Veriton N260/260G

Service Guide

Service guide files and updates are available on the AIPG/CSD web; for more information please refer to
http://csd.acer.com.tw

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Revision History

Please refer to the table below for the updates made on vHornet Veriton N260/N260G Service Guide.

Date	Chapter	Updates

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Conventions

The following conventions are used in this manual:

SCREEN MESSAGES	Denotes actual messages that appear on screen.
NOTE	Gives bits and pieces of additional information related to the current topic.
WARNING	Alerts you to any damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problems.
IMPORTANT	Remind you to do specific actions relevant to the accomplishment of procedures.

Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.
2. Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

System Specifications

Features

Operating System

- Microsoft Windows Vista Business SP1
- Microsoft Windows XP Professional SP3
- Microsoft Windows XP Home *Nettop* Edition SP3
- Microsoft Windows 7
- Linux x-Window mode
- Free DOS

Processor

- Socket Type: None
- Processor Type:
  - Intel N280

Chipset

- Intel GN40 + ICH9-M

PCB

- 185mm*161mm (Proprietary)

Memory

- Memory Type: DDRII SO-DIMM 667
- Support single channel 64 bit mode with maximum memory size up to 2GB
- Support SO- DIMM
- DIMM Slot: 2
- Memory Max: 512MB to 2GB DDRII memory technologies
- Capacity: Up to 1GB per DIMM with maximum memory size up to 2GB

SATA

- Slot Type: SATA slot (Default AHCI mode)
- Slot Quantity: 1

Audio

- Audio Type: HD audio codec
- Audio Channel: 7.1 channel

- Audio Controller /Codec: ALC662 -VC
- Connectors support:
  - Audio jacks color coding: should meet Microsoft Windows Logo Program Device Requirements: Audio-0002
  - Front 2 jack follow HD audio definition
  - S/N ratio: 90 dB at rear output jack

Wireless LAN

- MAC Controller: ICH9-M
- Should be worked under 10M/100M/1000Mbs environment
- PHY: Marvell 8071

USB

- Controller Type: ICH9-M
- Ports Quantity: 6
  - 2 ports out rear I/O panel
  - 2 port to topside I/O panel
  - 2 port to front I/O panel
  - Connector Pin: standard Intel FPIO pin definition
- Data transfer rate support:
  - USB 2.0/1.1

BIOS

- BIOS Type: AMI Kernel with Acer skin
- Size: 8Mb
- Note:
  - Boot ROM should be included (PXE function should be built in with default and RPL function is optional by service BIOS)

Rear I/O Connector

- 2 USB 2.0 Ports
- 1 RJ-45 jack with integrate link lights for Ethernet

- 1 barrel jack for DC power input
- 1 D-Sub post
- 1 HDMI Port (Need logo certificate)

On-board connectors

- 2 DDRII SO-DIMM memory sockets
- 1 Mini PCIe slot
- 1 SATA connectors
- 1 4 pin CPU Fan connector
- 1 3 pin clear CMOS header
- 1 on board buzzer
- Color management for on board connecter

Adapter

- Adapter Mounting Features
  - Universal AC adapter, 90~264V AC, 47~63HZ
  - 3-pin 65W with 19VDC output
  - Small DC jack

D-sub interface

- Maximum supporting resolution: 2560x1600

HDMI Interface

- Maximum supporting resolution: 2560x1600

Note: HDMI and D-sub support extended model/dual view

Dimension and weight information

- Dimension(Not including foot-stand):193.44*193.44*36(mm)
- Dimension(including foot-stand):191.86*36*202.33(mm)
- Weight: 1kg

M/B Placement

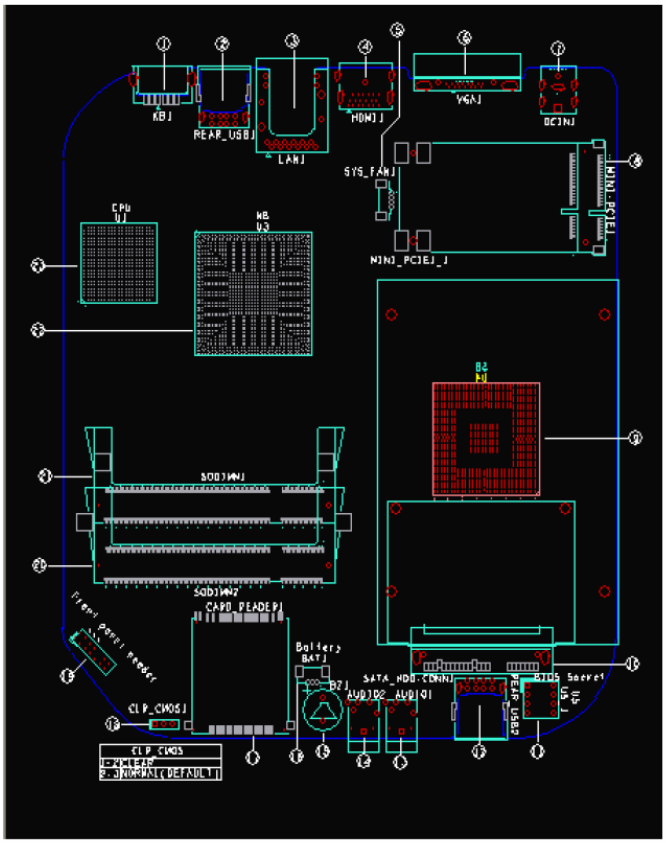
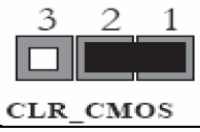


