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## 4. Troubleshooting

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### 1) General

(1) Tools used for repairing the product

System Diagnostics Disk

MS-DOS Booting Disk

System Diagnostics Card

Screwdrivers ( , )

Tweezers

Multi-meter

Oscilloscope

Logic Analyzer

(2) Replaceable Units (FRU: Field Replaceable Unit)

DDRII RAM Module

2.5" SATA HDD

ODD – Super multi Dual layer drive or DVD Combo Drive or Etc.

Wireless LAN Module

Bluetooth Module

MDC Module

Camera Modulal

DMB Module(option)

Keyboard

System Fan

TouchPad

LCD Panel

LCD Inverter

Main Board

PCMCIA Frame

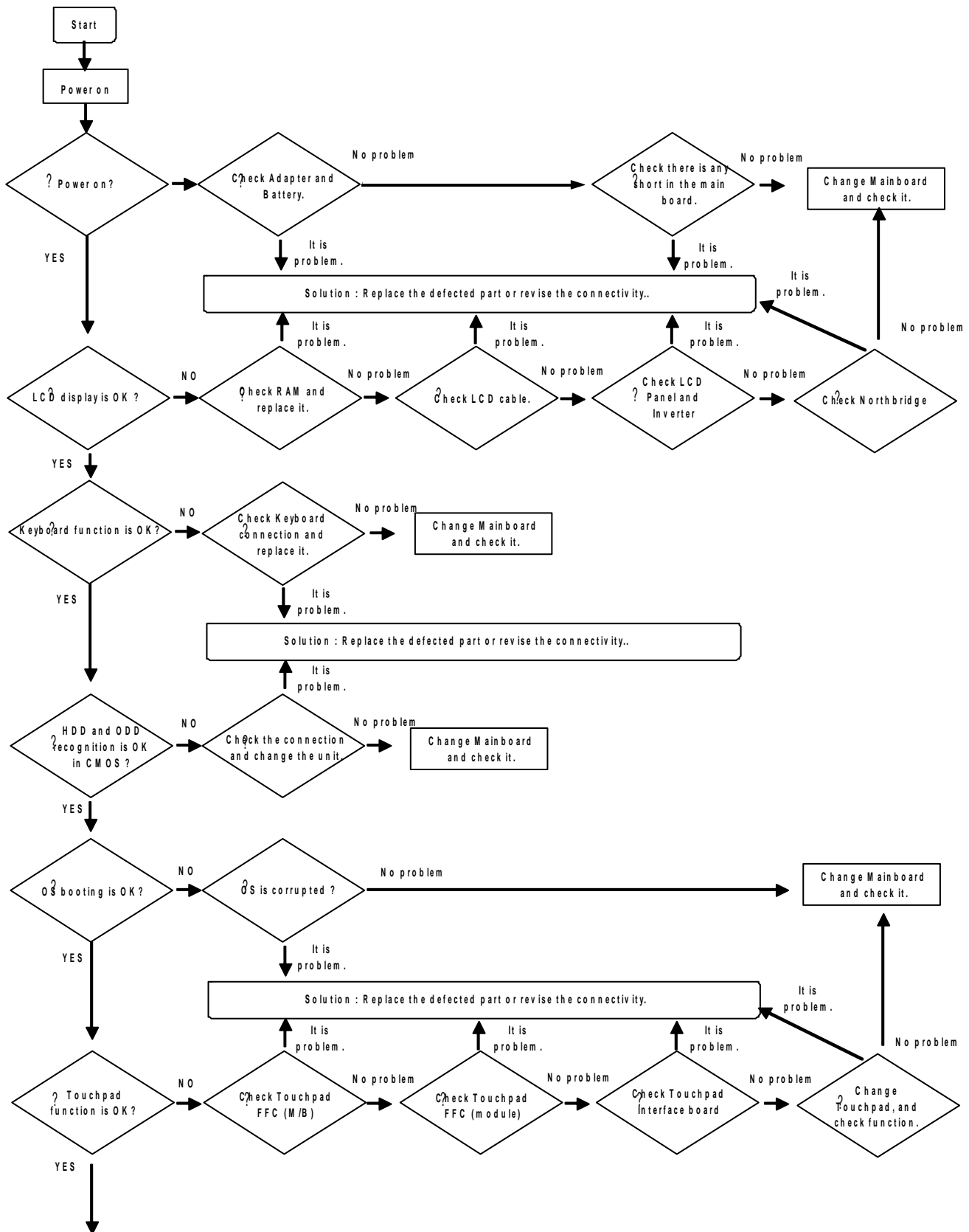
Harness Cable – MDC Cable, Bluetooth Cable, LCD Cable, Camera Cable and DMB Cable

