SENS

Q45/Q46

TORINO II

NT-Q45xxxx/xxx

NT-Q46xxxx/xxx

SERVICE Manual

Q45/Q46

목차

책자에 수록되지 않은 내용은 K-zone 서비스 매뉴얼을 참조 하십시오.

- 목 차 -

Q45

TORINO II

NT-Q45xxxx/xxx

SERVICE Manual

SAMSUNG Q45

FEATURES

1. Simple & Essential Note PC
   - -. New Intel SantaRosa technology.
   - -. Internal 1.3M Camera
   - -. 12.1" WXGA 200nit Glare LCD
   - -. Windows Vista Home/Premium Supportable.

2. High Performance
   - -. Intel Core™2 Duo processor
   - -. Powerful connectivity.
   - -. Convenient Multi-media.

If there are the Contents not included in this book, please refer to K-zone Service Manual

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1. Precautions

1) General After-Sales Service Precautions

(1) Do not let customers repair the product themselves.

☞ There is a danger of injury and the product life time may be shortened.

(2) Make sure to disconnect the power cord from the wall outlet before repairing the product. (especially for after-sales service of electric parts)

☞ There is a danger of electric shock.

(3) Do not let customers plug several electric home appliances into a single wall outlet at the same time.

☞ There is a danger of fire due to overheating.

(4) Check if the power plug or wall outlet are damaged in any way.

☞ If a defect is found, repair or replace it immediately. (There is a danger of electric shock or fire)

(5) Make sure that it is properly grounded. (Check the ground of the wall outlet)

☞ Electricity leakage may cause electric shock.

(6) Do not spray water on to the product to clean it.

☞ There is a danger of electric shock or fire and it may shorten the lifetime of the product.

(7) Check the assembly status of the product after the after-sales service.

☞ The assembly status of the product must be the same as before the after-sales service.

(8) Unplug the power cord holding the power plug (and not the cord).

☞ If the cord is disconnected, it may cause electric shock or fire.

(9) Repair the product using only authorized parts.

(10) Keep the product away from heating devices such as heaters.

☞ Exposure to heaters may cause deformation of the product or fire.

1. Precautions

2) Safety Precautions

(1) EMI

This device has been registered regarding EMI for residential use. It can be used in all areas.

(2) Circuit Test (Logic Test) Precautions

The LSI and MSI used in this product are semiconductor integrated circuits based on MOS-FET or CMOS. Since these types of devices are highly susceptible to static electricity or current leakage, an isolation break may be caused. Therefore read and follow the instructions below.

1. When handling an LSI or MSI, make sure your body is grounded through a few mega-ohms of resistance. In addition, wear gloves and a jacket made of cotton and not of synthetic fibers that easily generate static electricity.
2. When repairing the product, place a conductive material (e.g. aluminum foil) grounded to the earth on the worktable.
3. You must use a soldering iron without a leakage current.
4. Do not touch the pin of an IC and carefully insert the IC into the black plastic package.
5. When inserting an IC into a PCB, be careful with the direction of the IC. When installing an IC in the wrong direction, it might become damaged.
6. When carrying an IC, package the IC with conducting material such as aluminum foil or conducting sponge so as to keep the voltage level of each of the terminals the same.
7. Since the storage temperature of an IC is between -20 ~ +70 degrees, keep it at room temperature, if possible.
8. When installing or removing a device from a PCB or installing or removing a board, you must disconnect the power before taking any action.
9. When soldering an IC, solder it in as short a time as possible so that unnecessary heat is not applied to the device.
10. Avoid leaving excessive amounts of flux within a custom IC or between the pins when soldering a custom IC.
11. Take care to not damage the board when installing or separating an Option Board.
12. Take care to not break the printed circuit pattern on the PCB when separate an IC.

1. Precautions

3) Ground

The product must be grounded to protect it from static electricity and other dangers. When using a multitap, please use a multitap with a ground terminal only.

If you use a 220V wall outlet with a ground terminal, you do not need to ground it additionally. Avoid using wall outlets if they are not grounded even if they have a ground terminal.

To ground the product, connect the ground to an exclusive ground terminal or metal water pipe. Connect the ground cable to the ground terminal at the rear of the main body. To ground the product, connect the ground terminal of the product to a metal water pipe, wall outlet or exclusive ground terminal with an electric wire equal to or thicker than #18.

Never ground the product to a PVC water pipe, phone line, TV, radio antenna, aluminum window or gas pipe, because this does not actually ground the product and may be dangerous.

4) Static Electricity Precautions

Many parts of the system are susceptible to static electricity. Using an electrostatic discharge (ESD) device is very important for the safety of the user and the user's surroundings. Using an ESD device increases the probability of a successful repair and lowers the expenses for damaged parts.

To prevent static electricity, follow the instructions below.

(1) Perform the repair in a location without static electricity.

(2) Touch your hands to a metal water pipe or some metal object connected to the ground to discharge any static electricity from your body before handling the parts.

(3) Touch only the edges of the board, if possible.

(4) Do not touch any parts unless absolutely necessary

(5) Disassemble the parts on the anti-static-electricity pad.

(6) When a board is not installed in the system, package the board with an anti-static-electricity packaging.

2. Introduction and Specification

1) Introduction

(1) High Performance PC

- Intel® Core™ 2 Duo Processor and DDR II Memory
- nVIDIA Geforce 8400 G PCI-Express Graphic
- Intel Santa Rosa Platform
- Wireless LAN (option), Bluetooth (option)

(2) Convenient feature

- Internal Camera (Option) for easily video and photo capture
- Integrated DMB for mobility TV receiving

(3) Prudent Design for easy use.

- Price competitive power preservation
- Variant Multi-media card support
- Good feeling with free type touchpad, advanced design appearance.

2) Specification

Processor and Motherboard	***Description***
CPU	**Intel® Core 2 Duo T7000 (1.86GHz) ~ T7700 (2.4G) and All CPU at Q4'07.35W (64bit)**
Speed	T7100 : 1.8GHz T7300 : 2.0GHz T7500 : 2.2GHz T7700 : 2.4GHz
Cache	4MB/2MB L2 Cache in Merom
Chipset	Intel PM/GM965+ ICH8M
BIOS	8 Mbit, Flash upgradable, SPI type
Thermal Design Performance	MAX. 35W
Memory	
Memory / Max. Memory	**512MB ~ 4GB**
Memory type	PC2-4200(533MHz) / PC2-5300(667MHz) DDR2 SODIMM
Memory Modules	512MB, 1GB, 2GB SODIMM
Sockets	2-slot SODIMM's
Display and Graphics	
LCD	**12.1" WXGA (200nits 이상, Glare only)**
LCD Vendor	Samsung AMLCD WXGA (LTN121W1-L03-G)
	AUO WXGA (B121EW01V3)
12.1" WXGA	
LCD Viewable Area	261.12 x 163.2mm (H x V)
LCD Resolution	1280 x 800 x 262,144 color (18 bit)
Dot Pitch	0.204 x 0.204mm (H x V)
Viewing angle	Hor. +40/-40, Ver. +20/-40
Contrast Ratio	typ.400 (CR)
Brightness	min.180, typ.200 (cd/m2)
Response time	Rising typ.10ms / max.15ms, Falling typ.15ms / max.20ms
Graphics Controller	**Factory option**
	Mobile Intel GMA X3000
	NVIDIA GeForce 8400M G (Physical 128MB + TurboCache)
Intel Internal GFX	**Mobile Intel GMA X3000**
Video Memory	128MB / 256M / 512M with DVMT
Max.Resolution for LFP LVDS	1920 x 1200 x 32Bits color (WUXGA)
Max.Resolution for External Monitor	2048 x 1536 @60HZ (CRT)

2. Introduction and Specification

NVIDIA External GFX	**NVIDIA GeForce 8400M G**
Video Memory	NVIDIA GeForce 8400M G (Physical 128MB + TurboCache)
Max.Resolution for LFP LVDS	1680 x 1050 x 18Bits color (WSXGA+)
Max.Resolution for External Monitor	2048 x 1536 @85HZ (CRT)
Audio	
Sound	**High Definition Audio**
Controller	HD Audio Codec, ALC262
Conversion	Built-in high performance 20-bit ADC & 24-bit DAC
Internal Interfaces	Embedded 2 stereo speakers, Internal microphone
Speaker Power Rating	2 Speakers x 2 Watt with enclosure each
External Interfaces	Microphone, Headphone, S/PDIF
Controls	Keyboard volume control
Microphone	**Mono Microphone**
Microphone	Mono
Sensitivity	-44dB
Output Impedance	2.2KΩ
Storage	
Hard Disk Drive	**9.5mmH 2.5" HDD, Removable**
Supports	SMART Ultra DMA 33/66/100, DMA Mode 2/4 ; SATA
Average Access Time	13m sec.
Speed	5400 / 7200 RPM , Hybrid HDD, TMR/PMR Type
Capacity	80GB / 100GB / 120GB / 160GB / 2000GB / 250GB : HGST, Hitachi, Samsung - 80 ~ 250 GB SATA 5400rpm - 80 ~ 200 GB SATA 7200rpm - 80 ~ 160GB SATA 5400rpm, Hybride + 256MB - 120 ~ 250GB SATA 5400rpm, Hybride + 5126MB
Optical Disk Drive	**DVD / Combo / Super Multi DL & w/LightScribe (12.7mm/PATA) Blueray / HD-DVD**
Type	Fixed type (Factory Option)
S/W supplied	Cyberlink DVD Solution
Security	RPC-II Regional Encoding

2. Introduction and Specification

Optical Driver Modules	
Combo Drive 1	**Factory Option**
Module type	Fixed 12.7mm Slim
Speed	8x DVD-ROM, 24x RW, 24x CD-R : TSST, TS-L332A
Average Access Time	DVD 130ms Typ, CD 130ms Typ
Weight	176g or less
S/W Supplied	Cyberlink DVD Solution
Security	RPC-II Regional Encoding
Combo Drive 2	**Factory Option**
Module type	Fixed 12.7mm Slim
Speed	8x DVD-ROM, 24x RW, 24x CD-R, 24x CD : TSST, TS-L462D
Average Access Time	DVD 130ms Typ, CD 130ms Typ,.
Weight	176g or less
S/W supplied	Cyberlink DVD Solution
Security	RPC-II Regional Encoding
Super Multi Dual Layer 1	**Factory Option**
Module type	Fixed 12.7mm Slim
Speed	5x DVD-RAM, 8x DVD±R 2.4x DVD+R DL, 4x DVD±RW, 24x CD-R, 16x CD-RW, 8x DVD, 24x CD : Panasonic UJ-850
Average Access Time	DVD 130ms Typ., CD 130ms Typ.
Weight	190g or less
S/W supplied	Cyberlink DVD Solution
Security	RPC-II Regional Encoding
Super Multi Dual Layer 2	**Factory Option**
Module type	Fixed 12.7mm Slim
Speed	5x DVD-RAM, 8x DVD±R, 6x DVD±R DL, 8x DVD+RW, 6x DVD-RW, 24x CD-R/RW, 8x DVD, 24x CD : *TSSTTS-L632D*
Average Access Time	DVD 130ms Typ., CD 130ms Typ.
Weight	180g or less
S/W supplied	Cyberlink DVD Solution
Security	RPC-II Regional Encoding
Super MultiDual Layer 3	**Factory Option**
Module type	Fixed 12.7mm Slim
Speed	5x DVD-RAM, 8x DVD±R, 6x DVD±R DL, 8x DVD+RW, 6x DVD-RW, 24x CD-R/RW, 8x DVD, 24x CD : *TeacDV-W28EC*
Average Access Time	DVD 130ms Typ., CD 130ms Typ.
Weight	180g or less
S/W supplied	Cyberlink DVD Solution

2. Introduction and Specification

Security	RPC-II Regional Encoding
Super MultiDual Layer Lightscribe	**Factory Option**
Module type	Fixed 12.7mm Slim
Speed	5x DVD-RAM, 8x DVD±R, 6x DVD±R DL, 8x DVD+RW, 6x DVD-RW, 24x CD-R/RW, 8x DVD, 24x CD : *TSST TS-L632M*
Average Access Time	DVD 130ms Typ., CD 130ms Typ.
Weight	180g or less
S/W supplied	Cyberlink DVD Solution
Security	RPC-II Regional Encoding
Network Tools	_
Fax/Modem	**56Kbps / V.92 Azalia Modem, DELPHI (D40) (Factory Option)**
Chipset	CSP1040 AGR A3 & A3 5V1
Features	RJ11 Output
LAN	**10/100 Ethernet**
Chipset	Marvell 88E8039
Features	RJ45 Output
802.11g Wireless LAN	**Intel PRO/Wireless 3945BG:*Intel 802.11b/g***
Type	Mini card (Factory Option)
Chipset	Golan
Antenna	Integrated 2 Antenna
802.11a/g Wireless LAN	**Intel PRO/Wireless 3945ABG:*Intel 802.11a/b/g***
Type	Mini card (Factory Option)
Chipset	Golan
Antenna	Integrated 2 Antenna
802.11a/g/n Wireless LAN	**Intel PRO/Wireless 4965ABGN:*Intel 802.11a/b/g/n***
Type	Mini card (Factory Option)
Chipset	Kedron
Antenna	Integrated 3 Antenna
Bluetooth	**BCM92045NMD : Factory Option**
Type	USB daughter card with integrated PIFA antenna
Chipset	Broadcom BCM2045
Standard	version 2.0
I/O Interface	
PC CardBus Slots	**1 PCMCIA Type II slot**
Controller	RICOH R5C847
Support	32bit CardBus cards

2. Introduction and Specification

I/O Ports	
USB Port	2 (USB2.0)
Video (CRT) Port	1
Audio Jacks	Headphone + S/PDIF, MIC-in
Modem / LAN	RJ11, RJ45
Power	1(5pie)
TV Antenna Jack	External DMB Antenna socket (Factory Option)
Security	Kensington Lock
Input Devices	
Camera	1.3M Pixels Digital Camera (Factory Option)
Key board	88KEY(KR/US), 89KEY(UK/FR/GM/SP)
	Travel length 2.6mm/ Key Pitch 19.05mm
Touchpad	Synaptics Touchpad (Plat type with Scroll area)
Easy Button	Vista : Hot start, XP : AVS
Multi Memory Card Slot	
Controller	R5C843
Type	Memory stick / Memory stick pro / SD / xD / MMC (High speed MMC)
Power and Power Management	
Battery	SSB-Q30LS6 (6cells, Smart Li-Ion Battery)
Dimension	204 x 52.2 x 21mm
Weight	320g (max)
Recharge Time	2 hours to 100% with Windows on & off
Battery Life	over 4hours (Battery mark 4.01)
Details of Cell	6cells (2Parallel 3Serial)
Voltage	11.1Vdc
Battery Capacity	2400mAh/cell
Battery Rating	11.1V / 4800mAh (53.28Wh)
AC Adapter	**AD-6019S**
Output Power	60Watts
Dimension	160 X 70 X 29mm
Weight (AC Adapter)	300g ± 50g
Worldwide Compatibility	Auto-sensing 100 - 240VAC
Line Frequency	50 / 60Hz
Adapter Rating - Input	100V - 240V, 1.8A
Adapter Rating - Output	19.0VDC / 3.16A
Power Management Features	ACPI 3.0 support, Standby(S3), Hibernate(S4)
System Dimensions	

2. Introduction and Specification

Dimensions (W X D X H)	299 x 217 x 26.9~36.1mm
Weight (Full system w/ 6cell Battery)	1.86kg
	Status : No options, 6cell battery, 12.1" LCD
Materials	LCD back / Front : PC/ABS
	Bottom / Top : PC/ABS

3) Key Feature

	Q35	Q45
		
CPU	Intel Core Solo T1300, T1400 Intel Core Duo T2300~2700.	667/800MHz Intel Core 2 Duo Processor (Merom)
Chipset	945GM/PM (Calistoga)	965GM/PM(Crestline)
Memory	DDR2 533 / 667MHz	DDR2 533 / 667MHz
Graphic	Intel 950 GMA Solution	Intel GMA X3000 Solution / nVIDIA Geforce 8400M G
LCD	12.1" WXGA Glare	12.1” WXGA Glare
HDD	PATA / SATA	SATA
ODD	12.7mm	12.7mm
Port	2USB, VGA, Headphone, MIC, S/PDIF 1394(4pin), RJ45, RJ11, PC-Card, 6-in-1, AC-IN, DMB Antenna, Kensington Lock	2USB, VGA, Headphone, MIC, S/PDIF 1394(4pin), RJ45, RJ11, PC-Card, 6-in-1, AC-IN, DMB Antenna, Kensington Lock
Battery	6cell	6cell
Design	Proto type	2nd Proto type

2. Introduction and Specification

4) Option Partlist

HDD

BA59-01999A	HTS541660J9SA00	5400rpm, 60G, SATA, 8M
BA59-01946A	MHV2060BH-PL	5400rpm, 60G, SATA, 8M
BA59-02084A	MHW2060BH	5400rpm, 60G, SATA, 8M
BA59-02038A	HM060HI	5400rpm, 60G, SATA, 8M
BA59-02001A	HTS541680J9SA00	5400rpm, 80G, SATA, 8M
BA59-01947A	MHV2080BH-PL	5400rpm, 80G, SATA, 8M
BA59-02085A	MHW2080BH	5400rpm, 80G, SATA, 8M
BA59-02009A	ST980815AS	5400rpm, 80G, SATA, 8M
BA59-01742A	HTS541010G9SA00	5400rpm, 100G, SATA, 8M
BA59-01948A	MHV2100BH-PL	5400rpm, 100G, SATA, 8M
BA59-02086A	MHW2100BH	5400rpm, 100G, SATA, 8M
BA59-02014A	HM101JI	5400rpm, 100G, SATA, FFS
BA59-02010A	ST9100828AS	5400rpm, 100G, SATA, 8M
BA59-02002A	HTS541612J9SA00	5400rpm, 120G, SATA, 8M
BA59-01957A	MHV2120BH-PL	5400rpm, 120G, SATA, 8M
BA59-02087A	MHW2120BH	5400rpm, 120G, SATA, 8M
BA59-02013A	HM121JI	5400rpm, 120G, SATA, FFS
BA59-02039A	HM120JI	5400rpm, 120G, SATA, 8M
BA59-02011A	ST9120822AS	5400rpm, 120G, SATA, 8M
BA59-02003A	HTS541616J9SA00	5400rpm, 160G, SATA, 8M
BA59-02012A	ST9160821AS	5400rpm, 160G, SATA, 8M
BA59-02110A	MHW2160BH-PL	5400rpm, 160G, SATA, 8M

LCD

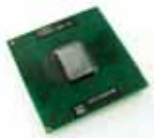
BA59-01889A	AMLCD	LTN121W1-L03-G
BA59-01893A	AUO	B121EW01V3

MEMORY

1105-001683	DDR2 667Mhz 512MB	M470T6554CZ3-CE6
1105-001684	DDR2 667Mhz 1GB	M470T2953CZ3-CE6

2. Introduction and Specification

CPU



0902-002196	T_T7100(Merom Dual Core)	1.8Ghz(FSB800) 2MB
0902-002197	T_T7300(Merom Dual Core)	2.0Ghz(FSB800) 4MB
0902-002198	T_T7500(Merom Dual Core)	2.2Ghz(FSB800) 4MB
0902-002199	T_T7700(Merom Dual Core)	2.4Ghz(FSB800) 4MB

BLUETOOTH

BA59-01691A	BT MODULE(FOX)	Bluetooth V2.0, T60H928.01, Bluetooth Module
BA59-01916A	BT MODULE(SEM)	Bluetooth V2.0, BTO2P0B2SA, Bluetooth Module,

ODD

BA96-03223A	S_MULTI(DV228EC)	TEAC
BA96-03241A	S_MULTI(UJ-850)	MATSUHITA
BA96-03242A	S_MULTI(TS-L632D)	TSST
BA96-03243A	S_MULT Scrivel(TS-L632M)	TSST
BA96-03222A	COMBO(DW-224E-R)	TEAC
BA96-03239A	COMBO(TS-L462D)	TSST
BA96-03245A	DVD(TS-L332A)	TS-L332A

WLAN_GOLAN

BA59-01723A	802.11a/b/g	WM3B3945AGKOR
BA59-01722A	802.11a/b/g	WM3B3945AGROW
BA59-01721A	802.11a/b/g	WM3B3945AGMOW1
BA59-01724A	802.11a/b/g	WM3B3945AGMOW2

WLAN_MIMO

BA59-02065A	802.11a/b/g/n	4965AGN KOR
BA59-02064A	802.11a/b/g/n	4965AGN ROW
BA59-02062A	802.11a/b/g/n	4965AGN MOW1
BA59-02063A	802.11a/b/g/n	4965AGN MOW2

2. Introduction and Specification

5) New Function

5)-1. Camera (Option)

Internal Camera (Option) for easily video and photo capture

5)-2. HD-DVD, Blue-Ray

HD DVD

HD-DVD is a next generation storage media that can save more data then the existing DVD format.
You can record and play better quality HD movies than the existing SD-grade DVD format.