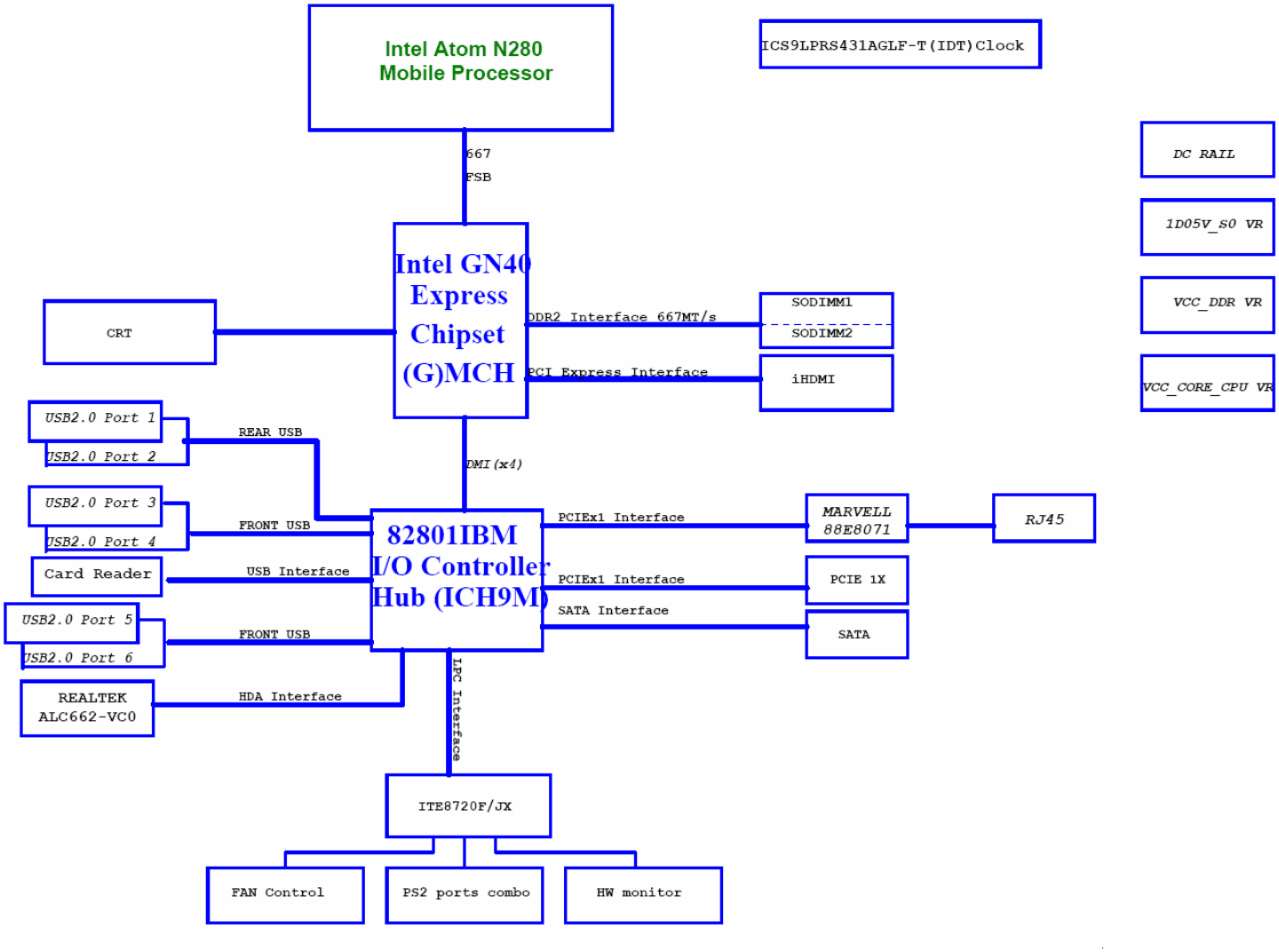
Table of Motherboard Components

LABEL	COMPONENTS
1.KB1	PS2 combo connector
2.REAR_USB1	REAR panel USB connector
3.LAN1	LAN connector
4.HDMI1	HDMI connector
5.SYS_FAN1	CPU cooling fan connector
6.VGA1	VGA connector
7.DCIN1	Motherboard DC IN power Jack
8.MINI-PCIE1	Mini PCI Express 1X slot
9.U4	South Bridge(ICH9-M Bottom layer)
10.SATA_HDD-CONN1	SATA connector for HDD
11.U5_1	BIOS Socket
12.REAR_USB2	Front panel USB connector
13.AUDIO1	Audio MIC_IN connector
14.AUDIO2	Audio LINE_OUT connector
15.BZ1	Buzzer Transductor
16.BAT1	Battery Header
17.CARD_READER1	CARD_READER Connector
18.CLR_CMOS1	Clear CMOS Header
19.FP1	Front panel switch/LED header
20.SODIMM2	DDR2 Channel B SO-DIMM
21.SODIMM1	DDR2 Channel A SO-DIMM
22.U3	North Bridge(GN40)
23.U1	CPU(N280)

Clear_CMOS Jumper(NO.18)

Jumper	Type	Description	Setting(default)	
Clear_CMOS	3_pin	Clear CMOS	1_2:NORMAL 2_3:CLEAR CMOS Before clearing the CMOS, make sure to turn off the system	

Block Diagram



Veriton N260/N260G Side Cover

The computer’s side cover consists of the following:

Label	Description
1	USB 2.0 connector
2	Microphone jack
3	Earphone jack
4	Card Reader
5	Acer Logo
6	Power Button
7	USB port

Veriton N260/N260G Real Panel

Label	Description
1	Mouse/KB Port
2	USB 2.0 connector
3	LAN connector
4	HDMI connector
5	D-sub connector
6	DC-in Jack

Hardware Specifications and Configurations

Processor

Item	Specification
Type	Intel ATOM N280
Socket	None
FSB	667
Minimum operating speed	0 MHz (If Stop CPU Clock in Sleep State in BIOS Setup is set to Enabled.)

BIOS

Item	Specification
BIOS code programmer	Phoenix/Award or AMI Kernel with Acer skin
BIOS version	P01-A0
BIOS ROM type	SPI Flash
BIOS ROM size	8Mb or lower size
Support protocol	SMBIOS(DMI)2.4/DMI2.0
Device Boot Support	- 1st priority: SATA HDD - 2nd priority: CD-ROM - 3rd priority: Removable Device - 4th priority: LAN
Support to LS-120 drive	YES
Support to BIOS boot block feature	YES

BIOS Hotkey List

Hotkey	Function	Description
Del	Enter BIOS Setup Utility	Press while the system is booting to enter BIOS Setup Utility.

Main Board Major Chips

Item	Specification
North Bridge	Intel GN40
South Bridge	ICH9-M
APG controller	Intel GN40
Audio controller	Realtek HD audio codec ALC662-VC codec 7.1 (co-lay with VIA1705S)
LAN controller	Marvell 8071
HDD controller	Intel GN40

Memory Combinations

Slot	Memory	Total Memory
Slot 1	512MB, 1GB	512MB ~1GB
Slot 2	512MB, 1GB	512MB ~1GB
Maximum System Memory Supported		512MB ~2GB

System Memory

Item	Specification
Memory slot number	2 slot
Support Memory size per socket	512MB /1GB
Support memory type	DDR2
Support memory interface	DDR2 667MHz
Support memory voltage	1.8V
Support to parity check feature	Yes
Support to error correction code (ECC) feature	No
Memory module combinations	You can install memory modules in any combination as long as they match the above specifications.

Audio Interface

Item	Specification
Audio controller	ICH9-M
Audio controller type	ALC662-VC
Audio channel	codec 7.1
Audio function control	Enable/disable by BIOS Setup
Mono or stereo	Stereo
Compatibility	Sound Blaster Pro/16 compatible Mixed digital and analog high performance chip Enhanced stereo full duplex operation High performance audio accelerator and AC’97 support Full native DOS games compatibility Virtual FM enhances audio experience through real-time FM-to-Wavetable conversionMPU-401 (UART mode) interface for Wavetable synthesizers and MIDI devices Integrated dual game port Meets AC’97and WHQL specifications
Music synthesizer	Yes, internal FM synthesizer
Sampling rate	48 KHz (max.)
MPU-401 UART support	Yes
Microphone jack	Supported
Headphone jack	Supported

SATA Interface

Item	Specification
SATA controller	ICH9-M
SATA controller resident bus	PCI bus
Number of SATA channel	SATA X 1
Support bootable CD-ROM	YES

USB Port

Item	Specification
Universal HCI	USB 2.0/1.1
USB Class	Support legacy keyboard for legacy mode
USB Connectors Quantity	2 ports out rear I/O panel 2 port to topside I/O panel 2 port to front I/O panel

Environmental Requirements

Item	Specification
Temperature	
Operating	+5°C ~ +35°C
Non-operating	-20 ~ +60°C (Storage package)
Humidity	
Operating	15% to 80% RH
Non-operating	10% to 90% RH
Vibration	
Operating (unpacked)	5 ~ 500 Hz: 2.20g RMS random, 10 minutes per axis in all 3 axes 5 ~500 Hz: 1.09g RMS random, 1 hour per axis in all 3 axes

Power Management

Devices	S1	S3	S4	S5
Power Button	V	V	V	V
USB Keyboard/Mouse	V	V	N/A	N/A
PME	Disabled	Disabled	Disabled	Disabled
RCT	Disabled	Disabled	Disabled	Disabled
WOR	Disabled	Disabled	Disabled	Disabled

- Devices wake up from S3 should be less than
- Devices wake up from S5 should be less than 10 seconds

Power Management Function(ACPI support function)

Device Standby Mode

- Independent power management timer for hard disk drive devices(0-15 minutes,time step=1minute).
- Hard Disk drive goes into Standby mode(for ATA standard interface).
- Disable V-sync to control the VESA DPMS monitor.
- Resume method:device activated (keyboard for DOS, keyboard &mouse for Windows.
- Resume recovery time 3-5sec.

Global Standby Mode

- Global power management timer(2-120minutes,time step=10minute).
- Hard disk drive goes into Standby mode(for ATA standard interface).
- Disable H-sync and V-sync signals to control the VESA DPMS monitor.
- Resume method: Resume to original state by pushing external switch Button,modem ring in,keyboard an mouse for APM mode.
- Resume recovery time :7-10sec

Suspend Mode

- Independent power management timer(2-120minutes,time step=10minute)or pushing extern switch button.
- CPU goes into SMM
- CPU asserts STPCLK# and goes into the Stop Grant State.
- LED on panel turns amber colour.
- Hard disk drive goes into SLEEP mode (for ATA standard interface).
- Disable H-sync and V-sync signals to control the VESA DPMS monitor.
- Ultra I/O and VGA chip go into power saving mode.
- Resume method: Resume to original state by pushing external switch Button,modem ring in,keyboard an mouse for APM mode
- Return to original state by pushing external switch button,modem ring in and USB keyboard for ACPI mode.

