Chapter 1

Service Overview

Carefully read through this chapter for a look at various components of the Eee PC 4G (701) and necessary cautions and tools before performing any service and repairs.

To provide the best service and support for the ASUS Eee PC 4G (701), we have provided the below information for technicians from distributors and resellers to perform the complete disassembly and assembly. But before performing the procedures, please be sure to read through the overview in this chapter for component overview, cautions and tools to avoid any unwarranted damages to the hardware.

The following chapter includes:

- Eee PC 4G (701) Overview
- Components
- Precautions
- Appropriate Tools

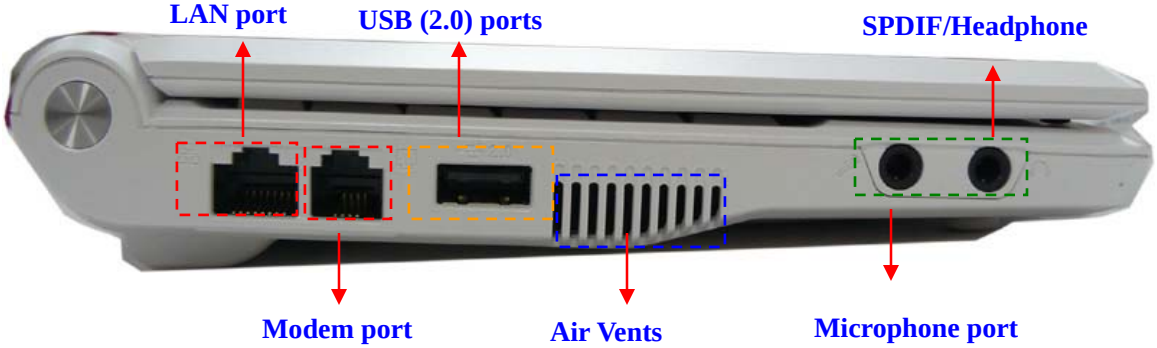
Eee PC 4G (701) Overview and Components

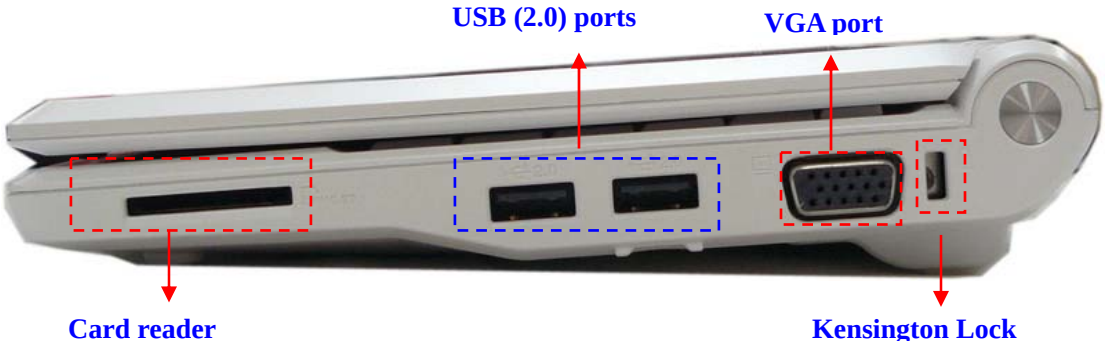
The ASUS Eee PC 4G (701) is a product combining the power of Intel® Mobile Processor. In this section, an overview for the Eee PC 4G (701), along with its components, will be presented.

OVERVIEW

Eee PC 4G (701) Overview

The illustrations below show the overview from front view, right side view, left side view, and rear side view. Most of the parts will be discussed in this manual.


LAN port
USB (2.0) ports
SPDIF/Headphone
Modem port
Air Vents
Microphone port


USB (2.0) ports
VGA port
Card reader
Kensington Lock

Front view


Battery Pack
DC-IN

COMPONENTS

Components

The illustrations below show the components of the Eee PC 4G (701).

LCD

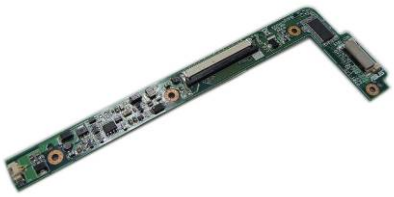
LCD Panel

The illustration below shows the LCD display panel. The Eee PC 4G (701) comes with 7" TFT LCD Panel.

INVERTER BOARD MODULE

Inverter Board

The illustration below shows the inverter board, which is hidden underneath the lower edge of the LCD front bezel.



LCD HINGE

LCD Hinge

The illustration below shows the LCD Hinges.

LCD CASE

LCD Case

The illustration below shows the LCD case. Here is the LCD front cover, back cover.

KEYBOARD

Keyboard

The illustration below shows the keyboard plate. It can be exchanged with keyboard plates with different language layouts, such as U.S., France and others.

TOP CASE&

Top Case Module

The illustration below shows the top case of the Eee PC 4G (701).

TOUCHPAD

Touch Pad Module

The illustration below shows the Touch Pad module, top and bottom view.

BATTERY

Battery Pack

The illustration below shows the battery packs of the Eee PC 4G (701). It's located at bottom of the EEE PC 4G (701).

MEMORY

Memory Module

The illustration below shows the memory module for the Eee PC 4G (701).

MOTHER BOARD MODULE

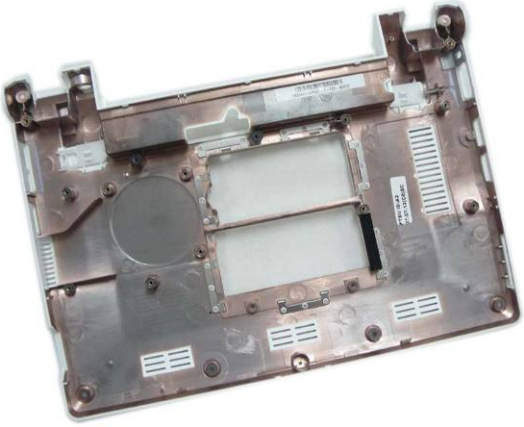
Motherboard Module

The illustration below shows the motherboard module of the Eee PC 4G (701).

BOTTOM CASE

Bottom Case Module

The illustration below shows the bottom case module of the Eee PC 4G (701), top and bottom view.



WIRELESS LAN MODULE

Wireless LAN Module

The illustration below shows the Wireless LAN Module of the Eee PC 4G (701). It contains Wireless LAN Card.

Service Overview

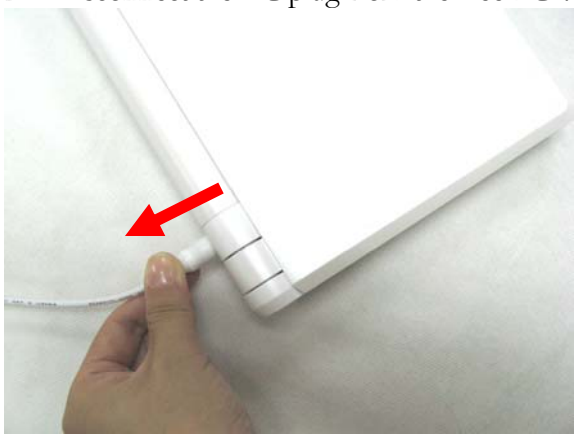
Please pay special attention to the cautions below to prevent any damages to the Eee PC 4G (701) and also please be sure to select the appropriate tools described in this section to perform any services desired.

CAUTIONS

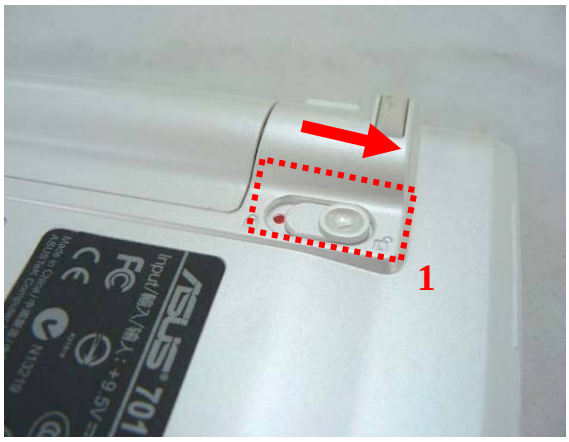
Precautions

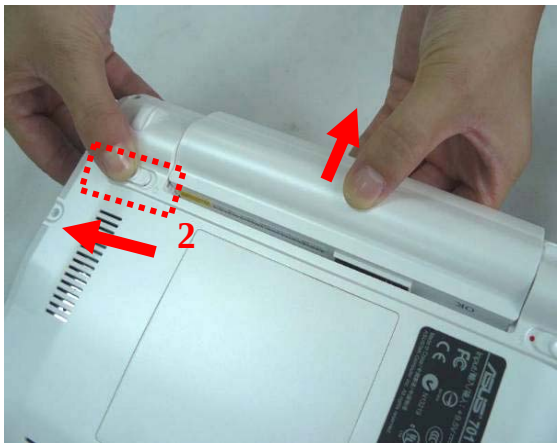
Before you perform any service and or repair on the Eee PC 4G (701), please follow the steps below first.

1. Be sure that the Eee PC 4G (701) is powered down.
2. Disconnect the AC plug from the Eee PC 4G (701)



3. Turn the Eee PC 4G (701) over. Unlock latch 1 towards the direction of arrow and then unlock and hold the latch 2 to remove the battery.





4. Remove all rings, watches and any other metal objects from your hands.


5. Always wear a ground strap on your hand to protect the Eee PC 4G (701) from static discharge.

TOOLS

Appropriate Tools

The illustrations below show the appropriate tools that should be used for the Eee PC 4G (701)'s service and repair.

CROSS SCREW-DRIVER

Phillips-head Screwdriver

Use a Phillips-head screwdriver to fasten/remove the K- or B-typed screws.

FLATHEAD SCREW-DRIVER

Single-Slotted Screwdriver

Use a single-slotted screwdriver to lock/unlock the flexible cable connector locks

TWEEZERS

Tweezers

Use a pair of tweezers to remove/insert flexible cables.

INSERTION AND EXTRACTION TOOL FOR FPC CONNECTOR

Insertion and extraction tool for FPC connector

Use insertion and extraction tool for FPC connector to handle locking and unlocking of FPC connectors.

VACUUM HANDLING TOOL

Vacuum Handling Tool

Disassembly Cautions

Before you perform any service and or repair on the Eee PC 4G (701), please read the notice below first.

ASUS hereby provides a basic instruction for the disassembly of ASUS products, i.e. to remove components and materials that require selective treatments, which are defined by Annex II of the European Union (EU) Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC. This instruction is intended for the use of end-of-life recyclers or treatment facilities. Following is the list of Annex II of EU WEEE Directive 2002/96/EC.

- polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT),
- mercury containing components, such as switches or backlighting lamps,
- batteries,
- printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,
- toner cartridges, liquid and pasty, as well as colour toner,
- plastic containing brominated flame retardants,
- asbestos waste and components which contain asbestos,
- cathode ray tubes,
- chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
- gas discharge lamps,
- liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimeters and all those back-lighted with gas discharge lamps,
- external electric cables,
- components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labelling of dangerous substances,
- components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation,
- electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume)

Chapter 2

Disassembly Procedure

Please follow the information provided in this section to perform the complete disassembly procedure of the Eee PC 4G (701). Be sure to use proper tools described before.

ASUS Eee PC 4G (701)consists of various modules. This chapter describes the procedures for the complete Eee PC 4G (701) disassembly. In addition, in between procedures, the detailed disassembly procedure of individual modules will be provided for your service needs.

The disassembly procedure consists of the following steps:

- Battery Module
- Memory Module
- Keyboard Module
- WLAN Module
- Top Case Module
- LCD Module
- Motherboard Module

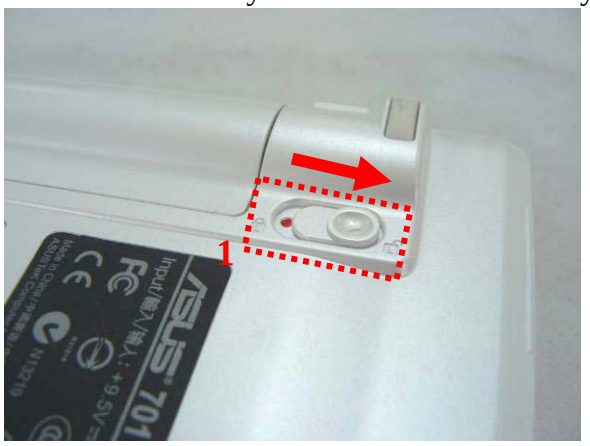
BATTERY

Battery Module

The illustration below shows how to remove the battery module.

Remove battery module

1. Slide the battery lock to open it
2. Slide the battery latch and hold the battery to remove it from system.



MEMORY MODULE

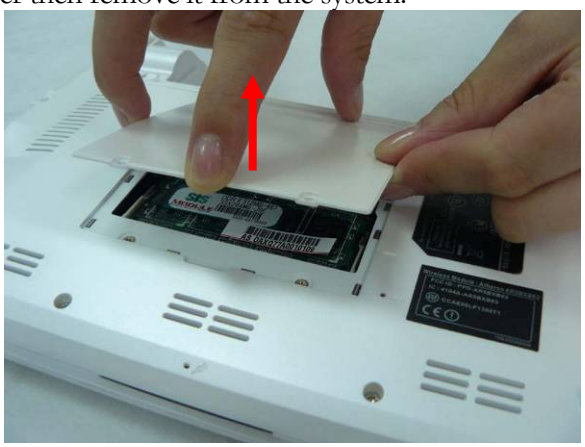
Memory Module

The illustration shows how to remove the memory module form the Eee PC 4G (701).

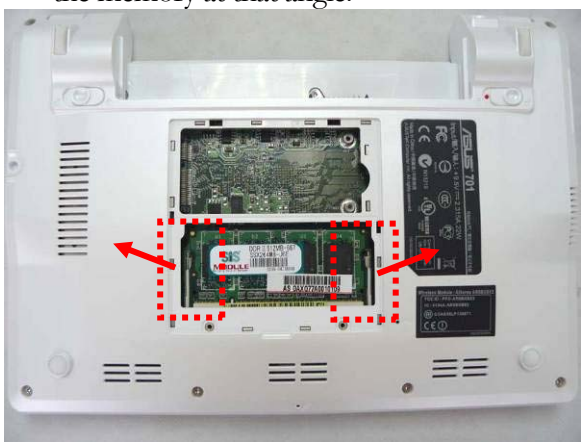
Removing Memory module

1. Remove 2 screws (M2*4) on the memory cover then remove it from the system.

MEMORY REMOVAL



2. Softly open the two latches to pop the memory module up at 45 degree angles and then remove the memory at that angle.



KEYBOARD MODULE REMOVAL

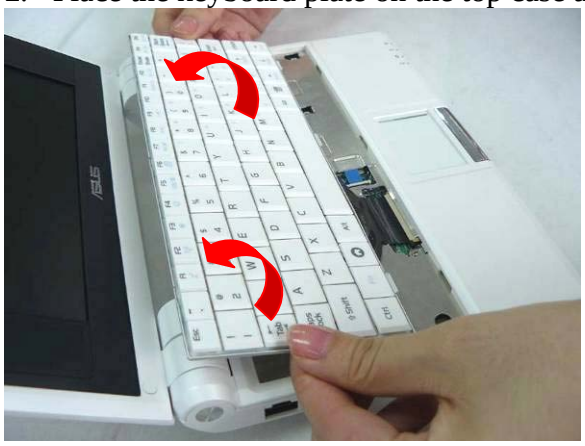
Keyboard Module

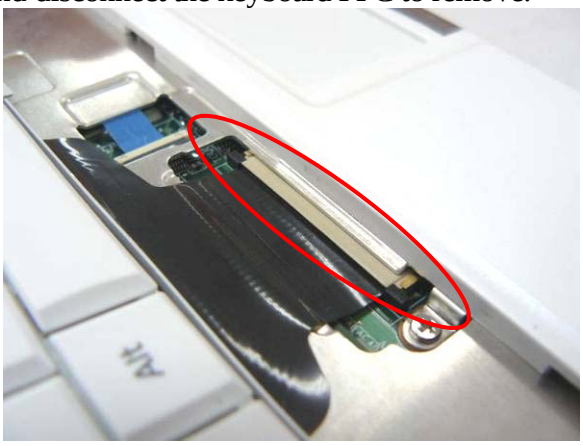
The illustration of below shows how to remove the keyboard

Removing Keyboard

1. Turn over the NB and push the 3 latches (F1; F6;Pause) on keyboard module to lift the keyboard plate.

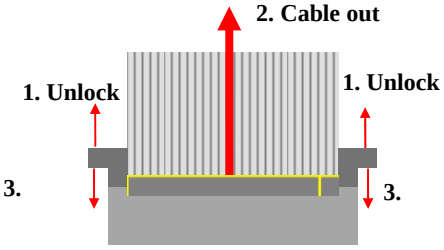
2. Place the keyboard plate on the top case and disconnect the keyboard FPC to remove.





Removing Keyboard Cable

1. Use a flexible connector tool to unlock the cable connector on both ends (no. 1).
2. Carefully pull out the keyboard cable (no. 2) with a pair of tweezers.
3. Lock the connector (no. 3) again to avoid possible breakage.



TOP CASE MODULE

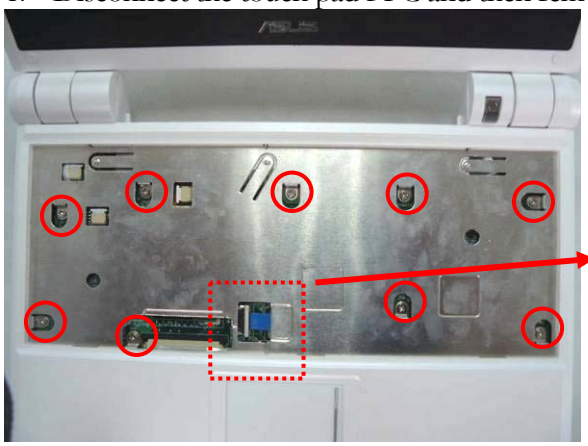
Top Case Module

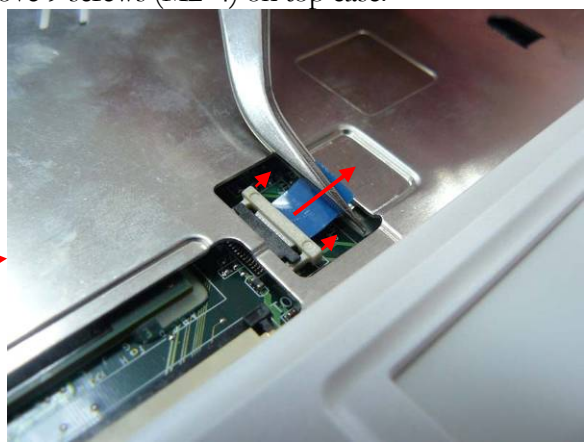
The illustrations below show how to disassemble and remove the top case module of the Eee PC 4G (701). The module contains the top case itself.

TOP CASE REMOVAL

Removing Top Case Module

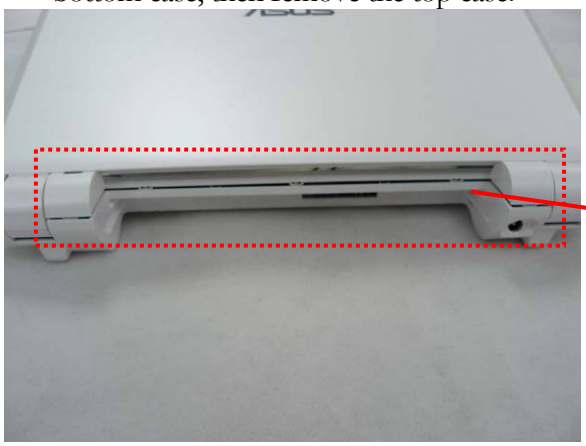
1. Disconnect the touch pad FPC and then remove 9 screws (M2*4) on top case.

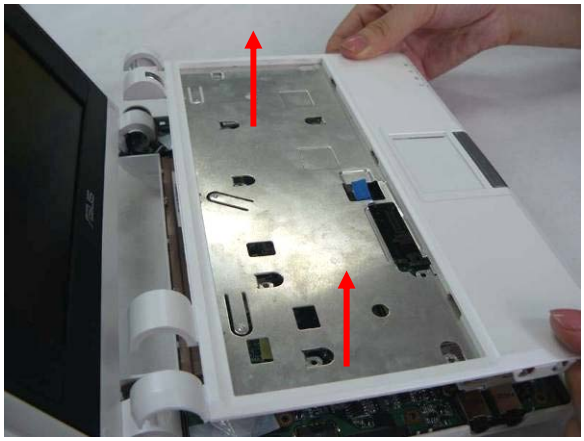




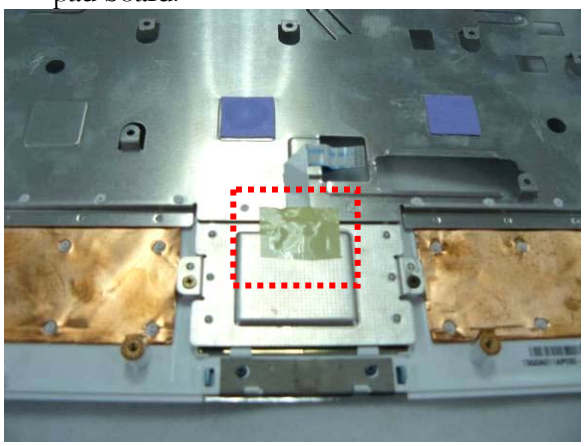
2. Close and turn the system upside down to remove 6 screws (M2*4) on the bottom case.

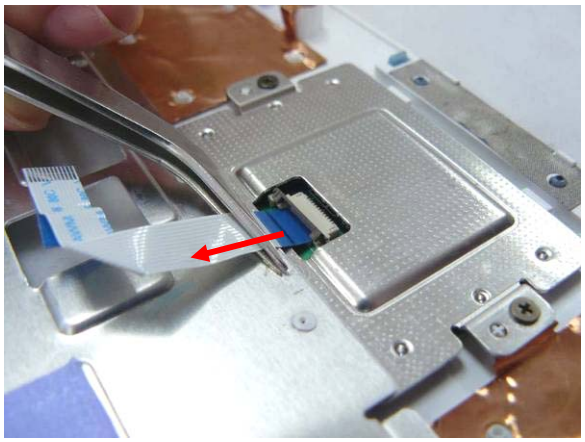
3. Softly pry the four sides of the system to open the latch hooks securing the top case with bottom case, then remove the top case.