2 Types of Wireless LAN Antenna

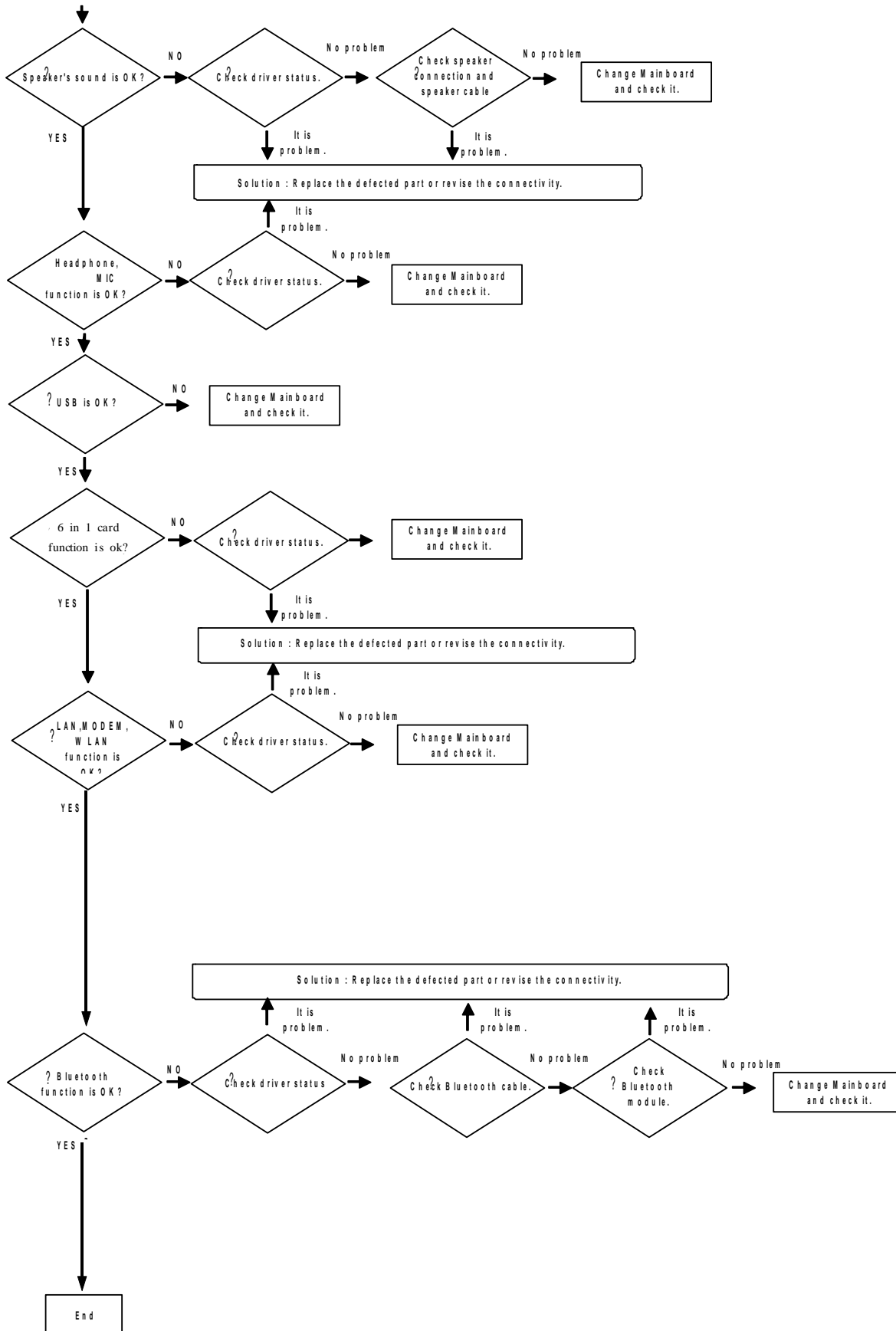
FFC – Touch Pad FFC and SATA FPC

## 4. Troubleshooting

### 2) Debugging Flow Chart



## 4. Troubleshooting



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### 3) System Diagnosis

#### (1) System Diagnostics Card

The Diagnostics Card shows the system operations during the POST (Power On Self Test) in a 2 digit hexadecimal number by connecting the cable to the 10 pin connector below the PCMCIA slot after separating the Top part. The card is used to evaluate the reason for the malfunction without disassembling the system when the system malfunctions and to test if the system operates normally after replacing a defective FRU.

#### (2) Debugging Code

In general, if a defect of the circuit or part is detected during the system test, the system stops at a particular code. The error codes for each part of the system are listed in the following table.

Code	Beeps	POST Routine Description
02h		Verify Real Mode
03h		Disable Non-Maskable Interrupt
04h		Get CPU type
06h		Initialize system hardware
08h		Initialize chipset with initial POST values
09h		Set IN POST flag
0Ah		Initialize CPU registers
0Bh		Enable CPU cache
0Ch		Initialize caches to initial POST values
0Eh		Initialize I/O component
0Fh		Initialize the local bus IDE
10h		Initialize Power Management
11h		Load alternate registers with initial POST values
12h		Restore CPU control word during warm boot
13h		Initialize PCI Bus Mastering devices
14h		Initialize keyboard controller
16h	1-2-2-3	BIOS ROM checksum
17h		Initialize cache before memory auto size
18h		8254 timer initialization
1Ah		8237 DMA controller initialization
1Ch		Reset Programmable Interrupt Controller
20h	1-3-1-1	Test DRAM refresh
22h	1-3-1-3	Test 8742 Keyboard Controller
24h		Set ES segment register to 4 GB
26h		Enable A20 line
28h		Auto size DRAM
29h		Initialize POST Memory Manager
2Ah		Clear 512 KB base RAM
2Ch	1-3-4-1	RAM failure on address line xxxx*
2Eh	1-3-4-3	RAM failure on data bits xxxx* of low byte of memory bus
2Fh		Enable cache before system BIOS shadow
30h	1-4-1-1	RAM failure on data bits xxxx* of high byte of memory bus
32h		Test the CPU bus-clock frequency
33h		Initialize Phoenix Dispatch Manager
36h		Warm start shutdown

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38h		Shadow system BIOS ROM
3Ah		Auto size cache
3Ch		Advanced configuration of chipset registers
3Dh		Load alternate registers with CMOS values
42h		Initialize interrupt vectors
45h		POST device initialization
46h	2-1-2-3	Check the ROM copyright notice
48h		Check the video configuration against CMOS
49h		Initialize PCI bus and devices
4Ah		Initialize all video adapters on the system
4Bh		Quiet Boot start (optional)
4Ch		Shadow video BIOS ROM
4Eh		Display the BIOS copyright notice
50h		Display the CPU type and speed
51h		Initialize EISA board
52h		Test the keyboard
54h		Set key click if enabled
58h	2-2-3-1	Test for unexpected interrupts
59h		Initialize POST display service
5Ah		Display the prompt "Press F2 to enter SETUP"
5Bh		Disable CPU cache
5Ch		Test RAM between 512 and 640 KB
60h		Test extended memory
62h		Test extended memory address lines
64h		Jump to UserPatch1
66h		Configure advanced cache registers
67h		Initialize Multi Processor APIC
68h		Enable external and CPU caches
69h		Setup System Management Mode (SMM) area
6Ah		Display external L2 cache size
6Bh		Load custom defaults (optional)
6Ch		Display shadow-area message
6Eh		Display possible high address for UMB recovery
70h		Display error messages
72h		Check for configuration errors
76h		Check for keyboard errors
7Ch		Set up hardware interrupt vectors
7Eh		Initialize coprocessor if present
80h		Disable onboard Super I/O ports and IRQs
81h		Late POST device initialization
82h		Detect and install external RS232 ports
83h		Configure non-MCD IDE controllers
84h		Detect and install external parallel ports
85h		Initialize PC-compatible PnP ISA devices
86h		Re-initialize onboard I/O ports.
87h		Configure Mother board Configurable Devices
88h		Initialize BIOS Data Area
89h		Enable Non-Maskable Interrupts (NMIs)
8Ah		Initialize Extended BIOS Data Area

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8Bh		Test and initialize PS/2 mouse
8Ch		Initialize floppy controller
8Fh		Determine number of ATA drives (optional)
90h		Initialize hard-disk controllers
91h		Initialize local-bus hard-disk controllers
92h		Jump to UserPatch2
93h		Build MPTABLE for multi-processor boards
95h		Install CD ROM for boot
96h		Clear huge ES segment register
97h		Fixup Multi Processor table
98h	1-2	Search for option ROMs. One long, two short beeps on
che		checksum failure
99h		Check for SMART Drive (optional)
9Ah		Shadow option ROMs
9Ch		Set up Power Management
9Dh		Initialize security engine (optional)
9Eh		Enable hardware interrupts
9Fh		Determine number of ATA and SCSI drives
A0h		Set time of day
A2h		Check key lock
A4h		Initialize Typematic rate
A8h		Erase F2 prompt
AAh		Scan for F2 key stroke
ACh		Enter SETUP
A Eh		Clear Boot flag
B0h		Check for errors
B2h		POST done - prepare to boot operating system
B4h	1	One short beep before boot
B5h		Terminate QuietBoot (optional)
B6h		Check password (optional)
B9h		Prepare Boot
BAh		Initialize DMI parameters
BBh		Initialize PnP Option ROMs
BCh		Clear parity checkers
BDh		Display Multi Boot menu
BEh		Clear screen (optional)
BFh		Check virus and backup reminders
C0h		Try to boot with INT 19
C1h		Initialize POST Error Manager (PEM)
C2h		Initialize error logging
C3h		Initialize error display function
C4h		Initialize system error handler
C5h		PnPnd dual CMOS (optional)

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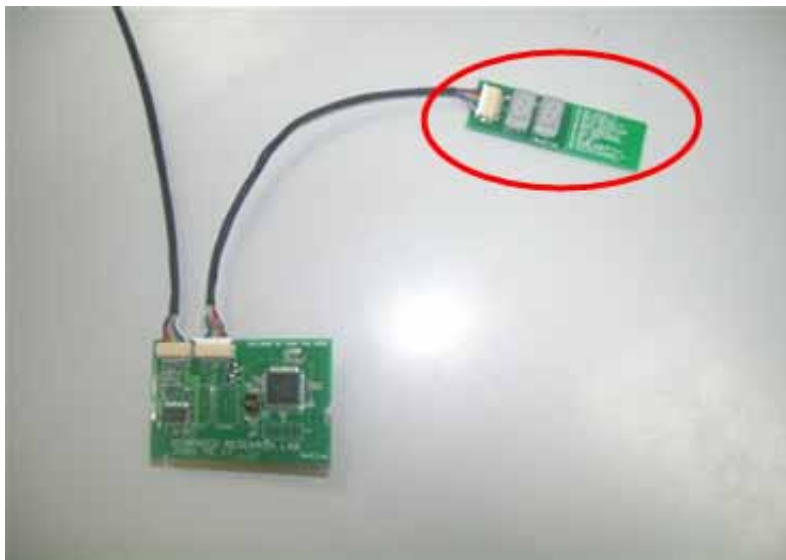
## 4. Troubleshooting

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### (3) Use of Debug card



-. Like upper picture, debug card is connected to DEBUG connector(as following) in Main board.