ACPI

- ACPI specification 1.0b
- S0,S1,S2 and S5 sleep state support.
- On board device power management support.
- On board device configuration support.

System Utilities

The manufacturer or the dealer already configures most systems. There is no need to run Setup when starting the computer unless you get a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM.

This memory area is not part of the system RAM.

NOTE: If you repeatedly receive Run Setup messages, the battery may be bad/flat. In this case, the system cannot retain configuration values in CMOS.

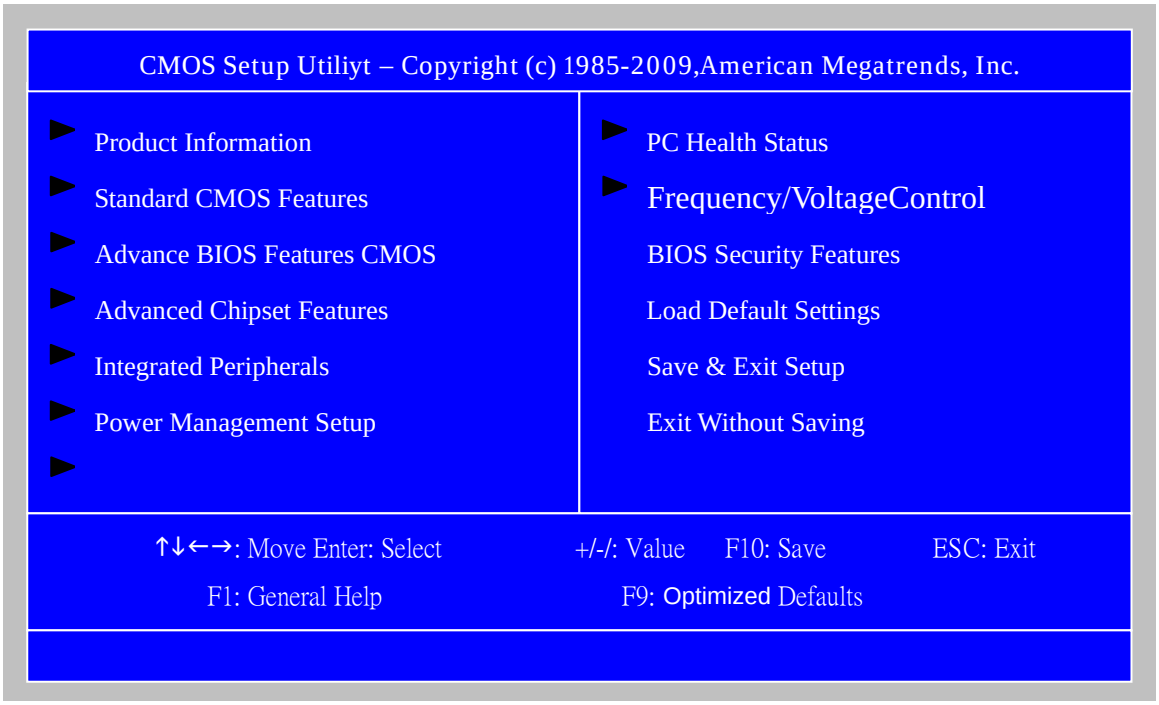
Before you run Setup, make sure that you have saved all open files. The system reboots immediately after you exit Setup.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message of "Press DEL to enter SETUP" appears on the screen, press the key of [Delete] to enter the setup menu.

NOTE: If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On. You may also restart the system by simultaneously pressing [Ctrl+ Alt+ Delete].

The Setup Utility main menu then appears:

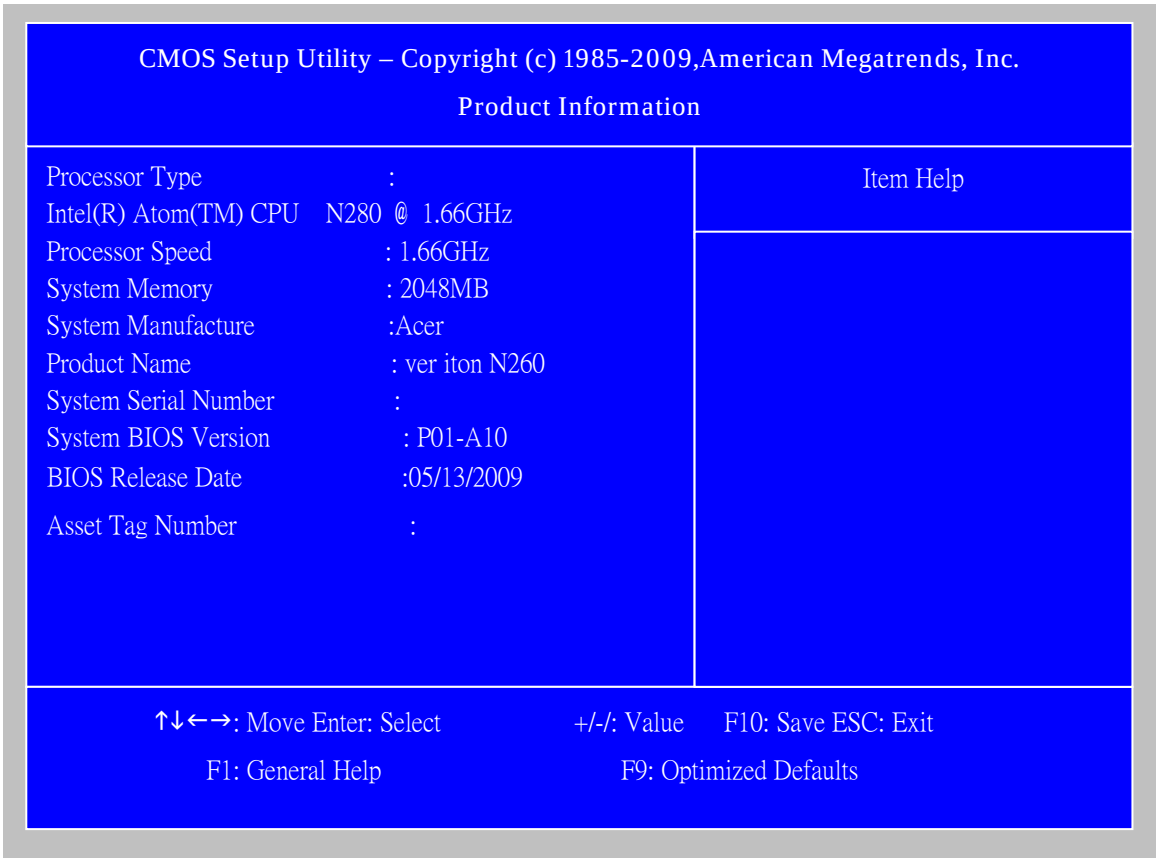


The items in the main menu are explained below:

Parameter	Description
Production Information	This page shows the relevant information of the main board
Standard CMOS Features	This setup page includes all the items in standard compatible BIOS
Advance BIOS Features	This setup page includes all the items of Award special enhanced features
Advance Chipset Features	This setup page includes all advanced chipset features
Integrated Peripherals	This setup page includes all onboard peripherals
Power Management Setup	This setup page includes all the items of Green function features
PC Health Status	This setup page is the System auto detect Temperature, voltage, and fan speed
Frequency/Voltage Control	This setup page is the System Frequency/Voltage setup
BIOS Security Features	Change, set or disable password. It allows you to limit access to the System
Load Optimized Defaults	Load Optimized Settings Default Settings indicates the value of the system parameters which the system would be in best performance configuration
Save & Exit Setup	Save CMOS value settings to CMOS and exit setup
Exit Without Saving	Abandon all CMOS value changes and exit setup

Product Information

The screen below appears if you select Product Information from the main menu: The Product Information menu contains general data about the system, such as the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting (maybe required when asking for technical support).