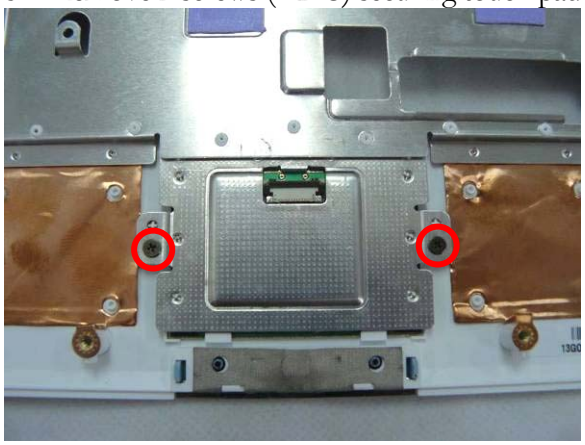


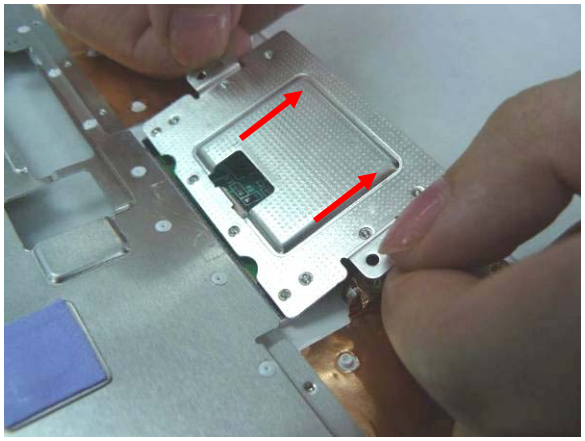
4. Remove 1 piece of tape on the touch pad FPC then open the latch to disconnect it from touch pad board.



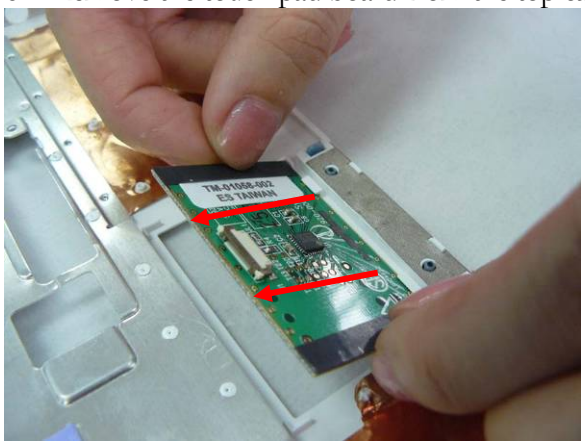


5. Remove 2 screws (M2*3) securing touch pad bracket and then remove the bracket.





6. Remove the touch pad board from the top case.

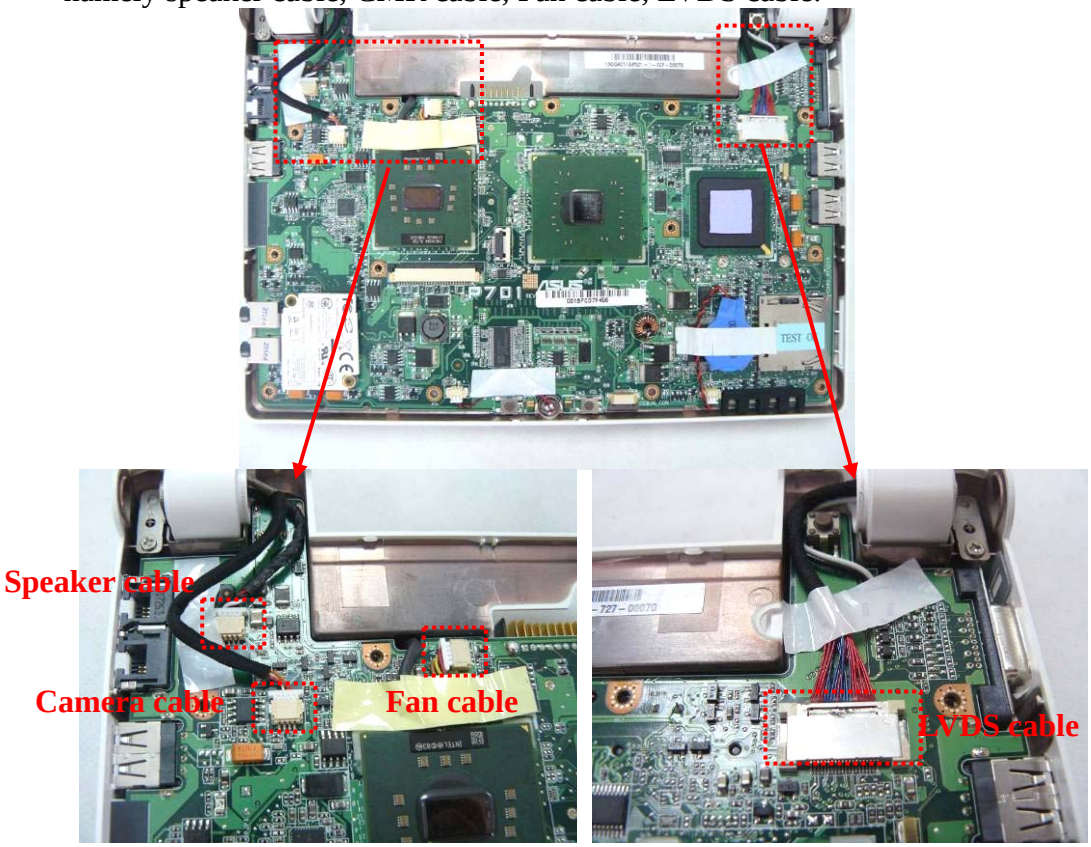


WLAN Module

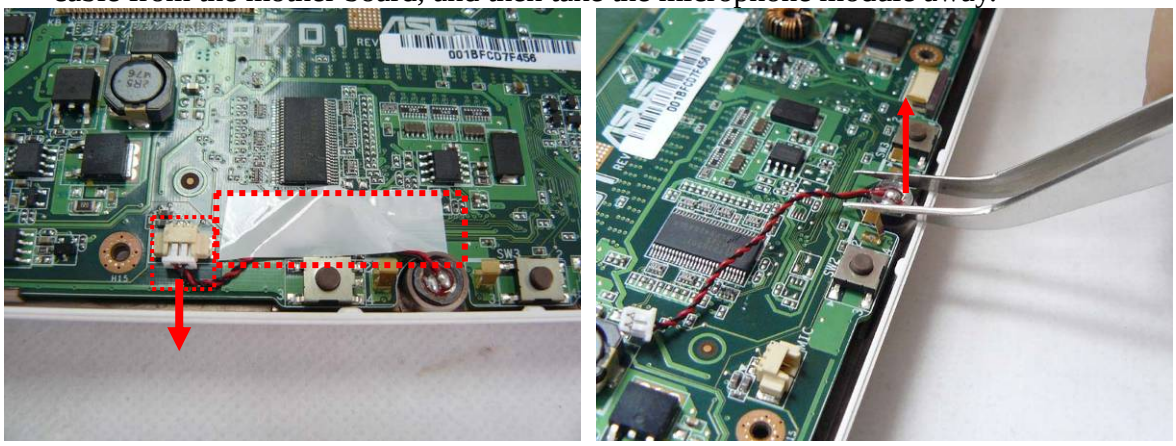
The illustrations below show how to remove the WLAN module from the Eee PC 4G (701).

Remove WLAN module

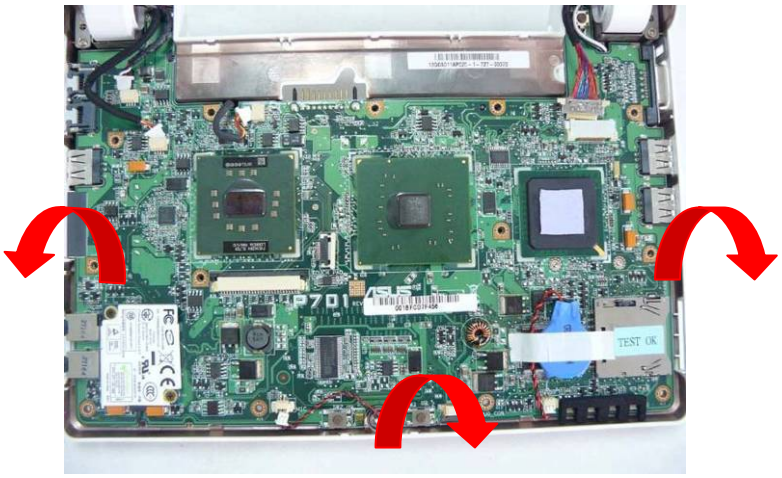
1. Remove 3 pieces of tape fixing the cable and then disconnect the following 4 cables, namely speaker cable, CMR cable, Fan cable, LVDS cable.



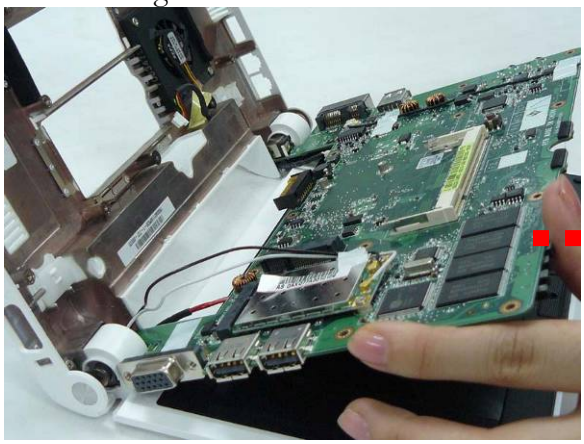
2. Remove 1 piece of tape fixing the microphone cable and disconnect the microphone cable from the mother board, and then take the microphone module away.

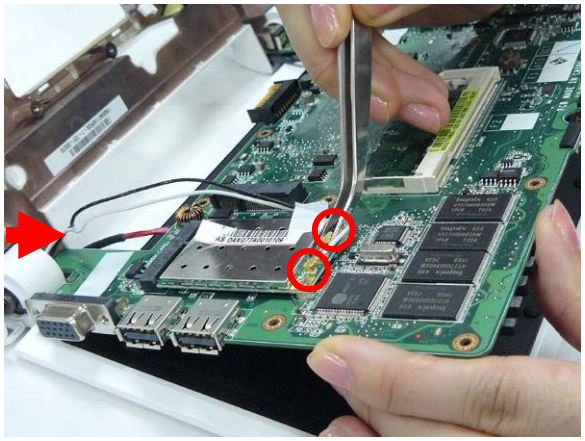


3. Lift the mother board from bottom case by softly separating from the bottom side, two sides to the top.* pay attention not to remove the mother board for now, for that the WLAN antenna is still connected with the mother board.

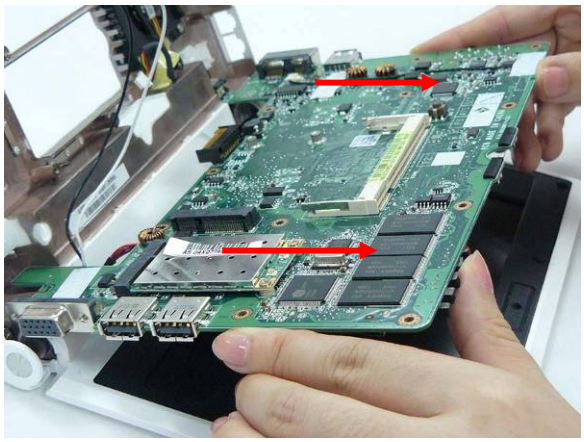


4. Turn the LCD with its back cover on the platform and hold the mother board while disconnecting the two antennas.

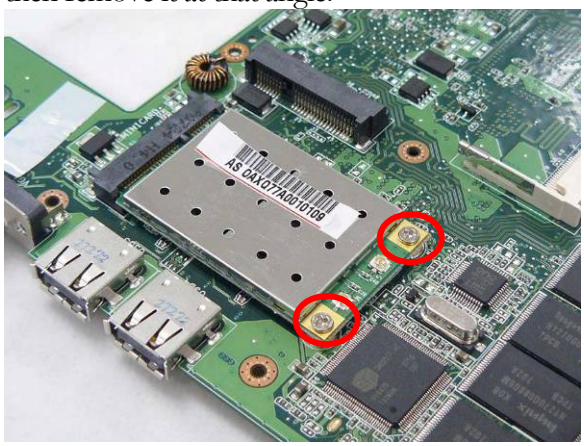


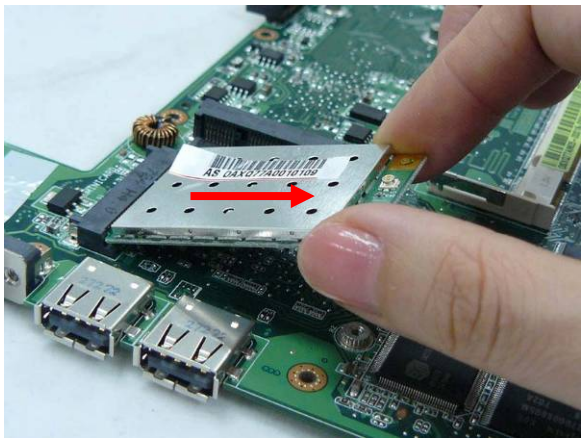


5. Remove the mother board from the bottom case.



6. Remove 2 screws (M2*4) on the WLAN module to pop up the module at 30 degree angles and then remove it at that angle.





MOTHER BOARD

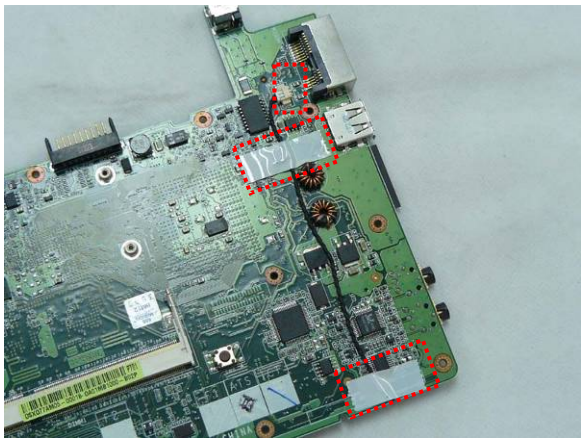
MOTHERBOARD REMOVAL

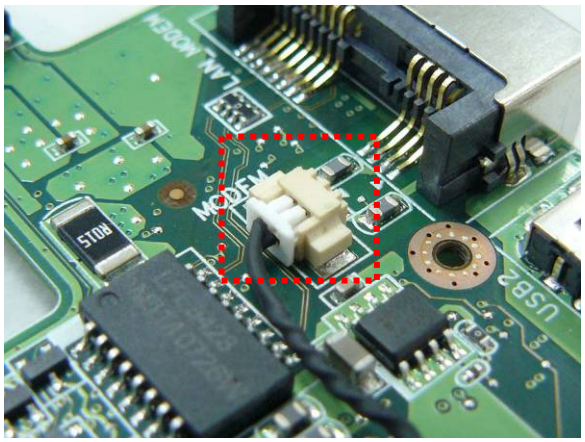
Motherboard

The illustrations below show how to disassemble and remove the Motherboard.

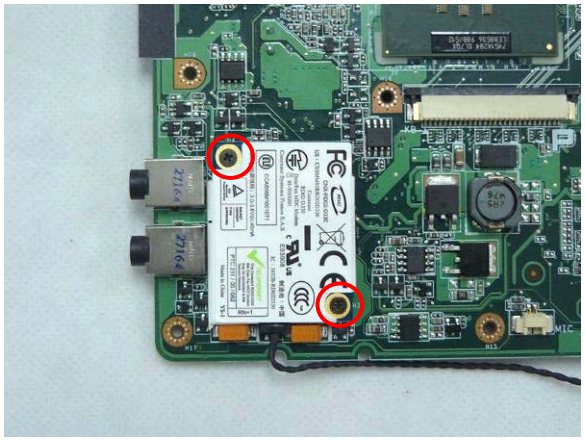
Removing Motherboard

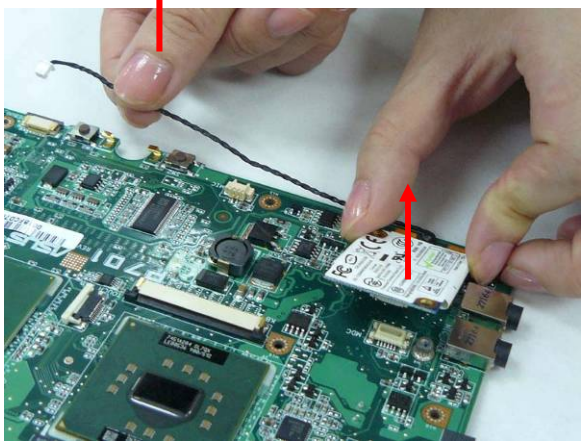
1. Tear off 2 pieces of tape fixing the Modem cable and disconnect the Modem cable from mother board.



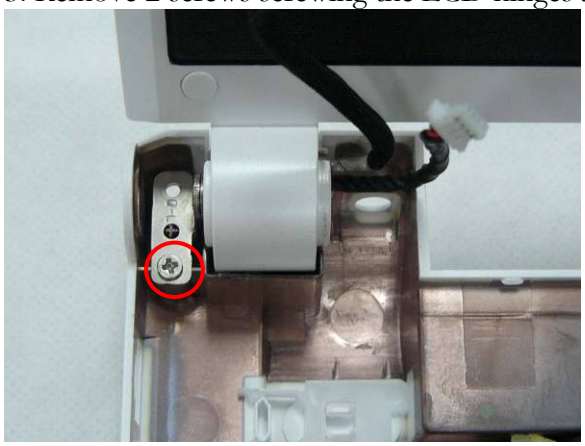


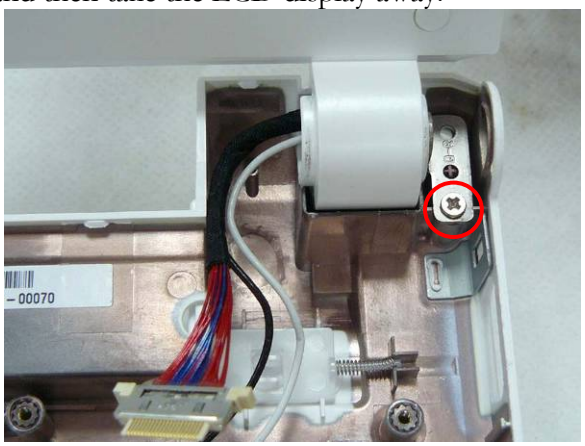
2. Remove two screws (M2*3) securing the Modem module and then remove it from the mother board.



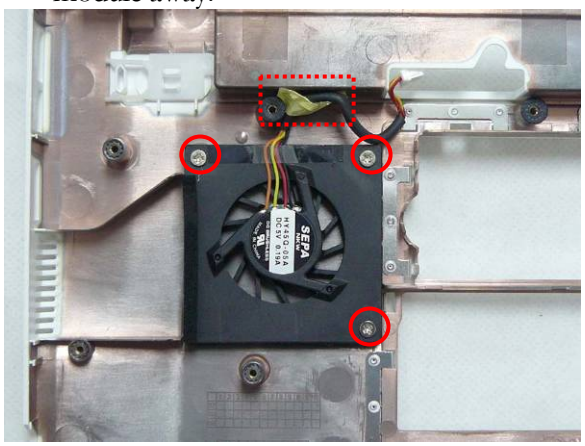


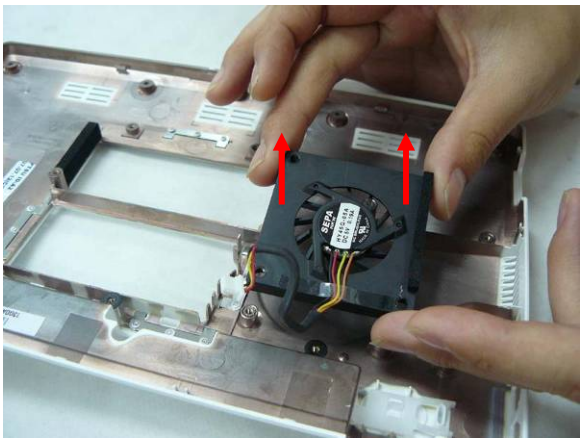
3. Remove 2 screws screwing the LCD hinges and then take the LCD display away.





4. Remove 1 piece of tape and 3 screws (M*4) securing the Fan module and then take the Fan module away.





LCD MODULE

LCD MODULE DISASSEMBLY

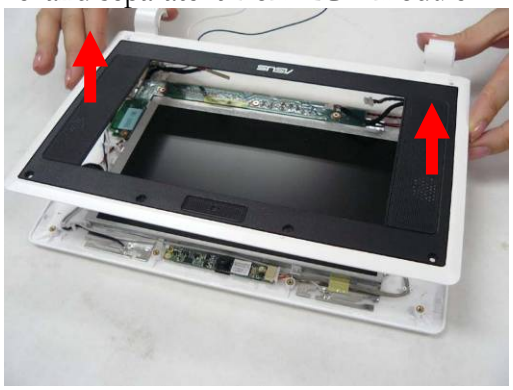
LCD Module

The illustrations below show how to remove and disassemble the LCD module. The module contains LCD panel, Inverter board, LCD bezel, LCD back cover.

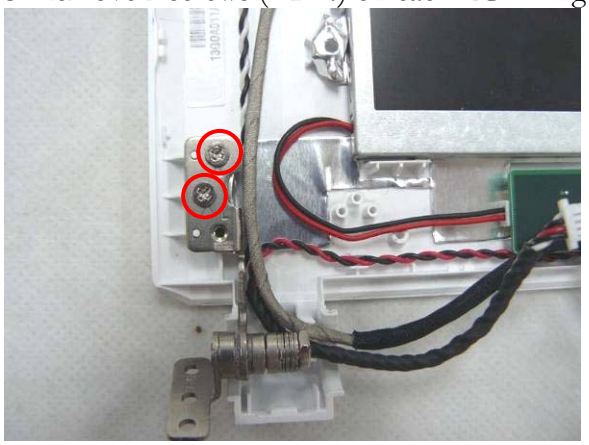
Disassembling LCD Module

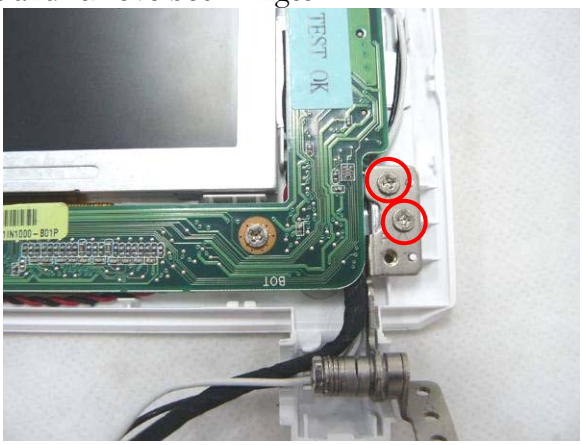
1. Remove 8 rubber pads and screws (M2*4) on LCD front bezel.