Type	HD DVD	DVD	CD
Logo	HD DVD	DVD	COMPACT disc
Storage Capacity	15 GB / 30 GB	4.7 GB / 8.5 GB	0.65 GB
Data Rate	36.55 Mbps	11.08 Mbps	7.8 Mbps
Supported Resolution	1920 X 1080(i)	720 X 480	320 X 240

* Date Rate: The amount of data that can be read or written onto a storage media per second.

Supported Disk Types

HD DVD supports the following disk types.

Type	Function
HD DVD-ROM	Reads HD DVD disks.
HD DVD-R	Reads HD DVD disks and writes data onto HD DVD disks once.
HD DVD-RW	Reads HD DVD disks and writes data onto HD DVD disks repeatedly.

Blu-ray

Blu-ray is a next generation storage media that can save approximately 5 to 10 times more data then the existing DVD format. You can record and play better quality HD movies than the existing SD-grade DVD format.

Type	Blu-ray	DVD	CD
Logo	Blu-ray Disc	DVD	COMPACT disc
Storage Capacity	25 GB / 50 GB	4.7 GB / 8.5 GB	0.65 GB
Data Rate	36 Mbps	11.08 Mbps	7.8 Mbps
Supported Resolution	1920 X 1080(i)	720 X 480	320 X 240

* Date Rate: The amount of data that can be read or written onto a storage media per second.

Supported Disk Types

Blu-ray supports the following disk types.

Type	Function
BD-ROM	Reads Blu-ray disks.
BD-R	Reads Blu-ray disks and writes data onto Blu-ray disks once.
BD-RE	Reads Blu-ray disks and writes data onto Blu-ray disks repeatedly.

2. Introduction and Specification

5)-3. New Keyboard

United Kingdom

United States

Shortcut Keys

You can use the following functions by pressing the keys below with the **Fn** key.

Fn+	Name	Function
	REST (Sleep Mode)	Switches to Sleep mode. To wake the computer up, press the Power button.
	Gauge	Shows the remaining battery charge. You can only use this function when the Easy Display Manager program is installed.
	Euro	Enters the Euro monetary unit symbol. This key may not be provided depending on the keyboard type.
	CRT/LCD	Switches the screen output to the LCD or external monitor when an external monitor (or TV) is connected to the computer. p. 57
	Backlit	Turns the LCD backlight on or off.
	Mute	Mutes or cancels mute.
	Samsung Magic Doctor	System diagnosis, recovery and Internet consultation program, Samsung Magic Doctor, will be launched.
	Easy SpeedUp Manager	You can select operation mode when you need maximum system performance or low-noise/low power consumption with one-click. ■ **Silent:** Low-noise and low power consumption mode ■ **Normal:** Normal Mode ■ **Speed:** Maximum performance mode. The system operates in its maximum performance, and system resources are allocated to the currently active program with priority for maximum performance.
	Wireless LAN	Turns the wireless LAN function on or off in models with wireless LAN capability.
	Touchpad	Turns the Touchpad function on or off. When using an external mouse only, you can turn the Touchpad off.
	Num Lock	Turns the numeric keyboard on or off.
	Scroll Lock	If you turn the Scroll Lock on, you can scroll the screen up or down without changing the cursor location in some applications.

6) System Setup (BIOS Setup)

MAIN

❑Primary Master

=> The information on the device mounted on the Primary Master. The HDD capacity is displayed in Torino2.

qSecondary Master

=> The information on the device mounted on the Primary Slave. The DVD/CD-ROM is displayed in Torino2.

qTotal Memory

=> The total capacity of the current memory installed on the system.

qSlot1 Memory

=> The capacity of the memory installed in Slot 1. The Slot1 memory indicates the capacity of the On-Board Memory in Torino2.

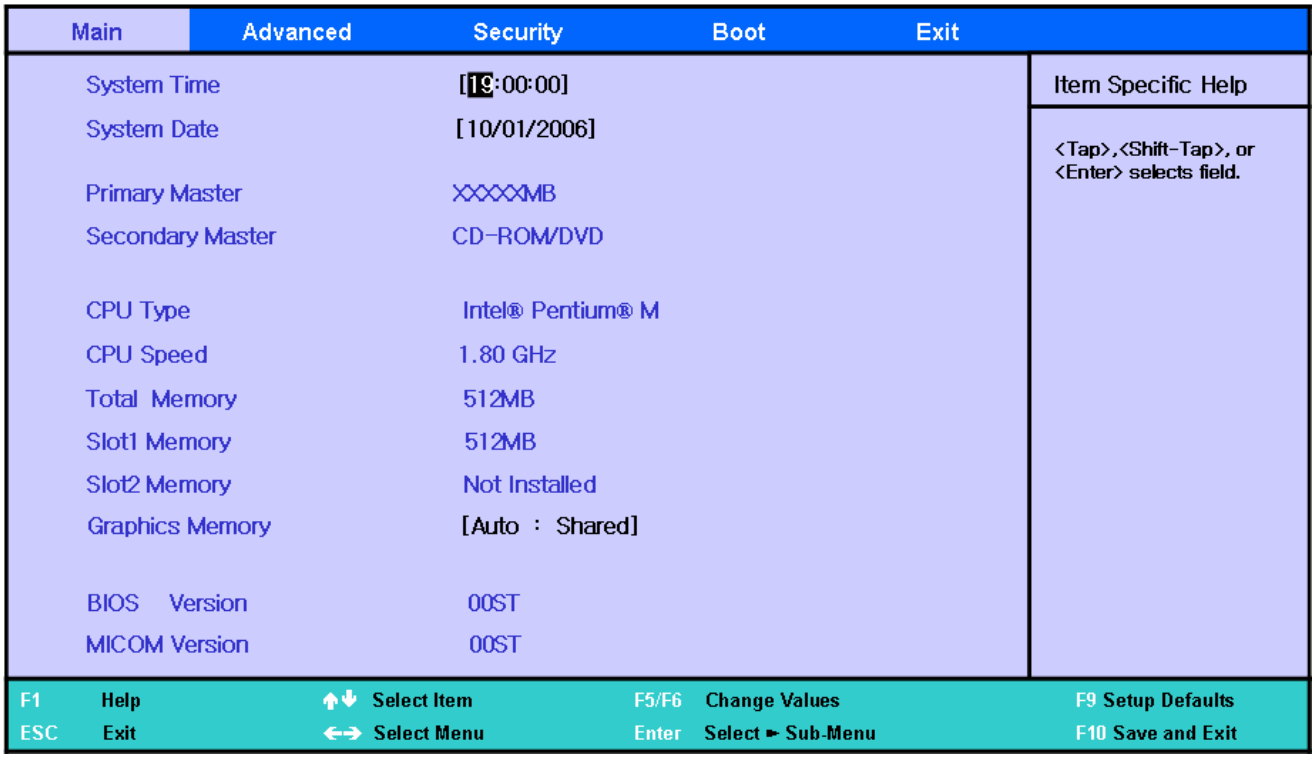
qSlot2 Memory

=> The capacity of the memory installed in Slot 2. The Slot2 memory indicates the capacity of the memory installed in the memory slot in Torino2.

qGraphics Memory

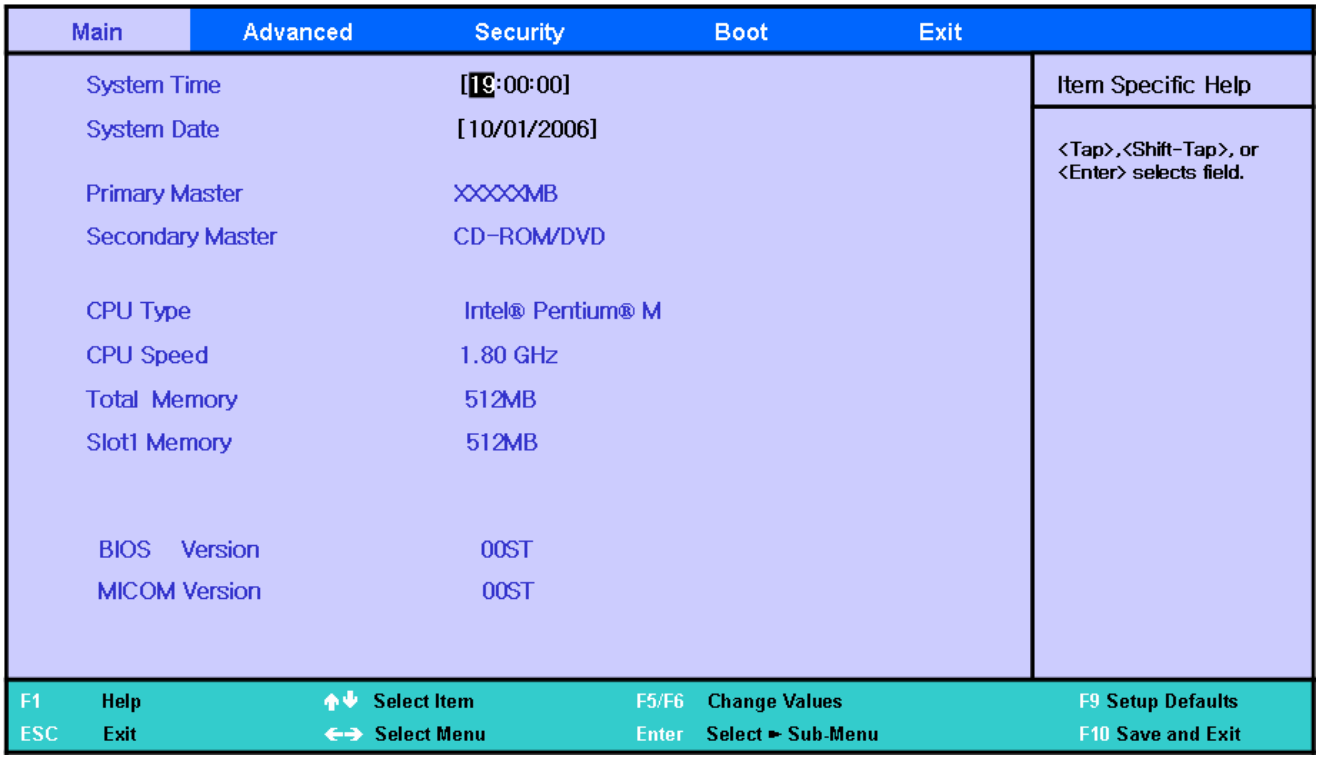
=> The option to determine the maximum size of the dynamic graphic memory in Torino2.

Internal



External

2. Introduction and Specification



Advanced

❑Core Multi-Processing

=> The option to determine whether to switch Single core or Dual Core processing.

qIntel(R) SpeedStep(TM)

=> The option to enable or disable the SpeedStep function that automatically changes the CPU clock speed according to CPU usage. Enabling this function extends the battery use time.

qTouch Pad Mouse

=> The option to enable or disable the touch pad function. If the touch pad function is disabled using this option, the disabled status will be retained at the next boot time. For your information, if the touch pad function is disabled by pressing Fn+F9, the touch pad function is enabled at the next boot time.

qBoot from 1394/Firewire

=> The option to enable or disable the 1394 device. If this option is set to enable, you can boot from 1394 device.

qLegacy USB Support

=> The option to determine whether to support a Legacy USB device. If this option is set to Enabled, you can boot from a USB device.

qLarge Disk Access Mode

=> Currently, [DOS] should be set in Torino2. Setting this option is rarely needed.

qEDB (Execute Disable Bit)

=> If [enable], Intel Execute Enable Bit(function) will be enabled.

2. Introduction and Specification

qInternal LAN
=> The option to determine whether to use a cable LAN device of the system.
qCPU Power Saving Mode
=> If [Enabled] is selected, the system can enter C3 mode and save CPU power consumption. However, you may experience performance degradation.
qDelete Recovery Area
=> If you want to delete the HDD recovery solution 2 area included in the Torino2 HDD, this option should be set to [Enabled].
qPurchased Date
=> Displays the date when a user boots the PC for the 10th time.

Main	Advanced	Security	Boot	Exit

		Item Specific Help
Core Multi-Processing :	[Enabled]	Determines whether the 2nd core is enabled. Disabled = 2nd core is disabled. Enabled = 2nd core is enabled.
Intel® SpeedStep™	[Enabled]	
Touch Pad Mouse	[Enabled]	
Legacy USB Support	[Enabled]	
Boot from 1394/Firewire	[Disabled]	
Large Disk Access Mode	[DOS]	
Internal LAN	[Enabled]	
EDB (Execute Disable Bit)	[Disabled]	
CPU Power Saving Mode	[Enabled]	
Delete Recovery Area	[Disabled]	
Purchased Date	2005/10	

F1	Help	↑↓	Select Item	F5/F6	Change Values	F9	Setup Defaults
ESC	Exit	←→	Select Menu	Enter	Select ► Sub-Menu	F10	Save and Exit

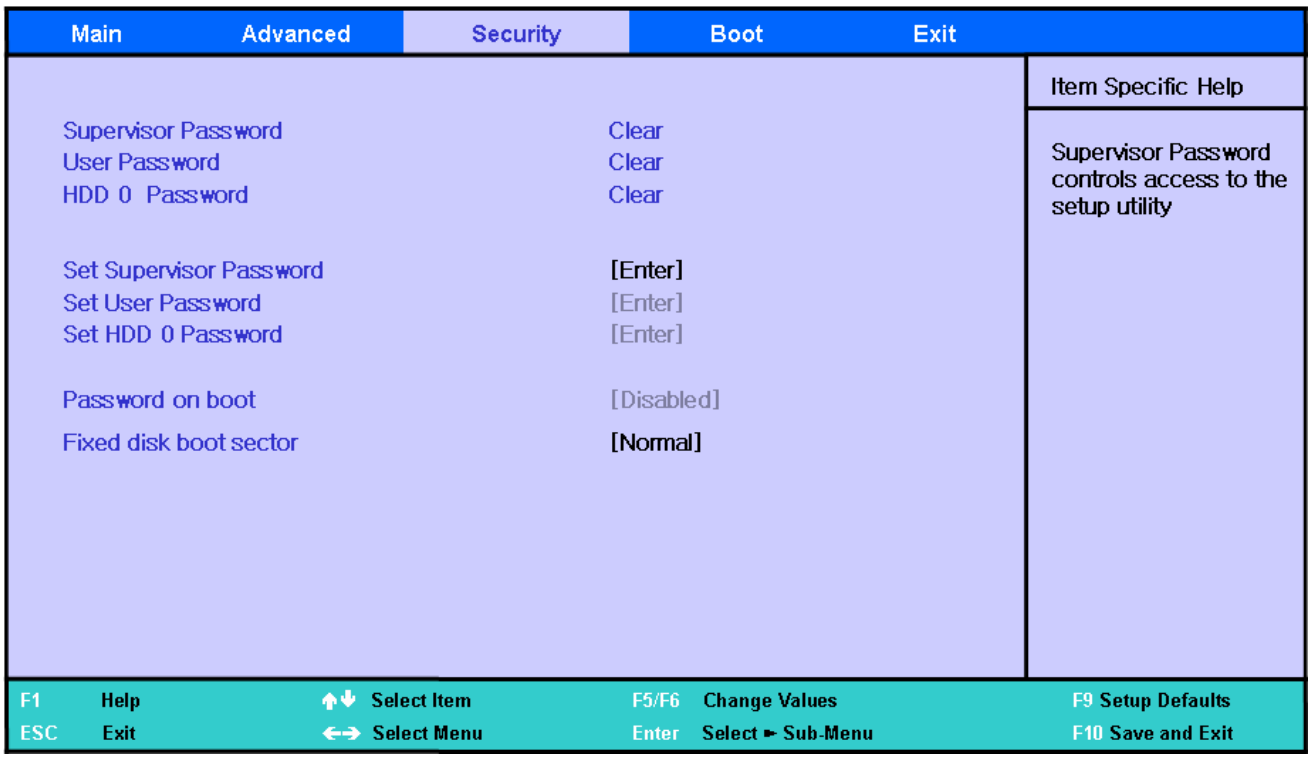
Security

qSet the Supervisor Password
=> Select to set the supervisor password.
qSet a User Password
=> Select to set a user password
qSet a HDD 0 Password
=> Select to set a HDD password
qPassword on Boot
=> This is the option for determining whether to ask for a password when the system starts. The supervisor password should already be set.

2. Introduction and Specification

qFixed Disk Boot Sector

=> If [Write Protect] is selected, writing to the boot sector of the HDD is blocked.



Boot

qBoot Device Priority

=> Sets the priority of the booting devices.

qNumLock

=> The option to determine whether to switch NumLock on or off when booting.

qEnable Keypad

=> The option to determine how to use the keypad of the keyboard.

- If this option is set to [Only By Fn Key], you have to press a numeric key with the Fn key to enter a number.
- If this option is set to [By NumLock], you can enter a number by just pressing the corresponding numeric key if NumLock is switched On.

qSummary Screen

=> The option to determine whether to display the system information (CPU, memory, HDD) on the screen when booting.

qBoot-time Diagnostic Screen

=> The option to determine whether to display the Samsung logo on the screen when booting.

qPXE OPROM

=> The option to determine whether to always initialize PXE Oprom in relation to a network boot. Since the general user does not use network boot, setting this option to [Only with F12] is recommended.

qBrightness Control Mode

=> If this option is set to [Auto], the screen brightness automatically changes to Level 1, when operating on battery power is detected while booting or resuming from S3 status, or when the AC adapter is removed and the system power changes to battery while using the system.

=>If this option is set to [User Control], the previous status is always remembered..