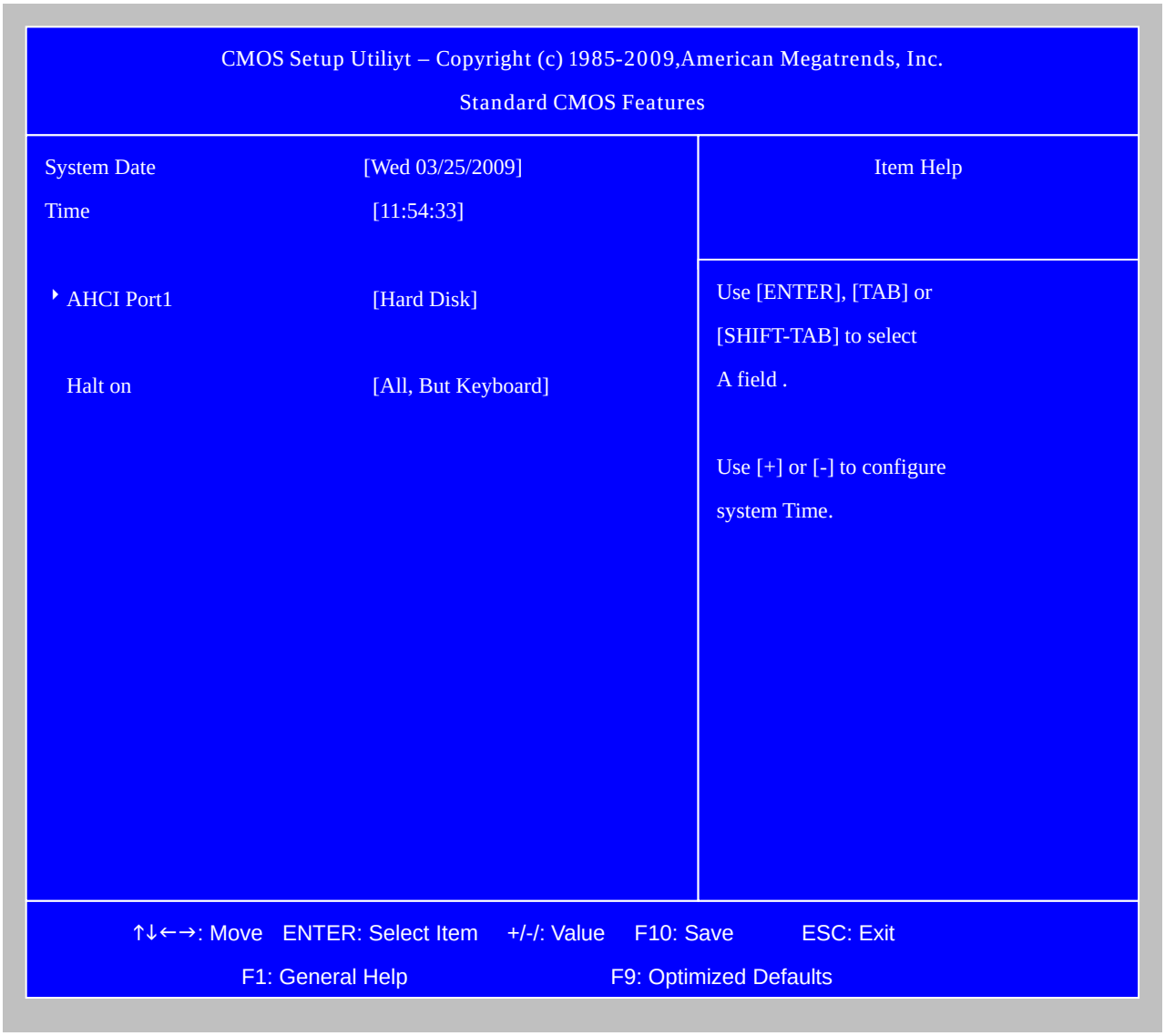


The following table describes the parameters found in this menu:

Parameter	Description
Processor Type	This item lists the product processor model
Processor Speed	This item lists the processor frequency for the system
System Memory	Total memory size for the system
Product Name	This item lists the product name
Product Name	This item lists the system BIOS version
System Serial Number	This item lists the system serial number
System BIOS Version	This item lists the system BIOS version
BIOS Release Date	This item lists the BIOS release date

Standard CMOS Setup

Select standard CMOS features from the main menu to configure some basic parameters in your system the following screen shows the standard CMOS features menu:

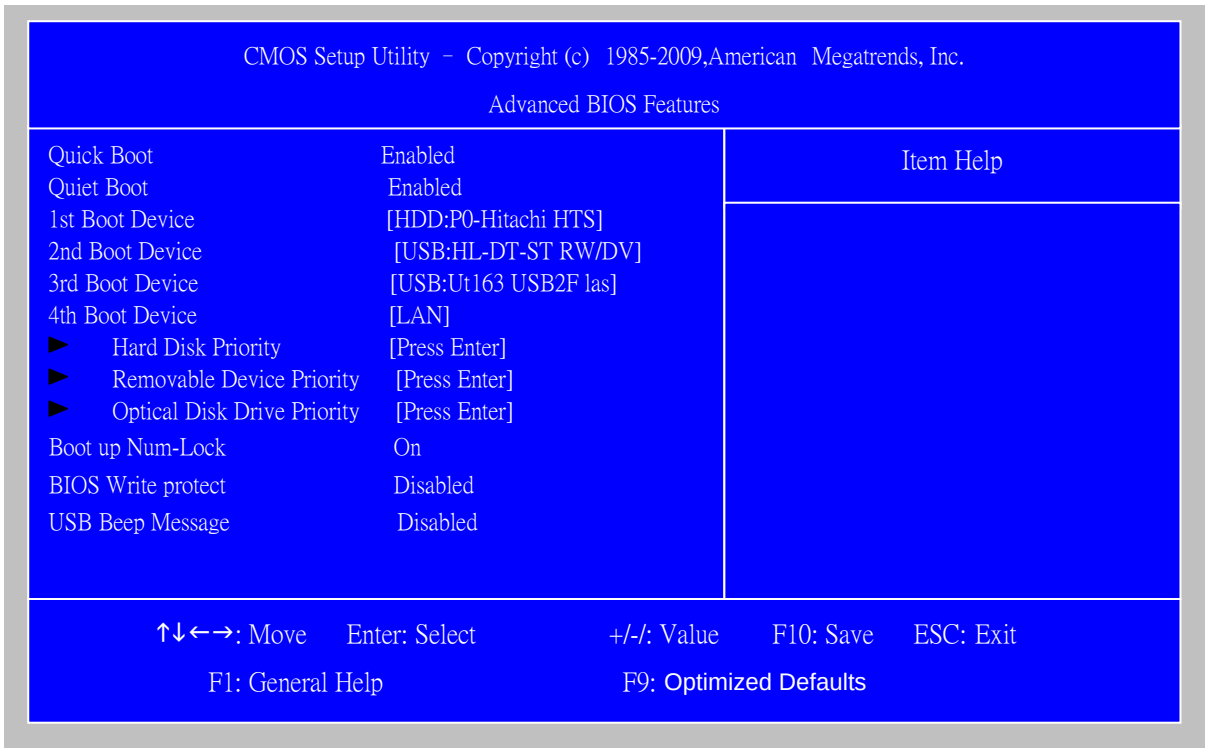


The following table describes the parameters found in this menu.

Parameter	Description	Options
System Date	To set the date following the weekday-month-date-year format	Week: From [Sun.] to [Sat.]. determined by BIOS and is display only Day: from [1] to [31] (or the maximum allowed in the month. Year: from 1999 to 2099
System Time	To set the time following the hour-minute-second format	The items format is [hour] [minute][second]. The time is calculated base on the 24-hour timer clock.
Halt On	This item enables use to select the situation if the BIOS stops the POST process and the notification	All Errors No Errors All, But Keyboard All, But Diskette All, But Disk/Key