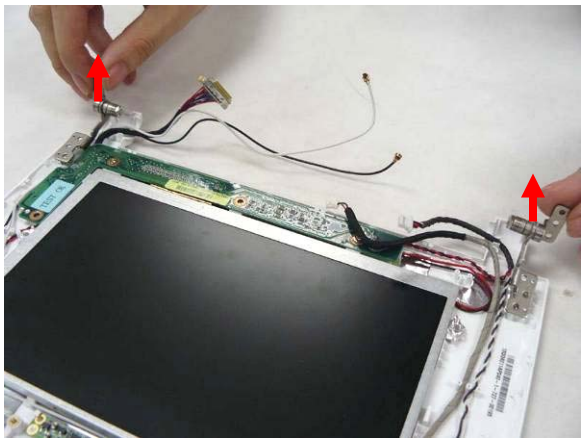
2. Pry the four inner sides of LCD front bezel and separate it from LCD module.



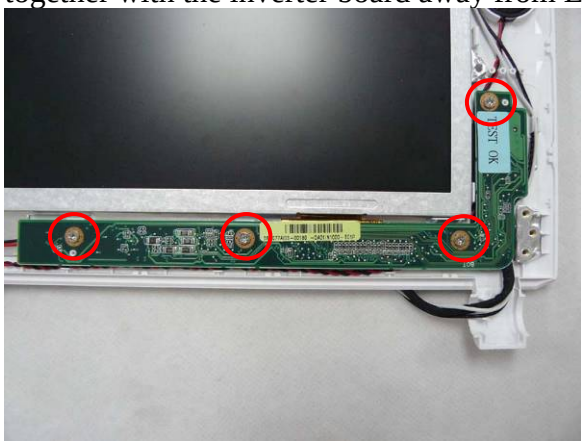
3. Remove 2 screws (M2*4) on each LCD hinge and remove both hinges.

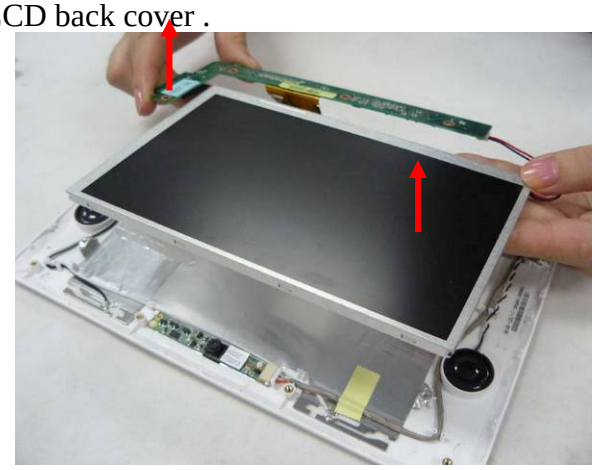




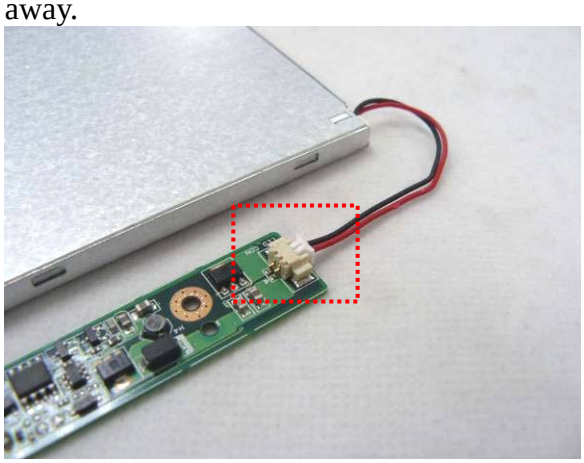


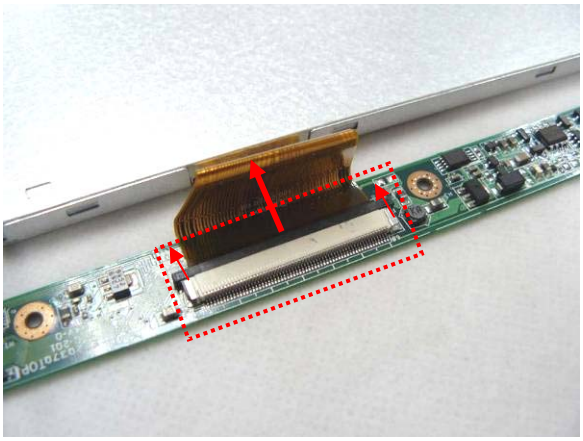
4.Unscrew 4 (M2*4) screws securing the inverter board and then take the LCD panel together with the inverter board away from LCD back cover .



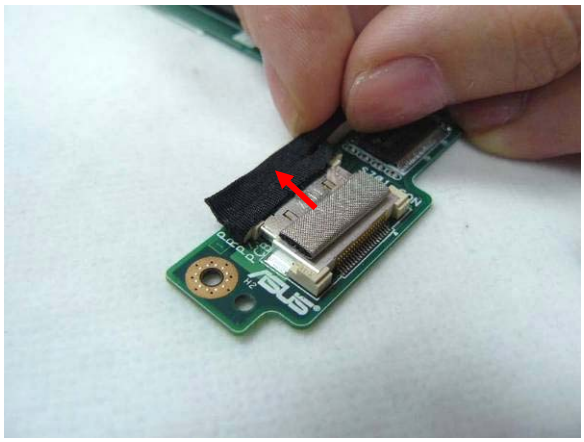


5. Disconnect the inverter cable, LCD FPC cable from inverter board and take the board away.



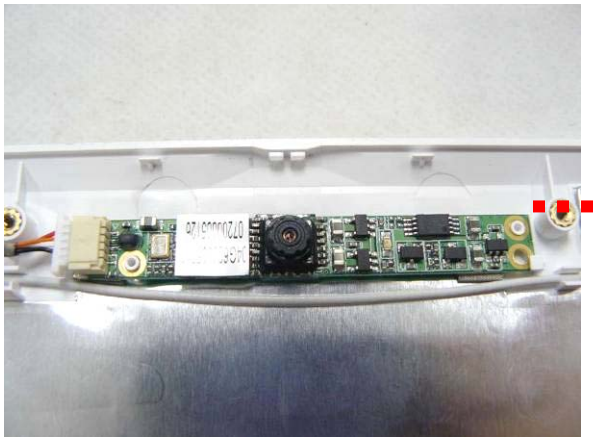


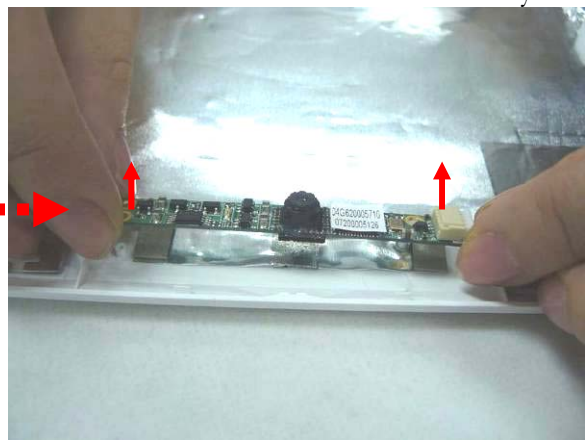
6. Disconnect the coaxial cable from inverter board.



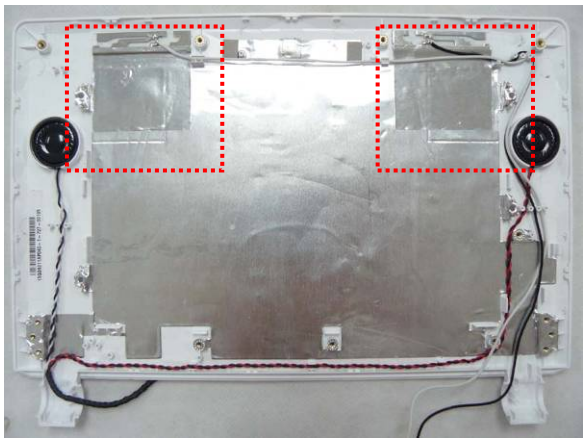
7. Tear off 1 piece of tape fixing camera cable and take the camera cable off cable guide.

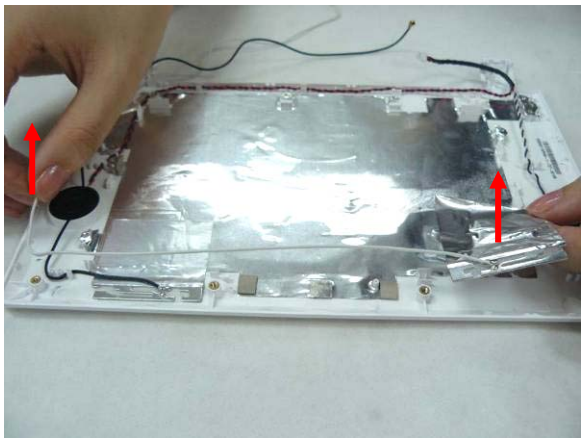
8. Remove the camera board from LCD back cover and then take the whole module away.

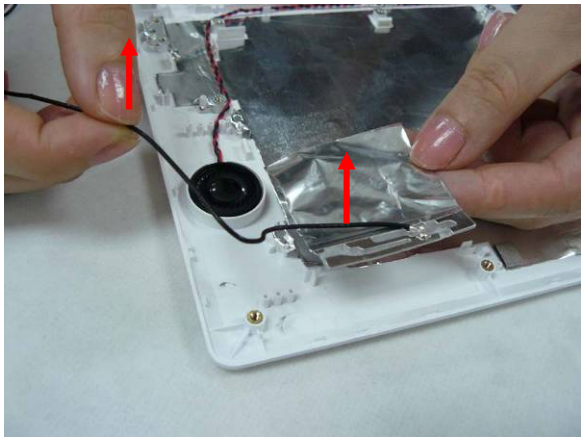




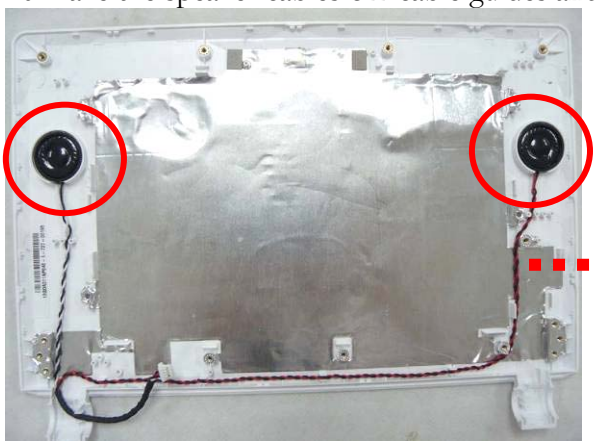
9. Take the WLAN antennas off cable guides and remove the antennas together with its tape from LCD back cover.

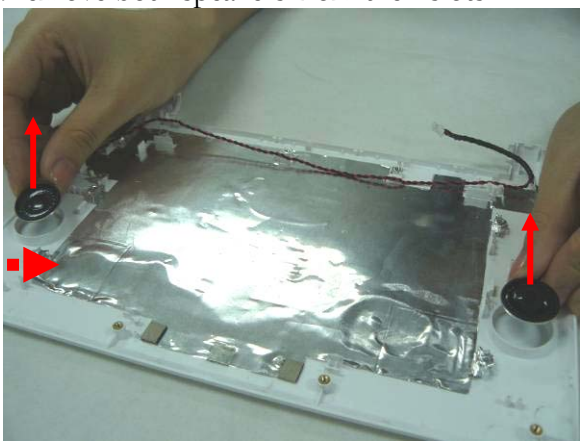






10. Take the speaker cables off cable guides and remove both speakers from their slots.





Chapter

3

Assembly Procedure

Please follow the information provided in this section to perform the complete assembly procedure of the Eee PC 4G (701). Be sure to use proper tools described before.

After you have completed the previous chapter of complete disassembly, please follow this chapter to assemble the Eee PC 4G (701) back together. This chapter describes the procedures of the complete Eee PC 4G (701) assembly. In addition, in between procedures, the detailed assembly procedure of individual modules will be provided for your service needs.

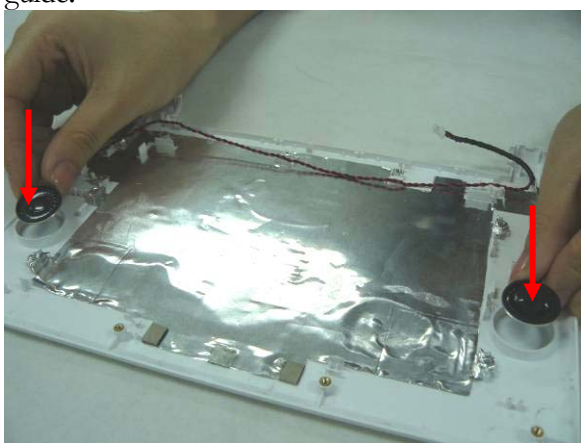
The assembly procedure consists of the following steps:

- LCD Module
- Motherboard Module
- Top Case Module
- WLAN Module
- Keyboard Module
- Memory Module
- Battery Module

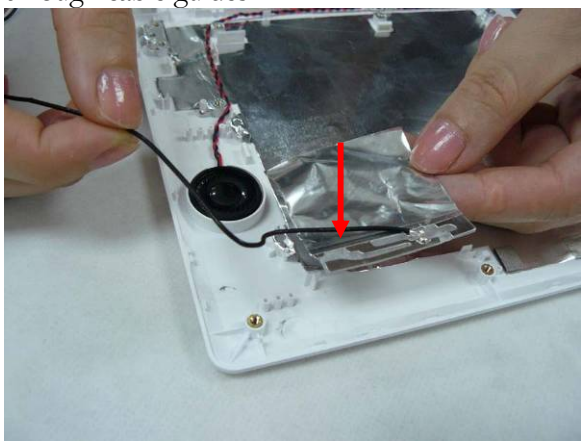
LCD Module

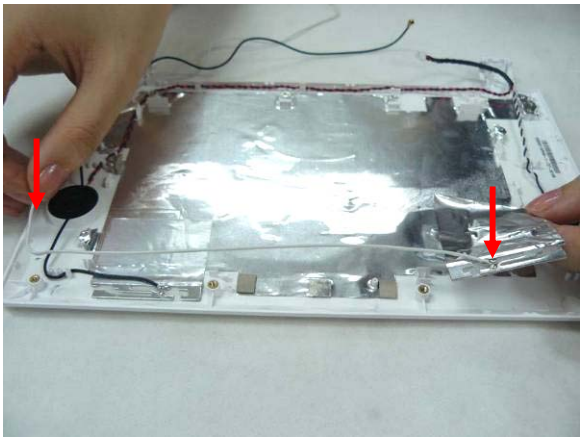
The illustrations below show how to assemble and install the LCD module of the Eee PC 4G (701).

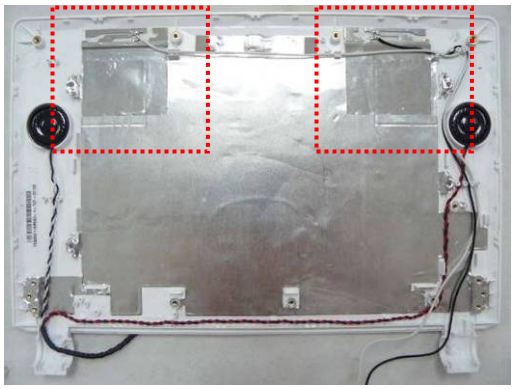
1. Install the two speakers on LCD back cover and arrange the speaker cable well through cable guide.



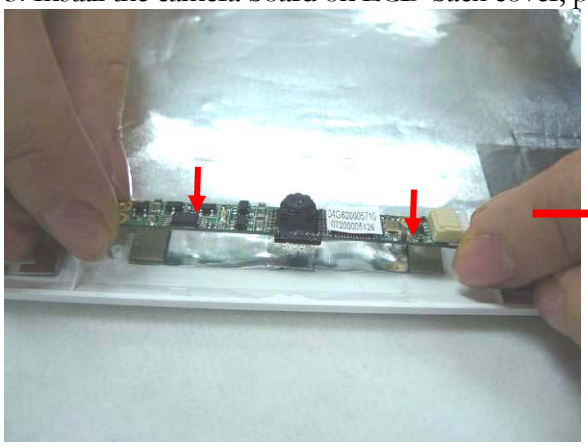
2. Assembly the black and white antennas on LCD back cover and well arrange the antanna cables through cable guides.



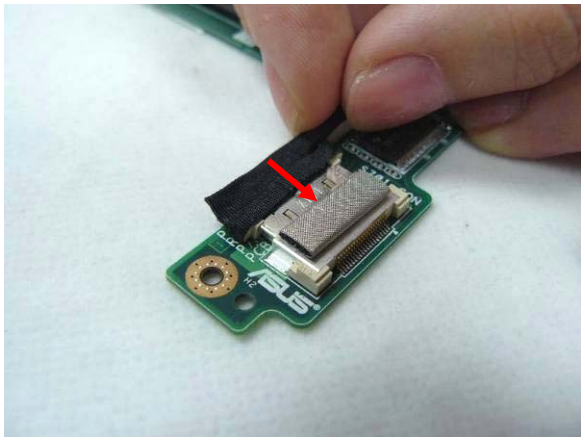




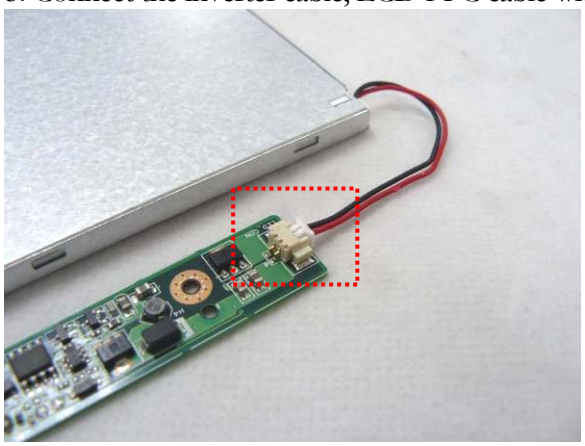
3. Install the camera board on LCD back cover, pay attention to the aiming pole.

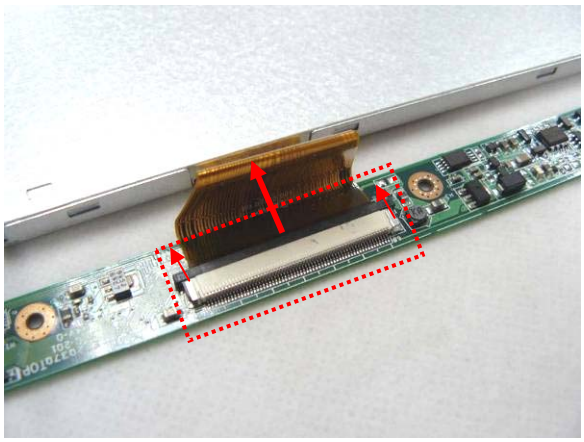


4. Connect the coaxial cable with inverter board.

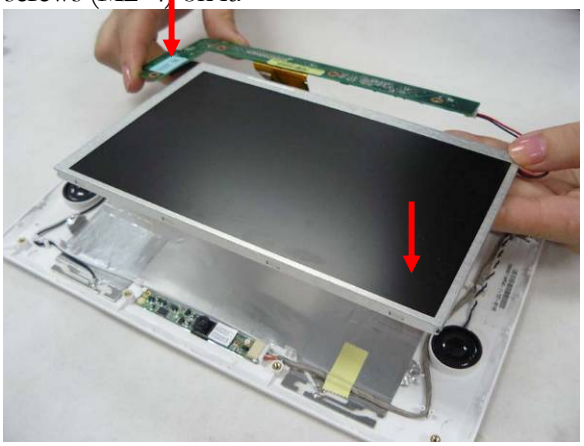


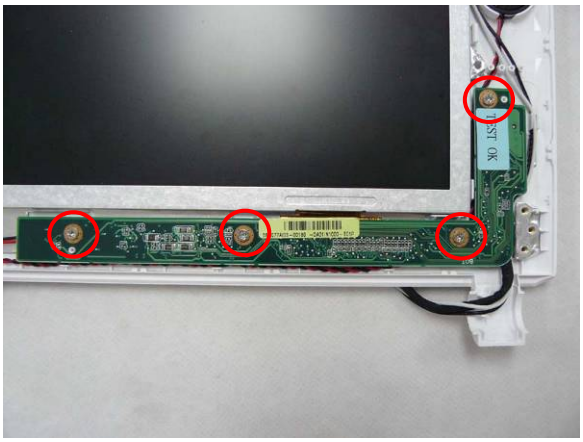
5. Connect the inverter cable, LCD FPC cable with inverter board.



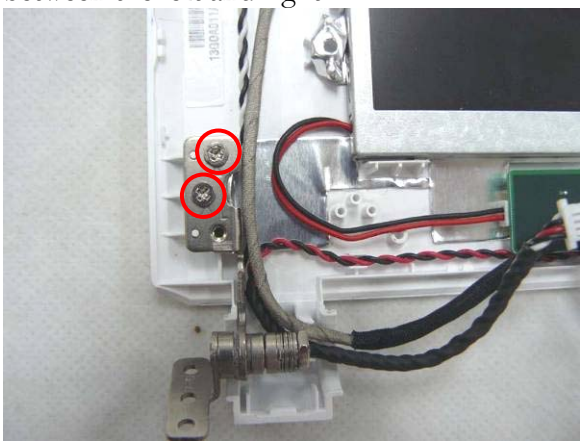


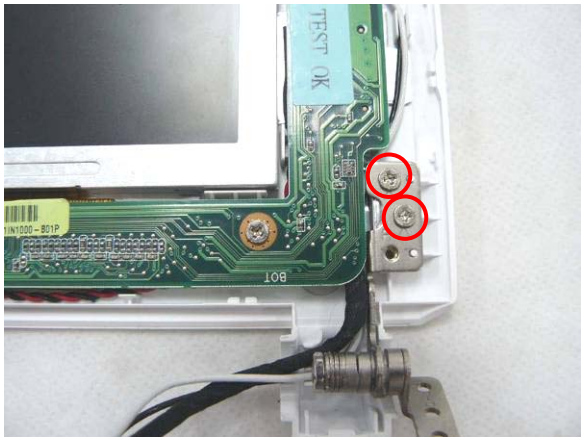
6. Install the LCD panel together with the inverter board on LCD back cover and then secure 4 screws (M2*4) on it.