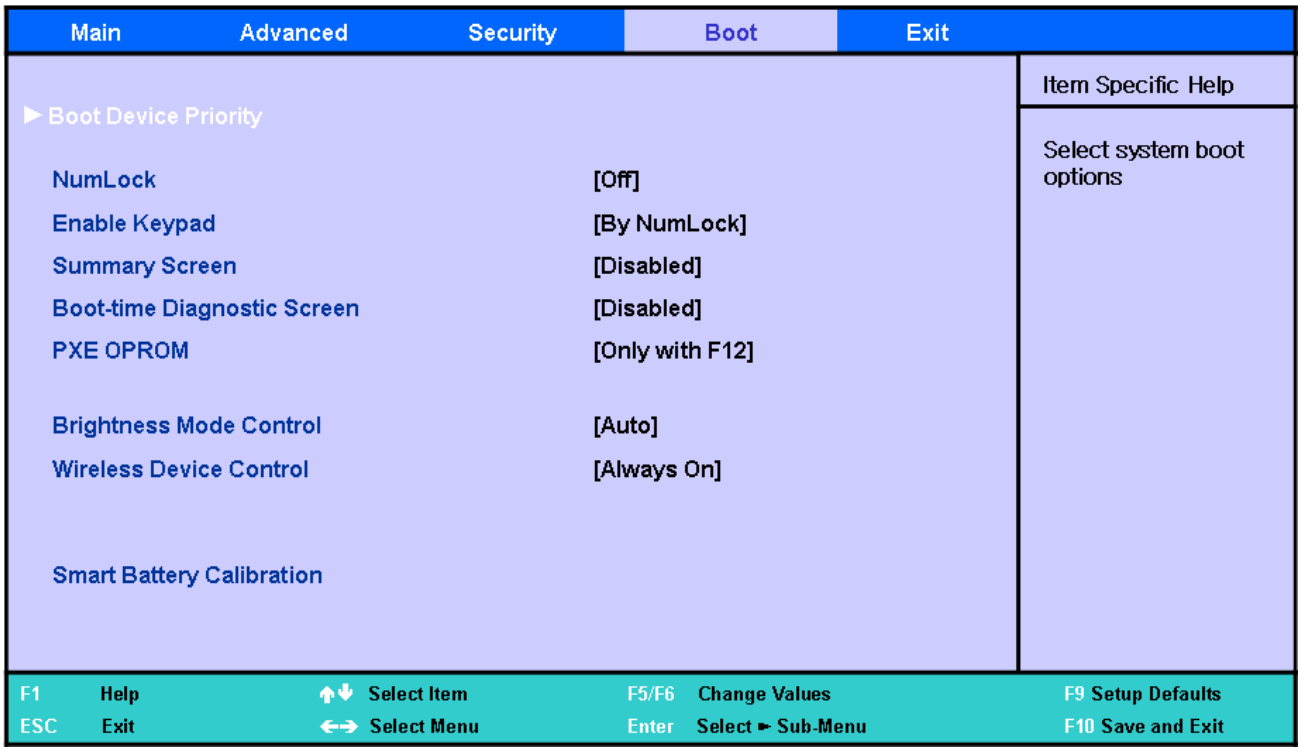
qWireless Device Control

=> If this option is set to [Always On / Off], the Wireless LAN will be turned on / off when system boot into Windows.

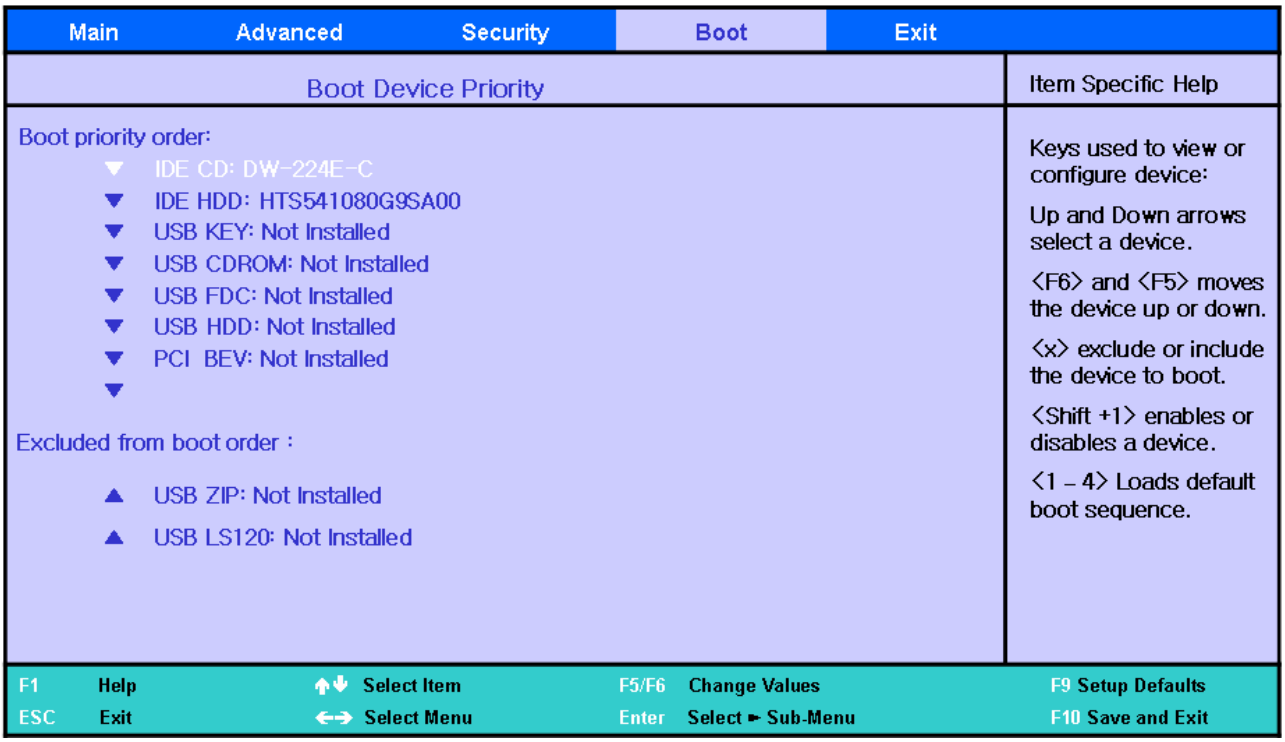
=> If this option is set to [Last Status], the Wireless LAN will remain its status as the last time when system in Windows mode.

qSmart Battery Calibration

=> Corrects the difference between the actual battery capacity and the remaining capacity.



2. Introduction and Specification



Exit

qExit Saving changes

=> Saves the changed settings and exits.

qExit Discarding Changes

=> The changed settings are not saved and the previous settings are restored. Exits without saving the changes.

qLoad Setup Defaults

=> Sets the settings to the default values.

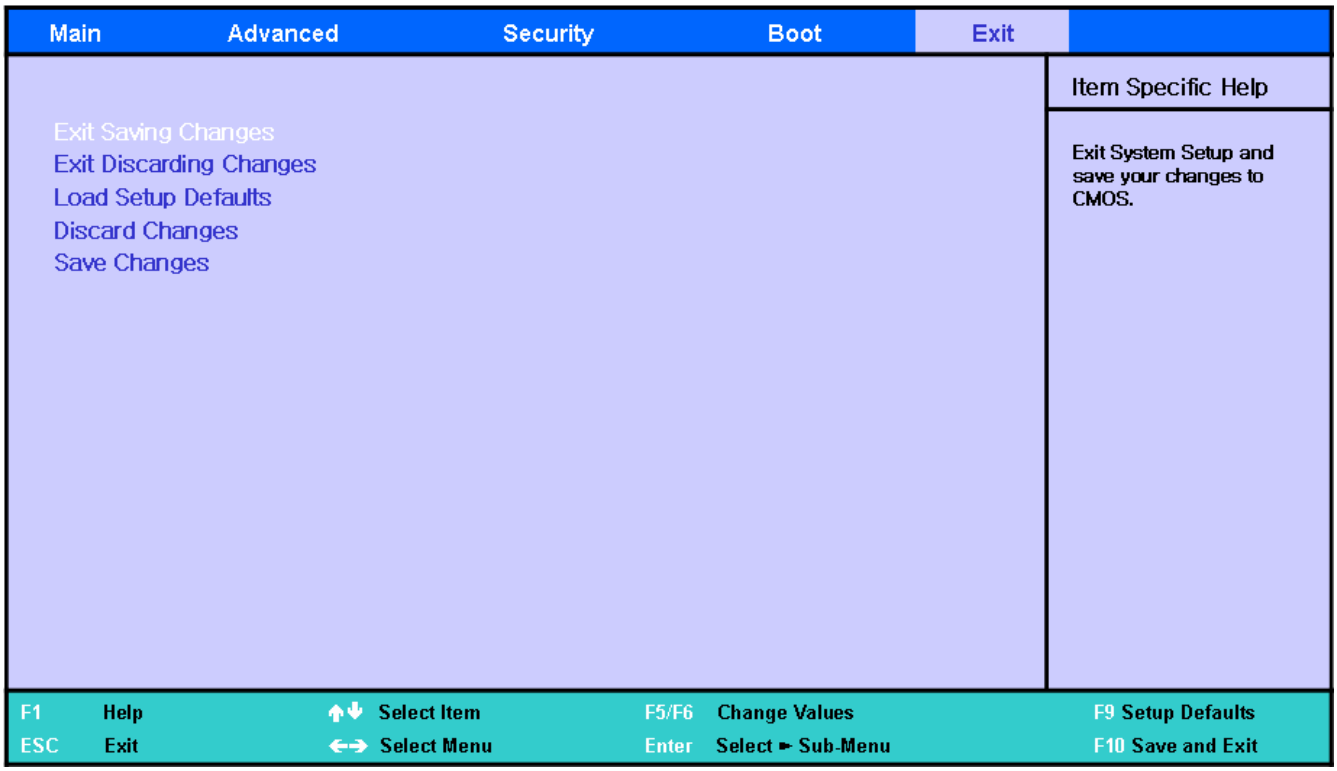
qDiscard Changes

=> Restores the changed settings to the previous values.

qSave Changes

=> Saves the changed settings.

2. Introduction and Specification



2. Introduction and Specification

7) Description of Main board

7)-1. Top

1	CRT connector	2	USB connector
3	DC-Jack	4	RJ45 connector
5	USB connector	6	LCD connector
7	Camera connector	8	Speaker connector
9	MDC cable connector	10	RJ11 Connector
11	KBD connector	12	On-Top Board Connector
13	ICH8M	14	SODIMM Channel A
15	Touchpad FFC connector	16	FAN Connector
17	PCMCIA Frame	18	MINI-CARD for HSDPA / WiBro (Option)
19	DMB	20	Touchpad button (Left & Right)
21	Internal MIC connector	22	Bluetooth connector

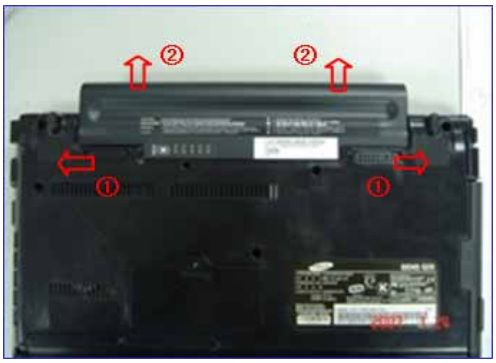
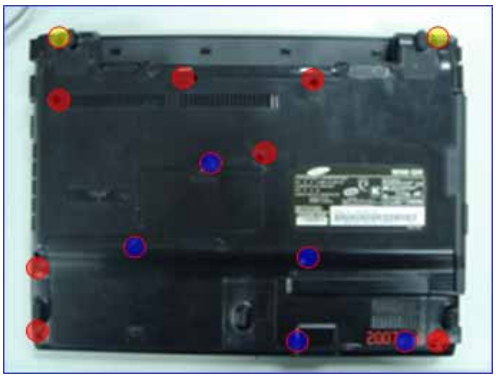
2. Introduction and Specification

7)-1. Bottom

1	CPU socket	2	(G)MCH
3	Graphics Controller	4	Battery connector (J506)
5	ODD connector (J510)	6	SODIMM Channel B(U510)
7	MDC	8	SATA connector (JHDD500)
9	6in1 connector (J514)	10	RTC connector (J509)
11	USIM Board FFC Connector	12	Minicard connector (WLAN)
13	Headphone + S/PDIF Jack	14	MIC jack (J512, J511)
15	Debug connector	16	IEEE 1394 Port (4 pin)

4. Disassembly and Reassembly

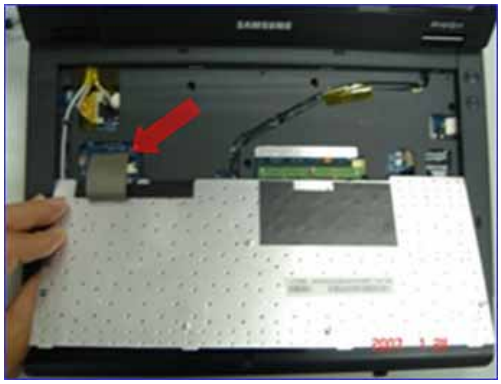
4-1. Disassembly and Reassembly of Q45

Part Name	Figure	Description
Main System		1. Must remove AC Adapter and Battery when disassembling system. 2. After push knobs to end forward to red arrows and red mark No.1, Push Battery like red mark No.2.
		3. Have Battery with pushing Battery upward.
		4. Remove Bottom Screws. - M2xL4 : 5 EA (BLUE) - M2xL7 : 7 EA (RED) - M3xL5 : 2 EA (YELLOW)
		5. Separate HDD DOOR - M2xL7 : 1EA (RED) 6. Separate MEMORY / MINICARD DOOR.

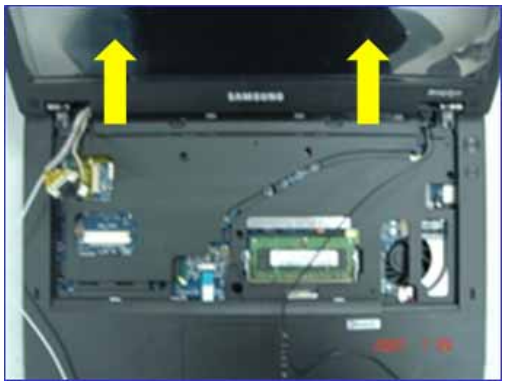
4. Disassembly and Reassembly

Part Name	Figure	Description
Main System		7. You can see HDD, removing Door-HDD, And, Pick Insulator and pull it toward to 70° direction than ground with HDD. (And must remove HDD-FPC with operating connector in red circle in pic.) *CAUTION Don't pull HDD-FPC with too much force. Must remove HDD before reversing system.
		8. Disassemble ODD like pic.
		9. After removing ODD, remove screws - M2xL7 : 2 EA (RED)
		10. Lift up keyboard after pushing hooks inward with using tweezers. * CAUTION Be careful for top scratch when using tweezers.

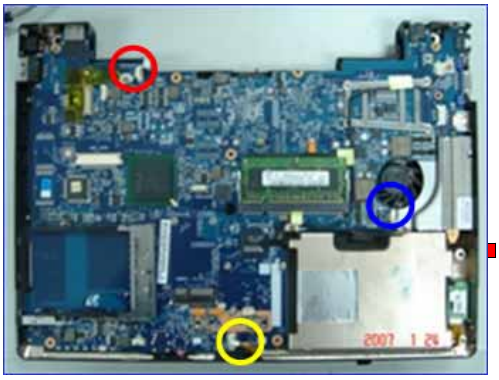
4. Disassembly and Reassembly

Part Name	Figure	Description
Main System		11. After reversing Keyboard backward like pic. pull out Keyboard FPC with operating Keyboard Connector.
		12. Disassemble Cap-Top using tweezers to middle hole. *CAUTION Be careful for CAP-TOP scratch when using tweezers.
		13. Separate Antenna Cable connector in Wireless LAN module. (Main/AUX)
		14. Pull Antenna Cable toward to bottom middle hole like pic.

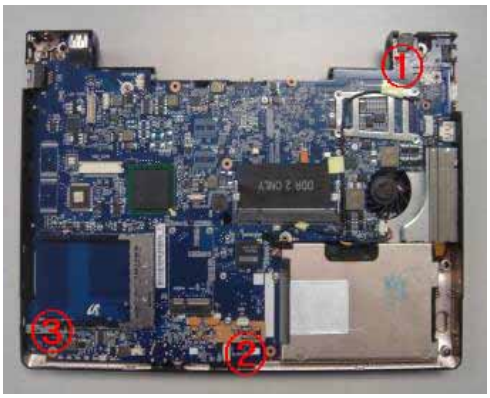
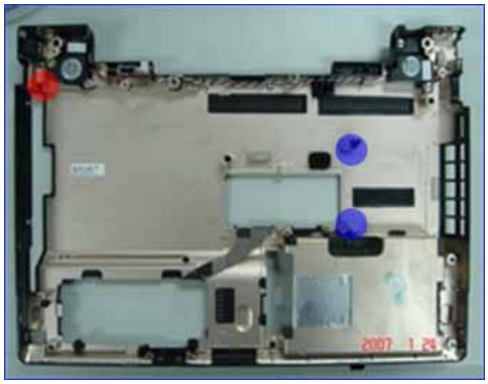
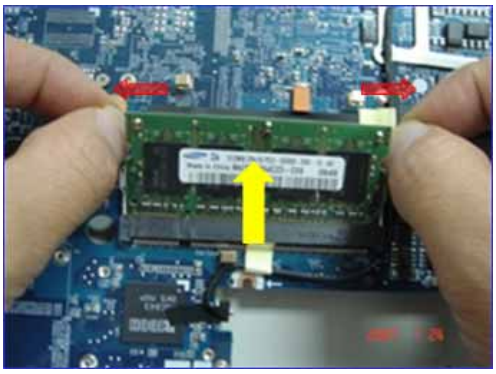
4. Disassembly and Reassembly

Part Name	Figure	Description
Main System		15. After reversing system, Opening LCD, and pull out Antenna Cable to Top middle hole like pic.
		16. Separate all cables assembled in Top. - Wireless LAN Cable : WHT/BLK 2 kinds - LCD Cable : 1 kind - Camera Cable : 1 kind (Option) - Wibro Cable : 2 kind (Option) - HSDPA Cable : 1 kind (Option)
		17. Remove screws between Hinge and System. - M2xL7 : 2 EA (RED)
		18. Disassemble LCD A'ssy toward to yellow arrow direction.

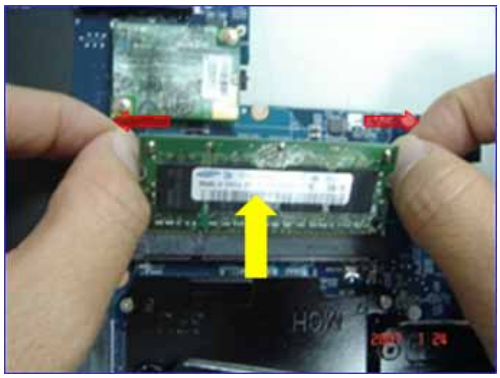
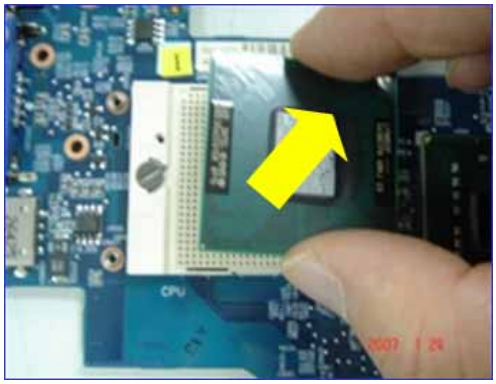
4. Disassembly and Reassembly

Part Name	Figure	Description
Main System		19. Separate cables between Main PCB and Top. - Ontop Cable : 1 EA - Touchpad FFC : 1 EA
		20. Disassemble Top. (Must separate MIC cable like pic. first.)
		21. Separate cables between Main PCB and Bottom. - Speaker Cable (RED) - FAN Cable (BLUE) - BLUETOOTH Cable (YELLOW)
		22. Remove screws using assembling Main PCB and Bluetooth Module. - M2xL7 : 4 EA (RED)

4. Disassembly and Reassembly

Part Name	Figure	Description
Main System		23. Disassemble Bluetooth Module and Cable.
		24. Disassemble MAIN PCB. 1) Lift up upper right-hand side first 2) Be careful with lower middle ports. 3) Disassemble with carefully for PCMCIA button in lower left-hand side.
		25. Remove screws for fixing FAN - M2xL4 : 2 EA (BLUE, FAN part) 25-1. Remove upper left-hand side screw. (For DMB option) - M2xL4 : 1 EA (RED, DMB PORT part)
		26. Separate Memory of MAIN PCB topside. (1st, push side pin toward to each outside direction, 2nd, Memory module lift up automatically, 3rd, pick memory and pull out.)

