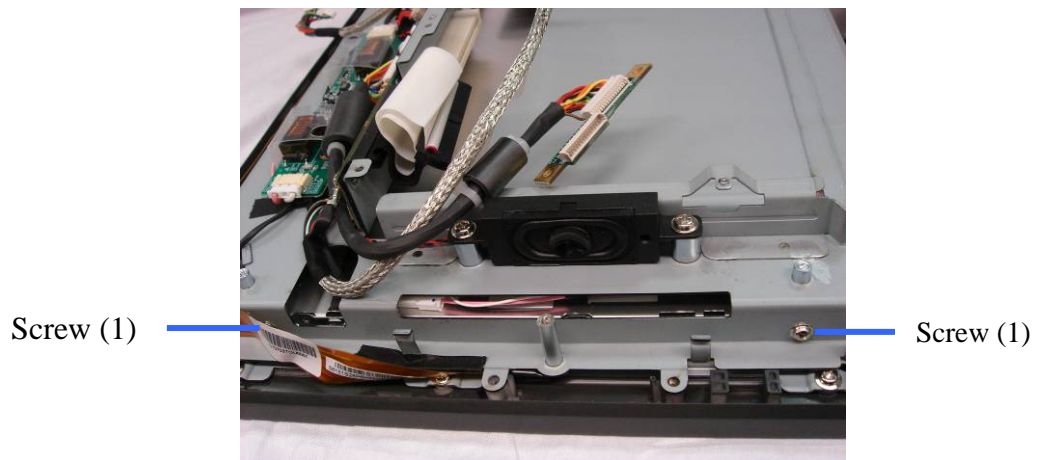
8. Remove the screws (2) that secure the LCD bracket to the display front bezel.



9. Remove the screws (12) and remove the brackets (4).



10. Remove the screws (2).

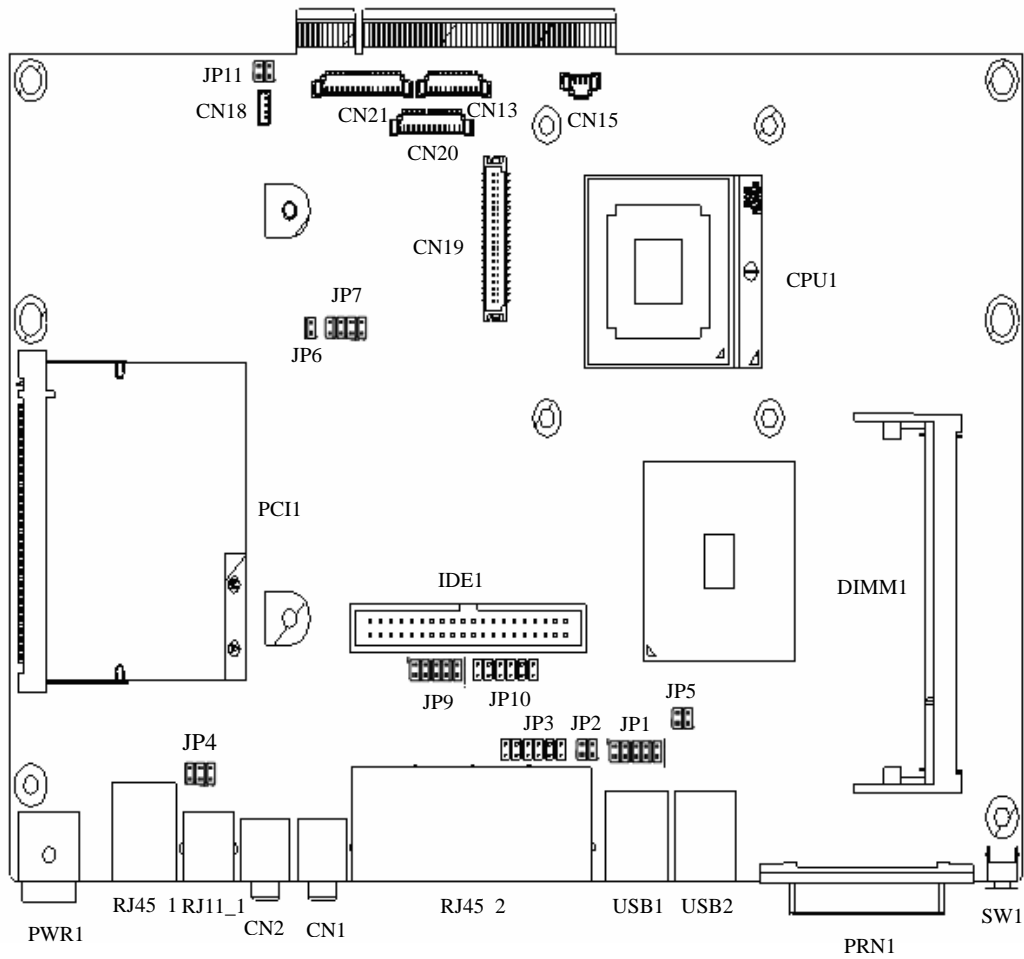


11. Remove the screws (2) to remove the LCD panel.



Circuit Boards

Main Board



Jumper Settings

The diagram below illustrates the default jumper settings for the Main Board. An asterisk (*) indicates the default setting.