-. Debug code is shown at the viewer in red line.

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## 4. Troubleshooting

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### 4) Hardware Troubleshooting

For the procedures to disassemble each part, refer to the descriptions of Chapter 4, "Disassembly and Reassembly".

#### LCD Related Troubles

1. The screen is dark or the colors of the screen are distorted.

Check the connection status between the LCD module and the LCD cable, between the LCD cable and the main board LCD connector and between the LCD cable and the LCD inverter.

Replace the LCD cable or LCD inverter.

Check if there is a part of the LCD that is bent or broken due to impact.



2. No picture appears on the screen.

Check the connection status between the LCD module and the LCD cable, between the LCD cable and the main board LCD connector and between the LCD cable and the LCD inverter.

Replace the LCD cable or LCD inverter.

Check if the System LED of the main board is blinking. (Check if it is operating or not)

Check if the memory module is out of order.

Check if the Power button can be normally pressed.

3. The LCD brightness is not adjusted.

Check if the LCD inverter is out of order.

Check the BIOS version and check if the standard adapter is used.

Replace the LCD cable or LCD inverter and check if it is out of order.

4. The LCD blinks while the system is in operation.

Check if there is a magnetic body near the touch pad button or the system or check if there is an exterior defect to the LCD or system.

Replace the LCD cable or LCD inverter and check if it is out of order.

Check if a standard adapter is being used (R20/R21:19V/3.16A/60W).



## 4. Troubleshooting

### Main System Troubles

#### 5. The system is not turned off.

Check if the AC adapter LED is lit and if the adapter is properly connected to the system.

(Check the adapter LED)

If the AC adapter is not connected, check the charge status of the battery. Even if the battery is charged, if the remaining battery charge is too low, the system may not be turned on.

(As the following figure shows, press the PUSH button on the battery and check the remaining battery charge via the LEDs)

Check if there are any alien substances in the Power switch. if have,change the LED



#### 6. Although system power is supplied, the system does not boot or immediately turns off after being turned on.

Since this may be a short circuit in the system, disconnect the power immediately, disassemble the system and check if there are any conducting alien objects such as a screw inside.

Check the connection status between the CPU and the RHE.

Replace the memory module and check if it is out of order.

Reset the RTC Reset terminal next to the memory socket.

Remove RTC cable from RTC connector.

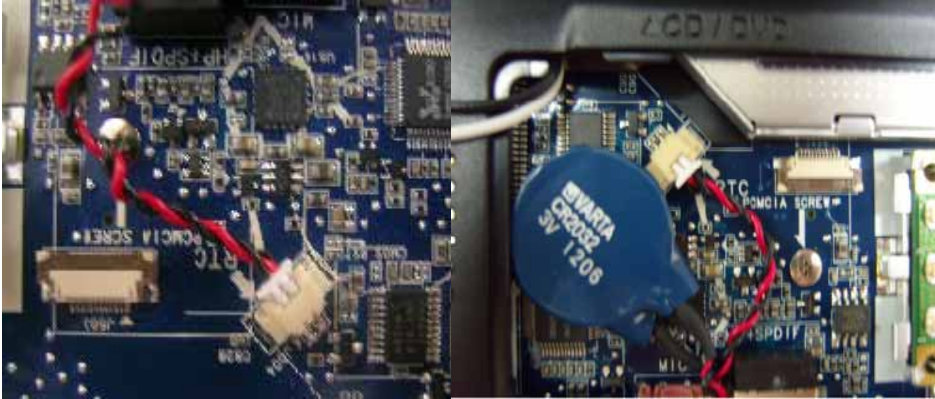
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## 4. Troubleshooting

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Connect the two pad of the cap for a while

Replace the main board.



7. The Express card is not inserted or the Eject button does not work.

This may occur when the insulator within the Express card slot is enraptured.

Replace the Express card slot frame and check if it is out of order.

8. There is no sound from the speaker.

(Insert the figure of the audio jacks so that the reader can check via the figure.)

Check if the earphones or headphones are connected to the MIC jack of if there are any alien substances in the jack.

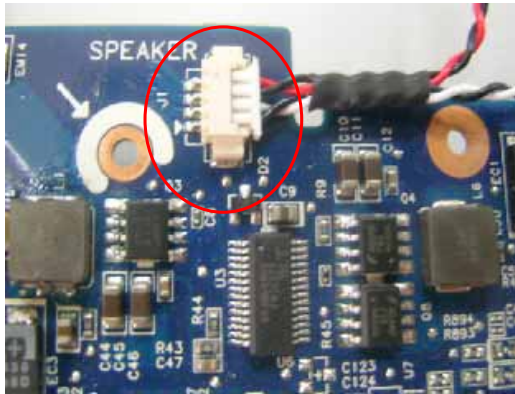


Check if the sound is muted after booting up Windows.

Check the connection status of the speaker cable and check if the speaker is out of order.

Check if there is a magnetic object near the speaker.

## 4. Troubleshooting



9. I cannot hear sound through the headphones.

Check if the sound is muted in Windows.

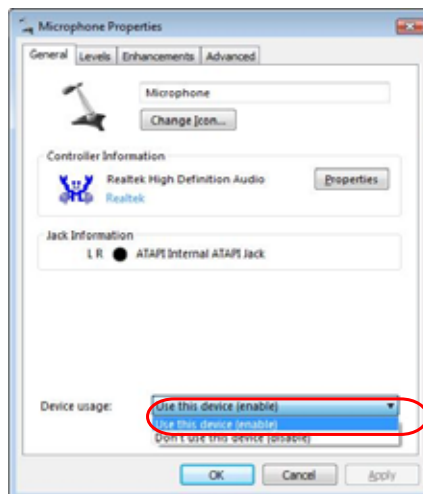
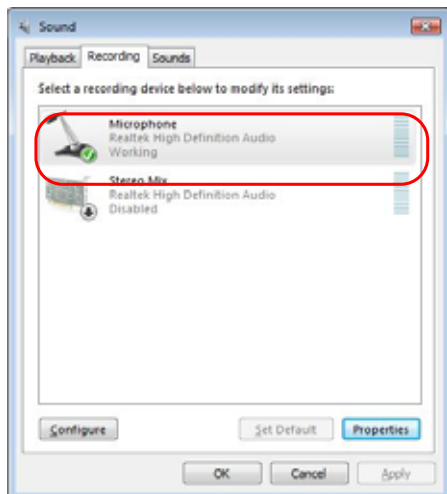
Turn the volume up.

Replace the main board

10. The external microphone does not work normally.

Check the audio driver settings and change them if necessary.

Selecting the "1. Front panel microphone" option activates the external MIC.



Replace the main board

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### 11. The HDD is not recognized.

Check the connection status of the HDD connector. fixup HDD, check whether the system can be found. if not,change the connector on the motherboard and check again.