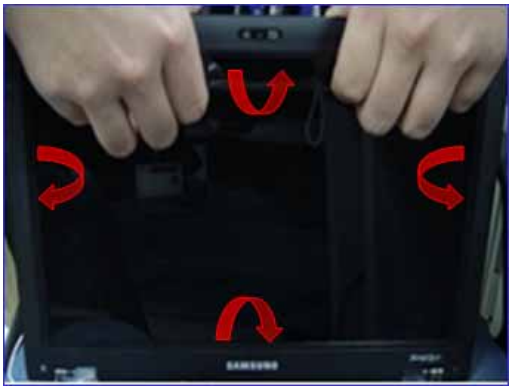
4. Disassembly and Reassembly

Part Name	Figure	Description
Main System		27. Reverse Main PCB backward, Separate Memory of MAIN PCB bottomside. (1st, push side pin toward to each outside direction, 2nd, Memory module lift up automatically, 3rd, pick memory and pull out.)
		28. Disassemble RHE. - Special Screw (Inside RHE) : 4 EA (RED) - M2xL6 : 3 EA (YELLOW)
		29. Twist Screw in CPU socket 180 degree rotating to (-) direction with driver.
		30. After check combination loosen, separate CPU. (Be careful with bending of CPU pin.)

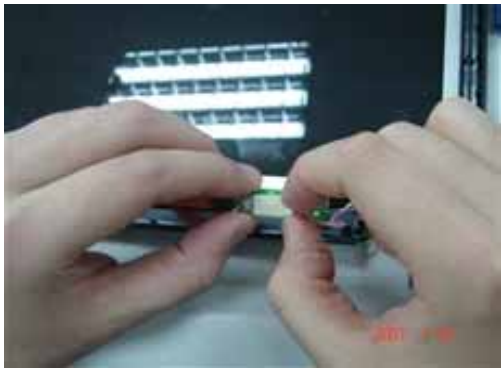
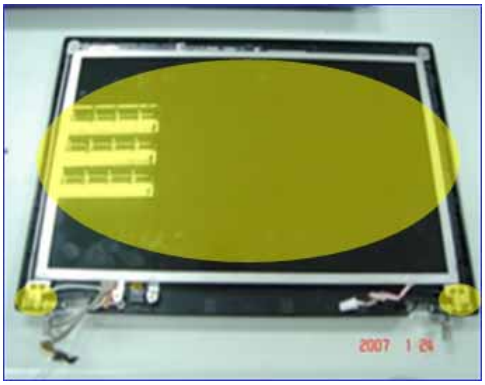
4. Disassembly and Reassembly

Part Name	Figure	Description
Main System		31. Separate Wireless LAN Module with pushing side pin toward to red arrow direction like pic.

4. Disassembly and Reassembly

Part Name	Figure	Description
LCD Ass'y		1. 1st, Remove 4 Rubber-Front and 2nd, Remove 4 screws. - M2xL4 : 2 EA (Upper side, BLK) (YELLOW) - M2xL6 : 2 EA (Lower side, WHT) (RED) * CAUTION : Be careful with scratch in LCD-Front when removing Rubber-Front.
		2. Separate lower side of LCD Front Putting in hands between LCD Panel and LCD Front. 3. Separate left and right side with the same way. 4. Separate upper side with the same way. *CAUTION Don't get in too much force with disassembling LCD Front.
		5. Remove 3 screws. - M2xL4 : 3 EA (RED)
		6. Separate LCD Cable and invertor b'd connector like pic.

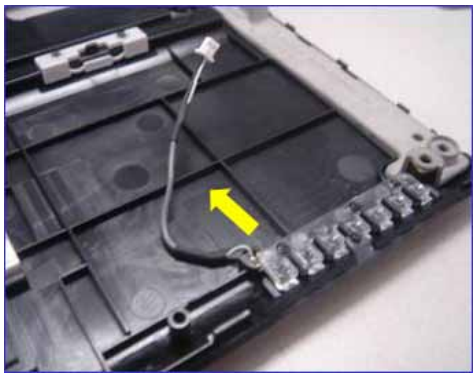
4. Disassembly and Reassembly

Part Name	Figure	Description
LCD Ass'y		7. Disassemble Inverter B'd like pic. (Must separate Inverter B'd and LCD Panel's cable first.)
		8. Remove screws for hinges. (Only 6 black color screws.) - M2xL4 : 6 EA (YELLOW)
		9. Disassemble Hinge L/R and LCD Panel.
		10. Disassemble Bracket-Upper.

4. Disassembly and Reassembly

Part Name	Figure	Description
LCD Ass'y		11. Disassemble Wireless Antenna. (the same with right side) 11-1. In case of Camera, as the same method, disassemble Camera Module and Cable all. (For Camera Option)
		12. Reverse LCD Panel, Remove tapes at point of no.1 and no.2.
		13. Separate LCD Cable to pull toward to red arrow direction like pic.

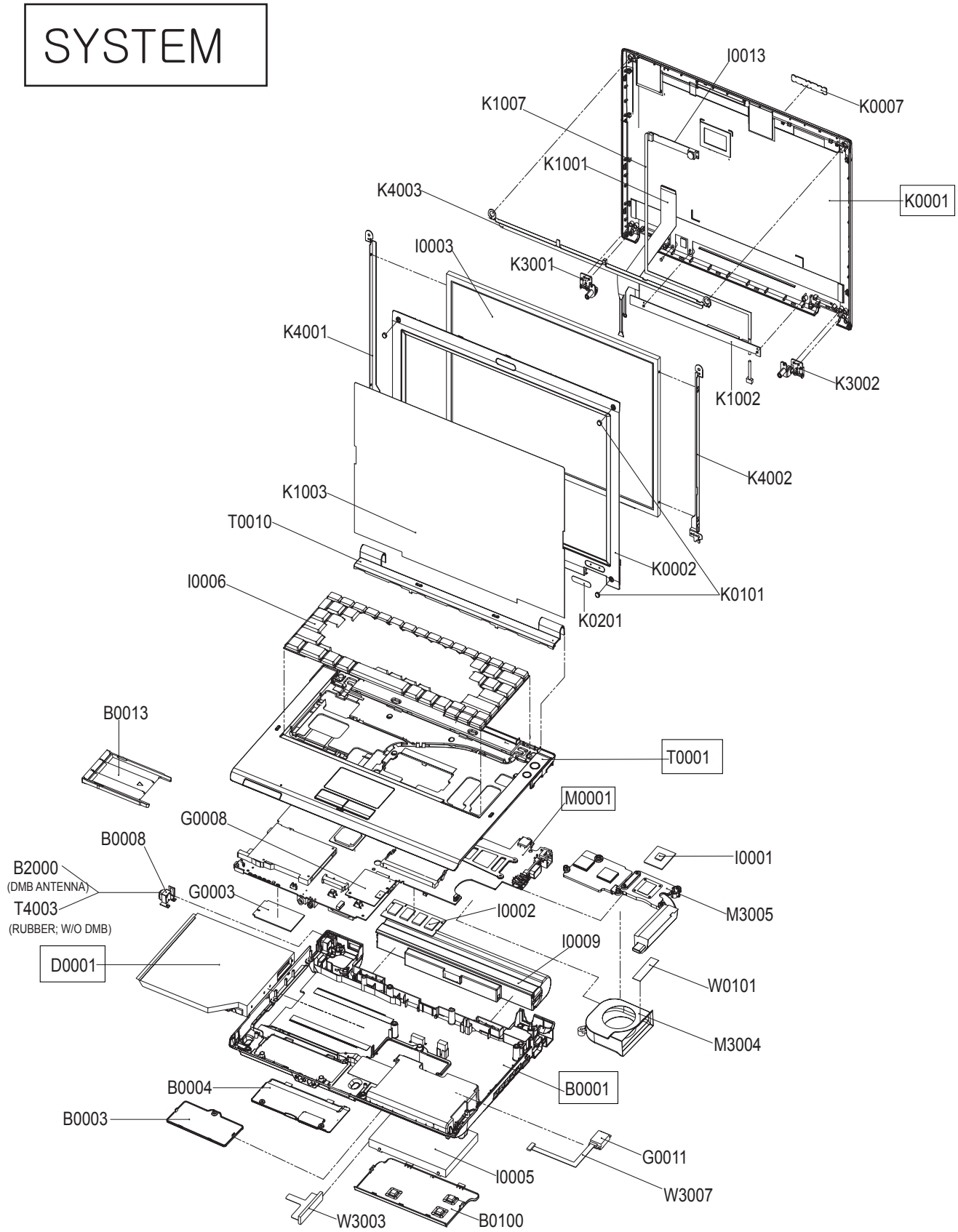
4. Disassembly and Reassembly

Part Name	Figure	Description
TOP Ass'y		1. Remove screws for ONTOP B'D and BRACKET TOUCHPAD. - M2xL4 : 1 EA (YELLOW) - M2xL3 : 2 EA (RED)
		2. Separate MIC.
		3. Separate ONTOP B'D and Cable.
		4. Separate Touchpad FFC.

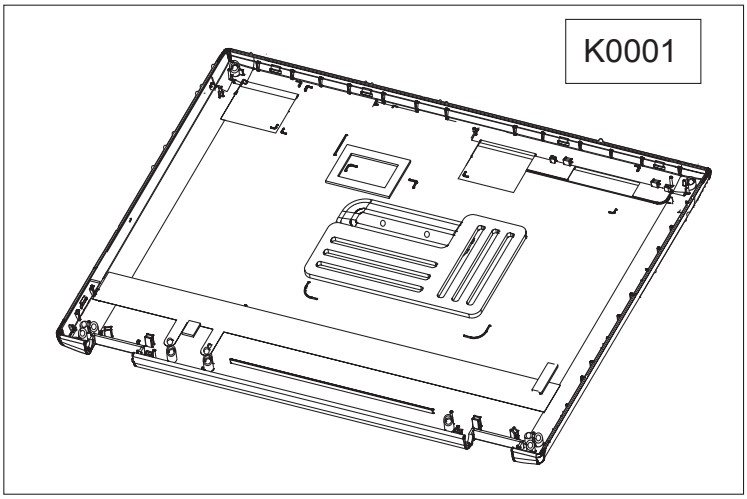
4. Disassembly and Reassembly

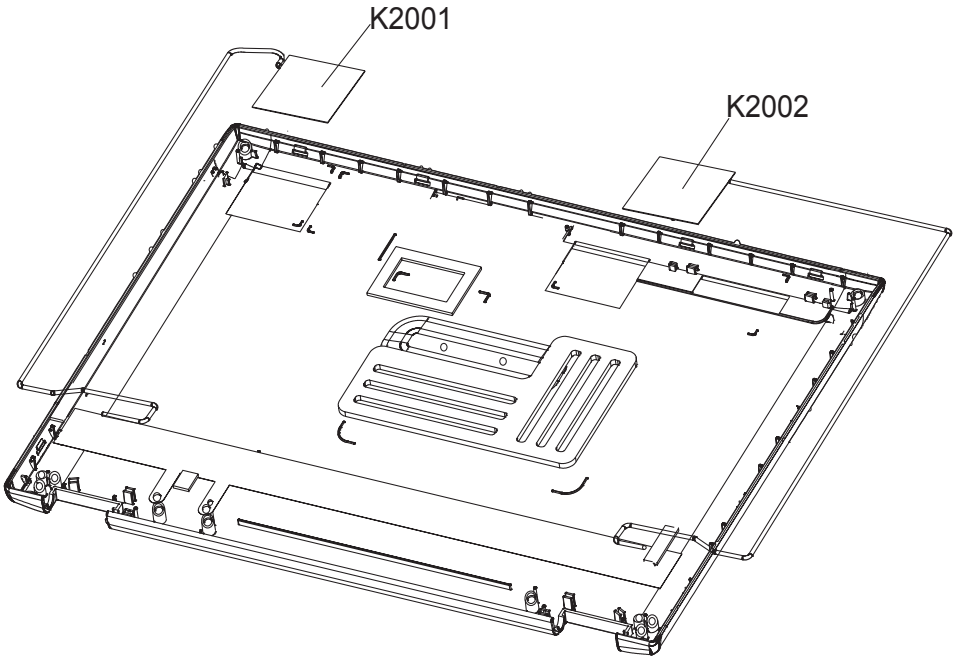
Part Name	Figure	Description
TOP Ass'y		5. Disassemble BRACKET-TOUCHPAD.
		6. Disassemble Touchpad-B'D.
		7. THE END.