CMOS Operation (JP8) Instruction:

1. Turn off the power.
2. Set the jumper from CMOS Normal (*1-2) to CMOS Reset (2-3).
3. Finally, reset the jumper from CMOS Reset (2-3) to CMOS Normal (*1-2).

CMOS Operation Mode

Function	JP8
CMOS Normal	⊙N/C
CMOS Reset	1-2

Power Mode Setting

Function	JP6
ATX Power	⊙N/C
AT Power	1-2

Cash Drawer Power Setting

JP2

Voltage	JP4
+12V	⊙1-2
Not available	3-4
+24V	5-6

Card Reader Setting

Function	⊙Ducking	On Board
JP11 (1-2)	N/C	1-2
JP11 (3-4)	N/C	3-4

LCD ID Setting

Panel Number	Resolution	LVDS		JP7			
		Bits	Channel	1-2	3-4	5-6	7-8
0	640 x 480	18	Single	SHORT	SHORT	SHORT	SHORT
1	800 x 600	18	Single	SHORT	SHORT	SHORT	OPEN
2	1024 x 768	18	Single	SHORT	SHORT	OPEN	SHORT
3	1280 x 1024	24	Dual	SHORT	SHORT	OPEN	OPEN
4	1024 x 768	24	Single	SHORT	OPEN	SHORT	SHORT
5	800 x 600	24	Single	SHORT	OPEN	SHORT	OPEN

COM3 – 4 Power Setting

Function	JP3
COM3 PIN10_RI	⊙1-2
COM3 PIN10_+5V	3-4
COM3 PIN10_+12V	5-6
COM4 PIN10_RI	⊙7-8
COM4 PIN10_+5V	9-10
COM4 PIN10_+12V	11-12

COM2 RS232 / 485 / 422 Setting

Function	⊙RS232	RS485	RS422
JP9 (1-2)	V		
JP9 (3-4)	V		
JP9 (4-6)		V	
JP9 (5-7)	V		
JP9 (7-8)		V	
JP9 (9-10)			V
JP10 (1-2)	V		
JP10 (3-4)		V	
JP10 (5-6)			V
JP10 (7-8)			V
JP10 (9-10)			V
JP10 (11-12)			V

Replacing the Lithium Battery

Caution: Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type as recommended by the manufacturer.

Discard used batteries according to the manufacturer's instructions.

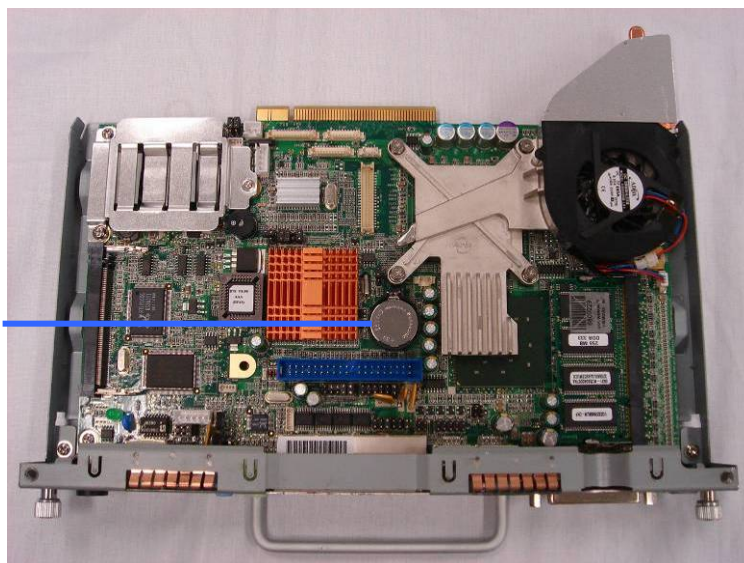
1 Note the battery's polarity before removing it so that you can replace the battery correctly.

2 Press the Retaining Clip to one side and pull the battery out of the socket.

3 Insert the new battery by pushing it straight down until it is tightly locked.

Note: Run **Setup** and set the defaults. Set the Date/Time and make any desired special settings.