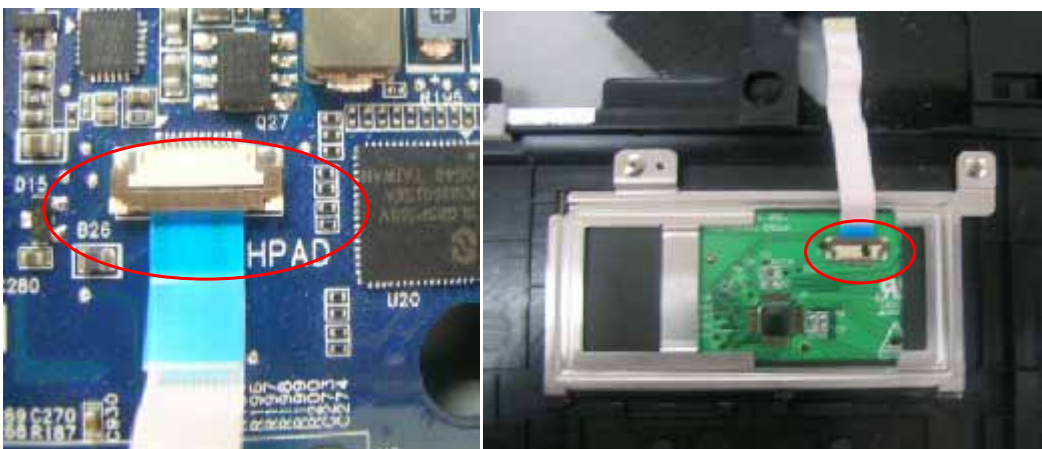
If the 'Operating system not found' message appears during the booting process even though the HDD is recognized by CMOS, the operating system of the HDD may be corrupted or the HDD is out of order. In this case, format the HDD and reinstall the operating system or replace the HDD with a new one.

### 12. The Touch Pad does not work or is malfunctioning.

Check the connection status of the Touch Pad FFC.

Check the connection status of the Touch Pad module

If there is no problem with the connections, replace any suspicious parts and check if they are out of order.



### 13. The battery is not charged or the battery charge LED malfunctions.

Check the standard voltage of the adapter.

## 4. Troubleshooting



Check if the battery is defective.

Replace the main board.

14. The LAN function does not work.

Check if the LAN cable is properly connected.

Check if the LAN driver is properly installed.

If the driver is properly installed, check if the LAN cable jack is out of order.

Replace the main board

15. The USB function does not work.

Check if the USB jack is out of order.

Replace the main board

16. The wireless LAN does not work normally.

Check if the WLAN slide switch is in the ON position.

Check if the WLAN driver is properly installed.

Check if the wireless LAN antenna cable is properly connected.



Replace the main board



## 4. Troubleshooting

### 17. The Fan does not work normally

Check if the Thermal is locked tightly.

Check if the Fan cable is properly connected



FAN Control Table

Voltage	Address	RPM	Noise	(for CPU temperature)	(for GMCH temperature)
(Volt)	(Hexa)			CPU Sensor(on/off)	GMCH sensor(on/off)
OFF	FF	OFF	20dBA		
	3C	2300 rpm	25dBA	55/50	65/55
	32	2750 rpm	28dBA	62/58	68/65
	2C	3100 rpm	30dBA	70/65	70/68
	27	3450 rpm	32dBA	80/75	75/70
	24	3750 rpm	37dBA	85/80	80/75

### When booting up the computer

18. The "Invalid System Disk. Replace the Disk and then press any key" message appears.

This message may appear when the connected USB memory or CD media does not include bootable data.

The "Reboot and Select the proper Boot device or Insert a bootable media in the selected Boot device and press a key" message appears.

Check if the signal and power cables are properly connected to the hard disk drive.

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Check if the hard disk drive is recognized in the BIOS SETUP.

The operating system on the hard disk drive is corrupted. Reinstall Windows.

19. The "To enter BIOS SETUP, press <F2>. To continue, press <F1>." message appears.

This may happen when the BIOS settings are different from the system environment. In this case, setup the BIOS according to your system environment.

Press <F2> to enter the BIOS SETUP.

Check if the date and time are correct in the BIOS SETUP.

Save the settings and restart the system.

20. The 'CMOS Checksum error' message appears.

This message may appear when the CMOS battery of the main board is completely discharged.

In this case, replace the battery with a new one of the same type and set up the BIOS SETUP according to your system environment.

21. Windows boots up in safe mode.

This may happen when Windows was not shut down normally. Therefore, shut down the system by selecting Start > Turn Off Computer.

This may happen when the system settings have been incompletely recognized.

Run Check Disk.

22. I cannot boot up the computer with a USB floppy drive or from USB memory.

Check if the diskette is bootable.

This may happen when the booting priority of the device is low. In this case, change the booting priority in the BIOS SETUP.

### **When shutting down the computer**

23. The computer is not shut down

If Windows does not end normally, you can forcibly shut down the system by pressing the Power button. If the power-saving feature is activated on the Power button, press the Power button for more than 4 seconds to turn the computer off. If the computer is then turned on again, Check Disk is automatically run.

### **Windows / Screen Related Problems**

24. The computer hangs while running a program.

If the running program causes an error:

In Windows XP, press the <Ctrl>, <Alt> and <Del> key combination, select the application program and click on End Task in the Applications tab of the [Windows Task Manager] window.

In Windows 2000, press the <Ctrl>, <Alt> and <Del> key combination, select the application program or an application that does not respond and click on End Task in the [End Program] window.

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If Windows does not respond, restart the computer. Restart the computer by pressing the Power button.

25. No picture is displayed on the external monitor.

Press the Switch LCD/CRT Monitor function key and check if the screen output is output to another display device.

Check if the hardware is out of order referring to the descriptions in the LCD related section of the Hardware Troubleshooting.

For models with external graphics, replace the VGA board and check if it is out of order.

### **CD/DVD-ROM Related Troubles**

26. A disc is not recognized or read.

Check if the ODD module and the main board are properly connected with the 50 pin connector.

Replace the ODD, if necessary.

### **Power-Saving Mode Related Troubles**

27. Connecting a USB device to the computer in standby mode.

If a USB device is connected to the computer in standby mode, the screen may be abnormally displayed.

You have to connect a USB device when the computer is operating normally.

28. A USB device is not working normally when the computer returns from standby mode.

In this case, separate and reconnect the USB device.

29. The picture is displayed abnormally when the computer running the Command Prompt (MS-DOS) enters standby mode and then returns from standby mode.

Press the <Alt> and <Tab> key combination to display the picture on the screen.