5. 기구 전개도 및 자재리스트

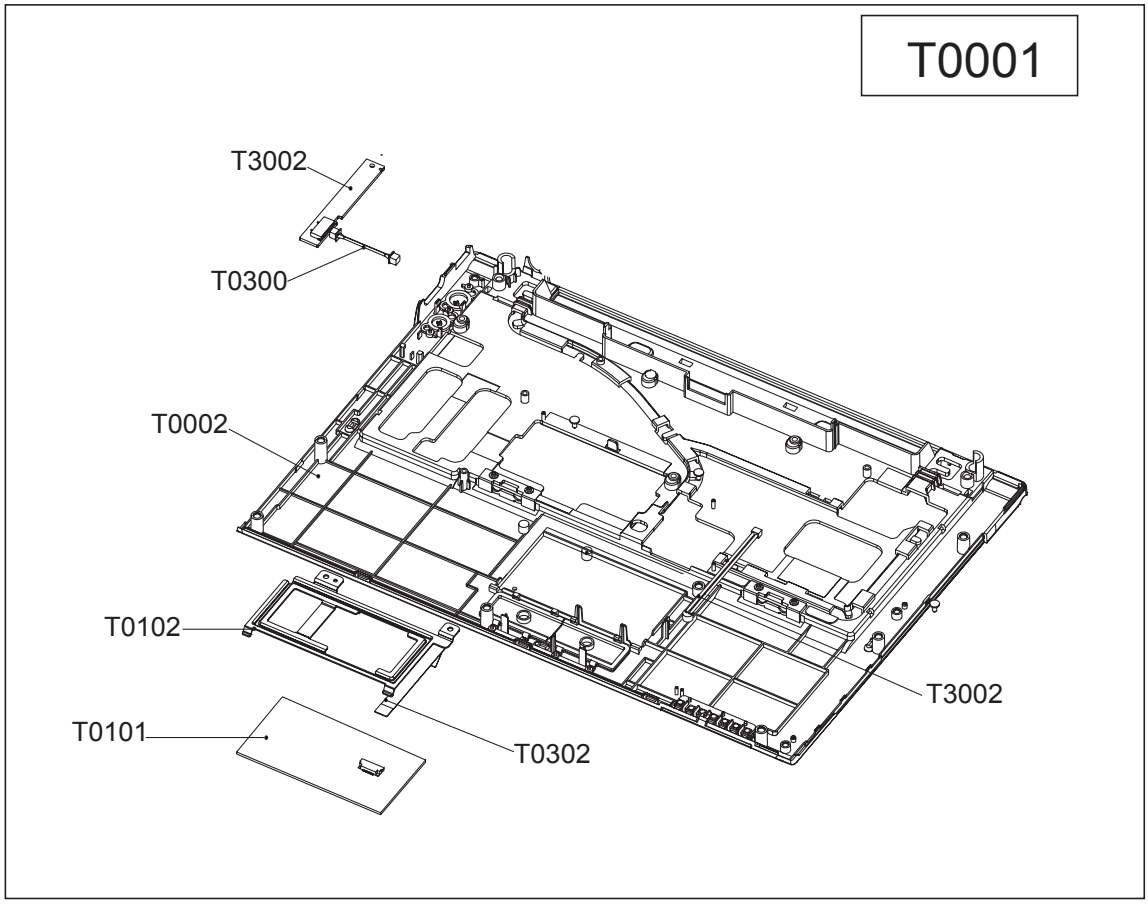


Unit-Housing-Back





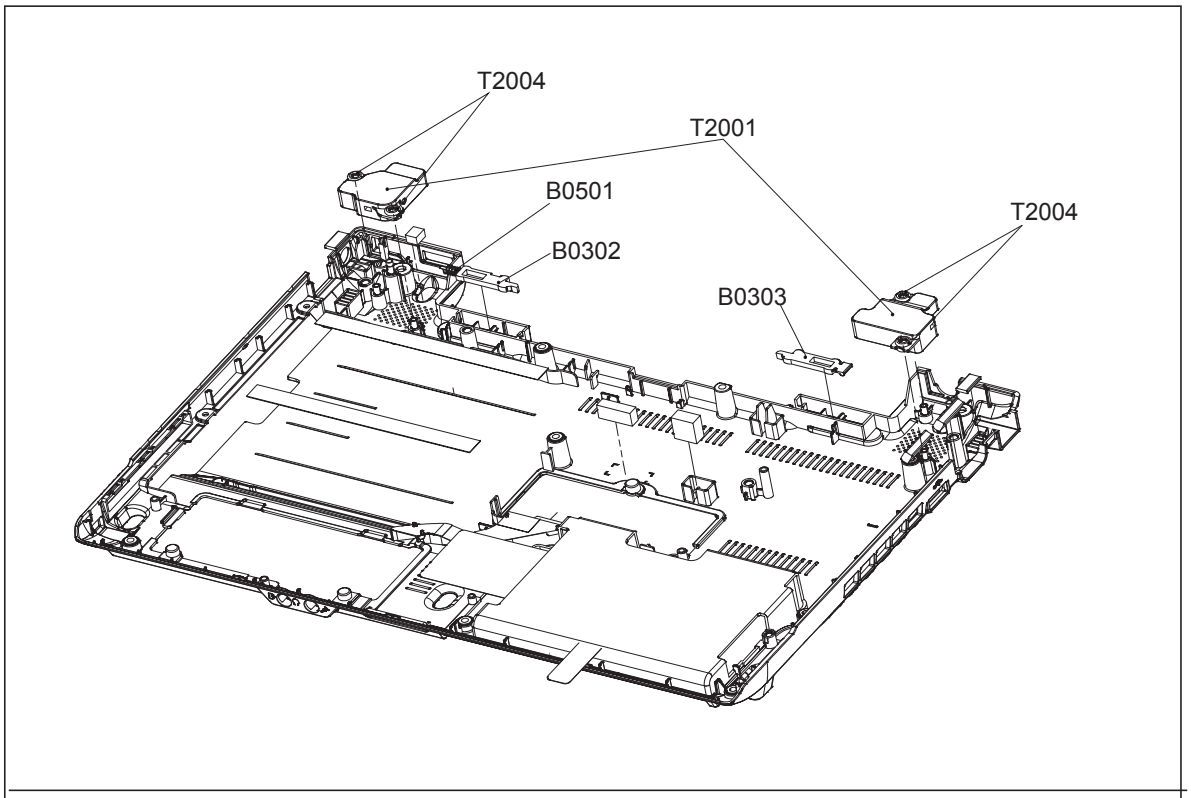
Unit-Housing_Top

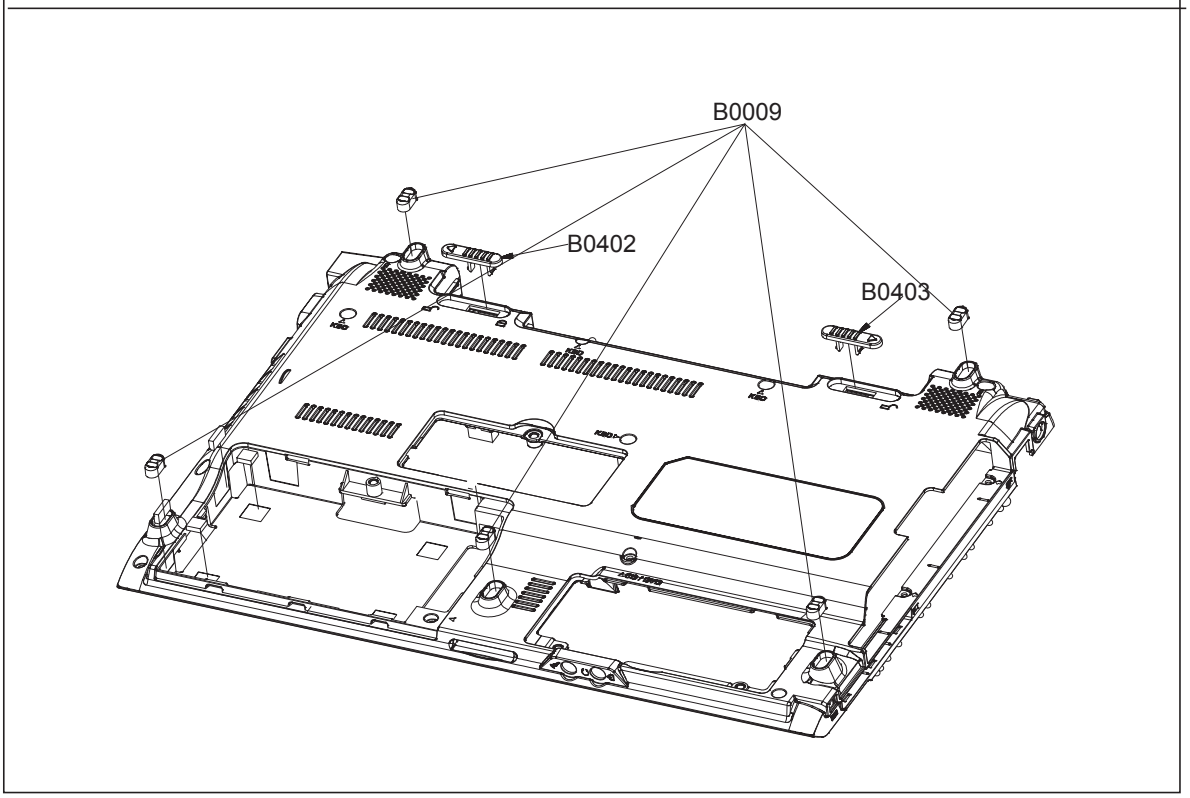


5. 기구 전개도 및 자재리스트

Unit-Housing-Bottom

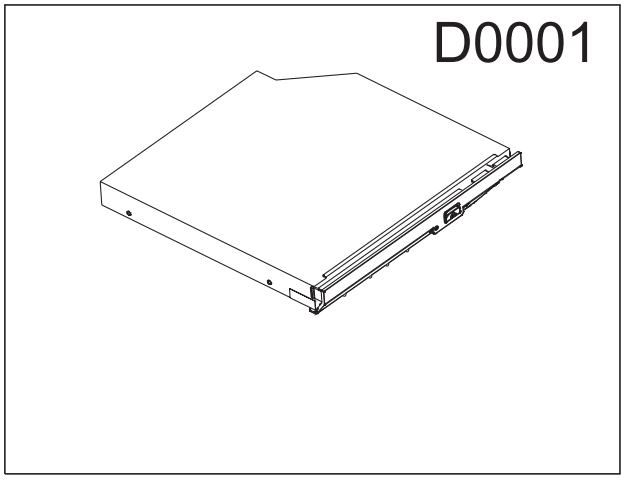
B0001

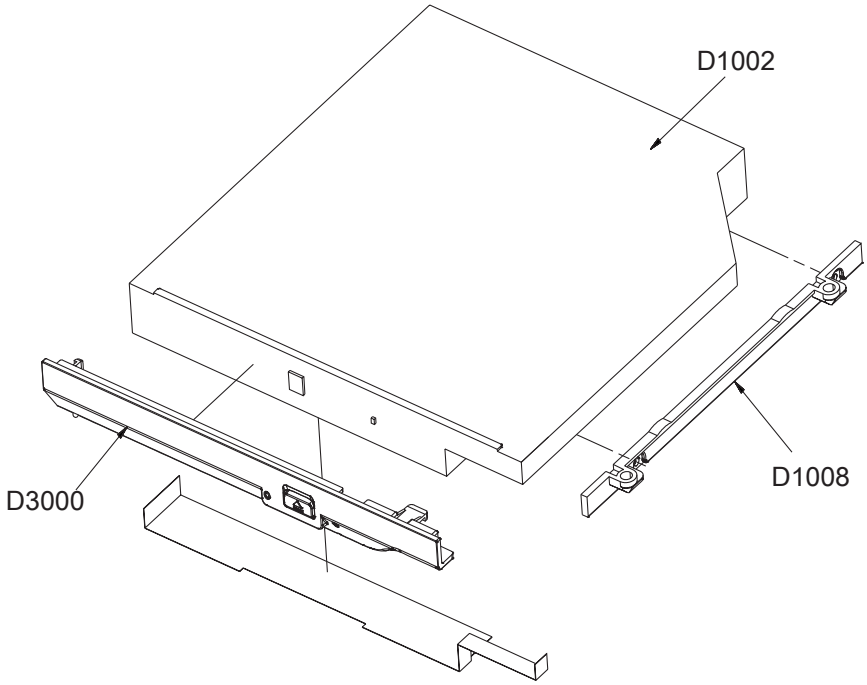




5. 기구 전개도 및 자재리스트

Unit-ODD





5. 기구 전개도 및 자재리스트

NP-Q45A002/SES

부위코드	자재번호	품 명 및 규 격	수량	서비스성
A0010	3903-000055	CBF-POWER CORD;DT,EU,CP2/NO,E(IEC320 C7)	1	SA
A1001	BA46-05736A	S/W CD;RCD,NP/DT,VISTAB,1.0,SPN,DVD,1/1,	1	SA
A1001	BA46-05803A	S/W CD;UTILITY,TORINO2,WINVISTA,1.0,EXPO	1	SA
B0001	BA75-01887A	UNIT-HOUSING_BOTTOM;TORINO2,-,PC/ABS,W29	1	SA
B0003	BA81-03496A	DOOR-MEMORY;TORINO2,PC/ABS,W75,L39,T1.2M	1	SA
B0004	BA75-01882A	UNIT-DOOR_MINICARD;TORINO2,-,PC/ABS,W60*	1	SA
B0008	BA81-02727A	BRACKET-DMB;TORINO,DOMESTIC,SUS304,T0.5,	1	SA
B0009	BA81-03484A	RUBBER-FOOT;TORINO2,SR,W10.7,L5.3,H5.0MM	5	SA
B0013	BA61-01081A	DUMMY CARD-PCMCIA;FIRENZE2,PC/ABS,T2.4,W	1	SA
B0100	BA75-01884A	UNIT-DOOR_HDD;TORINO2,-,PC/ABS,W137.8*L1	1	SA
B0102	BA73-00238A	RUBBER-HDD_SHOCK;AQUILA,PORON,-,-,-,NTR,	4	SA
B0302	BA81-02690A	LINK-BATT_L;TORINO,DOMESTIC,POM,W31.1*L6	1	SA
B0303	BA81-02691A	LINK-BATT_R;TORINO,DOMESTIC,POM,W26.6*L6	1	SA
B0402	BA81-03500A	KNOB-BATT_L;TORINO2,PC/ABS,W25,L10.3,H6.	1	SA
B0403	BA81-03501A	KNOB-BATT_R;TORINO2,PC/ABS,W25,L10.3,H6.	1	SA
B0501	BA61-00780A	SPRING ETC-BATT;AQUILA-P,STS304,CD0.3,ID	1	SA
D0001	BA96-03084F	ASSY DVD-SUPERMULTI;TORINO2,DVD-Supermul	1	SA
D0001	BA96-03180G	ASSY DVD-SUPERMULTI;TORINO2,DVD-Supermul	1	SA
D0001	BA96-03199E	ASSY DVD-SUPERMULTI;TORINO2,DVD-Supermul	1	SA
D1002	BA59-01900A	DVD-SUPERMULTI;TS-L632D,8x,130ms,EIDE,2M	1	SA
D1002	BA59-01935A	DVD-SUPERMULTI;SSM-8515S,8X,130ms,E-IDE,	1	SA
D1002	BA59-01970A	DVD-SUPERMULTI;UJ-850,8X,180ms,E-IDE,2M,	1	SA
D1008	BA81-02734A	CASE-ODD;TORINO,DOMESTIC,PC/ABS,W115*L8.	1	SA
D3000	BA75-01910A	UNIT-BEZEL_ODD-SUPERMULTI-DL;TORINO2,-,P	1	SA
G0003	BA59-01724A	MODULE-WLAN;Habana,3945ABGMOW2,WMAC+RF,2	1	SA
G0011	BA59-01691A	MODULE-BLUETOOTH;Bluetooth V2.0,T60H928.	1	SA
G0011	BA59-01916A	MODULE-BLUETOOTH;Bluetooth Version 2.0,B	1	SA
I0001	0902-002197	IC-MICROPROCESSOR;LF80537GG0414M,2.0GHz,	1	SA
I0002	1105-001684	IC-DRAM MODULE;M470T2953,DDR2 667MHz,1GB	2	SA
I0003	BA59-01889A	LCD PANEL-12.1WXGA_GLARE;LTN121W1-L03-G,	1	SA
I0005	BA59-01957A	HDD;120G,MHV2120BH-PL,S63,H16,D16385,H9.	1	SA
I0005	BA59-02002A	HDD;120G,HTS541612J9SA00,S63,H16,D16385,	1	SA
I0005	BA59-02039A	HDD;120G,HM120JI,S63,H16,D16385,H9.5mm,2	1	SA
I0006	BA59-02075D	KEYBOARD;Torino2,83Key,-,-,Spain,-,Dark	1	SA

5. 기구 전개도 및 자재리스트

NP-Q45A002/SES

부위코드	자재번호	품 명 및 규 격	수량	서비스성
I0007	BA44-00162A	ADAPTOR;AD-6019(API1AD02),CORONA,-,90TO2	1	SA
I0007	BA44-00238A	ADAPTOR;0335C1960,AD-6019,AC/DC,90to264V	1	SA
I0007	BA44-00243A	ADAPTOR;ADP-60ZH A,AD-6019,AC/DC,90to264	1	SA
I0009	BA43-00156A	BATTERY;3UR18650F-2-SDN-13,Torino,Li-ion	1	SA
I0009	BA43-00168A	BATTERY;P32R06-11-H01,Q35,Li-ION,2P3S,48	1	SA
I0013	BA59-02088A	MODULE-CAMERA;Oslo,SCB-1000S,1.3M CAMERA	1	SA
K0001	BA75-01879F	UNIT-HOUSING_LCD-BACK_R;TORINO2,-,PC/ABS	1	SA
K0002	BA75-01880A	UNIT-HOUSING_LCD-FRONT;TORINO2,-,PC/ABS,	1	SA
K0007	BA64-00700H	LOGO-SAMSUNG;TORINO2,NI,T0.95(W/ TAPE),W	1	SA
K0101	BA81-03753A	RUBBER-FRONT;Torino2,SR,D5*H1.9mm,Black,	4	SA
K0201	BA81-03481A	LABEL-FRT_OVERSEAS;TORINO2,PC(GE LEXAN),	1	SA
K1001	BA39-00617A	CBF COAXIAL CABLE-LCD;TORINO2,BD to COAX	1	SA
K1001	BA39-00628A	CBF COAXIAL CABLE-LCD;torino2,BD to COAX	1	SA
K1002	BA44-00204A	INVERTER;NEON-R,DAC-09N016 AF,DC,8.5to20	1	SA
K1002	BA44-00246A	INVERTER;TORINO_NPC,541180560001,DC,8.5t	1	SA
K1003	BA62-00327A	INSULATION-LCD_PROTECTOR;NEON,PET,T0.1,W	1	SA
K1007	BA39-00630A	CBF HARNESS-CAMERA;torino2,AWG32,-,5P,28	1	SA
K2001	BA42-00182A	ANTENNA-MAIN;SS-03-03-099,Oslo,2.3to6GHz	1	SA
K2002	BA42-00183A	ANTENNA-AUX;SS-03-03-100,Oslo,2.3to6GHz,	1	SA
K3001	BA81-02740A	HINGE-L;TORINO,DOMESTIC,SUS,W26.2*L17.7*	1	SA
K3002	BA81-02744A	HINGE-R;TORINO,DOMESTIC,SUS,W26.2*L17.7*	1	SA
K4001	BA81-03491A	BRACKET-LCD_L;TORINO2,STS304,W10.4,L197.	1	SA
K4002	BA81-03492A	BRACKET-LCD_R;TORINO2,STS304,W10.4,L197.	1	SA
K4003	BA75-01899A	UNIT-BRACKET_LCD-UPPER;TORINO2,-,STS304,	1	SA
L1004	BA68-20039A	LABEL-PPID_E;BLADE,-,PET,-,W50.8,L12.7mm	1	SA
L1005	BA68-20323A	LABEL CAUTION;NOTE PC,-,PET,T0.06,W30.0,	1	SA
M0001	BA92-04515A	ASSY MOTHER BD-TOP;Torino2,Santa Rosa Me	1	SA
M0006	BA39-00431A	WIRE HARNESS;RTC battery assy.,-,UL 1061	1	SA
M1001	BA70-00388A	BRACKET-VGA;FIRENZE,STS304,T0.15mm,-,-,N	1	SA
M1002	3301-001594	BEAD-SMD;90ohm,2.0*1.2*1.3mm,-,TP,-,-,-	1	SA
M1004	2203-001630	C-CER,CHIP;330nF,+80-20%,16V,Y5V,1608	1	SA
M1004	2203-005052	C-CER,CHIP;0.0033nF,0.25pF,50V,NP0,1005	1	SA
M1004	2203-005918	C-CER,CHIP;1000nF,10%,6.3V,X7R,1608	1	SA
M1004	2203-006000	C-CER,CHIP;1NF,10%,3KV,X7R,TP,4520	1	SA

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M1004	2203-006382	C-CER,CHIP;10000nF,10%,25V,X7R,3225	1	SA
M1008	3708-002036	CONNECTOR-FPC/FFC/PIC;20P,0.5mm,SMD-A,AU	1	SA
M1008	3708-002190	CONNECTOR-FPC/FFC/PIC;12,0.5,SMD-A,AUF,Y	1	SA
M1009	3711-004318	HEADER-BOARD TO CABLE;BOX,2P,1R,1.25MM,S	1	SA
M1009	3711-004646	HEADER-BOARD TO BOARD;NOWALL,68P,2R,1.27	1	SA
M1009	3711-005853	HEADER-BOARD TO CABLE;BOX,3p,1R,1.25mm,S	1	SA
M1013	2801-003856	CRYSTAL-SMD;0.032768MHz,20ppm,28-ACP,7pF	1	SA
M1016	0401-000191	DIODE-SWITCHING;MMBD4148,75V,200mA,SOT-2	1	SA
M1018	0505-000110	FET-SILICON;2N7002,N,60V,115mA,7.5ohm,0.	1	SA
M1018	0505-001562	FET-SILICON;SI4816DY,N,30V,5.3/7.7A,30/1	1	SA
M1021	1201-002486	IC-AUDIO AMP;MAX9715ETE+T,TQFN,16P,5x5mm	1	SA
M1024	0801-002195	IC-CMOS LOGIC;7S08,AND GATE,SOT-25,5P,63	1	SA
M1024	0801-002252	IC-CMOS LOGIC;7S14,INVERTER,SOT-25,5P,63	1	SA
M1025	1203-003344	IC-POSI.FIXED REG.;MIC5252,SOT-23,5P,2.9	1	SA
M1026	2703-002249	INDUCTOR-SMD;0.5uH,15%,13.0x13.0mm	1	SA
M1026	2703-002280	INDUCTOR-SMD;4.7uH,20%,6965	1	SA
M1028	3722-001732	JACK-IEEE1394;4P/1C,AU30U,-,ANGLE,IEEE13	1	SA
M1028	3722-002002	JACK-USB;4P/1C,TIN,BLK,ANGLE-OFFSET,-	1	SA
M1029	2007-000414	R-CHIP;15ohm,1%,1/10W,TP,1608	1	SA
M1035	3404-001052	SWITCH-TACT;12V,50mA,160gf,5.2x5.2x0.8mm	1	SA
M1036	0504-001157	TR-DIGITAL;DTA114YUA,PNP,200mW,10K/47K,U	1	SA
M1051	0904-002234	IC-MEMORY CONT.;LE88CLGM,FCBGA,1299P,35x	1	SA
M1055	1201-001877	IC-OP AMP;LMV358M,SO,TP,8P,390MIL,DUAL,-	1	SA
M1059	1203-003480	IC-BATTERY;MAX1909,TQFN,28P,5x5mm,PLASTI	1	SA
M1063	0406-001141	DIODE-TVS;PGB1010603NR,-/-/1000V,0W,EIA-	1	SA
M2002	BA61-01074A	BRACKET-SUPPORT_CPU;Torino,SUS,T1.0,W36,	1	SA
M2002	BA61-01075A	BRACKET-SUPPORT_CPU;Torino,SUS,T1.0,W36,	1	SA
M3004	BA31-00045A	FAN;-,Torino2,Plastic,-,Leadfree,Delta	1	SA
M3005	BA62-00435A	HEAT SINK-CPU/MCH/GPU;Torino2,Copper;AL,	1	SA
M3005	BA62-00436A	HEAT SINK-CPU/MCH/GPU;Torino2,Copper;AL,	1	SA
M4000	BA59-02036A	MODEM;1456VQL-T3(INT-RoHS),56Kbps,Agere	1	SA
M4000	BA59-02037A	MODEM;T60M951.07 LF,56Kbps,Agere 2 Chip,	1	SA
M4001	BA39-00568A	WIRE HARNESS-MDC;TORINO,WIRE,UL2728,2P/2	1	SA
M4001	BA39-00583A	WIRE HARNESS-MDC;TORINO,WIRE,UL1571,2P/2	1	SA

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M9999	0402-001405	DIODE-SCHOTTKY;B340A,40V,3mA,SMA,TP	1	SA
M9999	0403-001047	DIODE-ZENER;BZX84C12L,5%,225mW,SOT-23,TP	1	SA
M9999	0501-000465	TR-SMALL SIGNAL;MMBT3904,NPN,350mW,SOT-2	1	SA
M9999	0505-001386	FET-SILICON;FDS6680A,N,30V,12.5A,0.0095o	1	SA
M9999	0505-001699	FET-SILICON;FDS8958A,N/P,30/30V,7/-5A,0.	1	SA
M9999	0505-002068	FET-SILICON;SM6K2,N,60V,200mA,4ohm,0.2W,	1	SA
M9999	0601-001130	LED;SMD,RED/GRN,3.0X2.5MM,660/570NM,3.0X	1	SA
M9999	0601-002037	LED;SMD,BLUE,1.6x0.8x0.4mm,465/470nm,1.6	1	SA
M9999	0801-002628	IC-CMOS LOGIC;7SZ08,2-INPUT AND GATE,SC7	1	SA
M9999	0903-001439	IC-MICROCOMPUTER;H8S/2110B,16Bit,TQFP,10	1	SA
M9999	0904-002063	IC-BUS CONTROLLER;R5C843,32Bit,CSP,208P,	1	SA
M9999	0904-002220	IC-I/O CONTROLLER;NH82801HBM,BGA,676P,31	1	SA
M9999	1001-001097	IC-ANALOG SWITCH;FST3125,BUS SWITCH,TSSO	1	SA
M9999	1103-001333	IC-EEPROM;24C08A,1Kx8Bit,SOP,8P,5x4mm,-,	1	SA
M9999	1107-001646	IC-FLASH MEMORY;MX25L8005,8Mbit,8Mx1,SOP	1	SA
M9999	1203-003476	IC-PWM CONTROLLER;ISL6227,SSOP,28P,9.9x3	1	SA
M9999	1203-003765	IC-PWM CONTROLLER;SC486IMLTRT,MLP,24P,4x	1	SA
M9999	1203-003898	IC-POWER SUPERVISOR;SC452IMLTRT,MLP,44P,	1	SA
M9999	1203-004108	IC-PWM CONTROLLER;MAX8734AEEI+T,QSOP,28P	1	SA
M9999	1205-002596	IC-SWITCH;TPS2062,SOIC,8P,5x6x1.65mm,PLA	1	SA
M9999	1205-002806	IC-SWITCH;R5534V-E2-FB,SSOP,20P,6.7x4.4m	1	SA
M9999	1205-002853	IC-CODEC;ALC262-GR,LQFP,48P,7x7mm,PLASTI	1	SA
M9999	1205-003090	IC-ETHERNET CONTROLLER;88E8039,QFN,64P,9	1	SA
M9999	1205-003156	IC-CLOCK GENERATOR;SLG8SP513,QFN,64P,9x9	1	SA
M9999	1209-001718	IC-SENSOR;EMC2102,QFN,28P,5x5mm,PLASTIC,	1	SA
M9999	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608	1	SA
M9999	2007-000972	R-CHIP;5.1ohm,5%,1/4W,TP,3216	1	SA
M9999	2007-001341	R-CHIP;680KOHM,5%,1/16W,TP,1005	1	SA
M9999	2007-008789	R-CHIP;0.001ohm,1%,1W,TP,6432	1	SA
M9999	2203-002487	C-CER,CHIP;4.7nF,10%,25V,X7R,1005	1	SA
M9999	2203-006048	C-CER,CHIP;100nF,10%,10V,X7R,1005	1	SA
M9999	2203-006090	C-CER,CHIP;10000nF,10%,6.3V,X5R,2012	1	SA
M9999	2203-006093	C-CER,CHIP;1000nF,+80-20%,6.3V,Y5V,1005	1	SA
M9999	2203-006474	C-CER,CHIP;22000nF,20%,6.3V,X5R,2012	1	SA