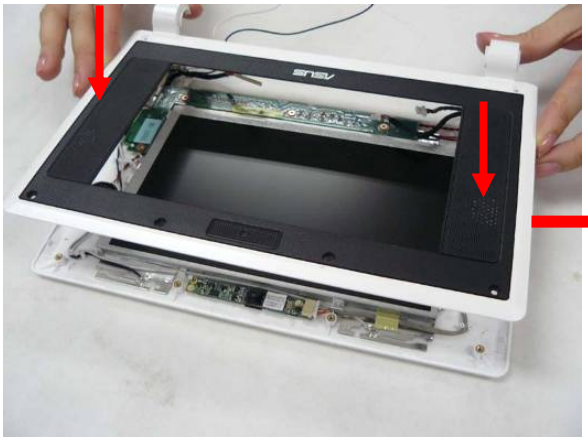


7. Assemble both hinges and secure 2 screws (M2*4) on each.*pay attention to differences between the left and right.





8. Install the LCD front bezel on LCD back cover and press the sides to fix them well.



9. Secure 6 screws (M2*4)on LCD front bezel and then fix 6 rubber pads on it.

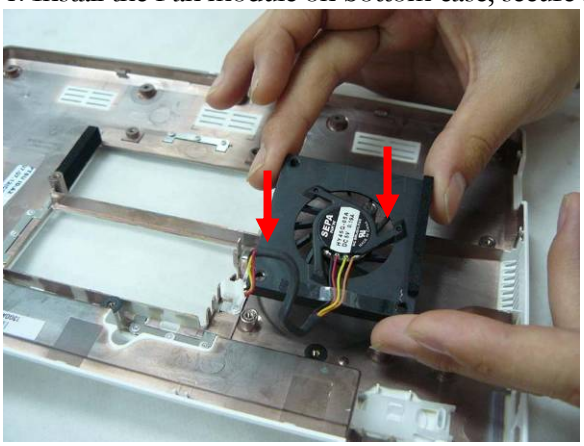
MOTHERBOARD

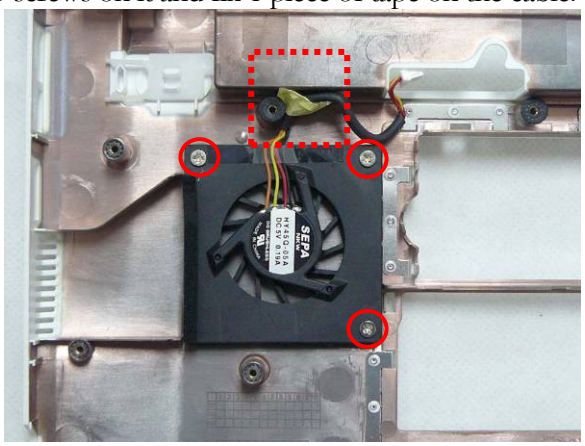
Motherboard

The illustrations below show how to assemble and install the motherboard of the Eee PC 4G (701).

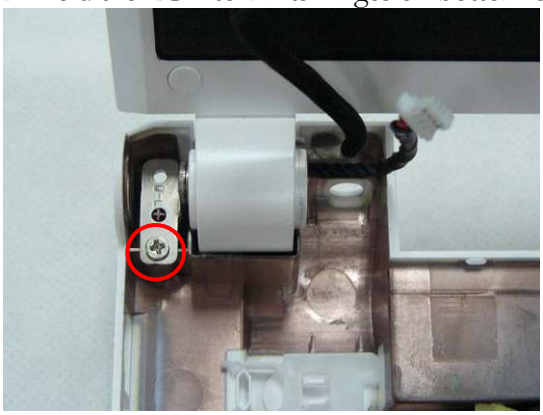
MOTHERBOARD ASSEMBLY

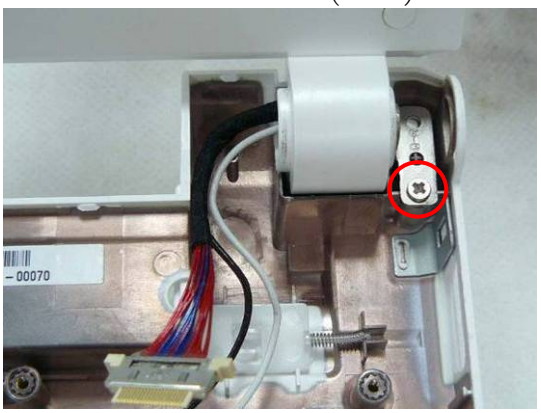
1. Install the Fan module on bottom case, secure 3 screws on it and fix 1 piece of tape on the cable.



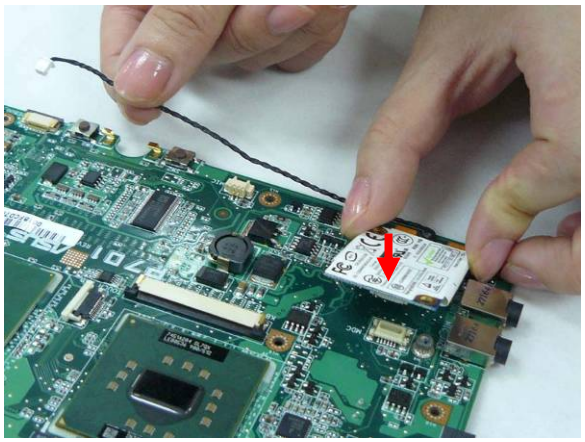


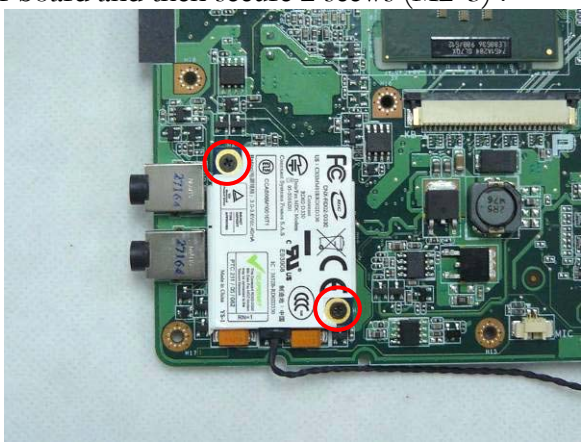
2. Hold the LCD to fix its hinges on bottom case and then secure 2 screws(M2*4).



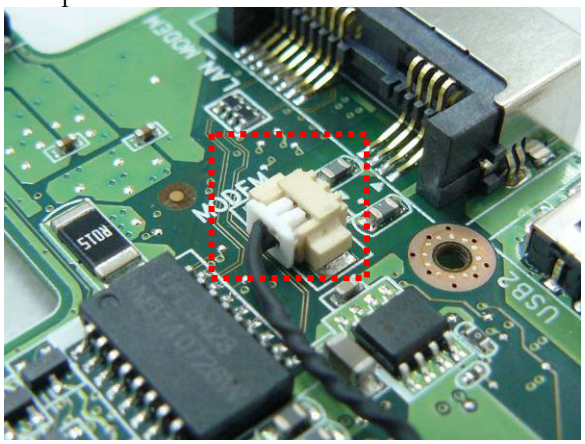


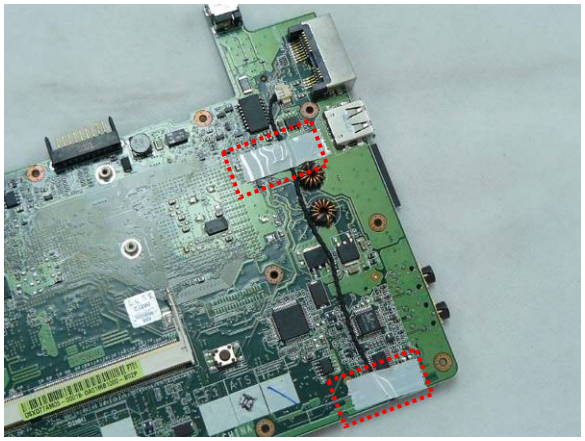
3. Connect the Modem module with the mother board and then secure 2 scews (M2*3) .





4. Connect the Modem cable with the mother board and then arrange the cable to fix 2 pieces of tape on it.





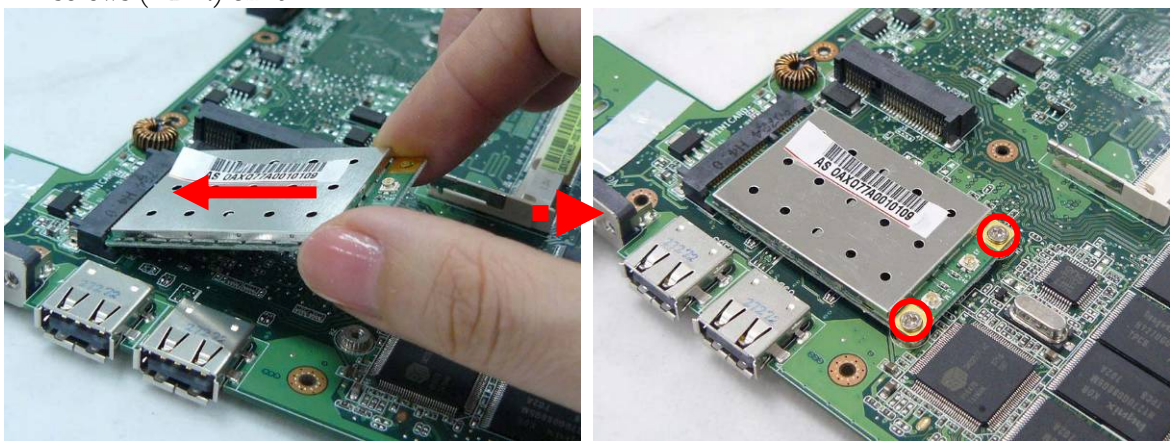
WIRELESSLAN MODULE INSTALLATION

Wireless LAN Module

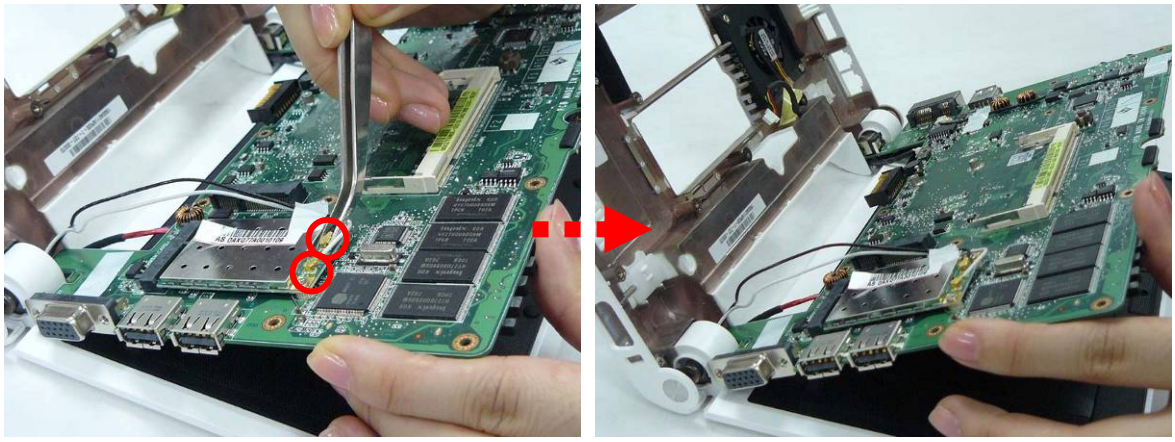
The illustrations below show how to assemble and install the Wireless Lan Module of the Eee PC 4G (701).

Installing Wireless LAN Module

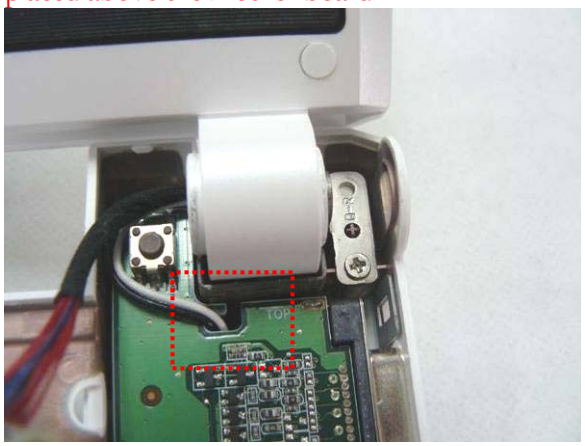
1. Insert WLAN module into its slot at 30 degrees angles and press it down softly, then secure 2 screws (M2*4) on it.

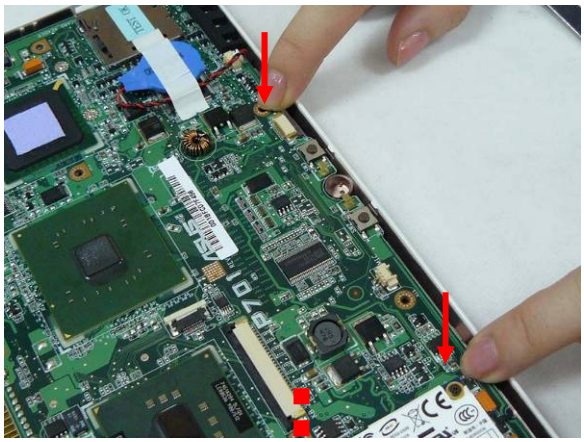


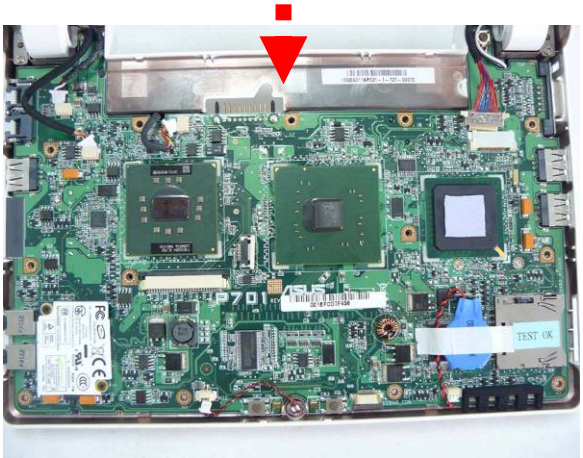
2. Hold the mother board on bottom case and then connect the WLAN antennas with WLAN module.



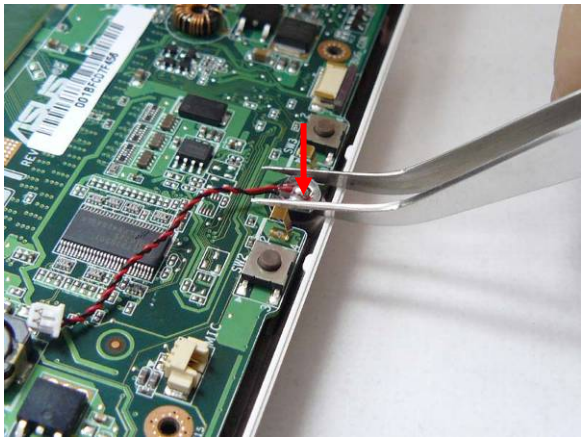
3.Install the mother board on bottom case, to install you should first install the top side,then softly pry the two sides to the ports ends fit the bottom case well, finally press the bottom side to lock the two latches.*make sure the antennas arrangeed through the hook at mother board, and all the cables placed above the mother board.

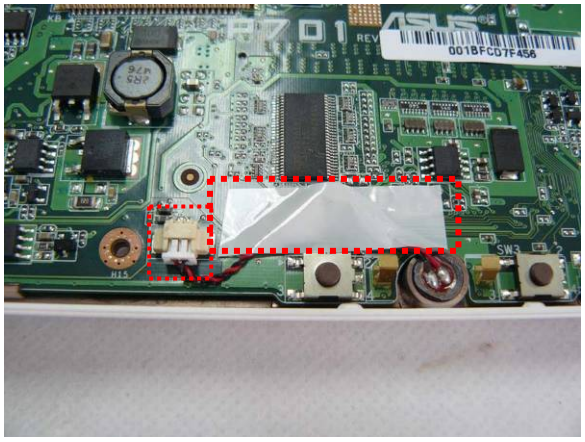




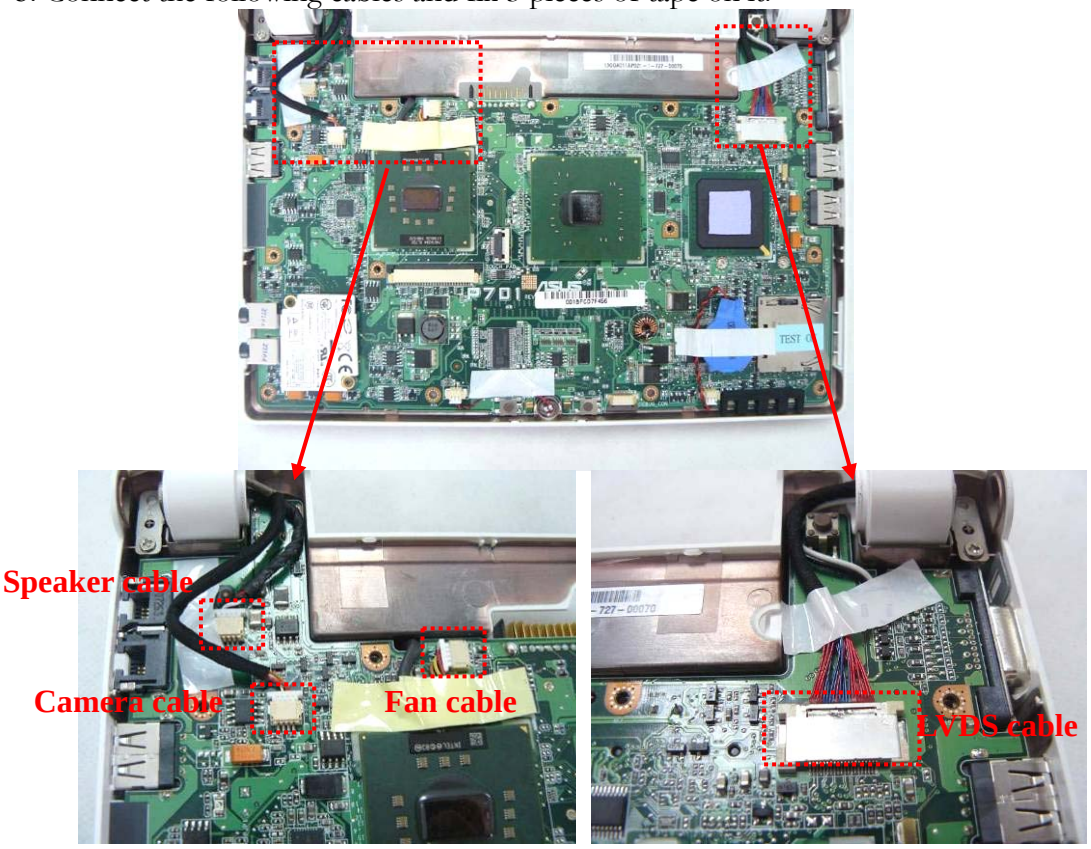


4. Install the microphone , connect it with the mother board and then fix 1 piece of tape on the cable.





5. Connect the following cables and fix 3 pieces of tape on it.

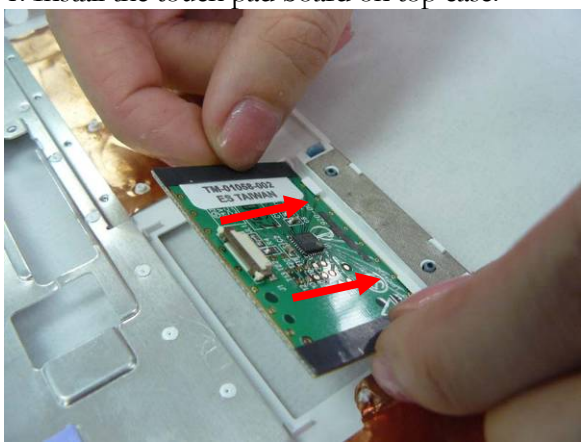


TOP CASE MODULE

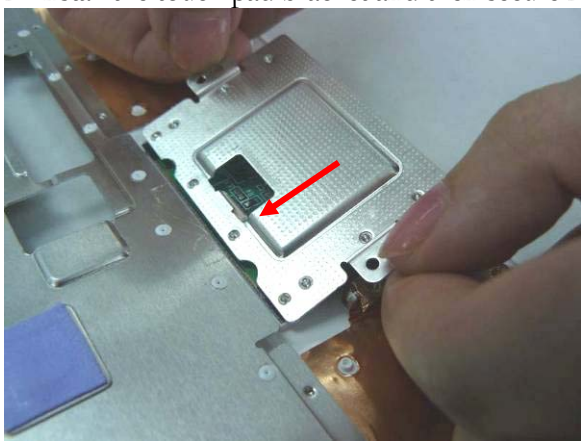
Top case Module

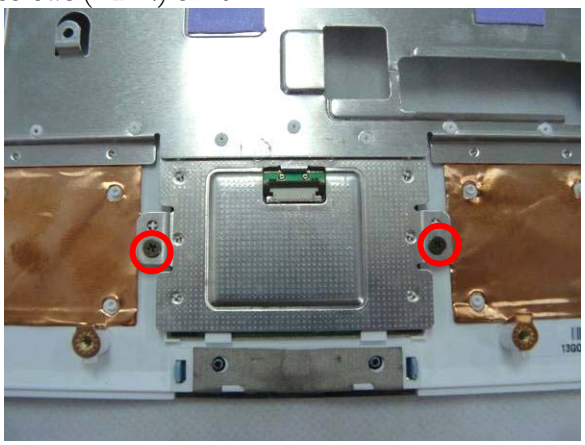
The illustrations below show how to assemble and install the top case module of the Eee PC 4G (701).

1. Install the touch pad board on top case.

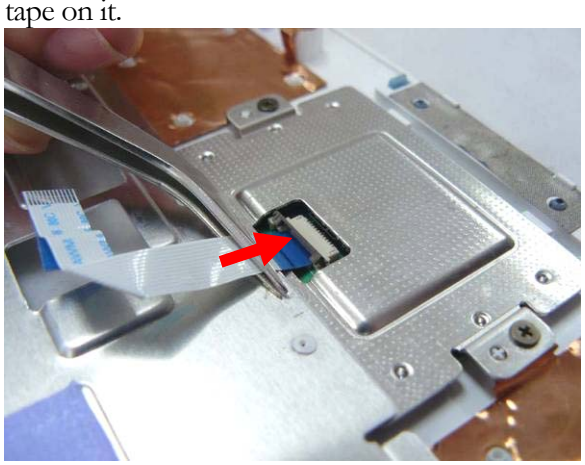


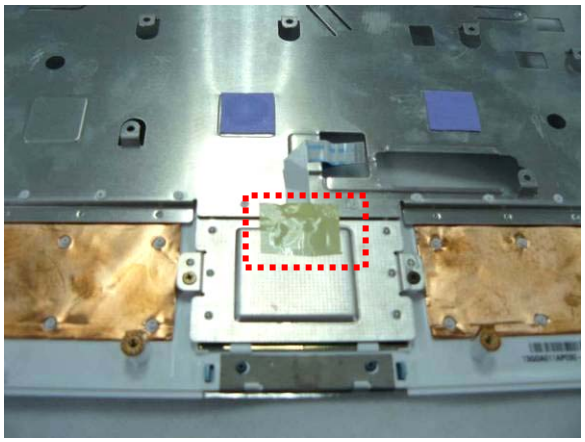
2. Install the touch pad bracket and then secure 2 screws (M2*4) on it.