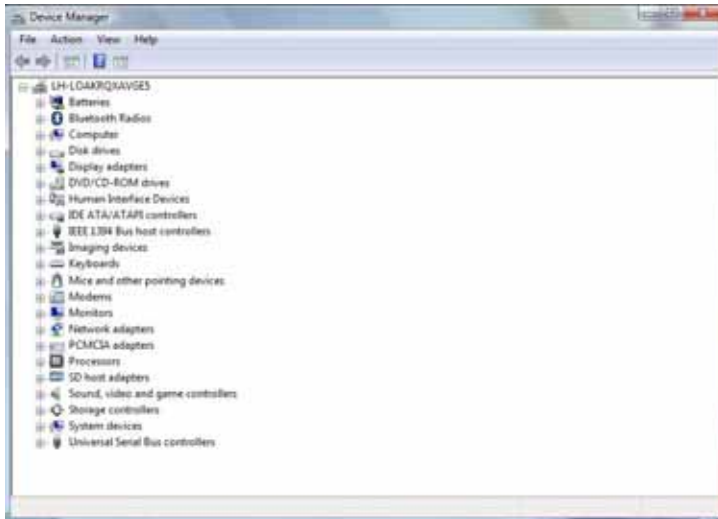
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## 4. Troubleshooting

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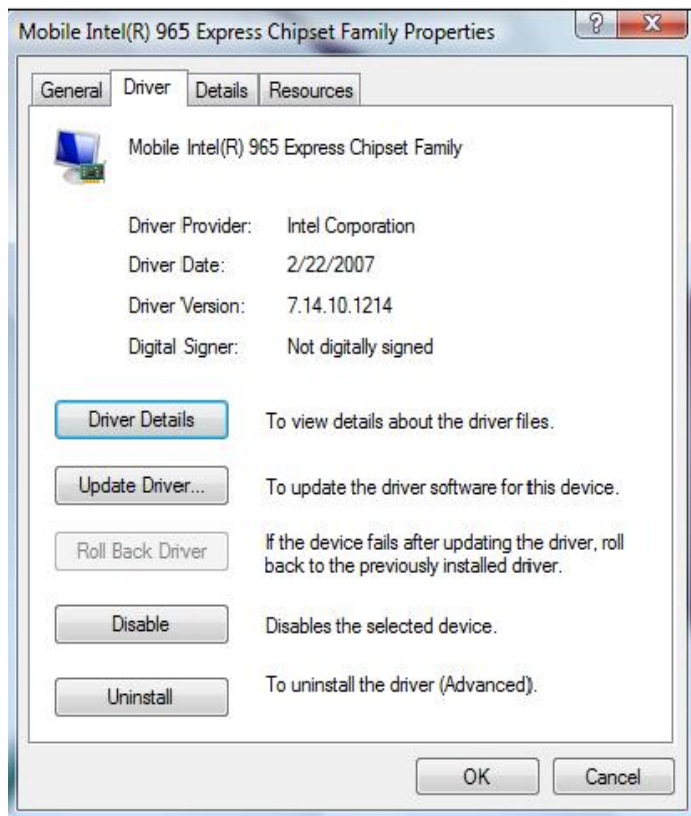
### 5) Device Settings Related Software Diagnosis

- (1) Check if the drivers of each of the devices are properly installed. That is, check if there are any yellow exclamation marks in the Device Manager.



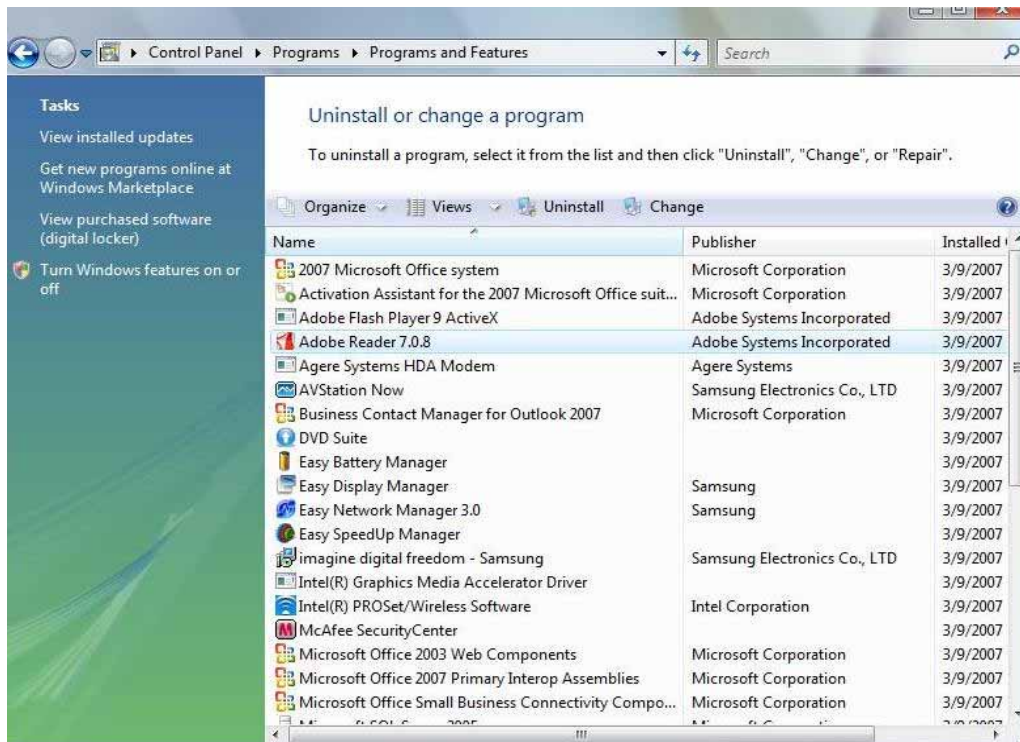
- (2) Check the device driver version and check if it is conflicting with another driver. If the driver is not properly installed, install a new driver.

(The following figure illustrates the properties of the Internal GFx device driver).

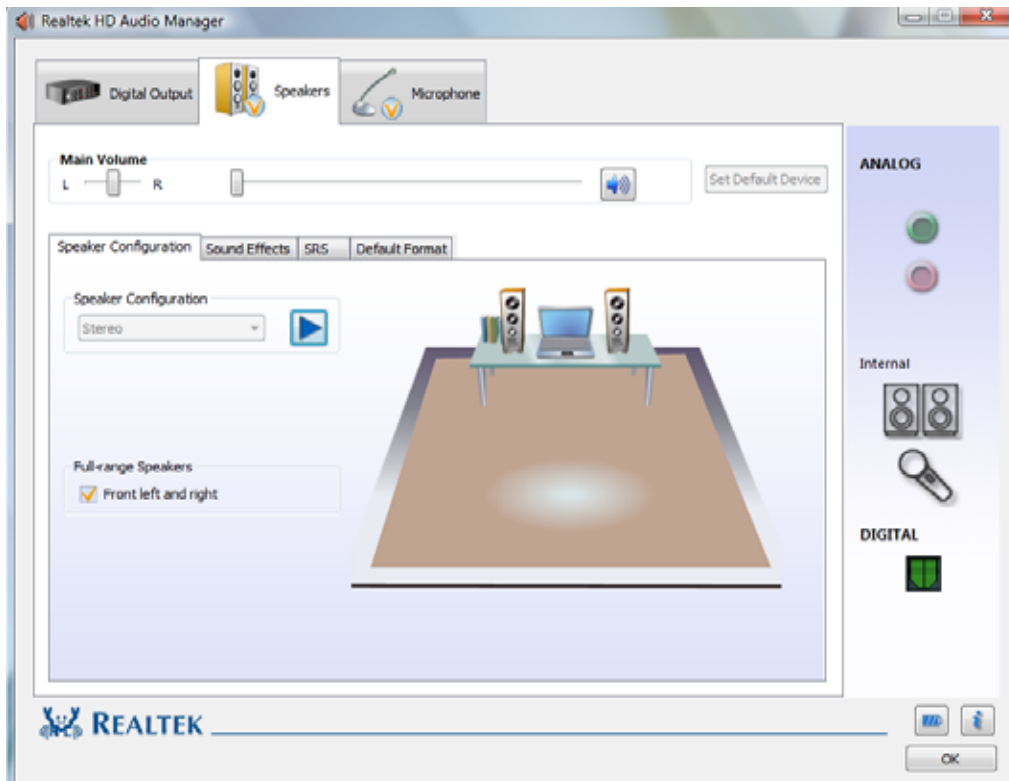


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(3) Check if the program is properly installed.