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M9999	2402-001120	C-POLYMER AL CHIP;330uF,0.2,6.3V,-,TP,7.	1	SA
M9999	2402-001122	C-POLYMER AL CHIP;100uF,0.2,6.3V,-,TP,7.	1	SA
M9999	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,-,-,-	1	SA
M9999	3301-001772	BEAD-SMD;27ohm,1608,-,TP,30ohm/120MHz,48	1	SA
M9999	3404-001311	SWITCH-TACT;12VDC,50mA,100gf,6.0x6.0x5.0	1	SA
M9999	3701-001403	CONNECTOR-DSUB;15P,2R,FEMALE,ANGLE,NI	1	SA
M9999	3704-001153	SOCKET-IC;479P,PGA,AU,1.27mm	1	SA
M9999	3709-001325	CONNECTOR-CARD EDGE;200P,0.6mm,SMD-A,AU,	1	SA
M9999	3709-001375	CONNECTOR-CARD EDGE;200P,0.6mm,SMD,AUF,S	1	SA
M9999	3709-001401	CONNECTOR-CARD EDGE;52P,0.8mm,SMD-A,AU,m	1	SA
M9999	3709-001413	CONNECTOR-CARD EDGE;44P,0.8mm,SMD-A,AU,4	1	SA
M9999	3709-001425	CONNECTOR-CARD EDGE;-,-,-,Ni,PCMCIA Fram	1	SA
M9999	3710-002130	SOCKET-BOARD TO CABLE;30P,1R,0.5mm,SMD-S	1	SA
M9999	3710-002133	SOCKET-BOARD TO BOARD;12P,2R,0.8mm,SMD-A	1	SA
M9999	3710-002314	SOCKET-BOARD TO BOARD;50P,2R,0.8mm,ANGLE	1	SA
M9999	3711-000541	HEADER-BOARD TO CABLE;BOX,2P,1R,1.25mm,S	1	SA
M9999	3711-002050	CONNECTOR-HEADER;BOX,10P,1R,1.25mm,SMD-A	1	SA
M9999	3711-004779	CONNECTOR-HEADER;BOX,6P,1R,1.25mm,SMD-A,	1	SA
M9999	3711-005854	HEADER-BOARD TO CABLE;BOX,4P,1R,1.25mm,S	1	SA
M9999	3711-005947	HEADER-BOARD TO BOARD;BOX,8P,1R,1MM,SMD-	1	SA
M9999	3711-006058	HEADER-BATTERY;NOWALL,5P,1R,2.5mm,DIP,AU	1	SA
M9999	3719-001350	CONNECTOR-ACCESSORY;-,FEMALE,P-BRONZE,Sn	1	SA
M9999	3722-002191	JACK-DC POWER;3P,5.6pi,Sn-P,Black	1	SA
M9999	3722-002246	JACK-MODULAR;2P,REVERSE,NO,SMT-A,NO,BLK,	1	SA
M9999	3722-002390	JACK-MODULAR;8P/8C,REVERSE,YES,ANGLE-OFF	1	SA
M9999	3722-002545	JACK-PHONE;6P,AU,PINK,ANGLE	1	SA
M9999	3722-002548	JACK-PHONE;5P,AU,BLK,ANGLE	1	SA
M9999	BA61-00963A	SUPPORT-VIDEO_BOARD-LF;VENICE,CU ALLOY,T	1	SA
M9999	BA62-00389A	INSULATION-MEMORY;SEDONA,PC,T0.2,W64,L30	2	SA
M9999	BA81-02808A	INSULATOR-PCMCIA;FIRENZE2,PC,W72*L50*T0.	1	SA
M9999	BA81-03483A	INSULATOR-ODD;TORINO2,PC,W12.5,L12,T0.2M	1	SA
M9999	BA81-03488A	INSULATOR-DVBT;OSLO,PC,T0.1,W47*L30mm,BL	1	SA
M9999	BA81-03719A	INSULATOR-MICOM;TORINO2,PC,W50.0*L35.0*T	1	SA
RUB01	BA81-03728A	RUBBER-SUPPORT_TOUCHPAD;TORINO2,SBR,W8.0	1	SA

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T0001	BA75-01878A	UNIT-HOUSING_TOP;TORINO2,-,PC/ABS,W295.2	1	SA
T0002	BA75-01926A	UNIT-HOUSING_TOP-SVC;TORINO2,PC/ABS,W295	1	SA
T0005	BA68-03686A	LABEL-LOGO_VISTA-PREMIUM;N/P ALL,VISTA P	1	SA
T0005	BA68-03850C	LABEL-ZAIGEN;Torino2,ENG _EECIS,PET,-,W4	1	SA
T0005	BA68-03880A	LABEL-LOGO_CENTRINO-DUO2_SANTA;OSLO,N/P	1	SA
T0010	BA75-01890A	UNIT-CAP_TOP;TORINO2,-,PC/ABS,W261*L24.3	1	SA
T0101	BA59-01801A	BOARD-TOUCHPAD;Hainan,TM-00379-003,BONGW	1	SA
T0102	BA81-03494A	BRACKET-TOUCHPAD;TORINO2,STS304,W71.4,L8	1	SA
T0300	BA39-00569A	WIRE HARNESS-ONTOP;TORINO,WIRE,UL1571,6P	1	SA
T0300	BA39-00577A	WIRE HARNESS-ONTOP;TORINO,WIRE,UL10064,6	1	SA
T0302	BA41-00661A	FFC-TOUCHPAD;TORINO,1.0,Film,12Pin,T0.01	1	SA
T2001	BA96-03225A	ASSY SPEAKER;TORINO2,X03030R-004,80*195m	1	SA
T2200	BA39-00524A	CBF HARNESS-MIC;HABANA,-,AWG32,2P,-,Writ	1	SA
T3002	BA92-04513A	ASSY ETC;TORINO2,ONTOP BOARD	0.001	SA
T4003	BA81-02760A	RUBBER-DMB;TORINO,DOMESTIC,SILICON RUBBE	1	SA
W0101	BA81-03720A	GASKET-FAN;TORINO2,PU SPONGE,W40.0*L10.0	1	SA
W3003	BA41-00725A	FPC-SATA_HDD;torino2,1.0,POLYAMIDE,20P,0	1	SA
W3007	BA39-00619A	CBF HARNESS-BLUETOOTH;torino2,WIRE,UL100	1	SA
W4001	6001-001650	SCREW-MACHINE;BH,+,-,M2,L3,NI PLT,SWRCH1	2	SA
W4001	6001-001651	SCREW-MACHINE;BH,+,-,M2,L6,NI PLT,SWRCH1	4	SA
W4002	6001-000730	SCREW-MACHINE;CH,+,-,M2,L7,ZPC(BLK),SWRC	10	SA
W4002	6001-001406	SCREW-MACHINE;CH,+,M2.0,L6.0,NI PLT,SWRC	2	SA
W4002	6001-001413	SCREW-MACHINE;CH,+,-,M2,L5,NI PLT,SWRCH1	4	SA
W4002	6001-001420	SCREW-INCH MACH;CH,+,UNC4-40,L4,NI PLT,S	2	SA
W4002	6001-001549	SCREW-MACHINE;CH,+,M3,L5,ZPC(BLK),SWRCH1	2	SA
W4002	6001-001570	SCREW-MACHINE;CH,+,-,M2,L4,ZPC(BLK),SWRC	1	SA
Z8999	2603-000048	TRANS-MATCHING;-,1:1,0mA,6P:6P,11.81x8.6	1	SA

4. Troubleshooting

1) General

(1) Tools used for repairing the product

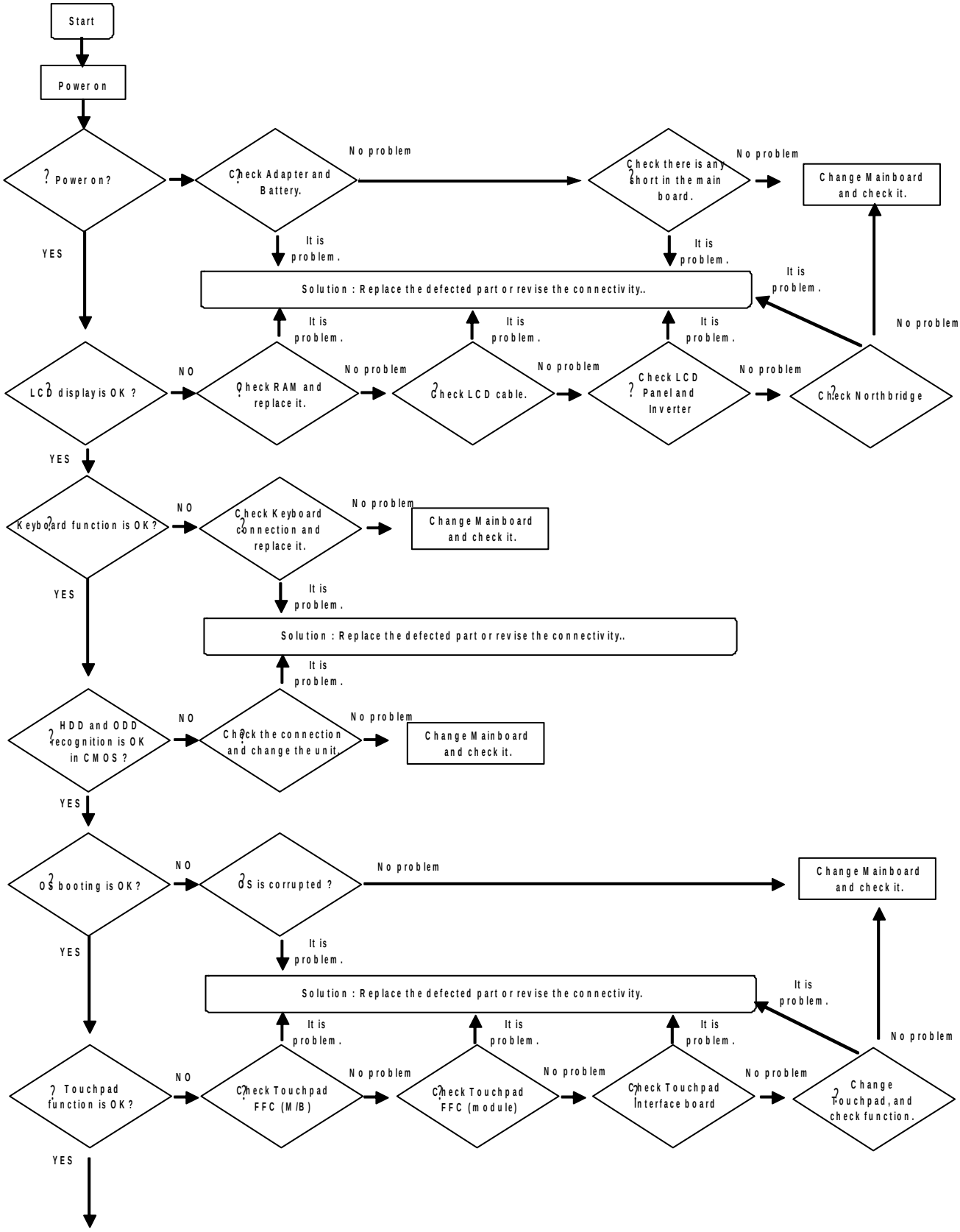
System Diagnostics Disk
MS-DOS Booting Disk
System Diagnostics Card
Screwdrivers (+,−)
Tweezers
Multi-meter
Oscilloscope
Logic Analyzer

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

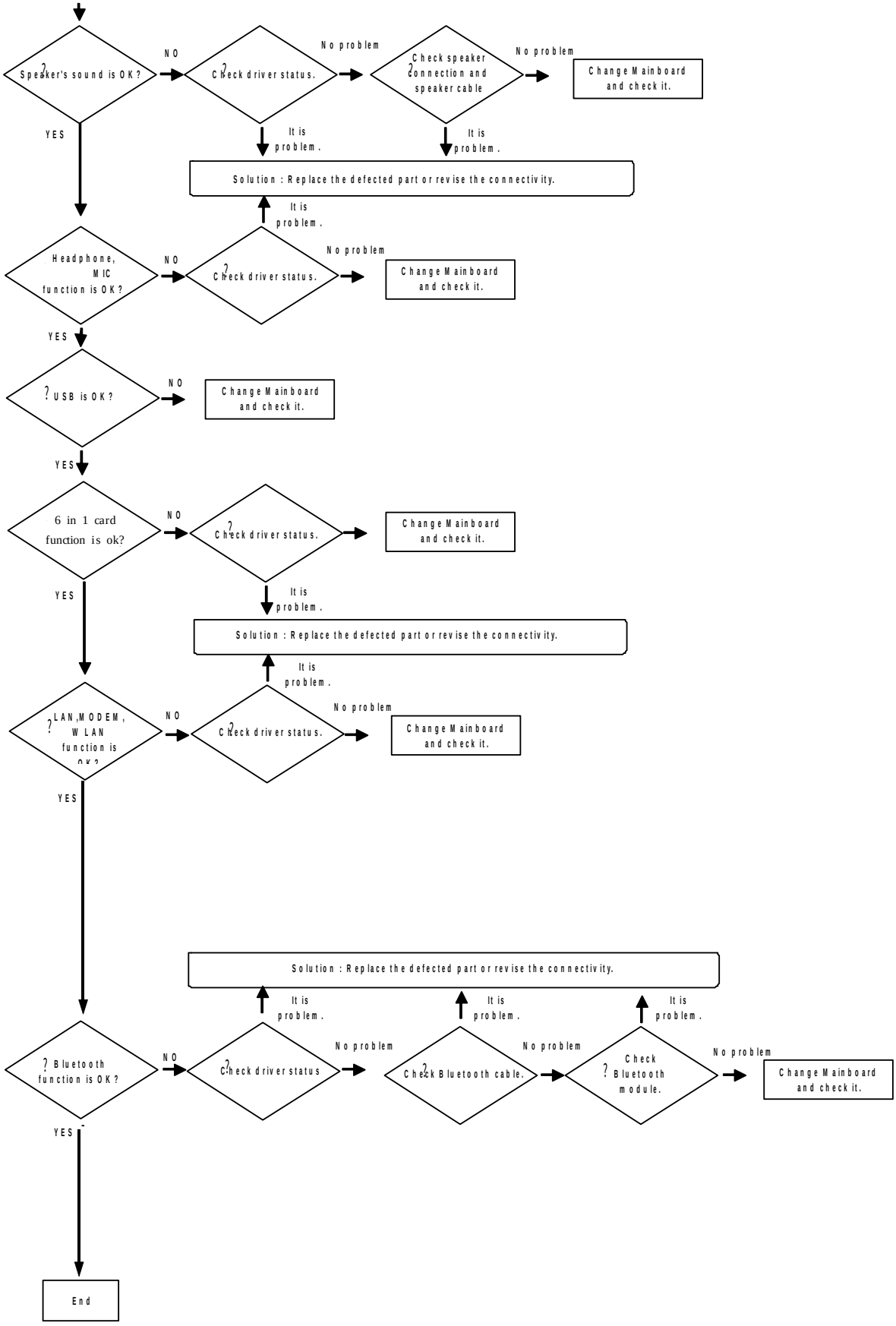
DDRII RAM Module
2.5" SATA HDD
ODD – Super multi Dual layer drive or DVD Combo Drive or Etc.
Wireless LAN Module
Bluetooth Module
MDC Module
Camera Modual
DMB Module(option)
Keyboard
System Fan
TouchPad
LCD Panel
LCD Inverter
Main Board
PCMCIA Frame
Harness Cable – MDC Cable, Bluetooth Cable, LCD Cable,Camera 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



4. Troubleshooting

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 Controlle
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

4. Troubleshooting

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 Mothe board Configurable Devices
88h		Initialize BIOS Data Area
89h		Enable Non-Maskable Interrupts (NMIs)
8Ah		Initialize Extended BIOS Data Area

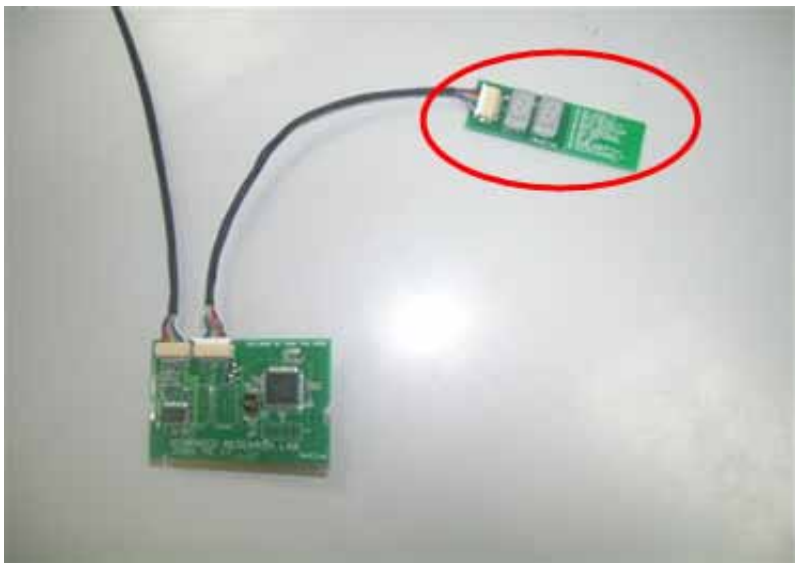
4. Troubleshooting

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
AEh		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)

4. Troubleshooting

(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.