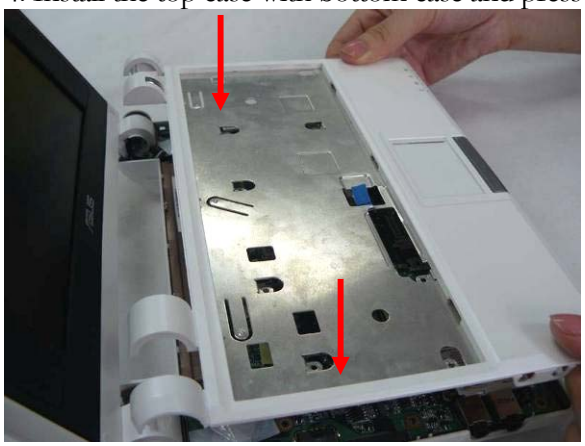


3. Connect touch pad FPC with touch pad board , fix the connector latch and then fix 1 piece of tape on it.





4. Install the top case with bottom case and press the four sides to make them fixed well.



5. Secure 6 screws (M2*4) on the bottom case.

6. Connect the touch pad FPC and then secure 9 screws (M2*4) on it.

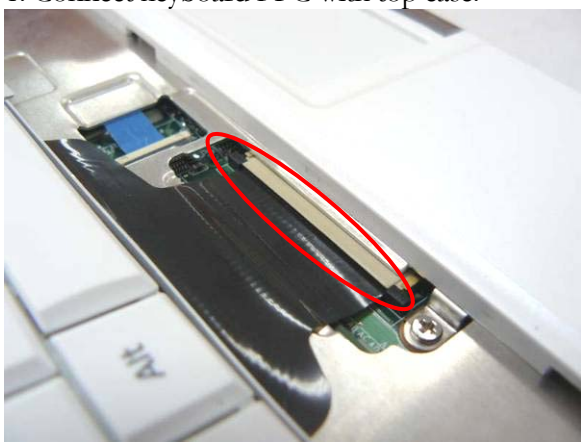
KEYBOARD

Assembling Keyboard

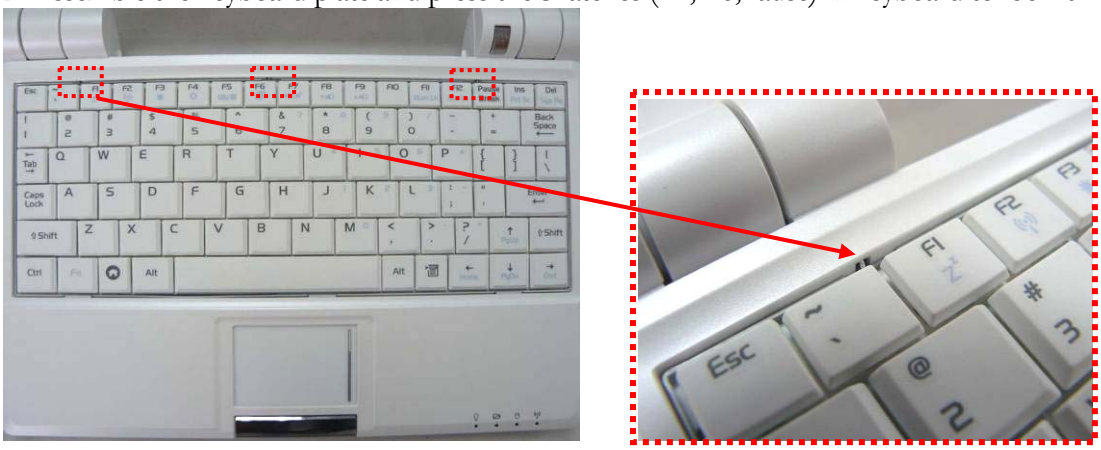
The illustrations below show how to assemble and install the Keyboard of the Eee PC 4G (701).

KEYBOARD ASSEMBLY

1. Connect keyboard FPC with top case.



2. Assemble the keyboard plate and press the 3 latches (F1; F6;Pause) in keyboard to lock it.

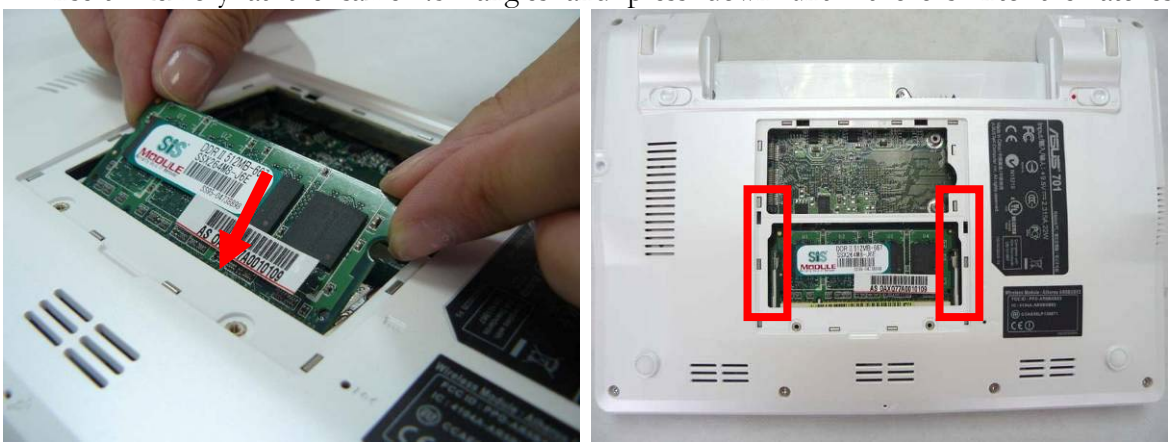


MEMORY MODULE INSTALL

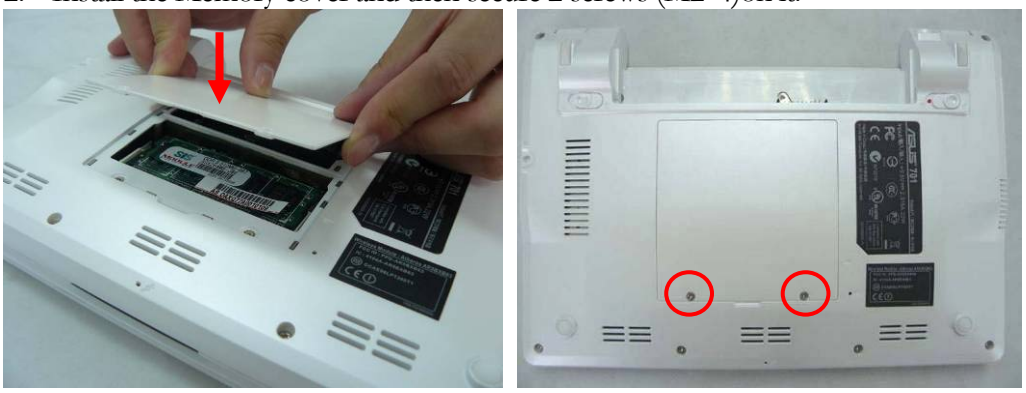
Memory Module

The illustrations below show how to install the external Memory Module of the Eee PC 4G (701).

1. Insert Memory at the same 45° angles and press down until it clicks into the latches.



2. Install the Memory cover and then secure 2 screws (M2*4)on it.



BATTERY MODULE

Battery Module

The illustrations below show how to install battery module of the Eee PC 4G (701).

Install battery module.

1. Slide the battery module into its compartment
2. Slide on the battery lock .

Chapter

4

Upgrade & Replacement

Follow the individual procedures in this chapter to perform the Eee PC 4G (701)'s upgrade and replacement of various major components.

Asus Eee PC 4G (701) is a 2 spindles product, which means there are less options for you to upgrade and replacement. The key upgradeable and replaceable items include the Memory module.

In order to avoid redundancy, please refer to chapters 2 and 3 of this manual for repeated and reused disassembly and assembly procedures, such as keyboard & heat sink replacement, which is used by several different procedures in this chapter. ***Be sure to follow the safety instructions described in Chapter 1 to safeguard the Eee PC 4G (701) against any potential damages.*** For any other components which you need to replace not covered in this chapter, please refer to Chapters 2 and 3 for detailed disassembly and assembly and perform necessary procedures accordingly.

This chapter includes the following items:

- Memory Upgrade

MEMORY

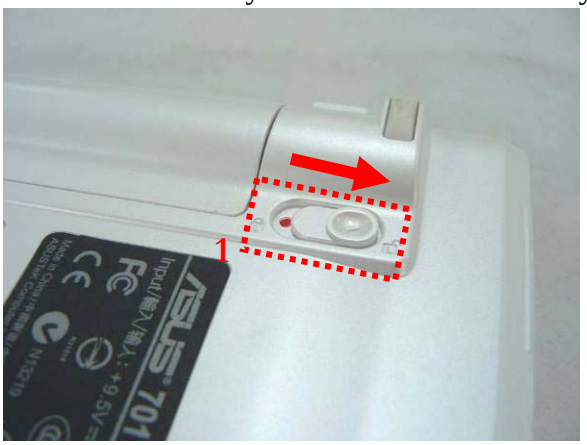
Memory Upgrade

Upgrading Memory Module

Remove battery module

1 · Slide the battery lock to open it

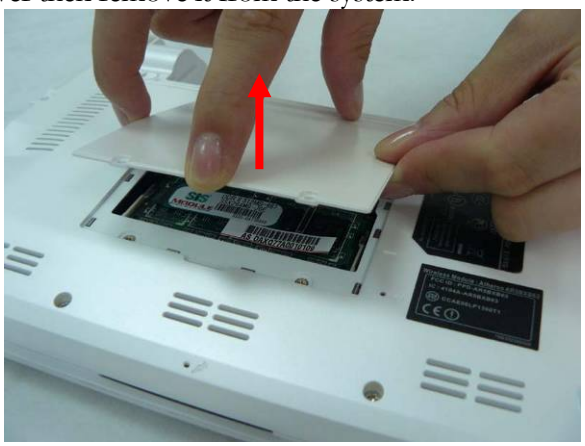
2 · Slide the battery latch and hold the battery to remove it from system.



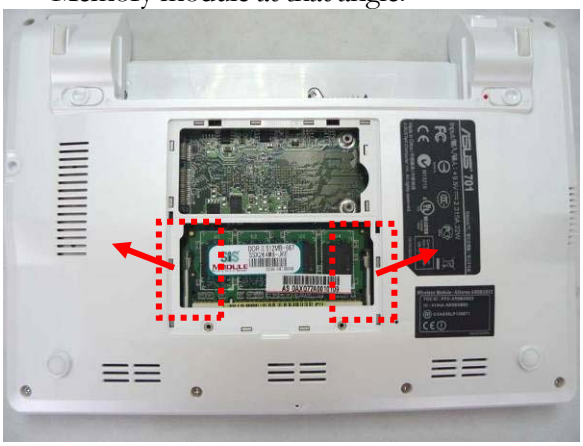
MEMORY REMOVAL

Removing Memory module

1. Remove 2 screws (M2*4) on the Memory cover then remove it from the system.



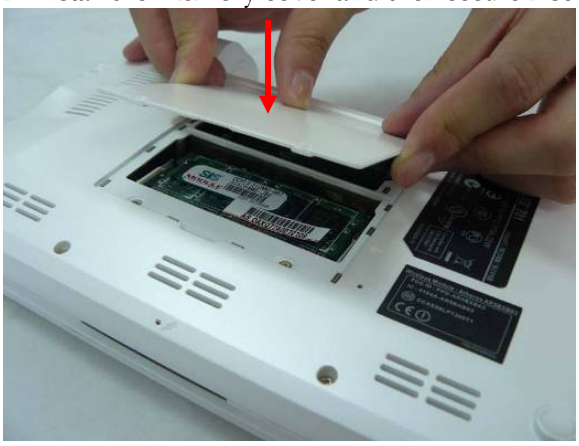
2. Softly open the two latches to pop the Memory module up at 45 degree angles and then remove the Memory module at that angle.



Installing Memory Module

1. Insert Memory at the same 45° angles and press down until it clicks into the latches.

2. Install the Memory cover and then secure 2 screws (M2*4) on it.



Install battery module.

1. Slide the battery module into its compartment
2. Slide on the battery lock .

Chapter

5

Hardware Specifications

You can enjoy and utilize the Eee PC 4G (701) Notebook more effectively with a better comprehension of detailed hardware specifications of the notebook.

This chapter lists the detailed specifications of the notebook's main system and modules. Please refer to this section when you need to find out specific technical data about the notebook.

This chapter contains the following information:

- MARKETING SPECIFICATION
- CHIPSET LIST
- KEY PARTS LIST
- SYSTEM
- I/O PORT PIN ASSIGNMENT
- POWER MANAGEMENT
- MODULE SPECIFICATION

LIST OF FIGURES

1 MARKETING SPEC

Eee PC 4G (701) Specification		(One-Spindle Design)
Product Family	EEE PC 4G (701)	
CPU Type	Intel Celeron-M-ULV	Dothan
Speed	900MHz(normal run 630MHz)	
Package	FCBGA 479	Onboard
L2 Cache	Yes	
Size	512 KB	On-die cache memory
Memory Type	DDR II SDRAM without ECC	
Base Memory	None	
Expansion Memory	256/512MB/1GB	SO-DIMM x 1 Slot
MAX	2GB	
LCD Size	7”	
Resolution	WVGA	
Panel Type	TFT	
Interface	LVDS	
Contrast Control	None	
Brightness Control	Hot-key	
HDD type	Onboard / Flash Module	Flash Module option
Ultra DMA 66	Yes	
Size	Onboard 4G / Flash Module 16G	
Chip Set	Intel Sonoma Platform	
North Bridge	Intel 910GML/910GMLE	
South Bridge	Intel ICH6-M	
Super IO	N/A	
Thermal Sensor	G781P8F	
Micro-Processor	ENE KB3310	
KBC	ENE KB3310	

	Flash ROM (SPI)	SST/Winbond/MXIC	4Mbits
Graphic Accelerator		Intel 910GML internal GPU	
	3D	Yes	
	Controller	Intel Internal graphic	
	AGP Support	No	
	Dual view/Dual App	Yes	
	Graphic Memory	Share Memory	
TV Out Support		No	
Sound System			
	Controller	Realtek ALC662	
	SW wave table	Yes	
	FM synthesizer	Yes	
	Speaker	Stereo	
	I/F	Azalia	
	PC99	Yes	
	S/PDIF	None	
	6 channel output	Yes	
	Audio Amplifier	TPA6017A2PWP	
	Microphone	Mono	
Modem		CONEXANT	
	Controller	CONEXANT	
	Spec	56K	
	I/F	Azalia MDC	
	Jack	RJ-11	RJ-11 port
	ACPI	Yes	
	V.90	Yes	
	Voice Phone	No	
	Digital Line Protection	Yes	
	Wake On Ring	Yes	
LAN		Yes	
	Jack	RJ-45	RJ-45 port
	Wake On LAN	YES	

	Controller	Atheros L2	
Internal Keyboard			
	Key	80 Keys (W/ MS-Windows function keys)	
	Function Key	12 Function Keys	
Hot Key Function		13 Hot Keys	
	Suspend (STR or STD)	Fn + F1	
	Wi-Fi enable	Fn + F2	802.11b+g
	Application manager	Fn + F6	
	Brightness Up	Fn + F4	
	Brightness Down	Fn + F3	
	LCD/CRT	Fn + F5	
	PC Speaker Volume	Fn + F7	On/Mute
	PC Speaker Volume	Fn + F9	Volume increase
	PC Speaker Volume	Fn + F8	Volume decrease
	Number Lock	Fn + F11	
	Scroll Lock	Fn + F12	
	Print screen	Fn + Ins	
	Sys Rq	Fn + Del	
Instant Keys		None	
Status Indication		4 LEDs	
	Power Status	Yes (Yellow on LED when Power on. Blinking when in SUSPEND mode. OFF when power off.)	
	Battery Charge Status	Yes (Orange when charging. Blinking when battery low. OFF when fully charged/empty.)	
	HDD LED	Yes (Yellow while accessing)	
	Number Lock LED	None	
	Caps Lock LED	None	
	Scroll Lock LED	None	
	W-LAN LED	Blue	
Pointing Device		Glide Pad	Synaptics

	Glide Pad	Yes	
	Right Button	Yes	
	Left Button	Yes	
	Scroll	Yes	
Function Control			
	Power On Button	Yes	
	LCD Brightness	Yes	Hot Keys
	LCD Lid Switch	Yes	
	Sound Volume	Yes	Hot Keys
	Password Override	Yes (Master Password)	
	Reset/Force Off	Yes (Reset switch)	
I/O Port		All ports support hot-plug	
	Parallel	N/A	
	CRT	Yes	15-pin D-Sub
	Mouse/Keyboard	N/A	
	IrDA Port	N/A	
	Fax/Modem	Yes	RJ11
	LAN Jack	Yes	RJ45
	Line In Jack	N/A	
	Mic In Jack	Yes	
	Head Phone Jack	Yes	Stereo out
	USB port	Yes	3 Ports
	DC-In	Yes	22W
Heat Solution			
	Heat Pipe	N/A	
	Heat Sink	N/A	
	FAN Support	Yes	
AC Adaptor		Delta	
	Input	AC 100-240Volt, 50~60Hz	
	Output	DC 9.5V, 2.315A, 22W	
1st Battery		4 Cells	7.4V 5200mAh
	Type	Li-ION(5200mAH)	

	1st Battery	新力盛	
Charging time			Li-ION (5200mAH)
	Machine ON	TBD.	
	Machine OFF	TBD.	
Battery Life		TBD.	
	PM Off	TBD.	
	PM On	TBD.	
Power Management		AMI BIOS	
	LCD Close/Open	Yes	
	LCD Back-light	Yes	
	Suspend/Resume	Yes	
	Hibernation (S2D)	Yes	
	Thermal Control	Yes	
	ACPI	Yes	
	DMI 2.0	Yes	Support DMI BIOS 2.1
Security			
	Password	Yes	Password overridden by Master password
	Security Lock	N/A	
S/W			
	Install OS	Linux	
	Flash BIOS	Yes	
Drivers			
	Chipset Driver	Yes	
	VGA Driver	Yes	
	AUDIO Driver	Yes	
	LAN Driver	Yes	
	Glide Pad Driver	Yes	
	Modem Driver	Yes	
	WLAN Driver	Yes	

2 CHIPSET LIST

Chipset Summary Table

Function	EEE PC 4G (701)	HW ACPI/PC99
CPU	Intel Dothan	Not required
SRAM (L2 Cache)	512KB	Not required
North Bridge	Intel 910GML/910GMLE	YES
South Bridge	Intel ICH6-M	YES
MEMORY	DDR II SDRAM	Not required
BIOS ROM	SST/Winbond/MXIC 4Mb	Not required
VGA	Intel internal graphic	YES
SUPER I/O	N/A	
PCMCIA	N/A	
AUDIO	Azalia CODEC	YES
AUDIO AMPLIFIER	TPA6017A2PWP	Not required
KB CONTROLLER	ENE KB3310	YES
IrDA	N/A	
CLOCK Generator	CS9LPR426	YES
MODEM	CONEXANT	YES
Bluetooth	N/A	
1394	N/A	
LAN	Atheros L2	YES

2.1 CPU

Processor Type:	Intel Dothan Processor Intel Celeron-M ULV 353
Processor frequency:	900MHz (normal run 630MHz)
Construction method:	FCBGA479
Supply voltage:	Core:0.85V(High_Frequency_Mode)~0.75V(lowest_Frequency_Mode)
Function feature:	On-die , primary 32-KB instruction cache and 32-KB write-back data cache. On-die , 512KB second level cache with Advanced Transfer Cache Architecture. Data Prefetch. Streaming SIMD extensions 2(SSE2). 400 MHZ FSB support

2.2 CHIPSET

2.2.1 North Bridge

Function:	Full support 32bits AGTL+ host bus addressing Supports DDR2-400 device Integrates the graphic controller Support Intel Rapid Memory power management Enhanced Intel SpeedStep technology DMI x2/x4 Interface connect to ICH

Vendor:	Intel
Parts Number:	910GML/910GMLE
Package:	1257-ball micro-FCBGA

2.2.2 South Bridge

Function:	DMI x2/x4 interface link with GMCH
	Integrated PC/AT compatible system (DMA Controller, INT, Timer/Counters)
	Integrated one channels IDE controller with Ultra DMA/33/66/100 support
	Integrated USB 1.1 and 2.0 Host Bus controller with 8 USB ports
	Integrated HD Audio Interface
	Build-in RTC
	LPC Interface
Vendor:	Intel
Parts Number:	ICH6-M
Package:	609-ball BGA

2.3 DRAM MEMORY

2.3.1 ON-BOARD MEMORY

None

2.3.2 EXPANSION MEMORY

Number of sockets:	One 200 pin SO-DIMM slot
Bus:	64-bit data path
Supply voltage:	1.8V
Functional features:	Supports up to 16 simultaneous open pages Supports DDR2 400 DDR devices Maximum of 2GB of system memory
Hardware features:	
Parity support:	without ECC

2.4 BIOS ROM

ROM Type:	SST/Winbond/MXIC Flash Memory
Package:	8-lead SOIC
Supply voltage:	3.3V
Serviceability:	End user upgradeable for the firmware

2.5 INTERNAL VGA CONTROLLER

Function features:	3D Setup and Render Engine
	Integrated 24 bit RAMDAC that can drive a standard progressive scan analog monitor up to 2048 X 1536 CRT resolution at a maximum refresh rate of 75 Hz
	Single or dual channel LVDS panel support up to 112MHZ
	TV out resolution up to 1024x768
Vendor:	Intel
Chipset	910GML/910GMLE

2.6 KEYBOARD CONTROLLER

Function features:	Embedded controller-style host
	Support hardware speed-up of GateA20 and RC
	Local 18x8 keyboard switch matrix support
	Three industry standard serial keyboard interfaces
	All three ports are bi-directional
Vendor:	ENE
Parts Number:	KB3310
Package:	128-pin LQFP

2.7 AUDIO CODEC

Vendor:	Realtek
Parts Number:	ALC662
Package:	48-pin LQFP

2.8 AUDIO AMPLIFIER

Function features:	Max 1.5w Stereo Audio Amplifier with 8 ohm load
	Depop Circuitry
	Fully Differential Input
Vendor:	TI
Parts Number:	TPA6017A2
Package:	20pin TSSOP

2.9 LAN & MODEM

2.9.1 LAN

Function features:	Scatter and gather transmit receive DMA
	Interrupt coalescing
	10Mb/s, 100Mb/s, operation
	Compliant to ACPI 2.0 specification
	Compliant to IEEE 802.3u Auto-Negotiation
	Support Wake-on-LAN function and remote wake up (Magic
	Internal transmit and receive FIFO(2KB*2)
Vendor:	Atheros
Parts Number:	L2
Package:	64-Pin LQFP

2.9.2 MODEM

Function features:	V.90 and K56 flex support
	Integrated PnP functionality
	PC99 compliant
	Support both APM and ACPI power management
	Support Wake-on-ring functionality
Vendor:	Askey
Parts Number:	1456VQL-R3(INT-RoHS)
Package:	Azalia MDC

3 KEY PARTS LIST

Key Parts Summary:

3.1 Display

WVGA	Technology:	Active color (TFT: Thin Film Transistor)
	Size:	7”W
	Resolution:	WVGA (800 X 480)
	Dimension:	164mm(H) * 103mm(V) * 5.1mm(T)
	Pixel Pitch:	0.1905mm * 0.1905mm
	Display Colors:	16M Colors
	Vendor:	AUO
VGA+	Technology:	N/A
	Size:	
	Resolution:	
	Dimension:	
	Pixel Pitch:	
	Display Colors:	
	Vendor:	

3.2 Touch Pad

Dimensions:	47.8(W) x31.9(H) x 0.85(T) (Unit: mm)
Sensor Effective Areas:	35.5 (W) x 28.9 (H) (Unit: mm)
Interface:	PS/2
X/Y Position Resolution:	40 points / mm (graphics mode)
Customizing:	Custom color can be printed on the sensor pad
Functional features:	Accurate positioning
	Low fatigue pointing action
	Low power consumption
	Software configurable
	Scanner function for signature
	Low profile, compact size and low weight

Vendor/Model	Synaptics : SYNAPTICS/TM-01058-002

3.3 Keyboard

Function Feature:	Standard Notebook-Keyboard
Hardware Feature:	Simultaneously use of internal and external keyboard
	Easily to assemble or disassemble
Compatibility:	MS-Windows 2000/ XP
Dimensions:	211.70 (H) x 80.70 (V) (Unit: mm)
Type:	Key switch membrane
Total Travel:	1.5 +/- 0.2 (Unit: mm)
Key Top:	According to Attach Drawing
Language Versions:	English, Japanese, Chinese, Korean and European etc.