Click on the Realtek Control Panel in the Control Panel and check if the function works normally.



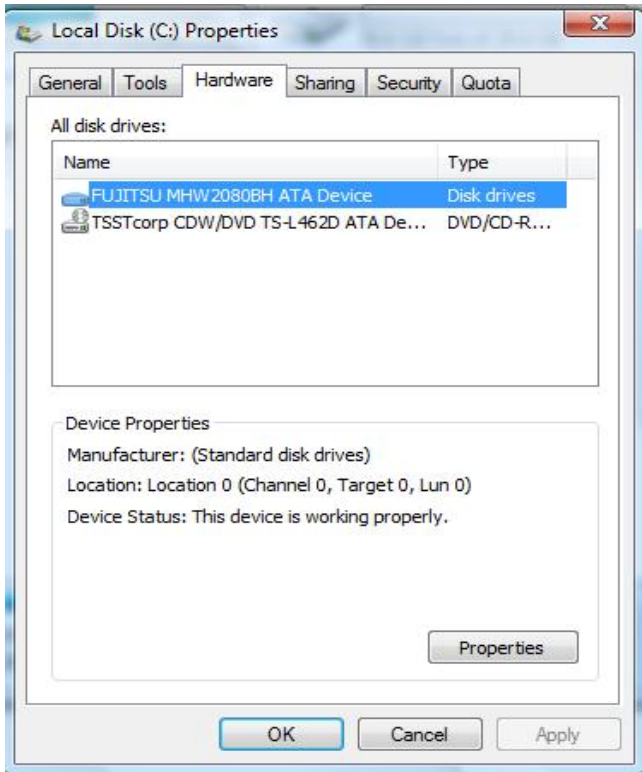
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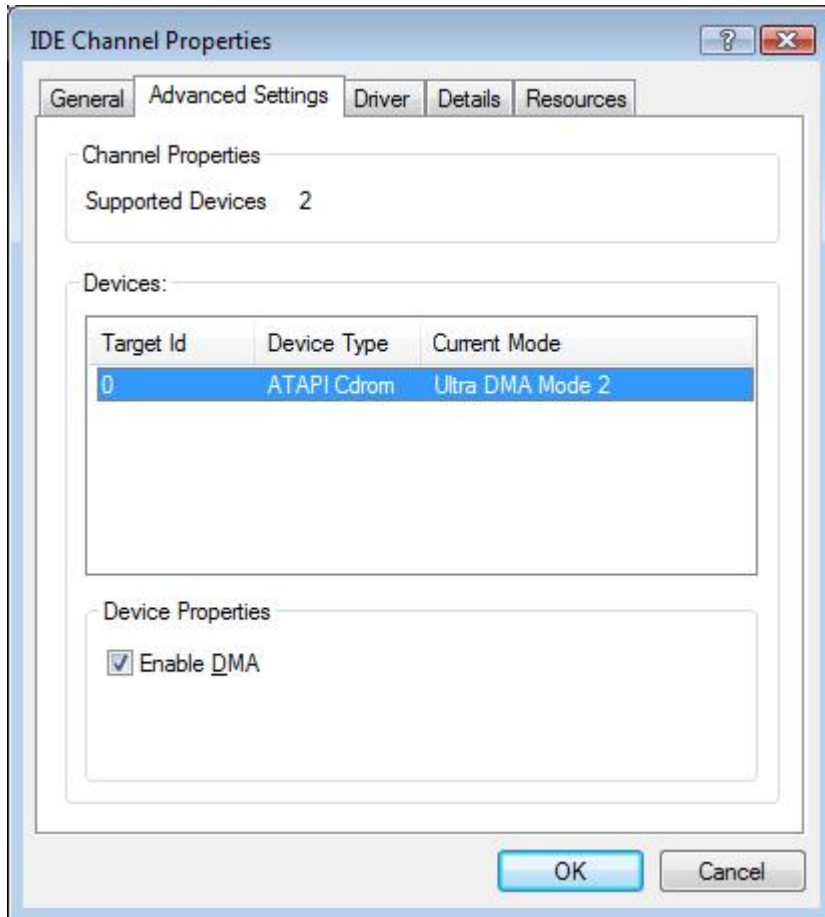
### (4) HDD and ODD Related Problems

For an HDD, check if the HDD operates in Ultra DMA Mode 5 by selecting the Primary IDE Channel in the Control Panel as follows. If it does not, check the BIOS SETUP, reinstall the operating system or replace the HDD-FPC or HDD, if necessary.



## 4. Troubleshooting

For an ODD, check if it operates in Ultra DMA Mode 2. If it does not, check if the disc inserted into the ODD is clean. If the disc is contaminated, the access speed may slows down. If the disc is clean, check the BIOS SETUP, reinstall the operating system or ODD, if necessary.



Check if the HDD and ODD models are properly displayed. If not, check the BIOS SETUP or replace the FPC or drive, if necessary.

### (5) Windows Vista System

The operating system(OS) installed on this product is the latest version of Windows Vista, You cannot install an operating system other than vista as well as any unauthorized copy of Windows Vista.

Other operating systems (Windows 98,Windows ME,Windows 2000,Windows XP,Windows 2003 Server,UNIX and LINUX.other Windows Vista versions,etc.)other than the operating system already installed on this computer are not supported.

Installing a program that does not support Windows Vista,may cause the program to not work properly.

In this case,ask the corresponding software manufacturer about the problem . if you request our services to resolve a problem caused bu incompatible software.

## 4. Troubleshooting

### (6) Other Problems

Press each corresponding button and check its operation.

The following figure illustrates the operation of the volume control button.



The drivers and application software are listed in the following table.

Drivers	VistaHP(KOR)
Chipset Driver	8.1.1.1010
DMB USB Driver	5.0.9.3 Vista 32Bit (SABI Off, Logo)
Graphics Driver	7.14.10.1214
Wireless LAN Driver(Intel)	11.1.0.86 32bit (PV)
Sound Driver	6.0.1.5378
Bluetooth Driver	6.0.1.3700
Touchpad Driver	9.1.15.0
Modem Driver	2.1.75_Vista_LogoedR
Memory Card Driver	6.0.1.10
LAN Driver	9.12.3.3

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Applications	
ABBY Lingvo 9(RUS)	
Samsung Battery Manager	3.2.0.8
Easy Box	
Magic Keyboard	
Samsung Update Plus	1.3.0.10
Network Manager	3.0.1.7
Display Manager	2.1.2.0
HotStart Shell ( AVStation Now)	4.0.10.5
Magic Doctor	5.009
CyberLink DVD Solution	36 - Vista
nTracker(KOR)	3.0.1.0
Adobe Reader(RUS)	
Adobe Reader	7.0.8.218
McAfee Anti-Virus	13.3.0.132
MS office 2007 ready(KOR/export)	1
Vista Manual Firenze-R(R55)	
SW Media Installer -1of1(Vista)	Vista 4.0.1.7
Vista-Hotfix-Bluetooth	1.0.0.1
Vista-Hotfix-common	1.0.0.3
Recovery Solution II	1.0.1.1
Media Center (KOR)	3.1.5
Media Center Update(Vista)	2.0.3
Samsung Screen Saver(KOR)	1.0.2.0
SetDisplayResolution	1.2.0.0
Wallpaper	2.0.0.0
AVStation Movie Contents (KOR)	4.1.7
AVStation Movie Contents (NO KOR)	4.1.7
Play AVStation_PM_35_KM	4.1.20.44
Easy Partition Manager	2.2.1.4
Dungeon&Fighter Setup Icon	1.0.0.1_2
CSUP (MDA)	1.0.0.4

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### 6) Battery Use Time

Check the following check lists for systems where the battery use time is too short to diagnose problems.