Lithium Battery



Chapter 5 : Connector Pin-Out Identification

Introduction

This chapter describes the Pin Configuration of all the connectors found on the mainboard

Speaker & MIC Connector (CN4)

PIN No.	Signal Description
1	AMP_ORL
2	GND
3	GND
4	AMP_ORR
5	GND
6	MIC1

CD-IN Connector (CN9)

PIN No.	Signal Description
1	CDIN_L
2	CDIN_REF
3	CDIN_R
4	CDIN_REF

Power Connector For 3.5" HDD (CN11)

PIN No.	Signal Description
1	+12V
2	GND
3	GND
4	+5V

COM 5 (CN13)

PIN No.	Signal Description
1	DCD#
2	RX#
3	TX#
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI
10	+5V

CPU FAN Connector (CN15)

PIN No.	Signal Description
1	+5V
2	Feedback
3	GND

USB 2 (CN18)

PIN No.	Signal Description
1	+5V_USB1
2	USB20_R_P1
3	USB20_R_P1+
4	GND

LVDS Interface (CN19)

PIN No.	Signal Description		PIN No.	Signal Description
1	LVDS_B0+		21	LVDS_B3-
2	LVDS_A3+		22	LVDS_A1-
3	LVDS_B0-		23	GND
4	LVDS_A3-		24	GND
5	GND		25	LVDS_CLKB+
6	GND		26	LVDS_A0+
7	LVDS_B1+		27	LVDS_CLKB-
8	LVDS_CLKA+		28	LVDS_A0-
9	LVDS_B1-		29	GND
10	LVDS_CLKA-		30	GND
11	GND		31	+5V_LCDVDD
12	GND		32	+3.3V_LCDVDD
13	LVDS_B2+		33	+5V_LCDVDD
14	LVDS_A2+		34	+3.3V_LCDVDD
15	LVDS_B2-		35	+5V_LCDVDD
16	LVDS_A2-		36	+3.3V_LCDVDD
17	GND		37	+5V_LCDVDD
18	GND		38	+3.3V_LCDVDD
19	LVDS_B3+		39	+5V_LCDVDD
20	LVDS_A1+		40	+3.3V_LCDVDD

Inverter Connector (CN20)

PIN No.	Signal Description
1	+12V_INV
2	+12V_INV
3	+12V_INV
4	+12V_INV
5	Back-Light Enable
6	N/C
7	N/C
8	Back-Light Enable
9	GND
10	GND
11	GND
12	GND

POS Card Reader Connector (CN21)

PIN No.	Signal Description
1	+5V
2	+5V
3	KDATA_SIO_TO_MSR
4	KDATA_SIO_TO_MSR
5	KDATA_MSR_TO_GFINGER
6	KCLK_MSR_TO_GHINGER
7	RS232_6_RX#
8	RS232_6_TX#
9	RS232_6_CTS#
10	RS232_6_RTS#
11	KB_EN
12	GND
13	USB20_MSR_P0+
14	USB20_MSR_P0-
15	GND

System FAN Connector (CN22)

PIN No.	Signal Description
1	+5V
2	Feedback
3	GND

IrDA Connector (CN23)

PIN No.	Signal Description
1	+5V
2	IRDA_RX
3	IRDA_TX
4	GND

COM 1, COM 2 , COM 3, COM 4 (RJ45_2)

PIN No.	Signal Description		PIN No.	Signal Description
1	N/C		21	N/C
2	RS232_1_DCD#		22	RS232_3_DCD#
3	RS232_1_DSR#		23	RS232_3_DSR#
4	RS232_1_RX#		24	RS232_3_RX#
5	RS232_1_RTS#		25	RS232_3_RTS#
6	RS232_1_TX#		26	RS232_3_TX#
7	RS232_1_CTS#		27	RS232_3_CTS#
8	RS232_1_DTR#		28	RS232_3_DTR#
9	GND		29	GND
10	RS232_1_RI		30	RS232_3_RI
11	N/C		31	N/C
12	RS232_2_DCD#		32	RS232_4_DCD#
13	RS232_2_DSR#		33	RS232_4_DSR#
14	RS232_2_RX#		34	RS232_4_RX#
15	RS232_2_RTS#		35	RS232_4_RTS#
16	RS232_2_TX#		36	RS232_4_TX#
17	RS232_2_CTS#		37	RS232_4_CTS#
18	RS232_2_DTR#		38	RS232_4_DTR#
19	GND		39	GND
20	RS232_2_RI		40	RS232_4_RI

Appendix A: IRQ Assignments

IRQ	Priority	Default Function
0	1	System Timer
1	2	Keyboard Controller
2	N/A	Programmable Interrupt
3	11	Communication Port (COM2 / IrDA)
4	12	Communication Port (COM1)
5	13	PCI devices
6	14	PCI devices
7	15	Parallel port (LPT1)
8	3	System CMOS / Real Time Clock
9	4	ACPI Controller / PCI devices
10	5	Communication Port (COM3/COM4/COM5/COM6)
11	6	PCI devices
12	7	PS/2 mouse or PCI devices (Auto free IRQ12 for PCI devices if PS/2 mouse not exist when system power on.)
13	8	Numeric Data Processor
14	9	Primary IDE Channel #1
15	10	Secondary IDE Channel #2