Advanced Setup

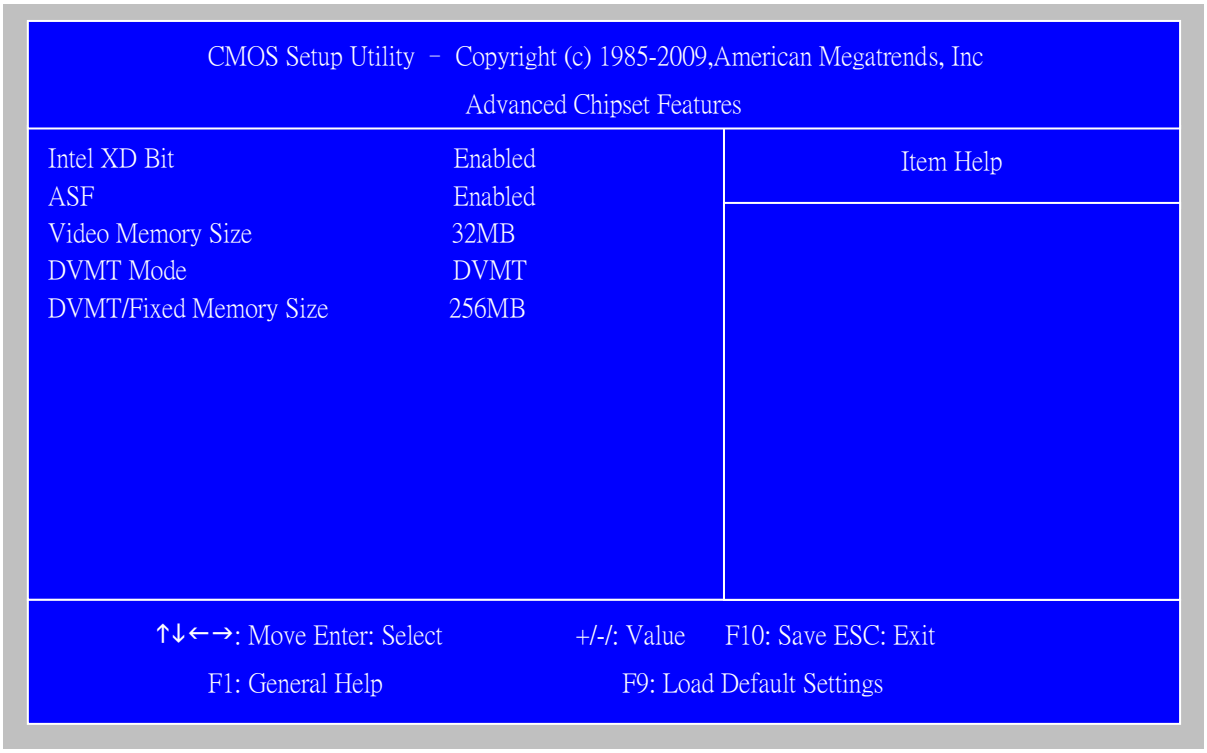
The following screen shows the Advanced Setup:



The following table describes the parameters found in this menu.

Parameter	Description	Options
Quick Boot	Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system	[Enabled], [Disabled]
1 st Boot Device	The item allows you to see the sequence of boot device where BIOS attempts to load the disk operation system.	
2nd Boot Device		
2rd Boot Device		
2th Boot Device		
Hard Disk Drive Priority	Specifies the boot device. Priority sequence from available Hard Drives	
Removable Device Priority	Specifies the boot device. Priority sequence from available Removable Drives	
Optical Disk Drive Priority	Specifies the boot device. Priority sequence from available Optical Disk Drive	
Boot up Num-Lock	Select Power-on state for Numlock	On,Off
BIOS Write protect	The item allows you to revise BIOS	[Enabled], [Disabled]
USB Beep Message	Enables the beep during USB device enumeration	[Enabled], [Disabled]

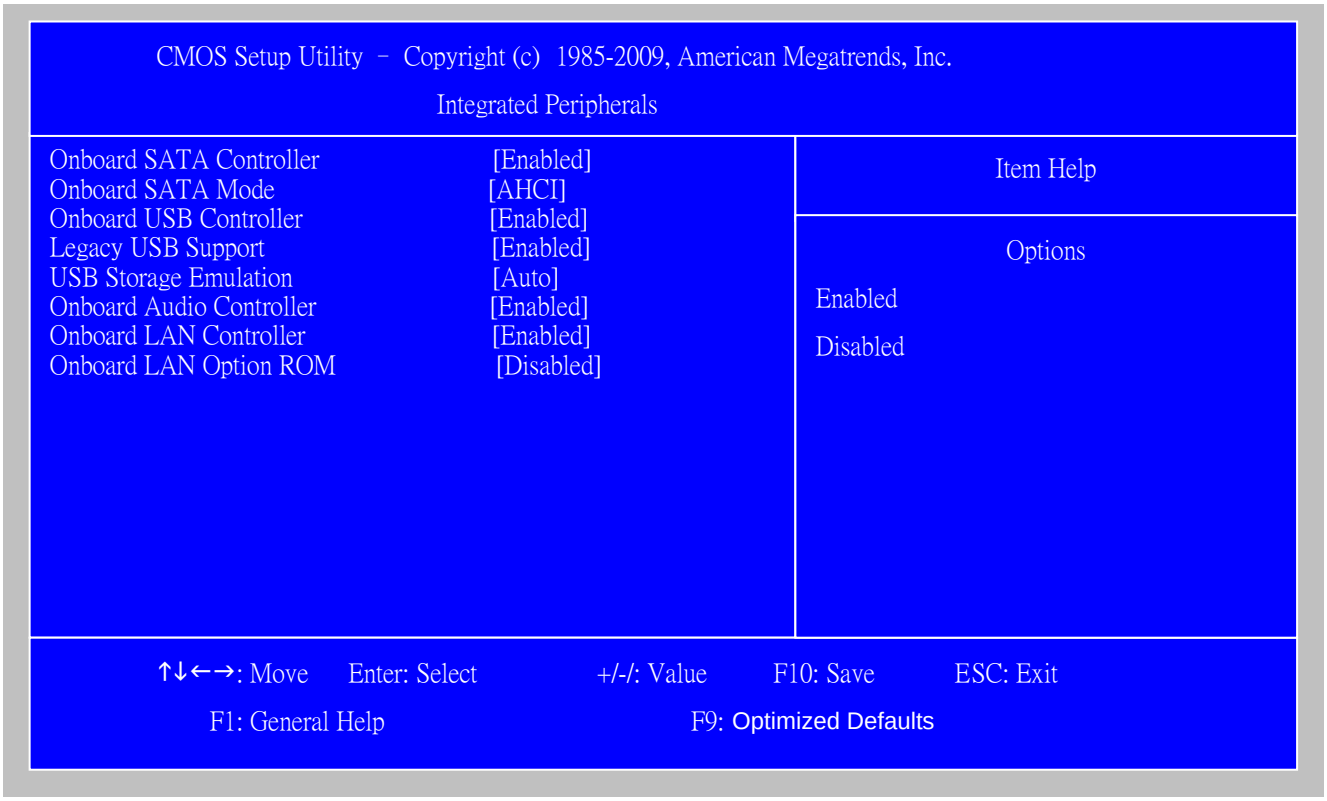
Advanced Chipset Setup



The following table describes the parameters found in this menu.

Parameter	Description	Options
Intel XD Bit	For Intel platform	Disabled/Enabled
Video Memory Size	The item lists Video Memory Size	
DVMT/Fixed Memory Size	The item lists DVMT/Fixed Memory Size	