4. Troubleshooting

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

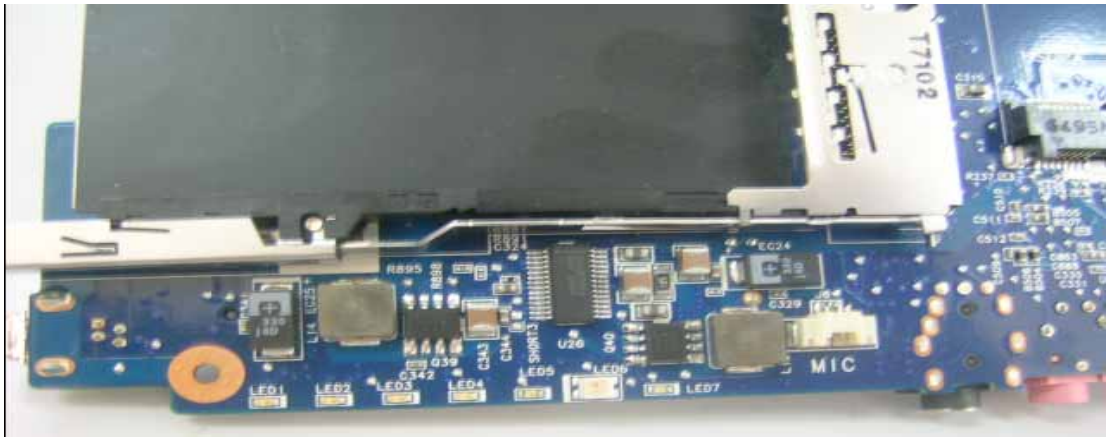
◆ **Main System Troubles**

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.

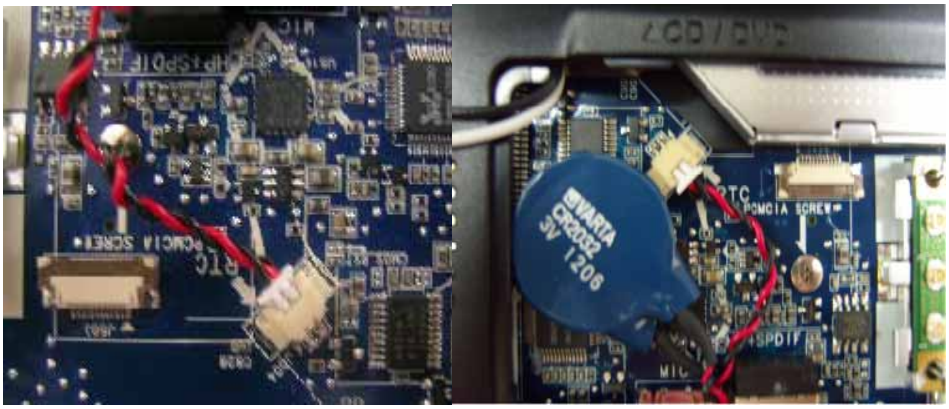
→ Replace the memory module and check if it is out of order.

→ Reset the RTC Reset terminal next to the memory socket.
Remove RTC cabel from RTC connector

4. Troubleshooting

Connect the two pad of the cap for a while

→ Replace the main board.



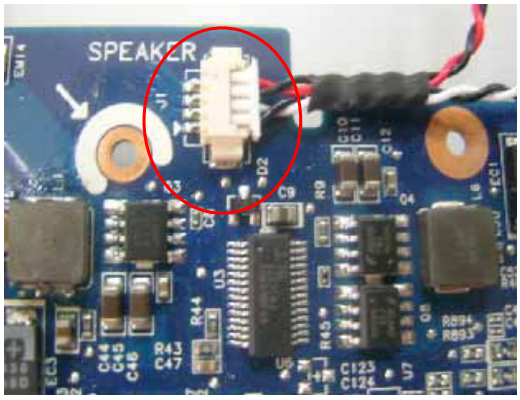
7. The Express card is not inserted or the Eject button does not work.
   → This may occur when the insulator within the Express card slot is enwrapped.
   → Replace the Express card slot frame and check if it is out of order.

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.

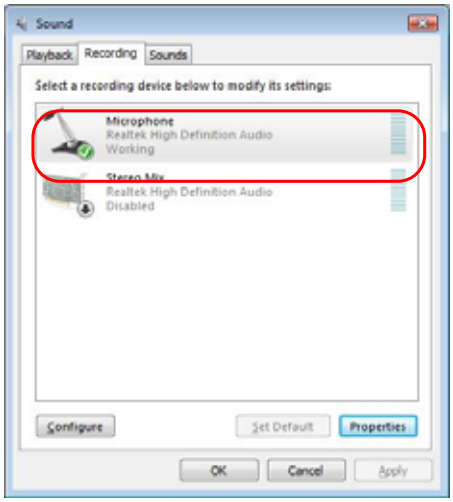
→ Check if there is a magnetic object near the speaker.

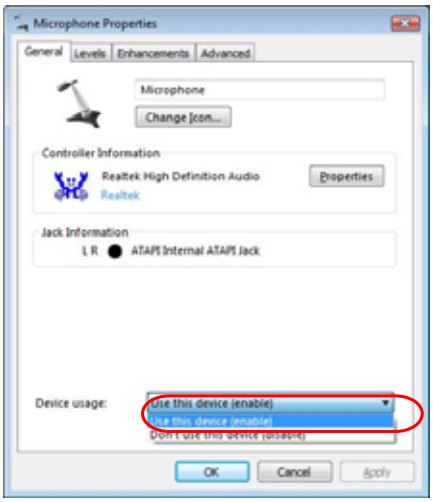
4. Troubleshooting



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

4. Troubleshooting

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.

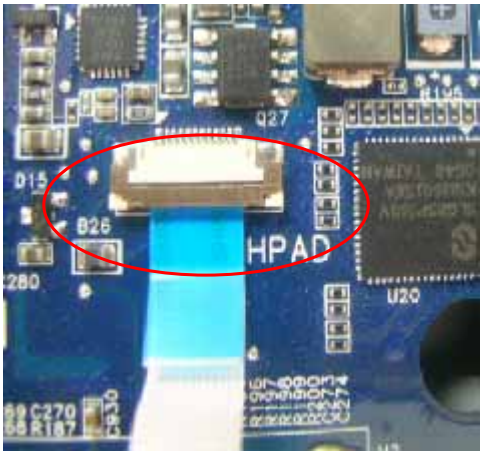
→ If the 'Operating system not found' message appears during the booting process even though the HDD is recognized by CMOS, the operating system of the HDD may be corrupted or the HDD is out of order. In this case, format the HDD and reinstall the operating system or replace the HDD with a new one.

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.

4. Troubleshooting

→ 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.

4. Troubleshooting

→ 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.

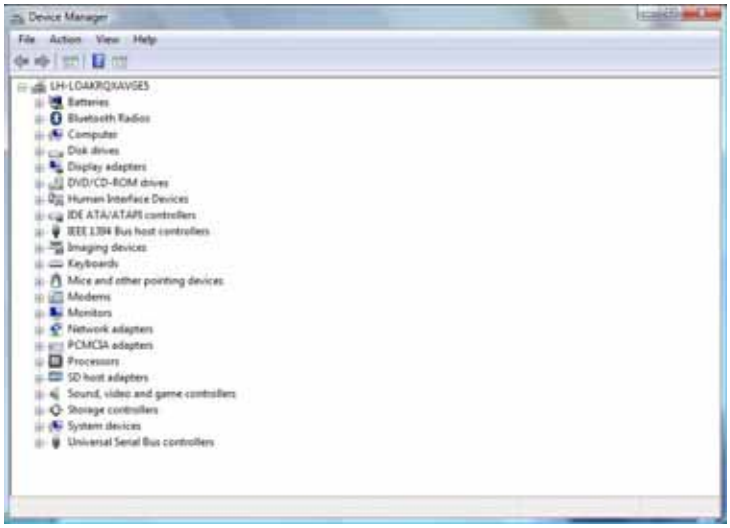
◆ **Power-Saving Mode Related Troubles**

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.

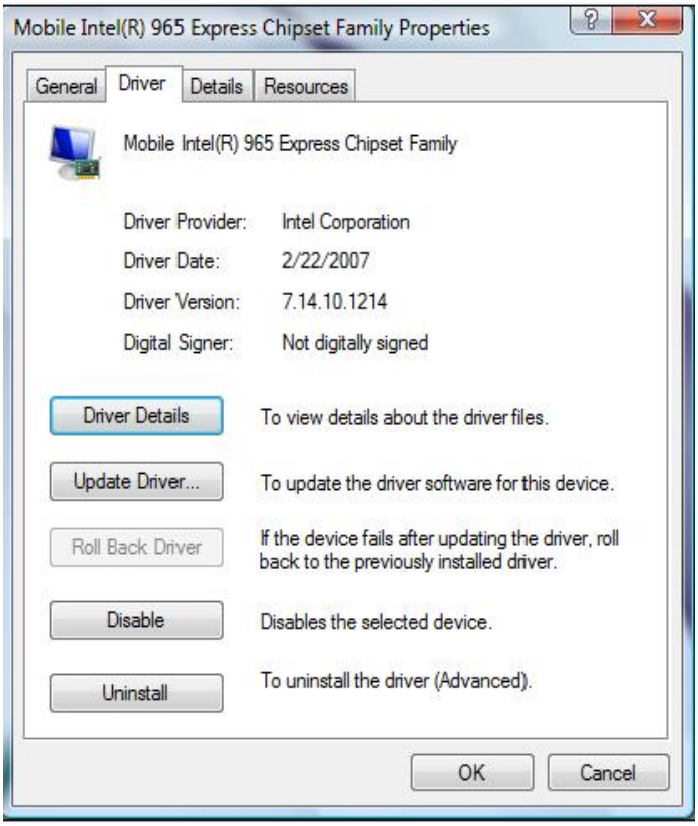
4. Troubleshooting

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.

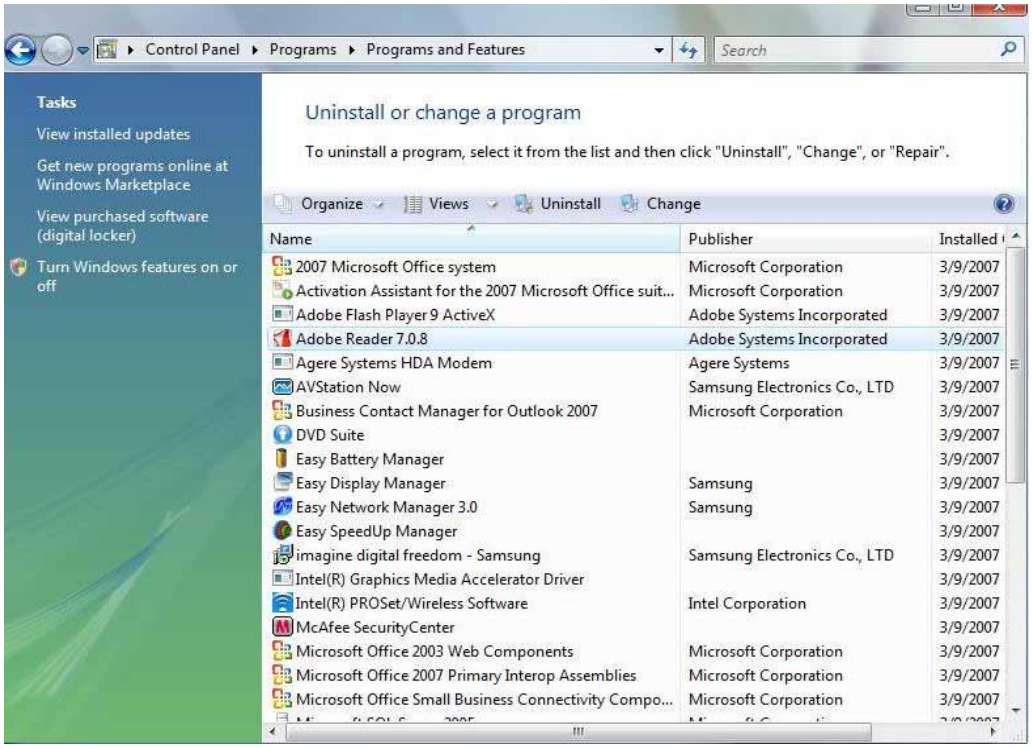


(2) Check the device driver version and check if it is conflicting with another driver. If the driver is not properly installed, install a new driver.
(The following figure illustrates the properties of the Internal GFx device driver).

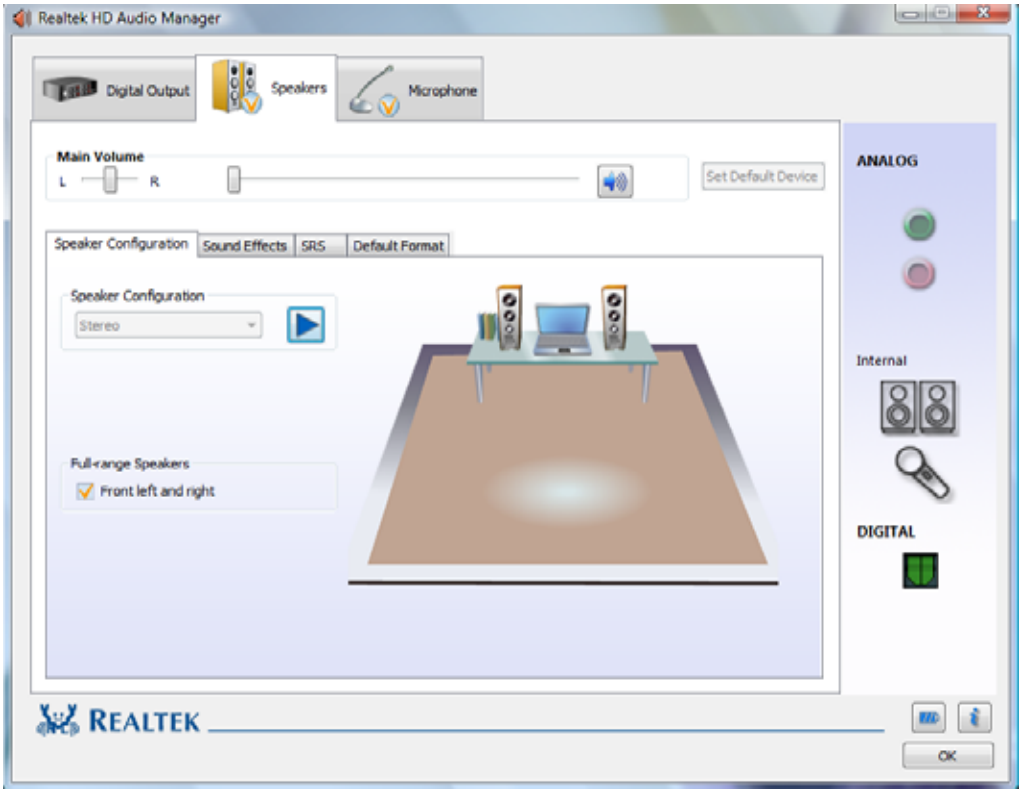


4. Troubleshooting

(3) Check if the program is properly installed.



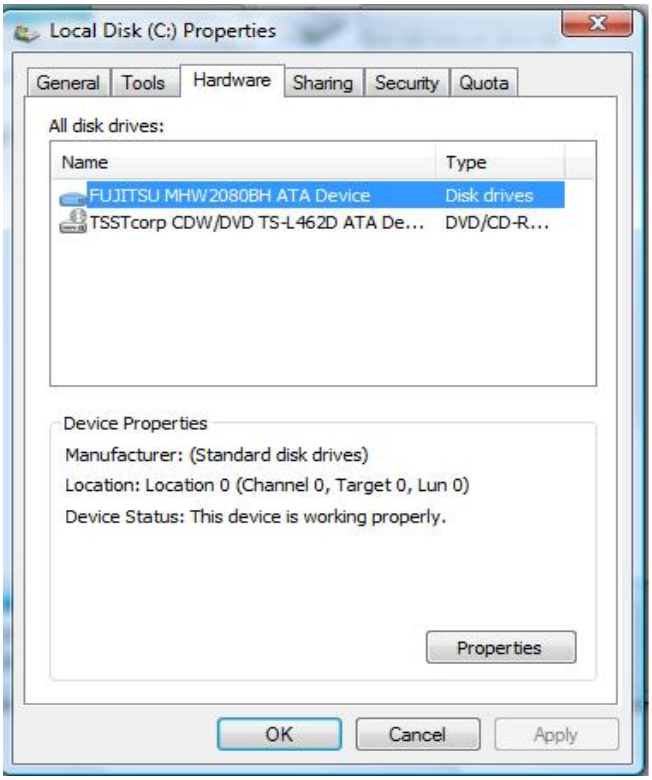
Click on the Realtek Control Panel in the Control Panel and check if the function works normally.



4. Troubleshooting

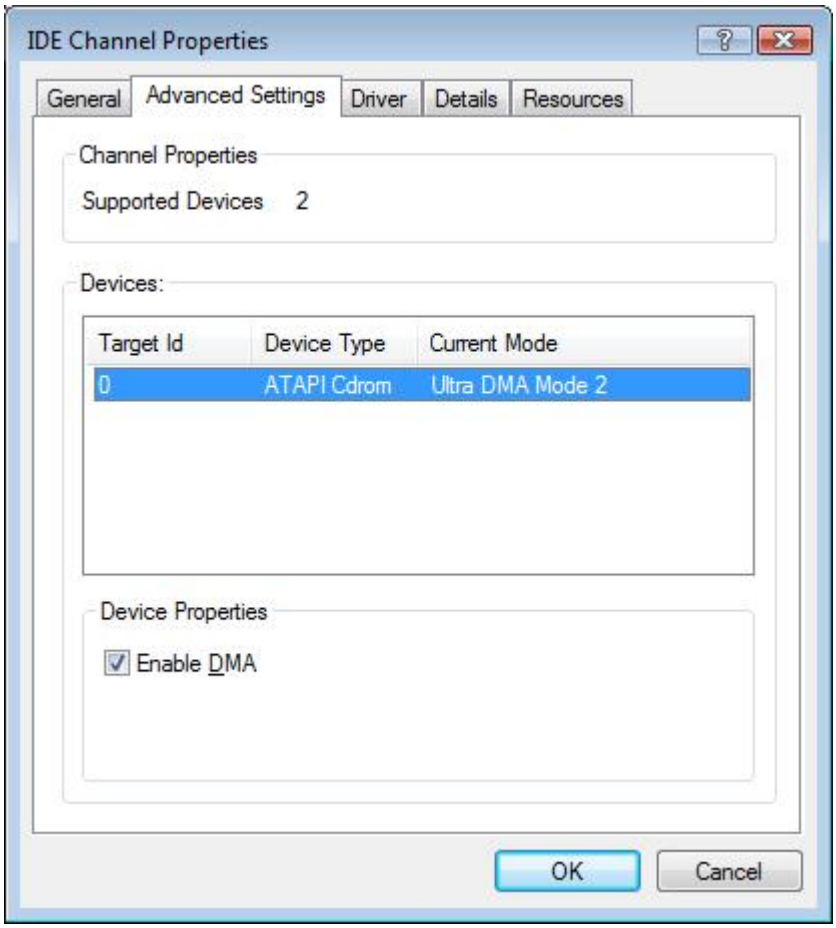
(4) HDD and ODD Related Problems

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

4. Troubleshooting

Applications	
ABBYY 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 Center한글입력기(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**

4. Troubleshooting

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

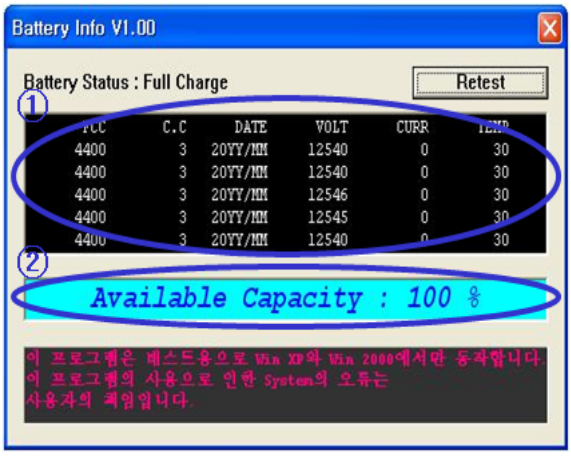
①: Data displayed in the data window.