#### (1) Check the battery

Check if the battery is out of order referring to the Battery check program distributed to Service Centers and the 'Battery Check Manual' included in the 'Note-PC A/S Guide'.

##### 1. Battery Check List

Please mark “✓” in the box (□) of each applicable items, after checking the battery status with the “battery checking program”

#### 1. Does the battery communicate normally with system?

✓ PASS

□ FAIL

#### 2. Is the battery charged normally?

✓ PASS

□ FAIL

#### 3. Is the battery discharged normally?

✓ PASS

□ FAIL

#### 4. Is the battery still in warranty?

□ Excess than 6 months : Out of warranty

✓ Excess than 300 Cycles : Out of warranty

✓ Less than 6 months : PASS

□ Less than 6 months : FAIL

#### 2. Criteria for each of the check lists.

#### 1. Does the battery communicate normally with system?

□ PASS

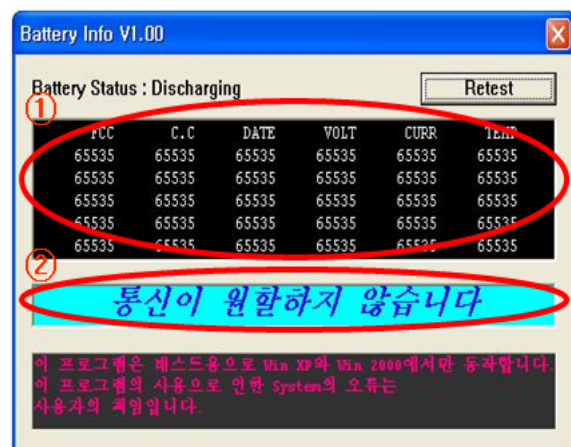
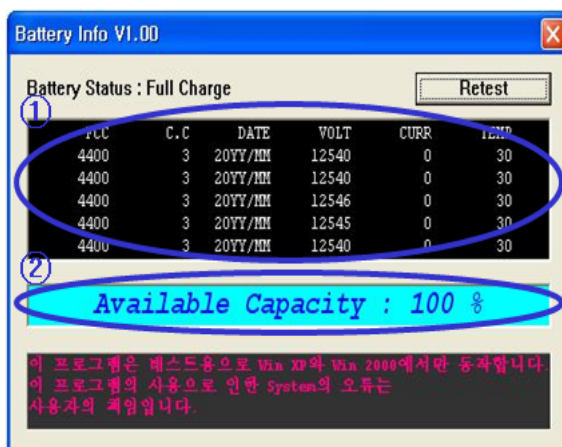
□ FAIL

①: Data displayed in the data window.

①: The code 65535 displayed

②: Available capacity displayed : 0 ~ 100%

②: Displayed the error message in Korean  
“통신이 원활 하지 않습니다”



☞ recommended : When the communication failed, please set a normal battery to the system and check first which -battery or system- has the problem.

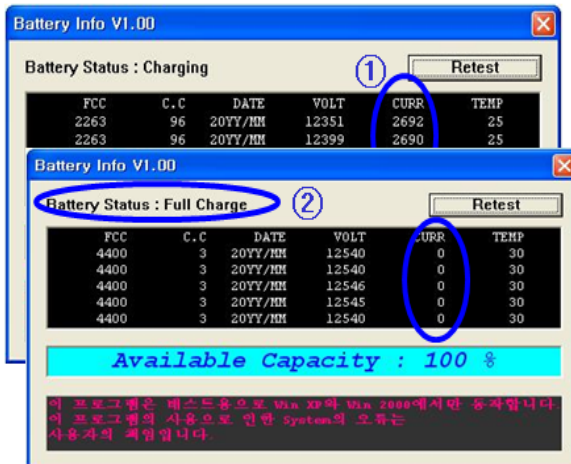


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### 2. Is the battery charged normally?

☐ PASS

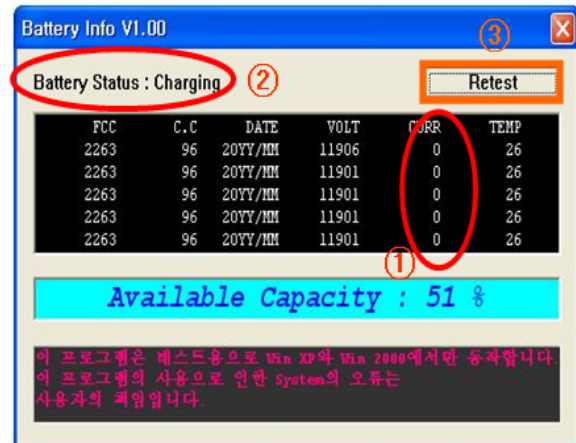
①: Pass, if the CURR values are within 35 ~ 3500



②: Pass, even if the CURR value is 0 but the battery is in status of Full Charge

☐ FAIL

①,②: Fail, if the CURR values are 0 and the battery status is in Charging.

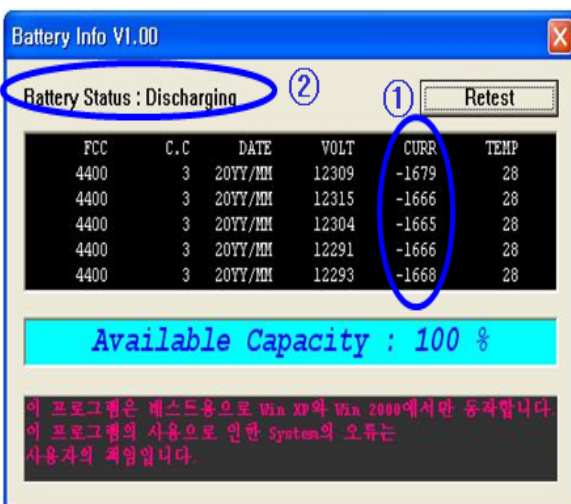


③: if the CURR value is 0 and in status of Charging, please reconfirm the "fail" after 2~3 times of Retest.

### 3. Is the battery discharged normally?

☐ PASS

①,②: Pass, if the CURR values are within -50 ~ -5000 and the battery status is in Discharging.



☐ FAIL

Fail, if the System is off status when the adaptor is removed from the System



## 4. Troubleshooting

### 4. Is the battery still in warranty?

☐ Excess than 6 months : Out of warranty

☐ Excess than 300 cycles : Out of warranty

☞ **Warranty period** : Within 6 months after sales date, more than 60% of initial electric capacity after 300 cycles.

**\* Reference** : If a battery is out of warranty, the battery can not be considered as "defected". So if a customer requests to exchange his battery in this case, the battery should be provided **onerously with sales price**. So please persuade customer to use continuously his battery, with the explanation of effective capacity of his battery, if the battery have no defect but only small decrease of capacity.

☐ Less than 6 months : PASS

☐ Less than 6 months : FAIL

☞ ①Please refer to "Capacity Standard Table" (or ②Capacity Standard Graph). Please judge Pass or Fail after checking the sales date of a battery. Pass, if the capacity of the battery is over than the value of corresponded date of "Available Capacity" column in the Table. Fail, if the capacity is lower than the value.