Integrated Peripherals

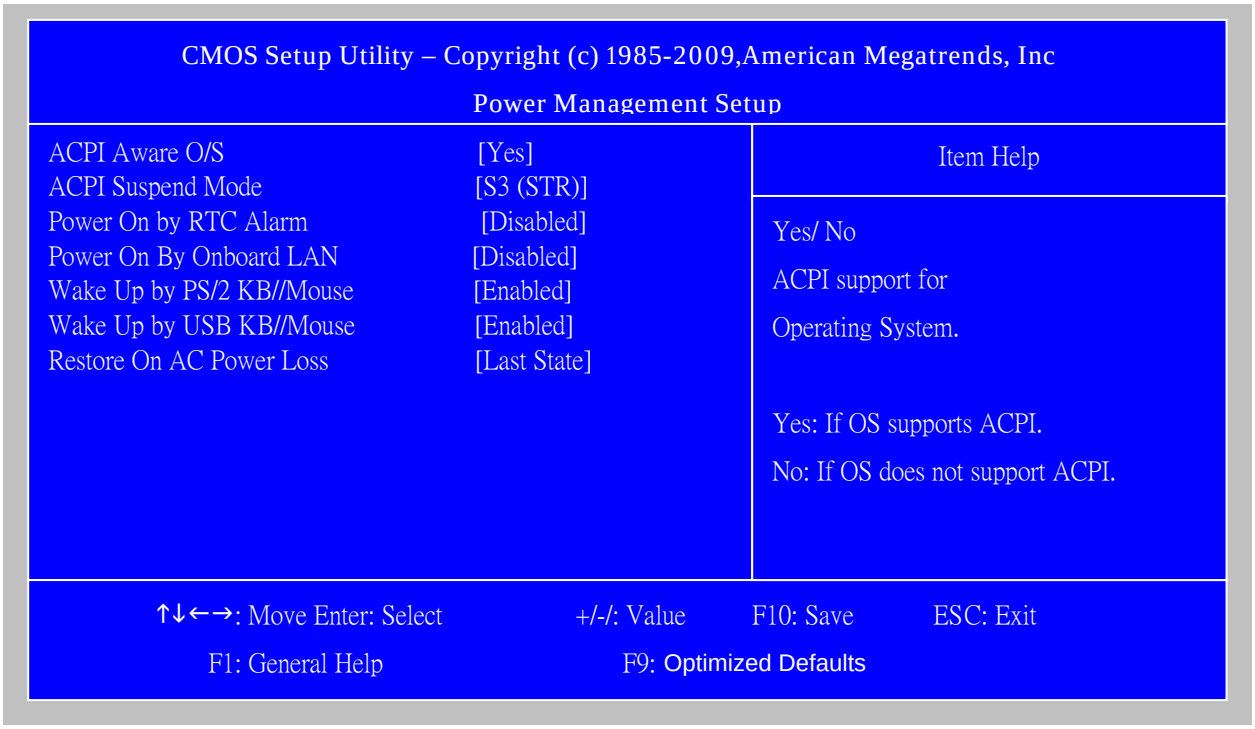


The following table describes the parameters found in this menu.

Parameter	Description	Options
Onboard SATA Mode	This item is only available when onboard SATA controller is AHCI	AHCI Disabled / AHCI
Onboard SATA Controller	Always enabled SATA POST no matter what option is set	Disabled/Enabled
Onboard USB Controller	Always enabled USB keyboard during POST no matter what option is set	Disabled/Enabled
Onboard Audio Controller	Always enabled Audio POST no matter what option is set	Disabled/Enabled
Onboard LAN Controller	Always enabled LAN POST no matter what option is set	Disabled/Enabled
Onboard LAN Option ROM	This item is only available when onboard LAN controller is enabled	Disabled/Enabled

Power Management

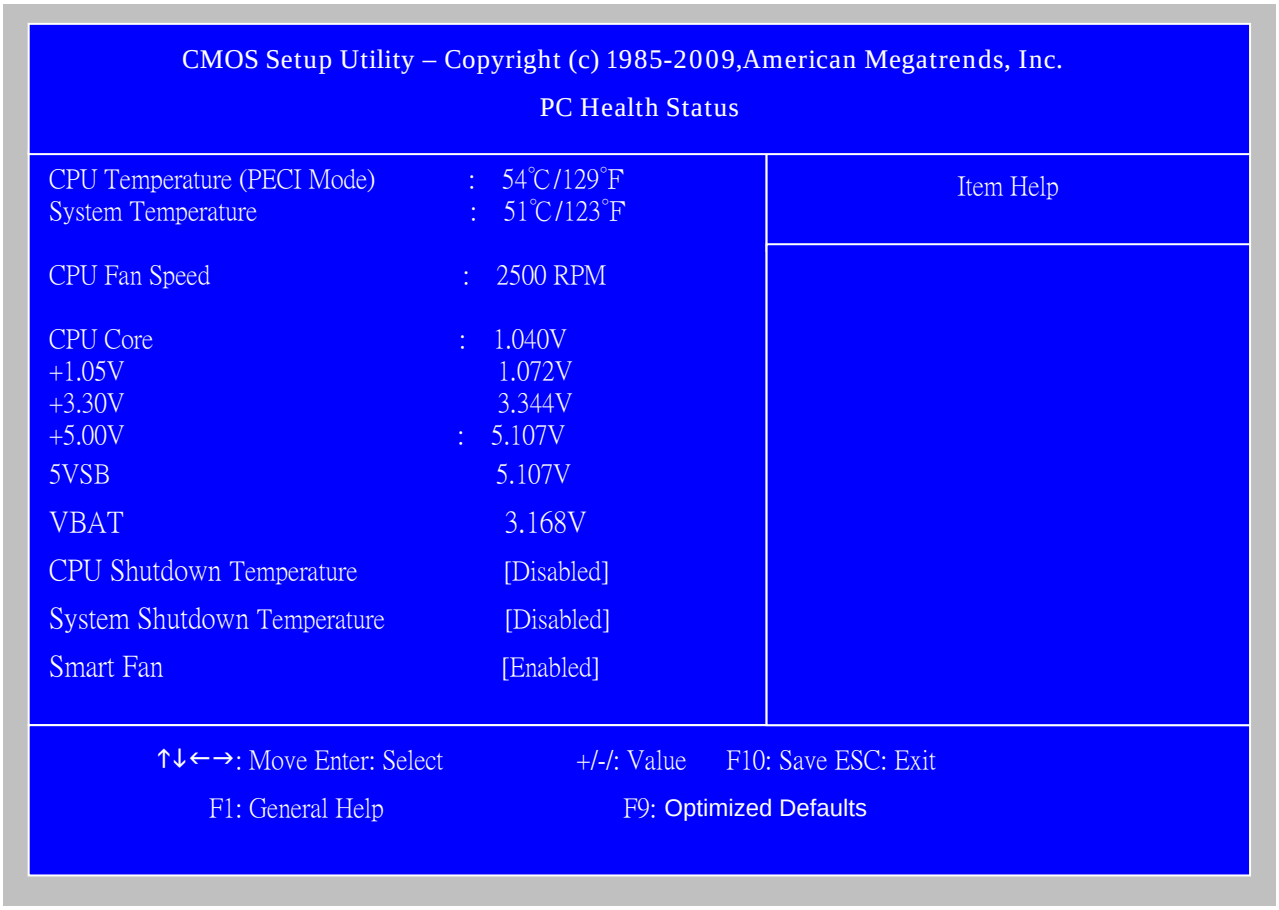
The Power Management menu lets you configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use. The following screen shows the Power Management parameters and their default settings:



The following table describes the parameters found in this menu.

Parameter	Description	Options
ACPI Aware O/S	Control wake up event for S1/S3/S4/S5	No/Yes
ACPI Suspend Mode		S1(POS)/S3 (STR)
Power On by RTC Alarm		Disabled/Enabled
Power On by PCIE Devices		Disabled/Enabled
Power On by Onboard Lan		Disabled/Enabled
Wake Up by PS/2 KB//Mouse	Control wake up event for S1/S3	
Wake Up by USB KB//Mouse		Disabled/Enabled