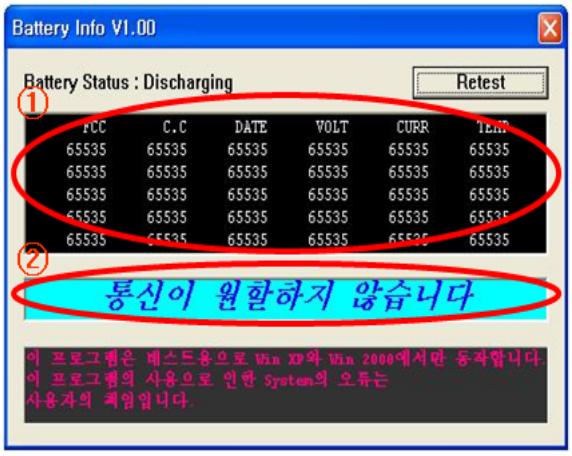
②: Available capacity displayed : 0 ~ 100%

☐ FAIL

①: The code 65535 displayed

②: Displayed the error message in Korean "통신이 원할 하지 않습니다"





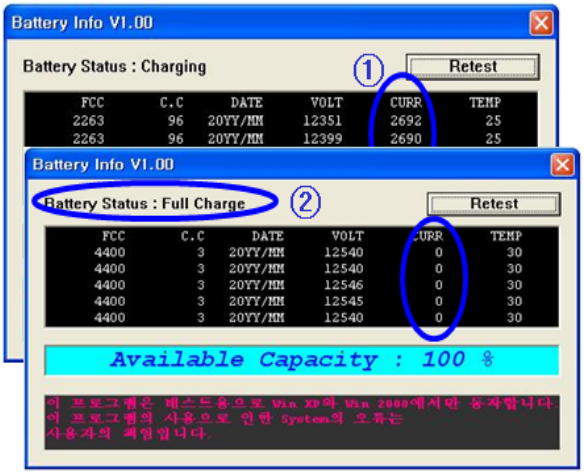
☞ recommended : When the communication failed, please set a normal battery to the system and check first which -battery or system- has the problem.

4. Troubleshooting

2. Is the battery charged normally?

☐ PASS

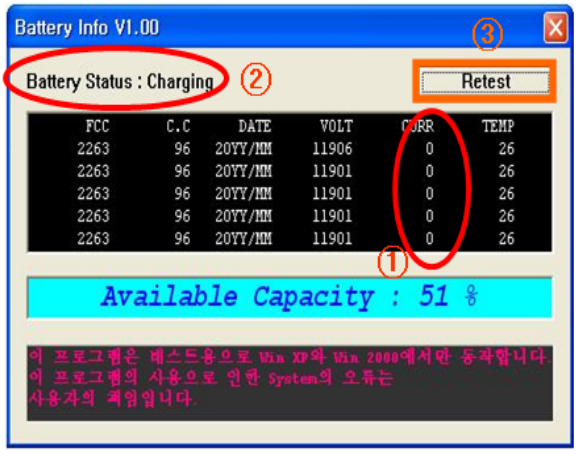
①: Pass, if the CURR values are within **35 ~ 3500**



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**.

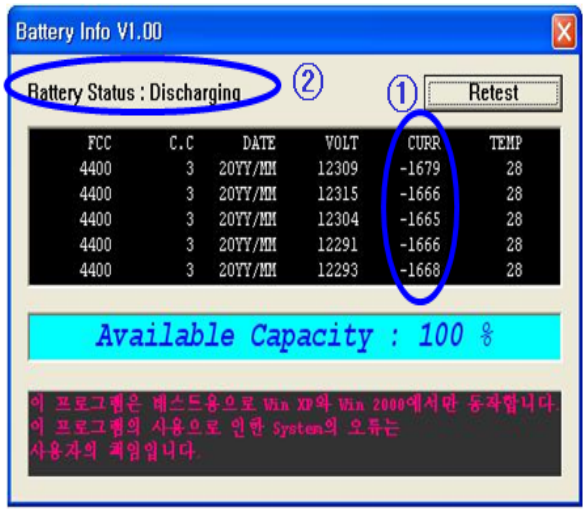


③: if the **CURR** value is **0** and in status of **Charging**, please reconfirm the "fail" after 2~3 times of **Retest**.

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)

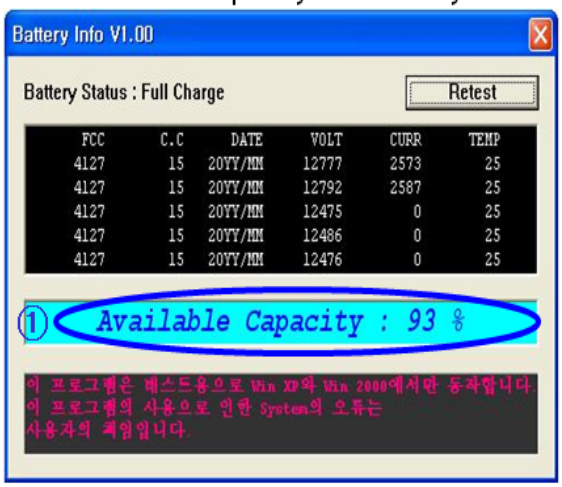
[Example]

☐ Less than 6 months: PASS

①: Available Capacity: 93%

Duration of Use : 1month(30days)

Available Capacity of warranty: 87.8%

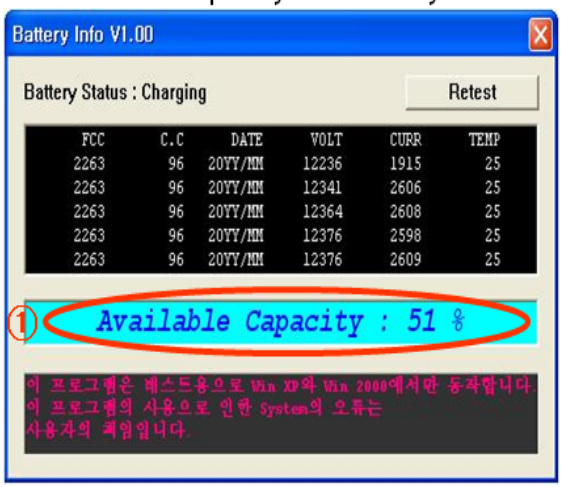


☐ Less than 6 months: FAIL

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

3.

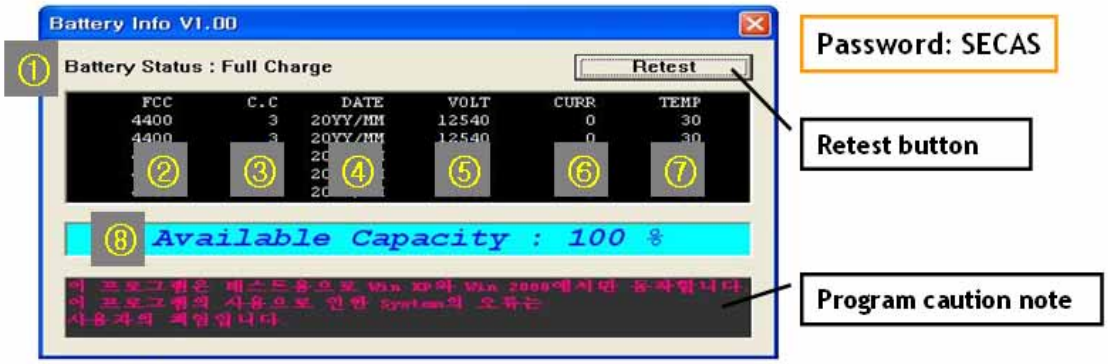
Duration of Use	Available Capacity(%)
Within 0.5month (15days)	More than 93.6 %
Within 1.0month (30days)	More than 87.8 %
Within 1.5month (45days)	More than 82.5 %
Within 2.0month (60days)	More than 77.8 %
Within 2.5month (75days)	More than 73.6 %
Within 3.0month (90days)	More than 70.0 %
Within 3.5month (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.



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 원할 하지 않습니다": the error message when System MICOM can not communicate with battery.

4. Troubleshooting

(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	업체 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
Desc-ription	Transaction Group	Model Group	Model Name (Project)		CPU type	OS type	Derived Code (H/W & S/W)				Deli-miter	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

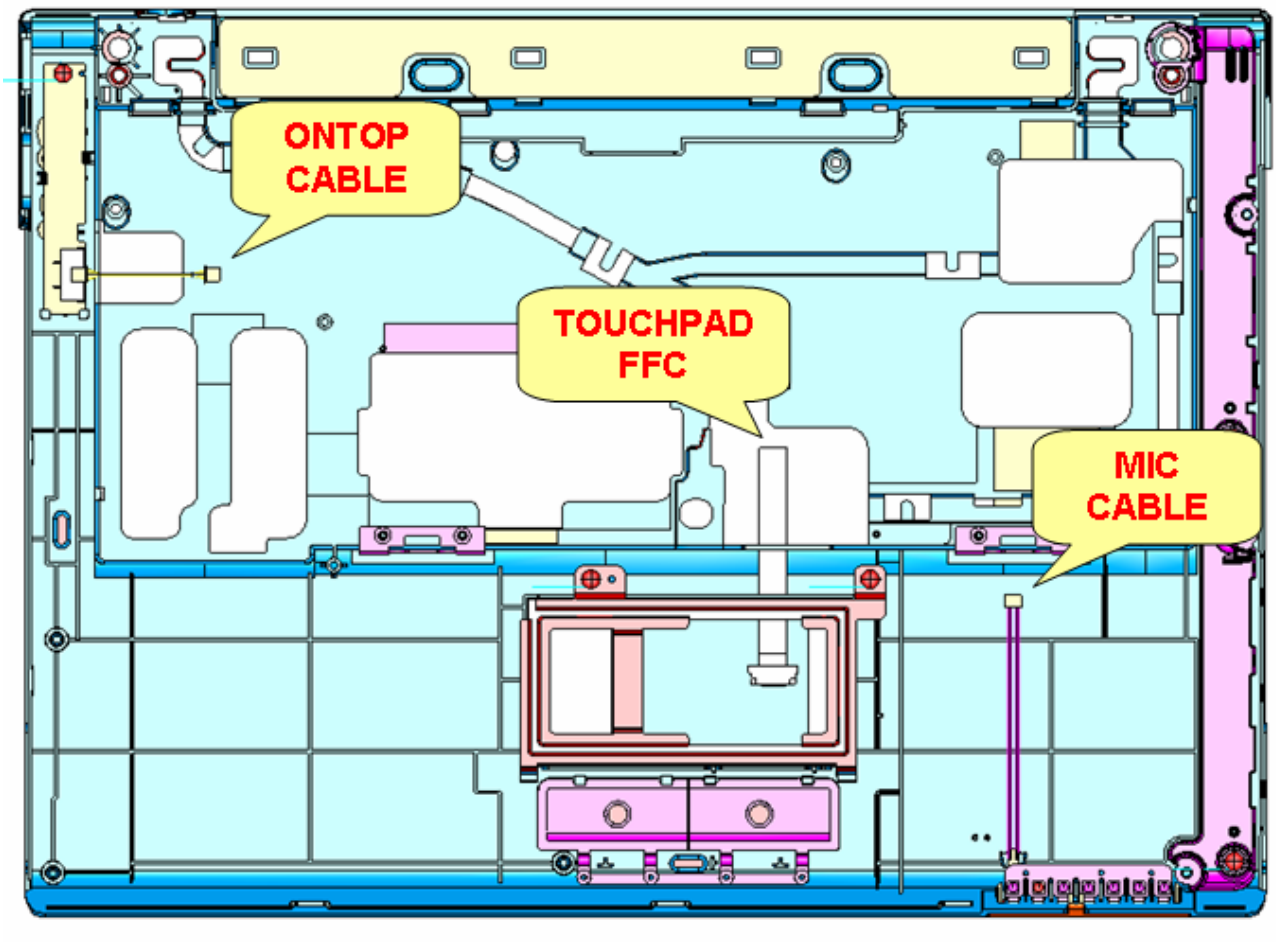
- Field 3~4: Unique Model Name

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).

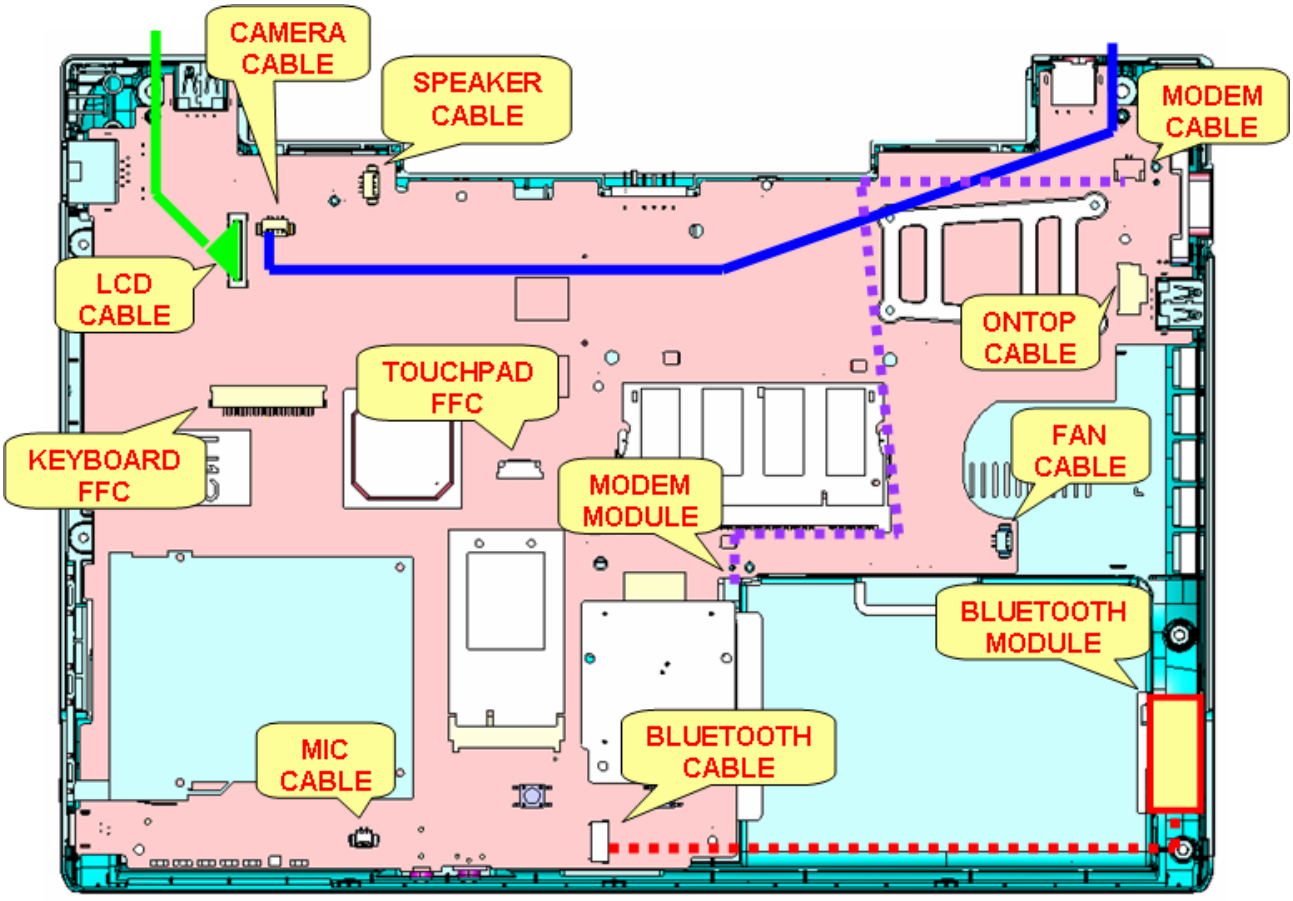
7.System Wire Diagram

1) Top



7. System Wire Diagram

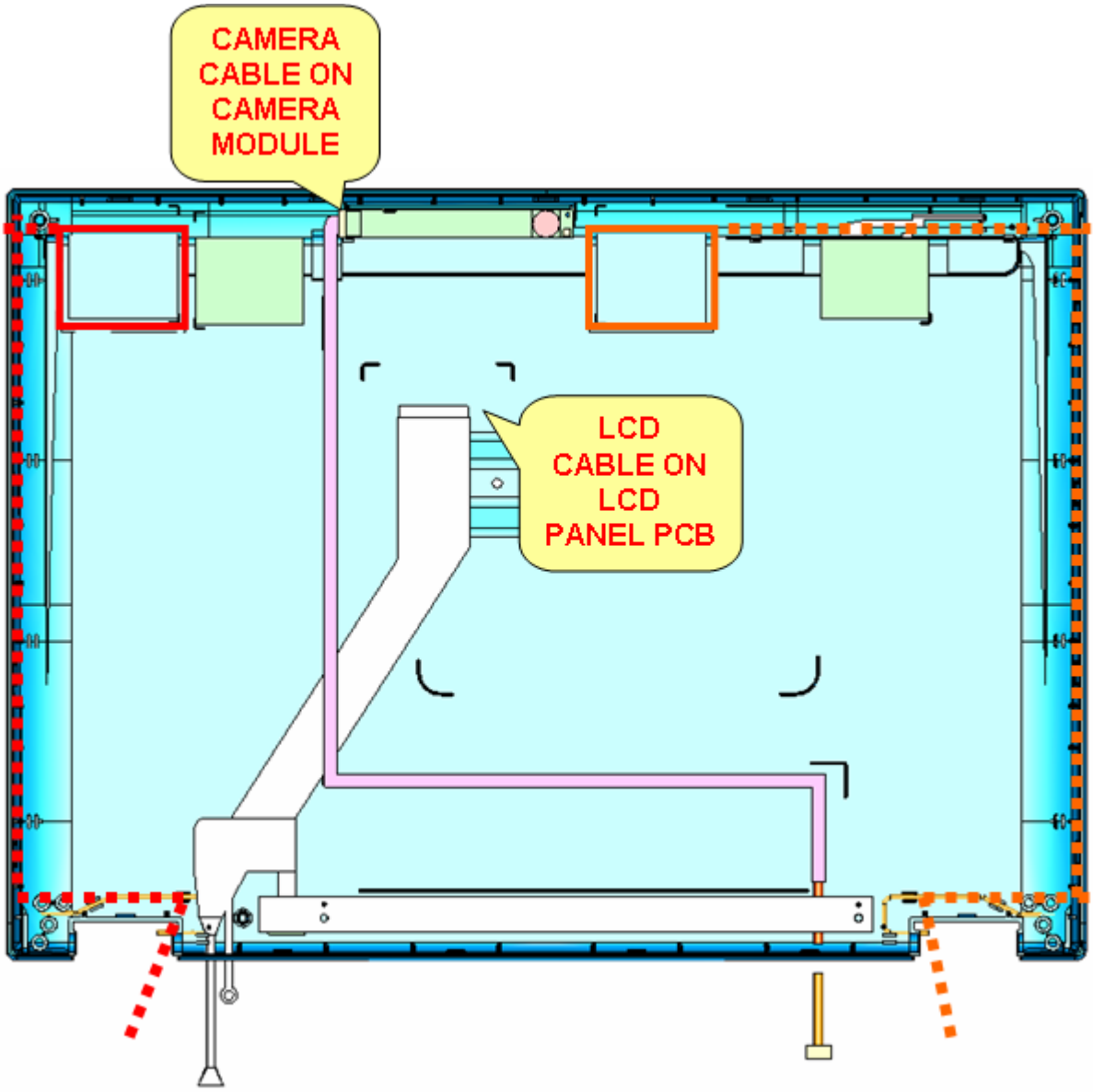
2) Bottom



	MDC modem cable
	Bluetooth cable
	LCD cable
	Camera cable

7. System Wire Diagram

3) LCD



	Antenna cable Main
	Antenna cable Aux