3.4 Battery

3.4.1 Main Battery

Purpose:	Main power supply battery
Gas-gauge:	SMBus interface
Chemistry:	Li-ion rechargeable battery
Voltage:	Nominal 7.4V
Capacity:	Typical 1300 mAH (Single-cell)
Power:	65.12 W-Hrs
Vendor:	新力盛
Duration:	About 3 hours (Depend on system configuration)
Charge Method:	Fast Charge: 2.5 hours (while System off) –85% up
Charging Source:	AC adapter
Gas-gauge:	

3.4.2 RTC Backup Battery

Purpose:	Backup the RTC/CMOS data
	While AC adapter off & Main Battery removed
Chemistry:	Coin cell 2032 Li-ion battery
Voltage:	Nominal 3V
Capacity:	200mAH
Vendor:	KTS

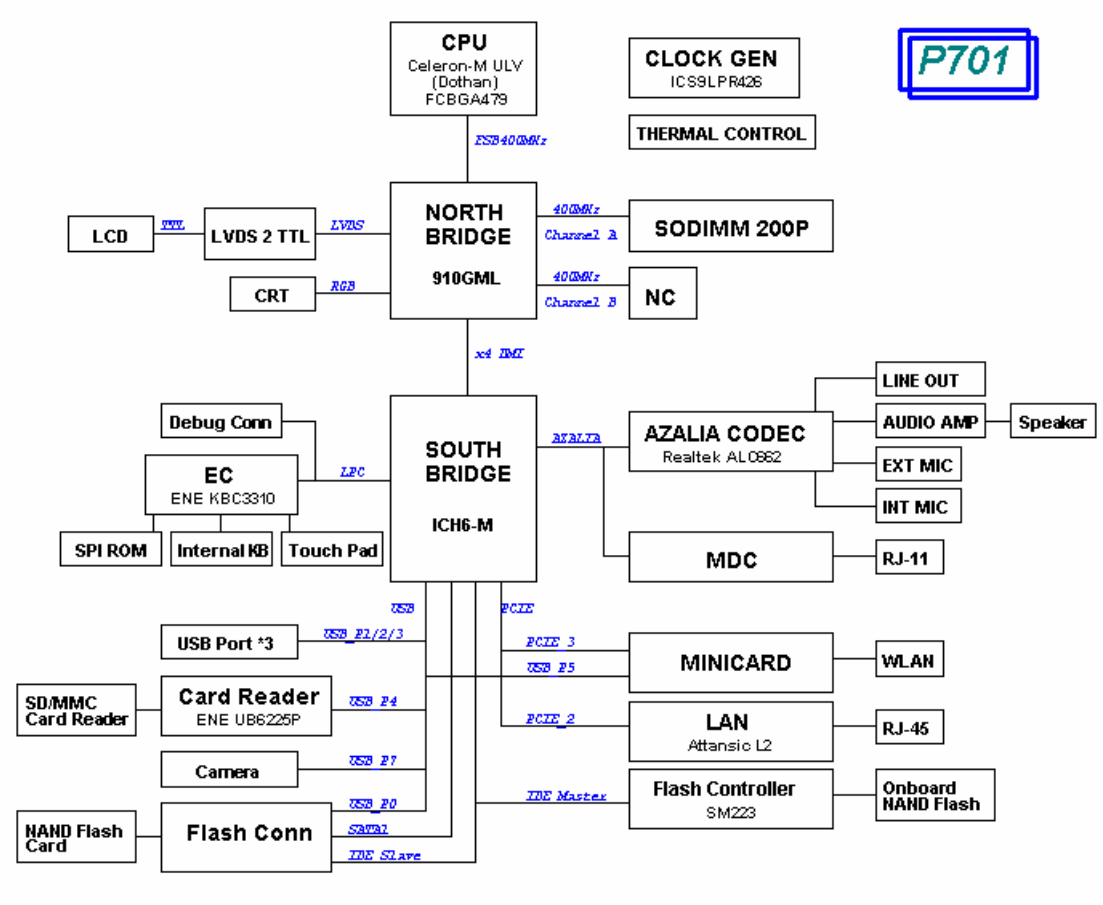
3.5 AC/DC Adapter

The notebook can be powered either by an external AC adapter or by an internal battery pack. The AC adapter is used as power source for the DC/DC converter and as constant current source for the battery pack.

Input Requirements:	
AC line voltage:	100V to 240V AC, Full Range
AC line current:	2.315A
AC line frequency	50 Hz to 60 Hz
Efficiency	85% min.
Output requirements:	
Output-Voltage	9.5V DC
Output-Current	max.2.315A
Ripple voltage	
Power cord:	Plug to the adapter
DC Cable length:	180 mm +/- 50mm
Regulatory:	
EMI:	FCC Class B
Safety:	CISPR 22 Class B
.Dimension:	(L) 108 x (W) 46 x (H) 29.5 mm

4 SYSTEM

4.1 System diagram



4.2 Main components block diagrams

TBD

4.3 System resource

4.3.1 IRQ Map

IRQ#	Description
IRQ 0	System Timer
IRQ 1	PS2 Keyboard
IRQ 8	System CMOS/RTC
IRQ 9	ACPI IRQ Holder
IRQ12	PS2 TP
IRQ13	Numeric data processor
IRQ14	Master IDE Controller
IRQ15	Primary IDE Controller
IRQ16	PCIE Root Port
IRQ16	USB Controller
IRQ16	Microsoft UAA
IRQ16	910GML Express Chipset Family
IRQ17	Lan Controller
IRQ17	PCIE Root Port
IRQ18	Wireless Network Adaptor
IRQ18	PCIE Root Port
IRQ18	USB Controller
IRQ19	USB Controller
IRQ23	USB Controller
IRQ23	USB2 Enhance Host Controller

4.3.2 ISA DMA Map

DMA Channel	Device
DMA 4	DMA Controller

4.3.3 PCI INT Map

N/A

4.3.4 PCI Bus Master Map

N/A

4.3.5 IDSEL

N/A

5 I/O PORT PIN ASSIGNMENT

No	FUNCTION	DESCRIPTION
	CRT	Display (Analog)
	Flash module	
	LCD	
	KEYBOARD	
	TOUCHPAD&LED	
	1ST BATTERY	
	.DC IN	Adapter Input
	.AUDIO	Headphone, Microphone-In
	.FAN	
	.INVERTER	
	.MDC	
	.USB	Universal Serial Bus
	LAN & Modem	
	.Card Reader	Universal Serial Bus
	. WLAN	MINI PCIE

5.1 CRT

Vendor	Part No.	Pin No.
ALLTOP	C10511-11505-B	15 Pin (DIP)

No	Pin Assignment (by: sort)	Description
1	RED Video (analog)	Red this DAC analog output drives the CRT interface.
2	GREEN Video (analog)	Green this DAC analog output drives the CRT interface.
3	BLUE Video (analog)	Blue this DAC analog output drives the CRT interface.
4	MONITOR ID Bit 2	NC
5	GROUND	Ground
6	RED Return (ground)	Ground
7	GREEN Return (ground)	Ground
8	BLUE Return (ground)	Ground
9	Power	+5V
10	SYNC Return (ground)	Ground
11	MONITOR ID Bit 0	NC
12	MONITOR ID Bit 1	DDC monitor data
13	HSYNC	CRT Horizontal Sync this output is The Horizontal sync pulse for the CRT Monitor.
14	VSYNC	CRT Vertical Sync this output is the Vertical sync pulse for the CRT Monitor.
15	MONITOR ID Bit 3	DDC monitor clock

5.2 Flash module pin assignment

Vendor	Part No.	Pin No.
		52 Pin (DIP)

Pin No.	Pin No.	Remark
1. IDE_DD0	2. IDE_DD15	
3. IDE_DD1	4. GND	
5. IDE_DD2	6. IDE_DD14	
7. IDE_DD3	8. IDE_DD13	
9. GND	10. IDE_DD12	
11. IDE_DD4	12. IDE_DD11	
13. IDE_DD5	14. IDE_DD10	
15. GND	16. IDE_DD9	
17. IDE_DD6	18. GND	
19. IDE_DD7	20. IDE_DD8	
21. GND	22. IDE_RST#1	
23. S_SATA_RXN0	24. IDE_DIOW#	
25. S_SATA_RXP0	26. IDE_PCSEL#1	
27. GND	28. IDE_DIOR#	
29. GND	30. IDE_DDACK#	
31. SATA_TXN0	32. IDE_DDREQ	
33. SATA_TXP0	34. GND	
35. GND	36. USBPN0	
37. IDE_DA0	38. USBPP0	
39. IDE_DA1	40. GND	
41. IDE_DA2	42. IDE_IORDY	
43. NC	44. IDE_IRQ	
45. IDE_DIAG#1	46. IDE_DCS#1	
47. +VCC_FLASH	48. IDE_DCS#3	
49. +VCC_FLASH	50. GND	
51. +VCC_FLASH	52. FLASH_LED#1	

5.3 LCD pin assignment

Vendor	Part No.	Pin No.
I-PEXV	WTOB_CON_20P	20 Pin (SMD)

No.	Signal	Description	Type
1	+3V_LCD		P
2	LCD_CSB_D		O
3	LCD_VSYNC		O
4	LCD_SCL		I/O
5	LCD_SDA		I/O
6	LVDD_EN		I
7	GND		P
8	LA_DATAN0		I/O
9	LA_DATAP0		I/O
10	LA_DATAN1		I/O
11	LA_DATAP1		I/O
12	GND		P
13	LA_DATAN2		O
14	LA_DATAP2		P
15	LA_CLKN		O
16	LA_CLKP		O
17	GND		P
18	BL_PWM_DA		I
19	BL_EN		I
20	+12V_LEDIN		P

5.4 Internal keyboard pin assignment

Vendor	Part No.	Pin No.
InnovACE	FPC_CON_28P	28 Pin (SMD)

No	Signal	Description	Type
1	KSO0		O
2	KSI0		I
3	KSO1		O
4	KSO2		O
5	KSI1		I
6	KSO3		O
7	KSI2		I
8	KSO4		O
9	KSI3		I
10	KSO5		O
11	KSI4		I
12	KSI5		I
13	KSO6		O
14	KSI6		I
15	KSI7		I
16	KSO7		O
17	KSO8		O
18	KSO9		O
19	KSO10		O
20	KSO11		O
21	KSO12		O
22	KSO1		O
23	KSO13		O
24	KSO14		O
25	KSO3		O
26	KB_ KSO15		O
27	NC_KSO17		O

28	NC_KSO16		O

***

5.5 Internal Touch Pad & LED Pin assignment

Vendor	Part No.	Pin No.
ENTERY	FPC_CON_12P	12 Pin (SMD)

No	Signal	Description	Type
1	GND	Ground	P
2	TP_L		P
3	TP_L		P
4	+5V_TP	Power	I
5	+5V_TP	Power	I
6	TP_DATA	Data	I/O
7	TP_DATA	Data	I/O
8	TP_CLK	Clock Signal	I
9	TP_CLK	Clock Signal	I
10	TP_R		P
11	TP_R		P
12	GND	Ground	I

5.6 1ST Battery pin assignment

No	Signal	Description	Type
1	BAT_IN#	Power	P
2	BAT		I
3	BAT		I
4	BAT_ID		O
5	GND	Ground	P
6	BAT_TS		O
7	BAT_CONFIG		O
8	NC		NC
9	GND	Ground	P

5.7 DC in Jack pin assignment

Vendor	Part No.	Pin No.
SINGATRON	DC_PWR_JACK_3P	3Pin (DIP)

No	Signal	Description	Type
1	A/D_DOCK_IN	Adapter input voltage	P
2	GND	Ground	P
3	GND	Ground	P

5.8 Audio Jack

5.8.1 Internal Speaker Jack

Vendor	Part No.	Pin No.
ACES	WtoB_CON_4P	4 Pin (SMD)

No	Signal	Description	Type
1	INTSPKR-	Internal speaker signal right channel negative	O
2	INTSPKR+	Internal speaker signal right channel positive	O
3	INTSPKL-	Internal speaker signal left channel negative	O
4	INTSPKL+	Internal speaker signal left channel positive	O

5.8.2 Headphone Jack

Vendor	Part No.	Pin No.
SUYIN	PHONE_JACK_6P	6 Pin (DIP)

No	Signal	Description	Type
1	GND_AUDIO	Ground	P
2	HEADPHONE_JACK_L	Headphone left sound	O
3	HEADPHONE_JACK_R	Headphone right sound	O
4	GND_AUDIO	Ground	P
5	EAR_SW#	S/PDIF/Headphone be plugged in	I
6	NC	NC	NC

5.8.3 Microphone Jack

Vendor	Part No.	Pin No.
SUYIN	PHONE_JACK_6P	6 Pin (DIP)

No	Signal	Description	Type
1	GND_AUDIO	Ground	P
2	MIC1_JACK_L	External microphone input	I/O
3	MIC1_JACK_R	External microphone input	I/O
4	GND_AUDIO	Ground	P
5	MIC_SW#	Control internal MIC	O
6	NC	NC	NC

5.9 Fan Pin Assignment

Vendor	Part No.	Pin No.
ACES	WtoB_CON_4P	4 Pin (SMD)

No	Signal	Description	Type
1	+5V	5V Power Supply	P
2	FAN_TACH	FAN speed signal output	O
3	FAN_PWM	FAN speed signal input	I
4	GND	Ground	P

5.10 MDC signal

Vendor	Part No.	Pin No.
TYCO	BTOB_CON_12P	12 Pin (SMD)

No	Signal	Description	Type
1	GND	Ground	P
2	None	None	NC
3	ACZ_SDOUT_MDC	Azalia data output signal	I

4	None	None	NC
5	GND	Ground	P
6	+3VAUX_MDC	3.3V power turned off during S4	P
7	ACZ_SYNC_MDC	Azalia sync signal	I
8	GND	Ground	P
9	ACZ_SDIN1_MDC	Azalia data input signal	O
10	GND	Ground	P
11	ACZ_RST#_MDC_R	Azalia reset signal	I
12	ACZ_BCLK_MDC	Azalia bit clock signal	I

5.11 USB pin assignment

Vendor	Part No.	Pin No.
SUYIN	USB_CON_1X4P	4 Pin (SMD)

No	Signal	Description	Type
1	+5V_USB12_CON	USB 5V power	P
2	USBPN1	USB port 1 negative signal	I/O
3	USBPP1	USB port 1 positive signal	I/O
4	GND	ground	P

Vendor	Part No.	Pin No.
SUYIN	USB_CON_1X4P	4 Pin (SMD)

No	Signal	Description	Type
1	+5V_USB34_CON	USB 5V power	P
2	USBPN2	USB port 2 negative signal	I/O
3	USBPP2	USB port 2 positive signal	I/O
4	GND	USB 5V ground	P

Vendor	Part No.	Pin No.

SUYIN	USB_CON_1X4P	4 Pin (SMD)

No	Signal	Description	Type
1	+5V_USB34_CON	USB 5V power	P
2	USBPN3	USB port 3 negative signal	I/O
3	USBPP3	USB port 3 positive signal	I/O
4	GND	USB 5V ground	P

5.12 LAN & Modem pin assignment

Vendor	Part No.	Pin No.
ALLTOP	MODULAR_JACK_12P	12 Pin (SMD)

No	Signal	Description	Type
1	None	None	NC
2	MODEM_TIP	Modem signal	I/O
3	MODEM_RING	Modem signal	I/O
4	None	None	NC
5	LAN_TXP	Transmit data positive signal	O
6	LAN_TXN	Transmit data negative signal	O
7	LAN_RXP	Receive data positive signal	I
8	LAN_CON45	Connect 75 ohm to ground	I
9	LAN_CON45	Connect 75 ohm to ground	I
10	LAN_RXN	Receive data negative signal	I
11	LAN_CON78	Connect 75 ohm to ground	I
12	LAN_CON78	Connect 75 ohm to ground	I

5.13 Card Reader pin assignment

Vendor	Part No.	Pin No.
PANASONIC	SD_SOCKET_9P	9 Pin (SMD)

Pin No	Signal	Remark
1.	UB_SD_DATA3	
2.	UB_SD_CMD	
3	GND	
4	+3V_SD	
5	UB_SD_CLK	
6	GND	
7	UB_SD_DATA0	
8	UB_SD_DATA1	
9	UB_SD_DATA2	

6 POWER MANAGEMENT

6.1 System power plane

Power Group	Power Control Pin	Controlled Devices
+12V	VSUS_ON	Other Control
+5V	SUSB_ON	LCD, Flash, Flash & Wlan LED, Fan, Camera, Codec, Audio, SB
+3V	SUSB_ON	NB IO, SB, LCD, Card reader, Codec, Audio
+1.8V_DUAL	SUSC_ON	NB, DDR2 power
+5VSB	VSUS_ON	SB, USB, Charge & Power LED
+3VSB	VSUS_ON	SB, Audio, Clock Generator, PCIE interface
+1.5V		SB Core, NB Core
+2.5V		SB Core, NB Core, Onboard VGA
+VTT_DDR		DDR2 Power
VCORE	H_CPURST#	CPU power
+3VA		LCD, EC, BIOS, Keyboard
+VCC_RTC		ICH6-M(RTC)
+VCCP	CPU_VRON	CPU power, SB Core, NB Core

6.2 Power management mode

6.2.1 Full-On mode

All system devices are not power managed and the system can respond to applications with maximum performance.

6.2.2 Doze mode

The CPU clock is slow down but all other devices are full on.

6.2.3 Stand by mode

A suspend state where all motherboard components are still powered-on except for the system clock generator device. The PCI and CPU buses are driven to the inactive idle state. The system memory is powered and refreshed by the memory bridge, and the graphics frame buffer is powered and refreshed by the graphic chip. The system provides a 32KHz clock (SUSCLK) in this suspend mode to support refresh of these memory subsystems. Only an enabled “resume event” can bring the system out of the stand by state. The south bridge also provides a resume timer that allows the system to resume after a programmed time has elapsed.

6.2.4 Suspend to RAM mode (STR)

A suspend state where all motherboard components are powered-off. The CPU and PCI busses are powered off. All devices connected to the CPU and PCI busses must either be powered-off or isolate their bus interfaces. The system memory is powered and refreshed by the memory bridge, and the graphics frame buffer is powered and refreshed by the graphics chip. The system provides a 32 kHz

clock (SUSCLK) in this suspend mode to support refresh of these memory subsystems. Only an enabled "resume event" can bring the platform out of the suspend to RAM (STR) state.

6.2.5 Suspend to disk mode (STD)

A suspend state where the context of the entire system is saved to disk, all motherboard components are powered-off, and all clocks are stopped. Any enabled "resume event", such as Power switch or RTC, can bring the platform out of the suspend to disk (STD) state.

6.2.6 Soft off mode (SOFF)

This is the same as suspend to disk except the context of memory is not saved. The system will resume from Soft Off as if a hard reset had occurred.

6.2.7 Mechanical off mode (MOFF)

All power except the RTC has been removed from the system.

6.3 PMU mode transition event

The following table summarizes the entry events and wake-up events of each power management mode.

Power State	Entry Event	Wake up Event
Doze	Doze Time out	Predefined Memory/IO range access Ring Indicator Keystroke Mouse movement IRQ 1-15
Stand by	Stand by Time out Stand by hot key pressed	Predefined Memory/IO range access Battery Warning Battery Low Ring Indicator Keystroke Mouse movement Schedule Alarm
STR	Suspend Time out STR hot key pressed Suspend button Battery Low	Power Button Ring Indicator Keystroke (Int. KB) Schedule Alarm
STD	Suspend Time out STD hot key pressed Hibernate Battery Low	Power Button Schedule Alarm
Soft Off	Power button Execute Windows shutdown command	Power Button Schedule Alarm

6.3.1 Lid switch

Display mode	State	Lid close	Lid open
LCD	Full on	LCD OFF	No action
	Stand by	LCD OFF	No action
	STR/STD	LCD OFF	No action
CRT	Full on	No action	No action
	Stand by	No action	No action
	STR/STD	No action	No action
SIMUL	Full on	LCD OFF/CRT ON	No action
	Stand by	No action	No action
	STR/STD	No action	No action

LCD display will be shut down while closing LCD.