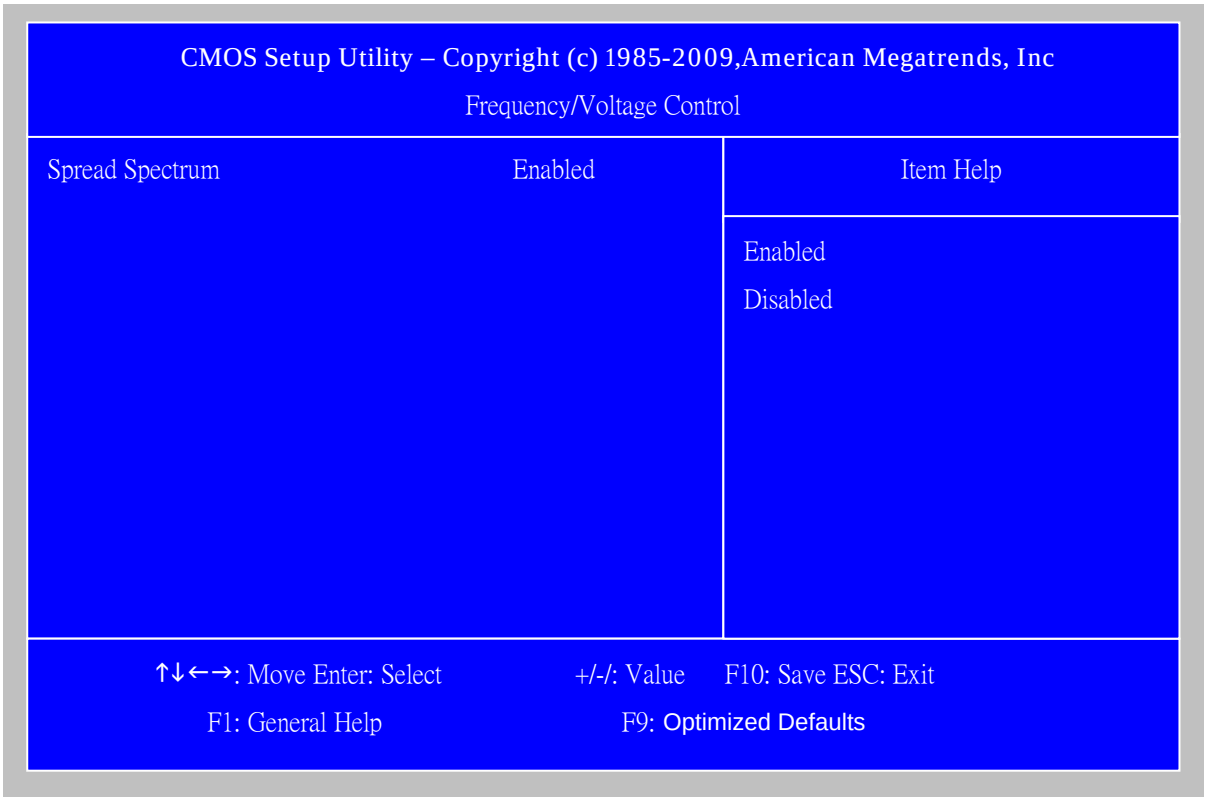
PC Health Status



The following table describes the parameters found in this menu:

Parameter	Description	Options
CPU/System Temperature	Detect CPU Temperature automatically	
CPU FAN Speed (RPM)	Detect CPU/SYSTEM Fan Speed Status automatically	
CPU Shutdown Temperature	If you Enabled this item, CPU Shutdown when Temperature achieve to set the Temperature	Disabled/Enabled
System Shutdown Temperature	If you Enabled this item, System Shutdown when Temperature achieve to set the Temperature	Disabled/Enabled
Smart FAN	The item displays the system Smart Fan Function status. It is always enabled by system.	

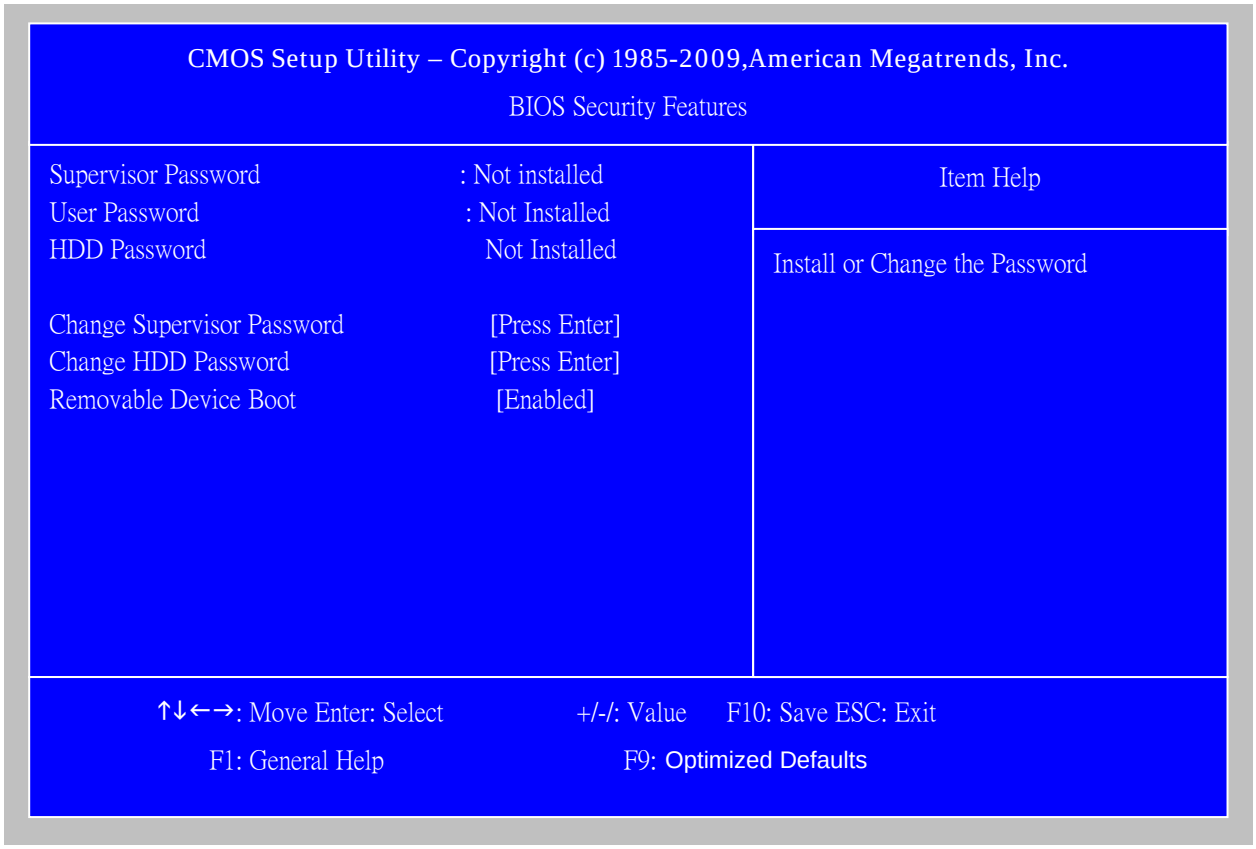
Frequency/Voltage Control



The following table describes the parameters found in this menu:

Parameter	Description	Options
Spread Spectrum	Always auto detect Spread Spectrum	Disabled/Enabled

BIOS Security Features

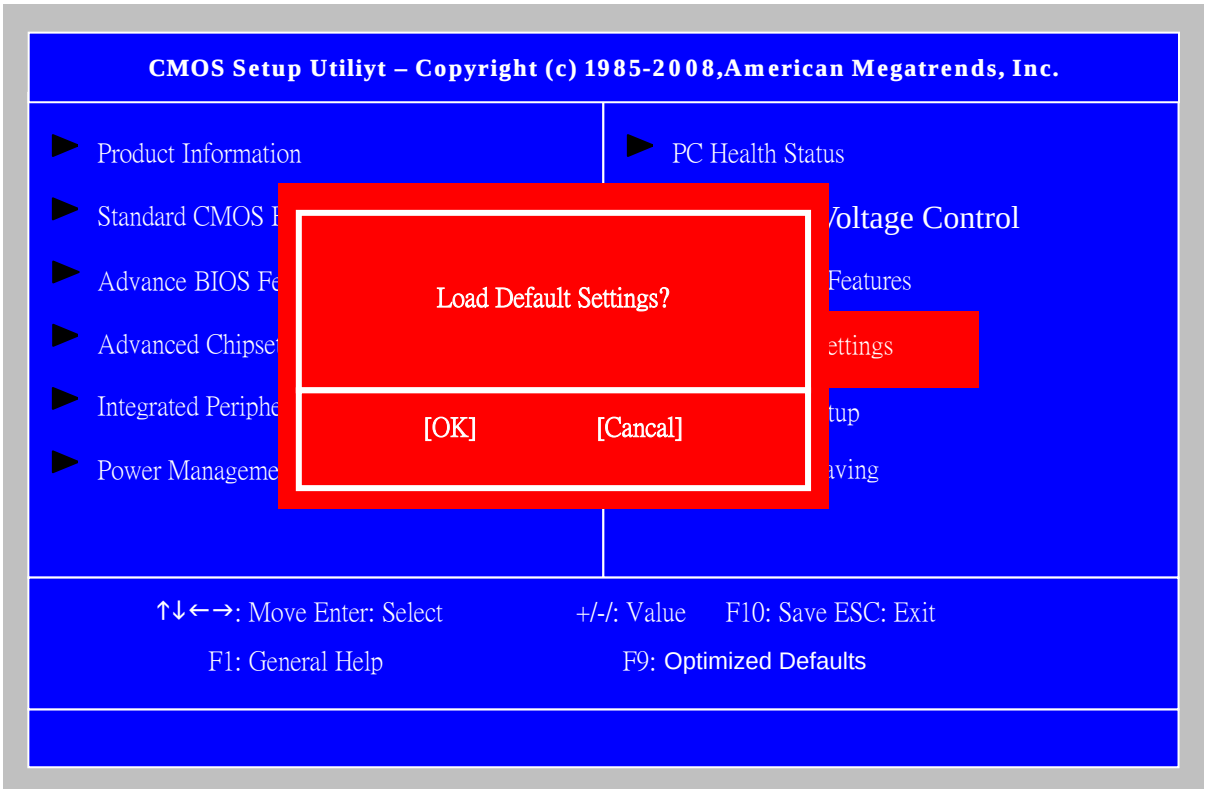


The following table describes the parameters found in this menu:

Parameter	Description	Options
Change Supervisor Password	This item is only available when supervisor password is installed, If clear supervisor password, user password should also be cleared. All setup items will be view-only except user password item when login with user password	Press Enter

Load Default Settings

This option opens a dialog box that lets you install defaults for all appropriate items in the Setup Utility.