**\* Reference** : The battery capacity can have individual error according to the user's circumstance of the battery. So it is recommended that the battery should be checked (with Battery Check Program) after calibration (Smart Battery Calibration: Full charge/discharge or Full discharge/charge)

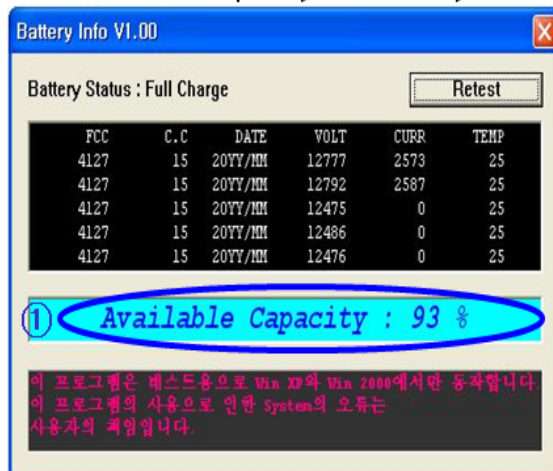
### [Example]

☐ Less than 6 months: PASS

①: Available Capacity: 93%

Duration of Use : 1month(30days)

Available Capacity of warranty: 87.8%

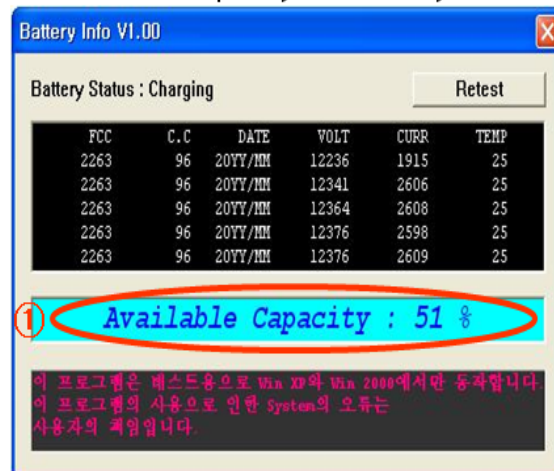


☐ Less than 6 months: FAIL

①: Available Capacity: 51%

Duration of Use : 1month(30days)

Available Capacity of warranty: 87.8%



**\* Reference** : If the sale date is 2004.5.10 and service receipt date is 2004.6.10, the Duration of Use is regarded as 1 month(30days)

## 4. Troubleshooting

Duration of Use	Available Capacity(%)
Within 0.5month (15days)	More than 93.6 %
Within 1.0month (30days)	More than 87.8 %
Within 1.5month (45days)	More than 82.5 %
Within 2.0month (60days)	More than 77.8 %
Within 2.5month (75days)	More than 73.6 %
Within 3.0month (90days)	More than 70.0 %
Within 3.5month (105days)	More than 66.9 %
Within 4.0month (120days)	More than 64.4 %
Within 4.5month (135days)	More than 62.5 %
Within 5.0month (150days)	More than 61.1 %
Within 5.5month (165days)	More than 60.3 %
Within 6.0month (180days)	More than 60.0 %

\* Reference

**Duration of Use** : The using period from the sales date of the system (with battery)

**Available Capacity(%)** : The real capacity of the battery, decreased from the design capacity by the user's circumstance, keeping status or etc.

4.

**Battery Info V1.00**

**Battery Status : Full Charge** [Retest]

FCC	C.C	DATE	VOLT	CURR	TEMP
4400	3	20YY/MM	12540	0	30
4400	3	20YY/MM	12540	0	30

**Available Capacity : 100 %**

이 프로그램은 테스트용으로 Win 9x와 Win 2000에서만 동작합니다.  
이 프로그램의 사용으로 인한 System의 오류는  
사용자의 책임입니다.

**① Battery Status:** Full Charge, in Charging, Full Discharge, in Discharging

**② FCC:** Full Charge Capacity. Expected capacity when the battery will be charged fully.

**③ C.C:** The times of full discharge after full charge

**④ DATE:** Sales date of the System year/month

**⑤ VOLT:** The voltage of charge or discharge of the battery

**⑥ CURR:** The current of charge or discharge of the battery

**⑦ TEMP:** The temperature of battery

**⑧ Available Capacity:** The percentage of present maximum available capacity compared to design capacity. Or “통신이 원활 하지 않습니다”: the error message when System MICOM can not communicate with battery.

**Password: SECAS**

**Retest button**

**Program caution note**

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## 4. Troubleshooting

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### (2) Check the battery use environment

1. Generally, the battery usage time in advertisements by notebook manufacturers refers to the maximum battery use time. Since the system specifications and the usage environment may differ, the user's battery usage time may differ from the advertisement even if there is no problem with the system.
2. Conditions for the company's maximum battery use time
  - a. Minimum LCD brightness, base system, the wireless LAN R/F is turned off, BatteryManager-Maximum Battery Mode
  - b. Measuring Tool: BatteryMark v.4.0.1
3. If a customer complains about the battery usage time, let them know that the battery usage time may differ depending on the model specifications and the usage environment and recommend the following usage environment for longer battery time.
  - a. Use the company's power-saving program, BatteryManager, and set BatteryManager to Maximum Battery Mode.
  - b. LCD brightness: Set to the minimum level as long as the user does not experience inconvenience.
  - c. Disable unnecessary devices  
: Turn the wireless LAN R/F switch off and disable USB devices (DMB, fingerprint recognition and Bluetooth)

## 4. Troubleshooting

### 7) Other

#### 7)-1. CPU Spec

CPU	4-6 code	Type	P/N	Description
T7700	0902-002199	uFCPGA	LF80537GG0564M	2.4GHz, uFCPGA, 479P, TR, PLASTIC, 1.05V, 34W, 0to+100C, 4MB, FSB800
T7500	0902-002198	uFCPGA	LF80537GG0494M	2.2GHz, uFCPGA, 479P, TR, PLASTIC, 1.05V, 34W, 0to+100C, 4MB, FSB800
T7300	0902-002197	uFCPGA	LF80537GG0414M	2.0GHz, uFCPGA, 479P, TR, PLASTIC, 1.05V, 34W, 0to+100C, 4MB, FSB800
T7100	0902-002196	uFCPGA	LF80537GG0332M	1.8GHz, uFCPGA, 479P, TR, PLASTIC, 1.05V, 34W, 0to+100C, 2MB, FSB800

#### 7)-2. Model Numbering Rule

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	S	P	2	8	N	H	*	*	*	*	/	2	0	0
Description	Transaction Group	Model Group	Model Name (Project)		CPU type	OS type	Derived Code (H/W & S/W)				Delimiter	CPU Clock or Transaction Route Name		
		Product Name			Model Property									

- Field 1 : Transaction Group (For a newly added transaction group, the code is notified to the: Strategy Group)
- Field 2~4 : Product Group by Model and Line-up
- Field 5 : CPU type in an alphanumeric character
- Field 6 : OS in an alphanumeric character
- Field 7~10 : The derived Model Number including the CPU clock (34-decimal code, Representative model is numbered in a separate numbering)
- Field 11: Delimiter
- Field 12~14: The CPU clock according to the standard (For Notebooks, special and direct sales are numbered by additional numbering)

##### 1. Detailed rules for each field

- Field 1~4: Transaction Group, Model Name, and Model Group depending on the model properties
- Field 1: Transaction Group

Desktop	M	D	G	C	W
Note PC	S				N

- Field 2: Model Group

Multi-Media	-	-	M
High End	T	H	T
Performance	P	B	P
Value	V	R	V
Entry	A	E	A
Slim D/T	F	F	-
Ultra Slim	Z	Z	Q
Slim 2 spindle	-	-	X

- Field 3~4: Unique Model Name

Item	Numbering	Change of 3rd Code	Change of 4th Code
Contents	by Series	Major Change	Minor Change

※ The standard for identifying major or minor changes is determined by the market situation (reflecting the roadmap).