6.3.2 Power button

Power button function depends on the definition in Windows power setting or you can force off by pressing power button for 4 seconds. To reset the system, you need to press the reset button.

6.4 Device Power management

Power state of local devices table

Power State / Component	Doze	Stand By	STR	STD/SOff
CPU	Quick Start	Stop Clock	Power Off	Power Off
North Bridge	ON	Stop Clock	Power Off	Power Off
South Bridge	ON	ON	Power Off (except +3VA, RTCVCC)	Power Off (except +3VA, RTCVCC)
DDR	ON	Self Refresh	Self Refresh	Power Off
Onboard FLASH	ON	Power down	Power Off	Power Off
KBC	ON	ON	Power down	Power Off
VGA	ON	Power down	Power Off	Power Off
Audio CODEC	ON	ON	Power Off	Power Off
Audio Amplifier	ON	Power down	Power Off	Power Off
LCD Backlight	ON	Power Off	Power Off	Power Off
LAN	ON	Power down	Power down	Power down

Modem	ON	Power down	Power Off	Power Off
WLAN	ON	Power down	Power Off	Power Off

6.4.1 Device PM control during Stand By mode

Device	Power Controlled by	Description
CPU	Hardware	
PCMCIA Controller	Software	Enter PCI PM D3Hot state
EC Chip	Working	
Keyboard Controller	Working	KB3310 support power down command
USB	Working	
Onboard FLASH	Software	support power down command
Audio AMP	Hardware	Controlled by Jack in detect
Modem	Software	Enter PCI PM D3Hot state
LAN	Software	Enter PCI PM D3Hot state
LCD Panel Back light	Hardware	
Clock Synthesizer	Hardware	
WLAN	Software	

6.4.2 Device PM control during STR mode

Device	Power Down Controlled by	Description
EC Chip	Hardware	Power Down
Onboard FLASH	Hardware	Power Off
Modem	Software	Power Off
LAN	Software	Power Down
USB	Hardware	Power Down
Audio CODEC	Software	Power Off
Audio AMP	Hardware	Power Off
WLAN	Software	Power Off
LCD Panel	Hardware	Power Off
LCD Back light	Hardware	Power Off
Clock Synthesizer	Hardware	Power Off
Keyboard Controller	Software	Controlled by KB3310 power down command

6.4.3 Device PM control during STD mode

Device	Power Down Controlled by	Description
Core Logic	Hardware	Power off (except Resume Well)
EC Chip	Hardware	Power off
VGA Chip	Hardware	Power off
Onboard FLASH	Hardware	Power off
PCMCIA Controller	Hardware	Power off
Modem	Hardware	Power off
LAN	Hardware	Power off
USB	Hardware	Power off
Audio Chip	Hardware	Power off
Audio AMP	Hardware	Power off
WLAN	Hardware	Power off
LCD Panel	Hardware	Power off
Back light	Hardware	Power off
Clock Synthesizer	Hardware	Power off
Keyboard Controller	Hardware	Power off

7 MODULE SPECIFICATION

7.1 Overall System

The notebook system consists of the following PCB assembly and modules.

7.1.1 Board assembly

Processor	Upgradeable CPU (FCBGA 479)
Main Board	Main System board
Inverter Board	LCD Module Back-light
TOUCH PAD&AUDIO DJ BOARD	4 LED Indicators, 2 Touch Pad Button, 5 Audio DJ button
SO-DIMM Module	Memory Expansion
Modem Board	MDC

7.2 Processor

Feature:	Celeron M CPU with on-die L2 cache. FCBGA 479
[CPU Cooling System]	Dothan Core
Function:	FAN is controlled by a thermal sensor and BIOS/ACPI OS.

7.3 Main board

7.3.1 Main system module spec

Feature:

CPU Celeron M, NB 910GML, SB ICH6M,

Clock generator,

SO-DIMM

PC/AT compatible system (RTC, DMA, INT, Timer, … etc)

IDE controller with PIO Mode 4 & Ultra-33/66/100,

PCMCIA /Cardbus controller & their sockets

Audio CODEC,

Audio amplifier,

CPU thermal sensor,

I/O connectors,

Power management control circuit,

Internal Graphic/Display controller,

Keyboard Controller,

Audio analog signal,

Power control, DC/DC,

Battery power

Regulated power

SM bus for Battery

Indication Charger LED

Indication Power LED

Indication WLAN LED

Indication FLASN Access LED

…etc

7.3.2 DC/DC module spec

Controller: ISL6262CRZ, TPS51020, ISL6227CAZ,

Input voltage: 8-20V

Output voltage/current:

Voltage	Current	Regulation
+3VA	60mA	+-5%
+3VSB	1.74A	+-5%
+5VSB	1.38A	+-5%
+1.5V	1.88A	+-5%
+5V	1.09A	+-5%
+3V	566Ma	+-5%
+2.5V	100mA	+-5%
+1.8V_DUAL	4.5A	+-5%
VTT_DDR	121mA	+-5%
+VCCP	2.07A	+-5%
VCORE	2.96A	+-5%

Support OVP

Support OCP

7.3.3 Charger

Charger spec

Controller: MAX8724ETI

Input voltage: 9.5~12V

Charger Method: CV.CC

Li-Ion Battery:

Full charger sense I min.: 250mA

Max. charge voltage : 4.2V/cell

Charger Voltage: 8.36

Charger current:

Input: Adapter			
Contain	Min	Typ.	Max

Charge current (4S2P)	2.4A	2.46A	2.6A
Charge current (4S1P)	1.3A	1.4A	1.5A
Ripple & Noise	100mV		
Efficiency	94%		

7.4 Inverter Board

Inverter spec

Input Voltage: 9~11V

Output Current: 160mA(max)

Start Voltage: 12V(min)

Efficiency: 86%(max)

Brightness control duty:

Brightness adjust by input voltage: 0~3V

Support output short protection

Frequency: 25~35KHz

Pin no	I/O	Description
1	Input/ Output	Return
2	Input/ Output	High voltage

Brightness control duty: 0-100%

7.5 Adapter spec

7.5.1 Input

Input voltage: 100~240VAC,Full range

Input frequency: 50~60Hz

Input current: 680Ma(max)/100VAC

Inrush current: 60A(max)/100VAC, 120A(max)/240VAC

Efficiency: 85%(min)

7.5.2 Output

22W power output

Output Voltage/Current: 9.5V/2.315A

Ripple: 500mV

7.5.3 Protection

OVP: 24V(max)

SCP: Yes

OCP: 19V/5A(max)

7.6 Main Battery spec

Battery pack capacity:

	Vendor	Cells	Voltage	Capacity	Watts
Li-Ion	新力盛	4	7.4V	2600mAh	

Battery warning and low percentage (Li-Ion):

Battery low = 7%

Battery low low= 0%

Gauge controller (BQ2060H) setting:

Charging voltage:8.36V

Charging efficiency: 95%

Low temperature capacity: 70%

7.7 LAN Spec

Controller: Atheros L2

Interface: PCIE

Compliant to PCI 2.2

Support ACPI , PCI power management

Support for Wake-On-LAN during S3,S4

Integrated IEEE 802.3x 10BASE-T and 100 BASE-TX compatible PHY and transceiver in one chip

Full duplex and half duplex support at both 10 and 100Mbps

Low power 3.3V device

64-Pin LQFP package

7.8 Modem spec

Part Number: ASUS RD01-D480

Controller: Conexant software modem

Interface: AC-link

Support Caller ID

Support Ring wake up function

ITU-T V.90 Data Mode with auto-fall back to K56flex and V.34

V.80 Video ready

Modem Data speed: 56Kbps

FAX transfer speed: 14.4Kbps

Modem modulation format: V.90 PCM

8 MISCELLANEOUS

8.1 Indicators

Power LED

Feature:	Show System power status
Type:	LED
Color:	Yellow
Indication:	On: System in ON Mode
	Flash: System in SUSPEND Mode
	Off: System in OFF Mode
Location:	MB/TP BRD

Charging LED

Feature:	Show Battery status
Type:	LED
Color:	Red
Indication:	On: Battery in Charging
	Flash: Battery Low
	Off: Battery is fully charged or absent
Location:	TP BRD

WLAN

Feature:	Show Receive mail status
Type:	LED
Color:	Blue
Indication:	On: WLAN on
	Off: No status
Location:	TP BRD

FLASH Access LED

Feature:	On: While FLASH Read/Write access
Type:	LED
Color:	Yellow
Location:	MB

8.2 Power cord list TBD

Where	Description	Vendor
US		
UK		
Japan		
Europe		
Austria		
South Asia		

8.3 Safety/ EMI Appliance :

Agency Approval	**EMC**	CE Mark (Europe) BSMI (Taiwan)
	EMI	FCC Class B Certified (USA & Canada), VCCI (Japan) MIC, IDA
	Safety	UL, CSA or CUL, NEMKO-CB (Norway), TUV, CE Mark (Europe)
	Telecomm.	FCC Part 68 (USA), DOC (Canada), JATE (Japan), AUSTEL (Australia), TELEPERWIT (New Zealand), CTR-21 (EU)
Other Requirements	**Industry Standards Compliance**	SPA Energy Star Compliance Designed for Windows 95/98 and Windows NT Logo (Compliance with Microsoft PC98)

Chapter

6

Software Specifications

Get to know more about the Eee PC 4G (701) Notebook with a detailed look at the software specifications.

The information contained in the chapter can be quite useful when you are troubleshooting the system's hardware. Each item has its individual usage for you to Understand the software side of the notebook's architecture.

1. General Description

The specification is a guideline for BIOS development on 701 platforms. Anyone who needed the system BIOS information can check this document for reference.

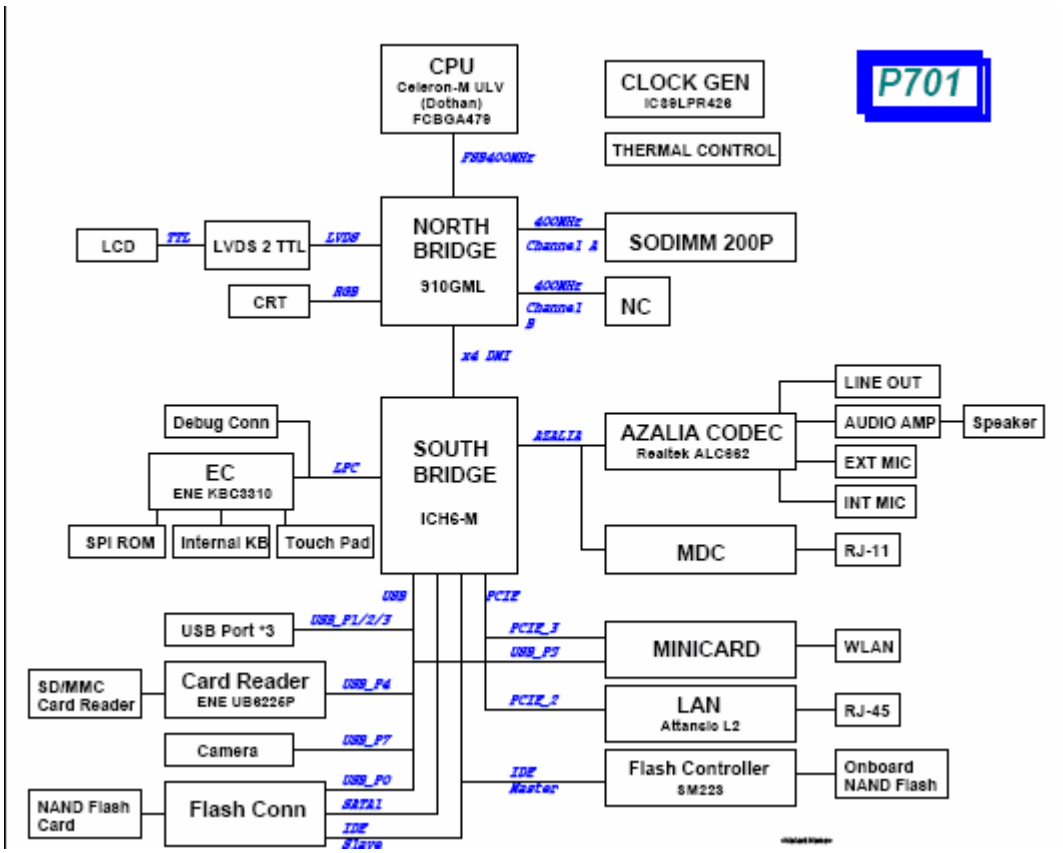
The general device specification, hardware block diagram, SMBUS, GPIO definition and so on are subjected to be depicted in this document. Hotkeys implementation and other BIOS features are also included in the document.

2. CPU, Chipsets & Main Devices

Item	Vendor	Specification	Part's Name	Revision
CPU	INTEL	Dothan	single core	
North Bridge	INTEL		910GML	
South Bridge	INTEL		ICH6M	
VGA		**Internal**		
HD Controller		Internal		
Audio Codec	REALTEK		ALC662	
USB	INTEL			
Lan	Athros		L2	
Flash memory			DDR2	
Clock Gen.	ICS		ICS9LR367	
Thermal				
EC	ENE		KB3310	
Wireless Lan	Atheros		AR5006X	
Camera	Azure Wave		AZWAVE	
CardReader	PANASONIC		ICS9LPR426AGLF-T	
modem	Askey		AFM6010NAM	

Table 2-1 Chipsets

Main component block diagram:



3. Device resources

3.1 Subsystem and Sub vendor ID of PCI Devices

Device	Bus/Dev/ Func	Function	Vendor ID	Device ID	Sub-Vendor ID	Sub-System ID
INTEL	0,0,0	Host Bridge	0x8086	0x2590	0x1043	0x1882
	0.2.0	VGA	0x8086	0x2592	0x1043	0x1882
	0.31.2	IDE controller	0x8086	0x2653	0x1043	0x8290
Realtek	0.27.0	Audio controller	0x8086	0x2668	0x1043	0x82A1
Athros	3.0.0	LAN	0x1969	0x2048	0x1969	0x2048

Table3-1

3.2 Devices I/O Base

Table3.2 IO Base Address

Devices	Base Address
ACPI Power Management	0x800

4. Specified Function Tables

The Specified Functions are controlled via General Purpose Pins of Chipsets, following tables are the definition of The Functions which controlled via the GPIO pins of South-Bridge (ICH6M).

Table 4-1. SB ICH6M GPIO Definition

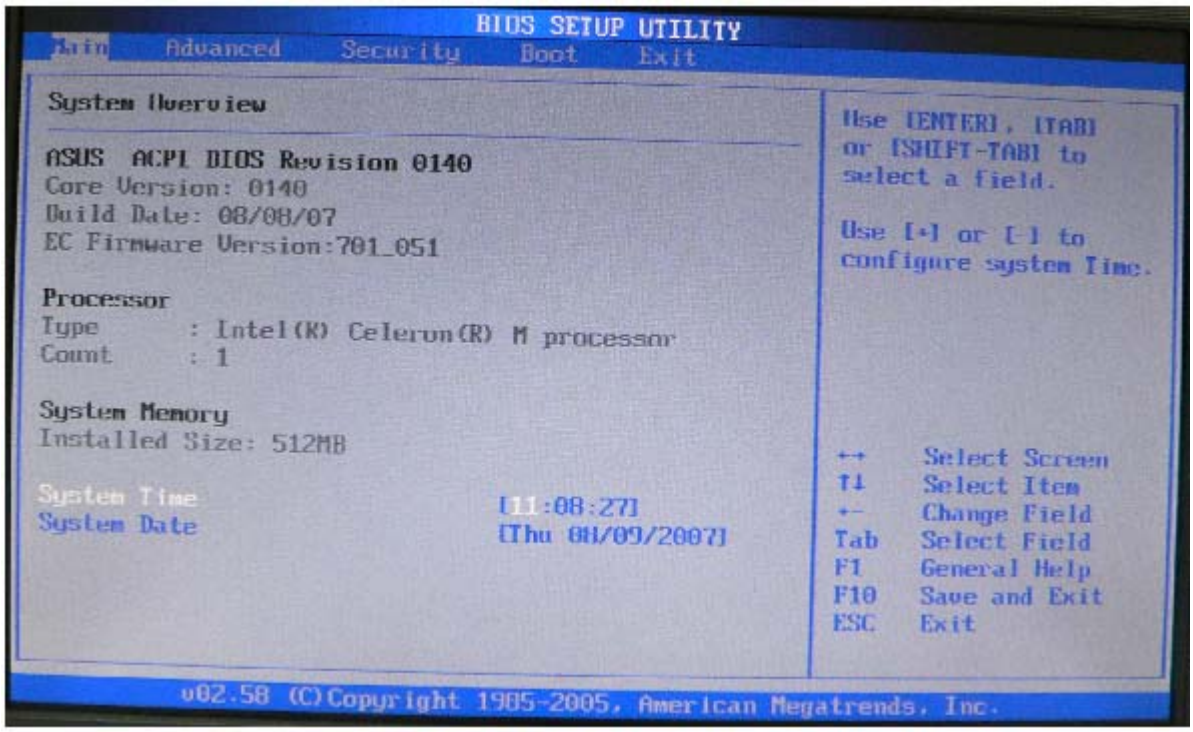
GPIO#	Definition	I/O	Active Polarity	Description
7	S_GPI7	Input		EC THRO_CPU
8	KBC_SCI#	Input	Low Level	SCI Event
12	S_GPI12	Input		Detect LID level
13	EXTSMI#	Input	Low Level	SMI event
19	WLAN_LED#	Output	High Level	Wireless Lan LED
21	CAMERA_EN#	Output	High Level	Camera Enable
23	SPEAKER_EN#	Output	Low Level	Speaker Enable
24	MINICARD_EN#	Output	Low Level	Minicard Enable
25	WLAN_ON#	Output	Low Level	Wireless Lan Enable
26	S_GPI26	Input		Detect PCB Version
27	CARD_READER_EN#	Output	Low Level	Card Read Enable
28	MODEM_EN#	Output	High Level	Modem Enable
29	PCBVER0	Input		Detect PCB Version
30	S_GPI30	Input		Detect PCB Version
31	PCBVER1	Input		Detect PCB Version

5. Setup Menu

701 system BIOS allows users to change some system hardware/function settings during POST (power on self test) stage, users may hit F2 key to enter SETUP mode in POST, the setup feature is categorized into 4 menus described as below.

5.1 Main Menu

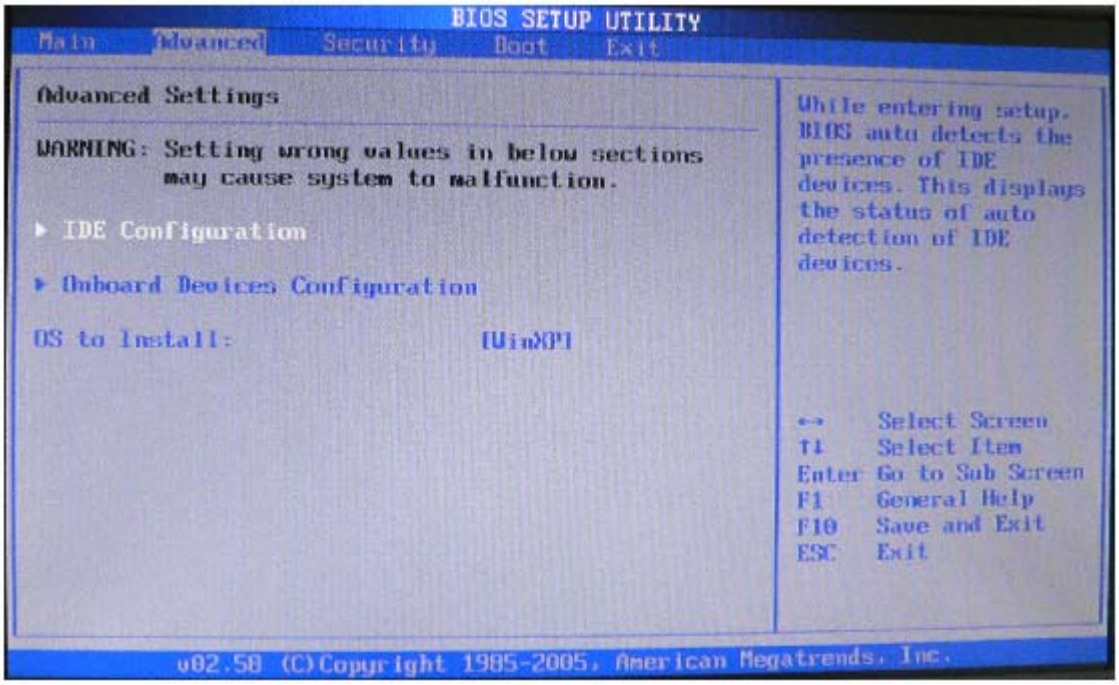
Main menu describes system overall information with some user changeable setting, it contains below items.



1. **System Firmware:** Current version for the system, EC and VGA BIOS.
2. **Type**: Show the installed CPU Brand String.
3. **Count:** Show the CPU core number.
4. **Installed Size:** Total system available memory.
5. **System Time:** Current time
6. **System Date:** Current date.

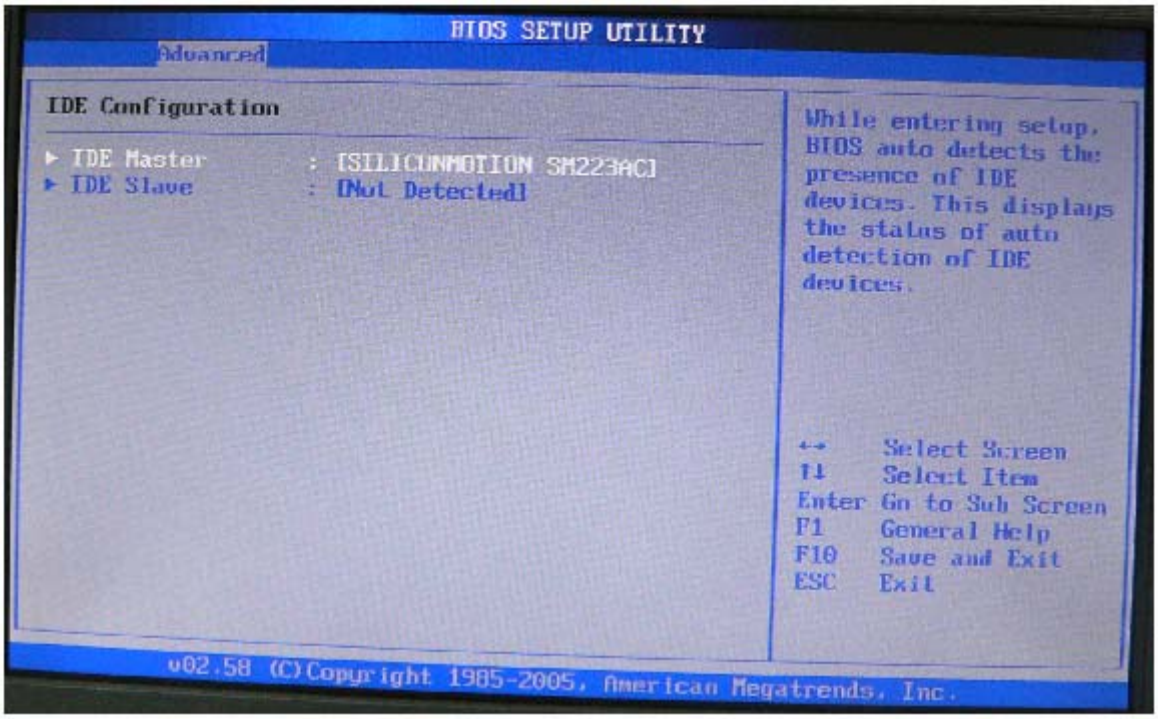
5.2 Advanced Menu

In advanced menu the users may configure IDE configuration, onboard devices and OS to install type settings may be changed as well. Detailed settings are described below.



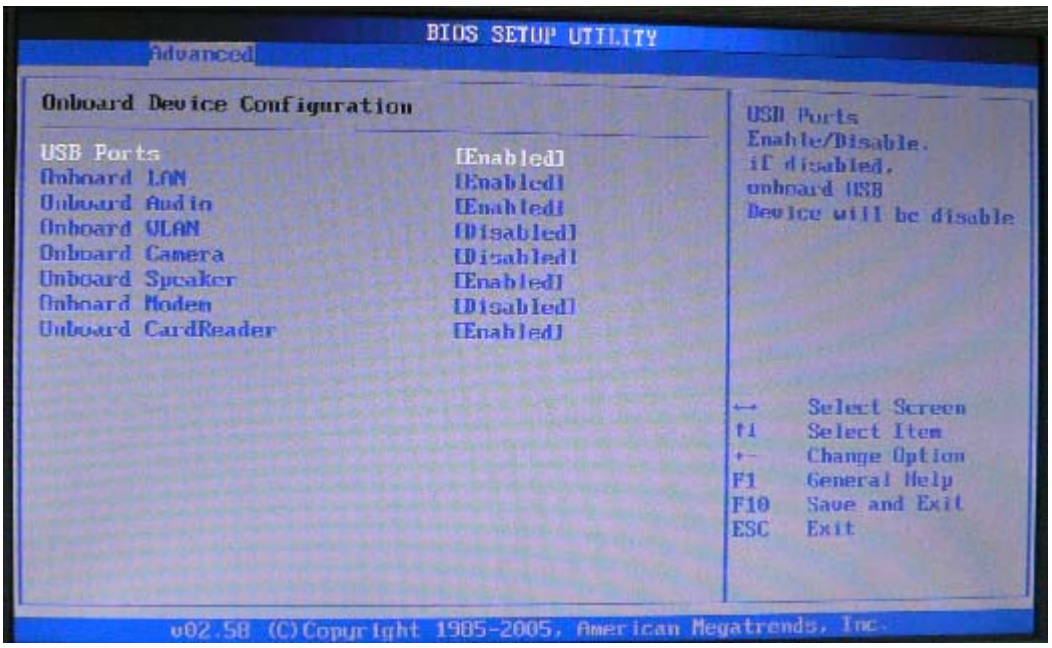
1. **IDE configuration:** See 5.2.1
2. **Onboard Devices Configuration:** See 5.2.2
3. **OS to Install:** select OS to Install Linux/WinXP/Normal

5.2.1 IDE Configuration



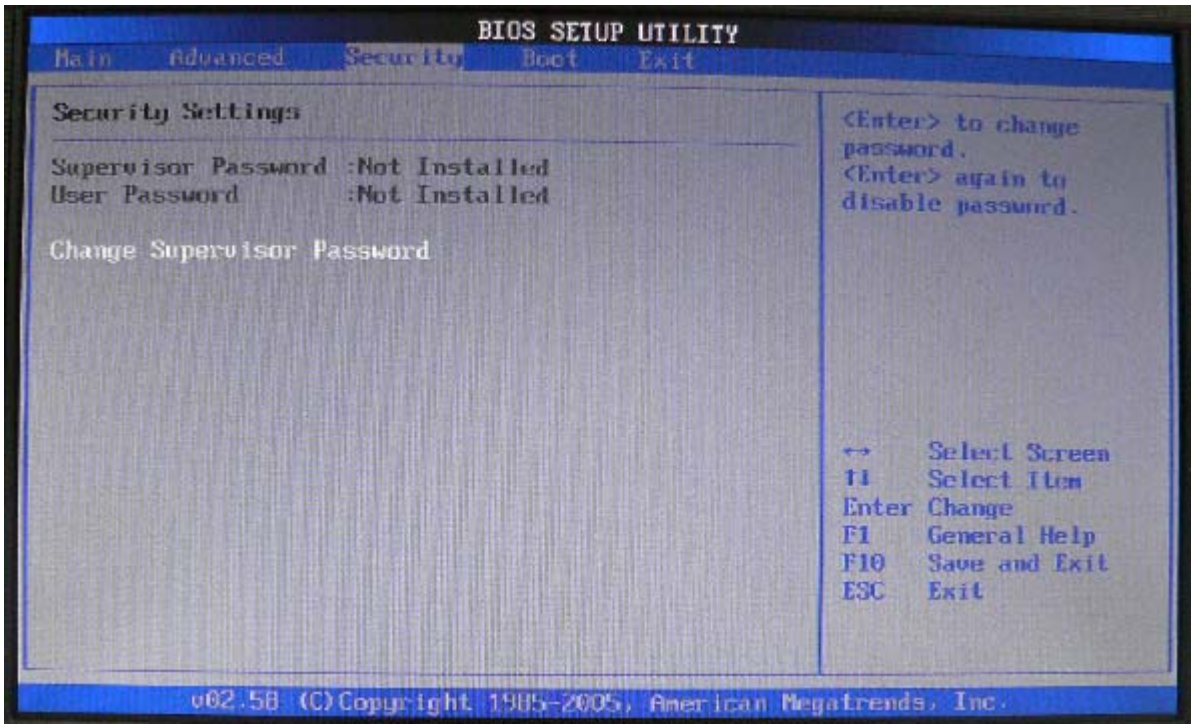
1. **IDE Master:** See details.
2. **IDE Slave:** See details.

5.2.2 Onboard Devices Configuration:



1. USB Ports: USB Ports enabled/disabled
2. Onboard LAN: Onboard LAN enabled/disabled
3. Onboard Audio: Onboard Audio enabled/disabled
4. Onboard Wlan: Onboard wireless LAN enabled/disabled
5. Onboard Camera: Onboard Camera enabled/disabled
6. Onboard Speaker: Onboard Speaker enabled/disabled
7. Onboard Modem: Onboard Modem enabled/disabled
8. Onboard Card Reader: Onboard Card Reader enabled/disabled

5.3 Security Menu



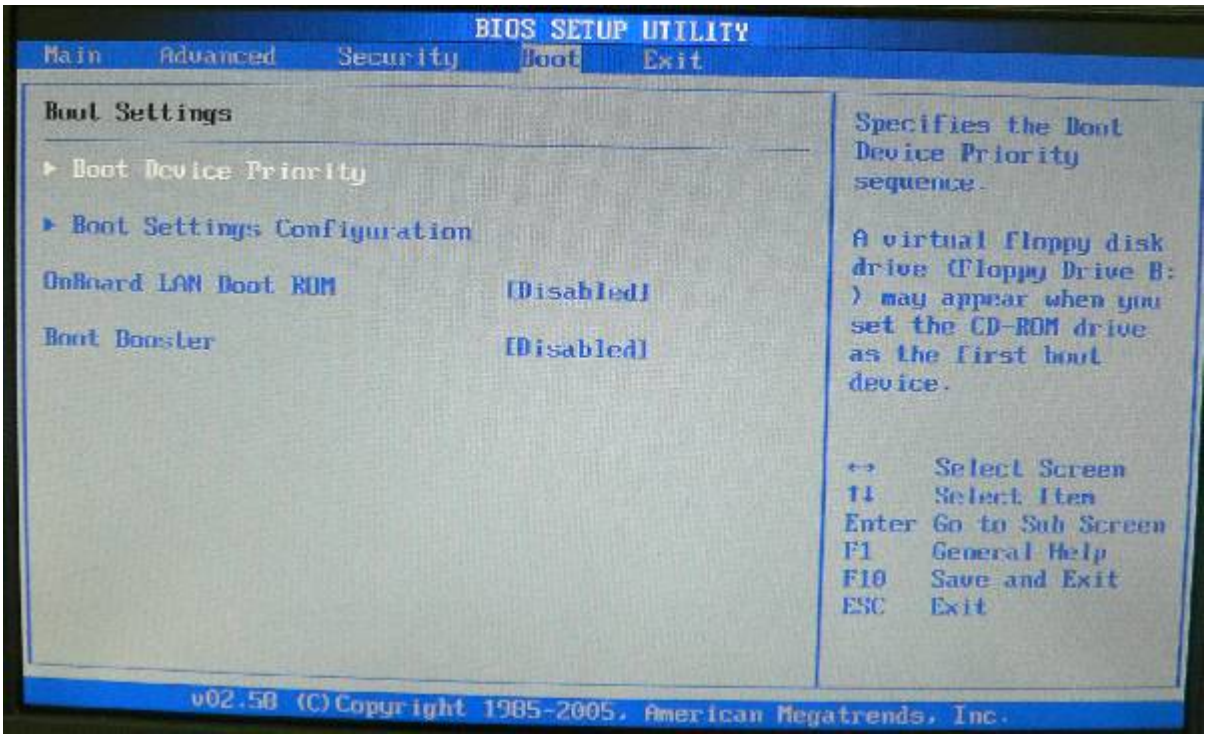
701 BIOS supports three kinds of password for security protection:

1. **Supervisor Password:** Users may set, change or erase system password, the password data is saved in non-volatile device (CMOS), system password check is done during POST(Power On Self Test). The BIOS will prompt a dialog message to ask user for password check when: The system has password stored, and “Password on boot” setting in BIOS SETUP is enabled. If password verification fails for 3 times, the system BIOS will halt the machine to inhibit users from operating.
   User can modify all setup item if user use Supervisor password to enter setup.

2. **User Password:** If your setting of BIOS have been modified by other, You can setting the function [Enable], and Key in your password and confirm, Don’t modify BIOS setting if no password.
   User is just able to modify some of setup item if user use user password to enter setup

5.4 Boot Menu

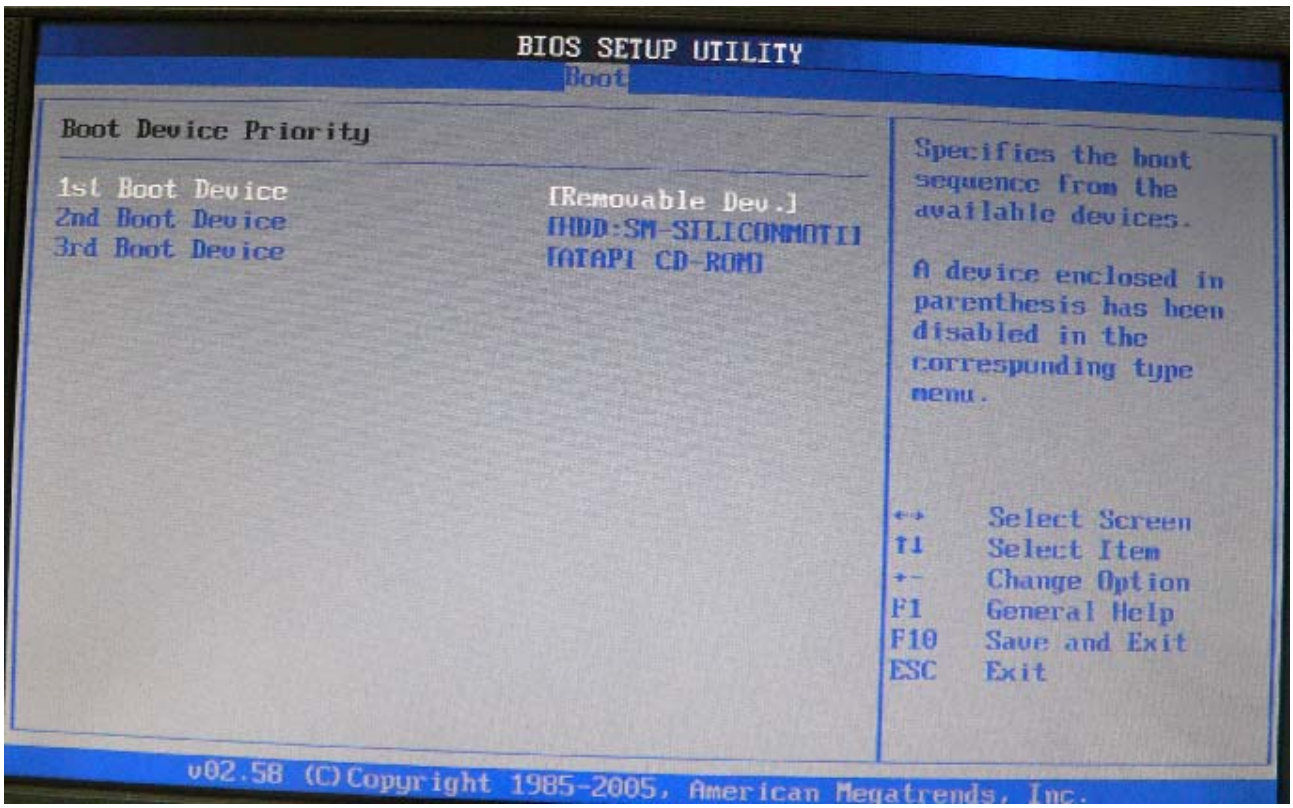
In this menu users can decide the boot sequence, as long as the device with highest boot priority exists, system BIOS will boot from it, device boot priority is adjusted by pressing "+","-" or space key on the selected (highlighted) item. 3 bootable devices fare listed in this menu (BIOS default boot sequence).



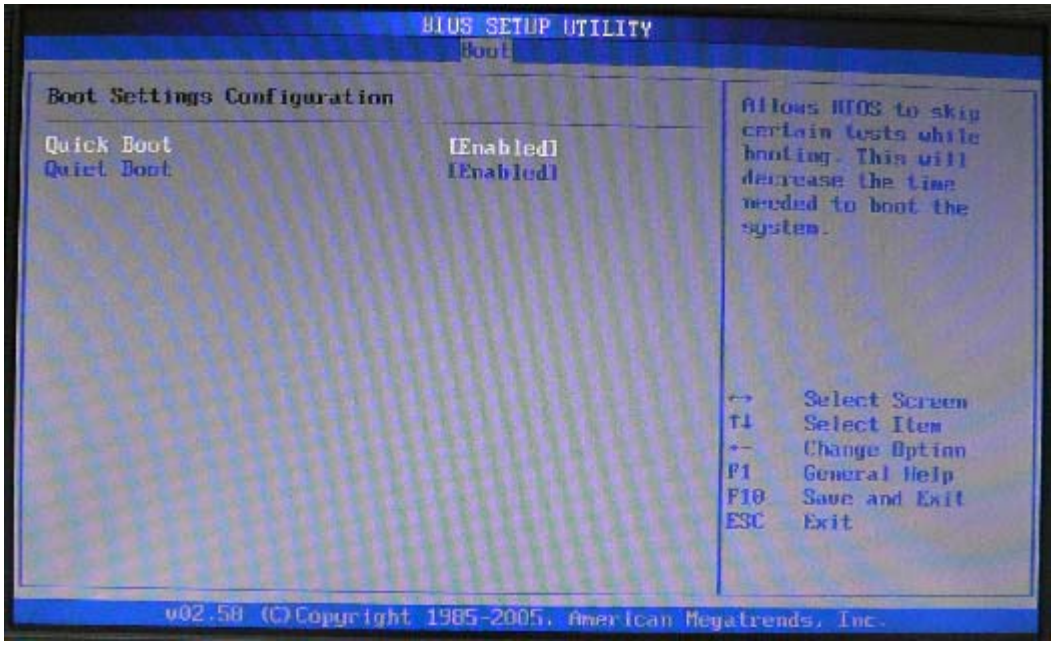
1. **Boot Device Priority:** See 5.6.1
2. **Boot Settings Configuration:** See 5.6.2
3. **Onboard LAN Boot ROM:** Boot from LAN

5.4.1 Boot Device Priority

In this menu specifies the boot sequence from the available devices. User can change boot devices priority.



5.4.2 Boot Settings Configuration



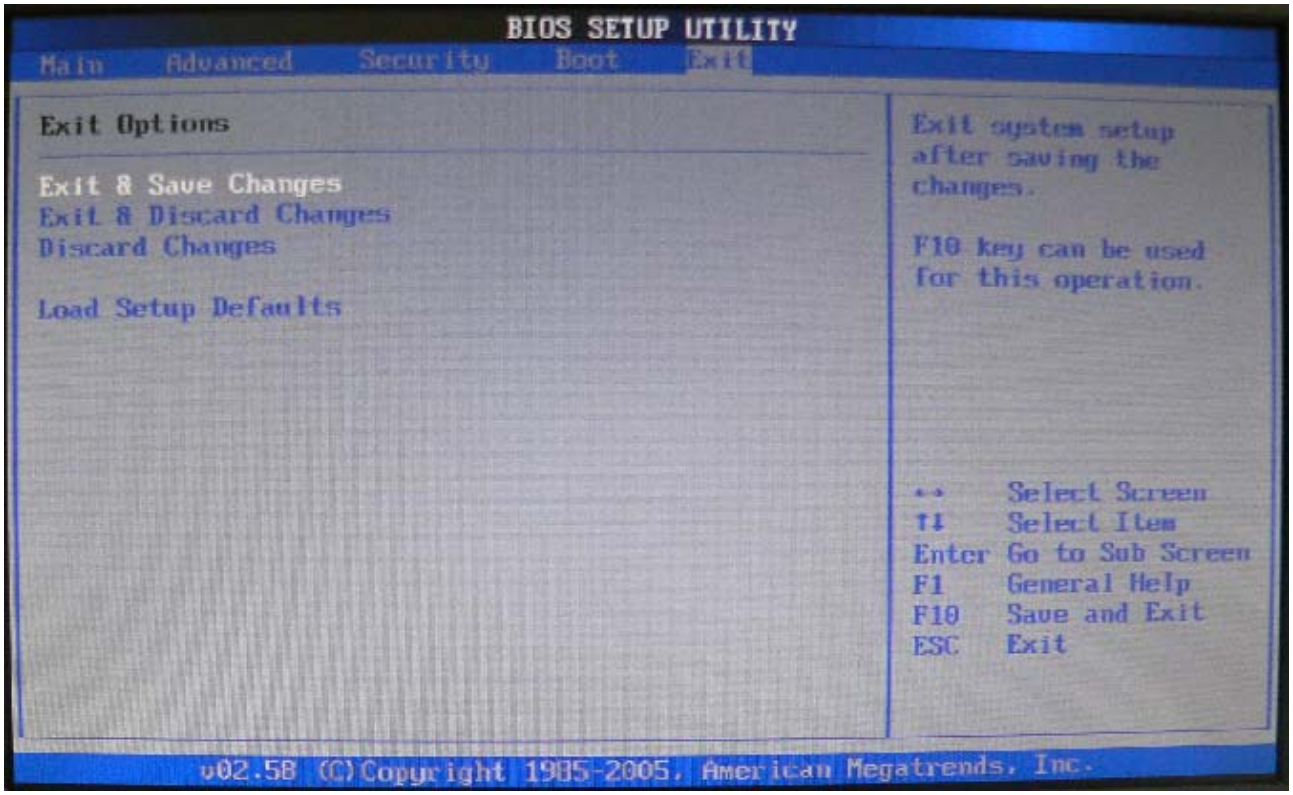
1. Quick Boot: [Enabled] decrease time when boot.

2. Quiet Boot: [Disable]: Display normal POST messages.

[Enable]: Displays OEM Logo instead of POST messages.

5.5 Exit Menu

In Exit BIOS setup, users may make final decision if they want to save the change just made or load BIOS default setting.



1 **Exit & Save Changes:** Exit system setup after saving the changes.
2 **Exit & Discard Changes:** Exit system setup without saving any changes.
3 **Discard Changes:** Discards changes done so far to any of the setup questions.
4 **Load setup Defaults:** Load Optimal Default values for all the setup questions.

6. Device resources

701 uses ICH6M chipset as its power management core logic, the chipset supports most features the ACPI 2.0 interface specifies, for ACPI 2.0 compliant OS. The BIOS has below features implemented:

(1). System sleep states:

The system supports:

(a). S0 state: The CPU and all devices are working.

(b). S3 state: system is in low power state, with all setting saved into RAM. Most of the devices are power off

(c). S4 state: The system is powered off, with all settings saved into hard disk.

(d). S5 states. Mechanical off.

6.1 Wake Up Event

PWM mode / Wake up Events	APM/ Non ACPI	ACPI			
	S1	**S1**	**S3**	**S4**	**S5**
Power Button	V		V	V	V
LID switch					
PME# (Lan)			V	V	
Any key			V		
RTC			V	V	
USB					

7 Embedded Controller (EC)

7.1 Hot Key

Table 8.1.0 Fn Hot-Key definition

Fn key	Description	Available
Fn+F1	Suspend switch	**ACPI+ASUS010**
Fn+F2	Wireless lan On/Off	**ACPI+ ASUS010**
Fn+F3	Brightness Down	**ACPI+ ASUS010**
Fn+F4	Brightness Up	**ACPI+ ASUS010**
Fn+F5	Display Devices Switch	**ACPI+ ASUS010**
Fn+F6	Task Manager	**ACPI+ ASUS010**
Fn+F7	Volume On/Off (Mute)	**ACPI+ ASUS010**
Fn+F8	Volume Down	**ACPI+ ASUS010**
Fn+F9	Volume Up	**ACPI+ ASUS010**
Fn+F11	Number lock on/off	**ACPI+ ASUS010**
Fn+F12	Scroll lock on/off	**ACPI+ ASUS010**

Note:

9. The applications/actions would be invoked only while ASUS01**0** driver was installed in O/S.

7.2 Battery Interface

Battery Type: ASUS

Battery Command Bus interface: ASUS

8. Thermal Policy

There is only one CPU fan in this project. The controlling method is to plan several step thermal ranges then every range mapping to different fan speed. The following table is thermal policy table and Fan Curve.