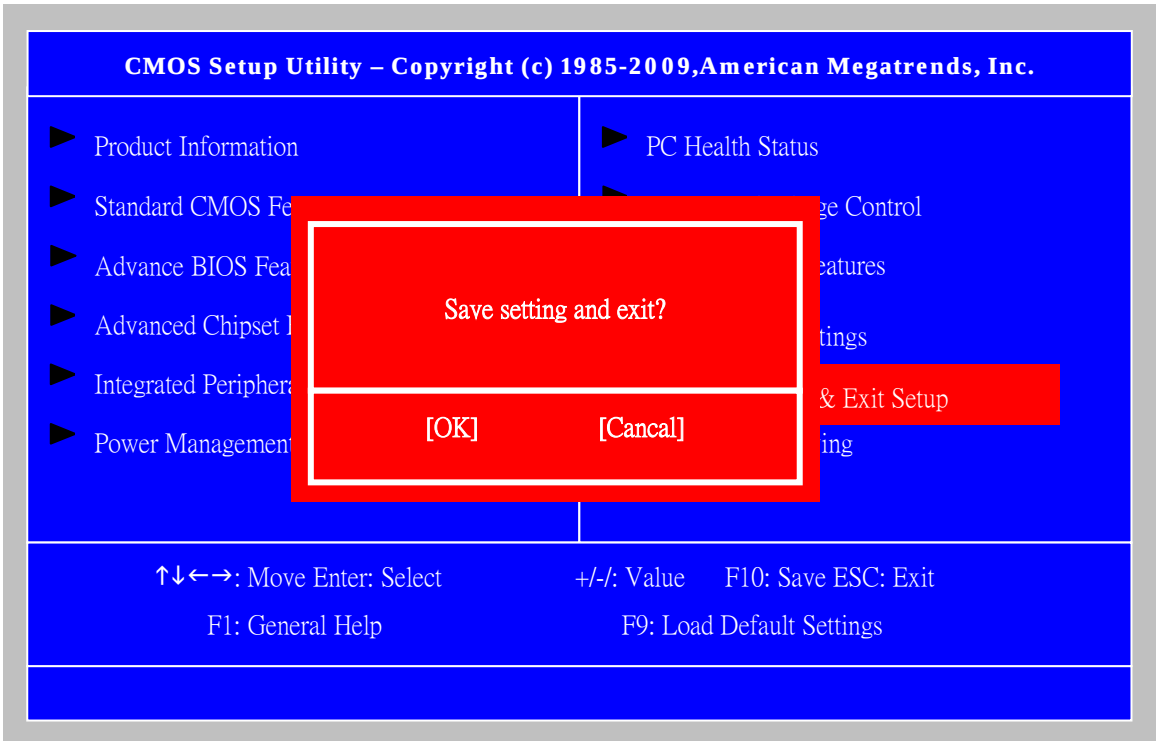


The following table describes the parameters found in this menu:

Parameter	Description	Options
Load Default Settings	Select the field loads the factory defaults for BIOS and Chipset Features, which the system automatically detects. This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility.	

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility.

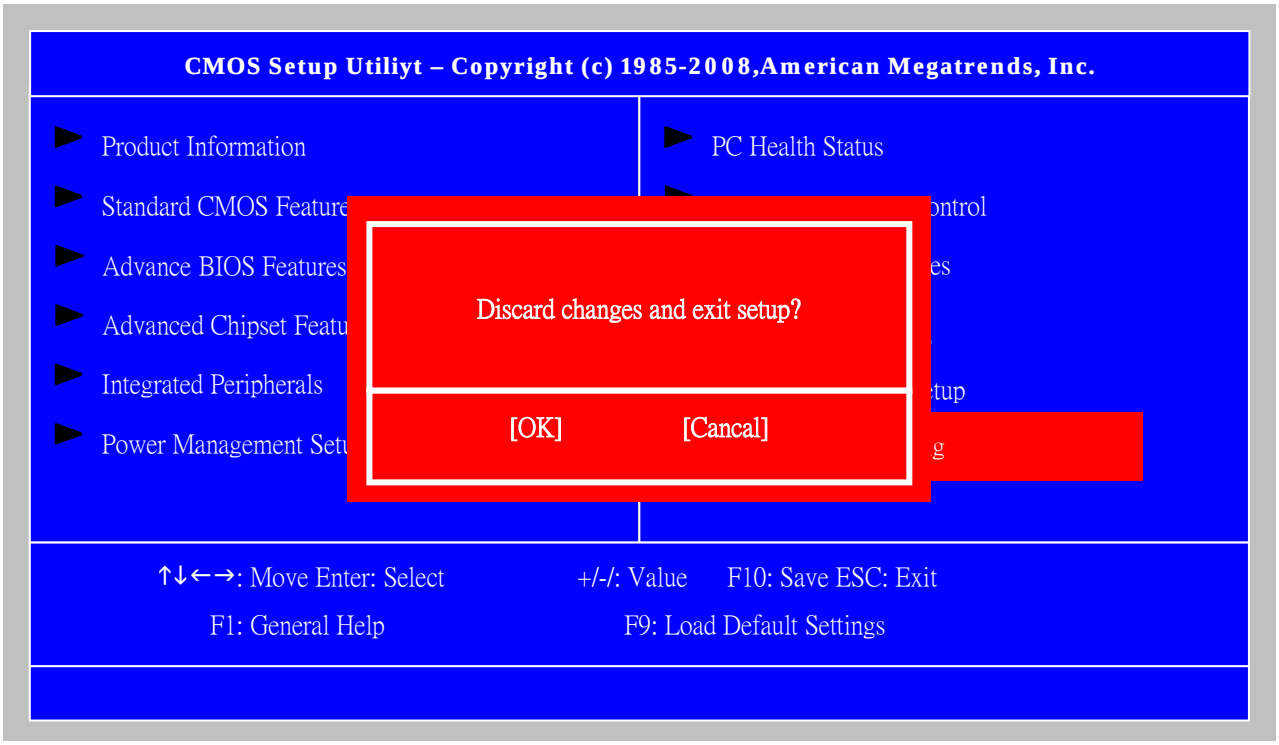


The following table describes the parameters found in this menu:

Parameter	Description	Options
Save setting and exit	Press <Enter> to save the changes that have made in the Setup Utility and exit the Setup Utility. Press<Y> to save and Exit or <N> to return to the main menu.	

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility.



Parameter	Description	Options
Discard changes and exit setup	Press<Enter> to discard any changes and exit the Setup Utility	

Machine Disassembly and Replacement

To disassemble the computer, you need the following tools:

Wrist grounding strap and conductive mat for preventing electrostatic discharge.

Wire cutter.

Phillips screwdriver (may require different size).

NOTE: The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatches when putting back the components.

General Information

Before You Begin

Before proceeding with the disassembly procedure, make sure that you do the following:

1. Turn off the power to the system and all peripherals.
2. Unplug the AC adapter and all power and signal cables from the system

Disassembly Procedure

This section tells you how to disassemble the system when you need to perform system service. Please also refer to the disassembly video, if available.

CAUTION: Before you proceed, make sure you have turned off the system and all peripherals connected to it.

Veriton N260/N260G Standard Disassembly

Process Bezel

Process:

1. According to the requirement, paste ATI, OS, CPU, HDMI and marketing label by SKU.

Remove side cover

Process:

1. Put the Computer on the worktable lightly.

2. Release side cover with 1 screws

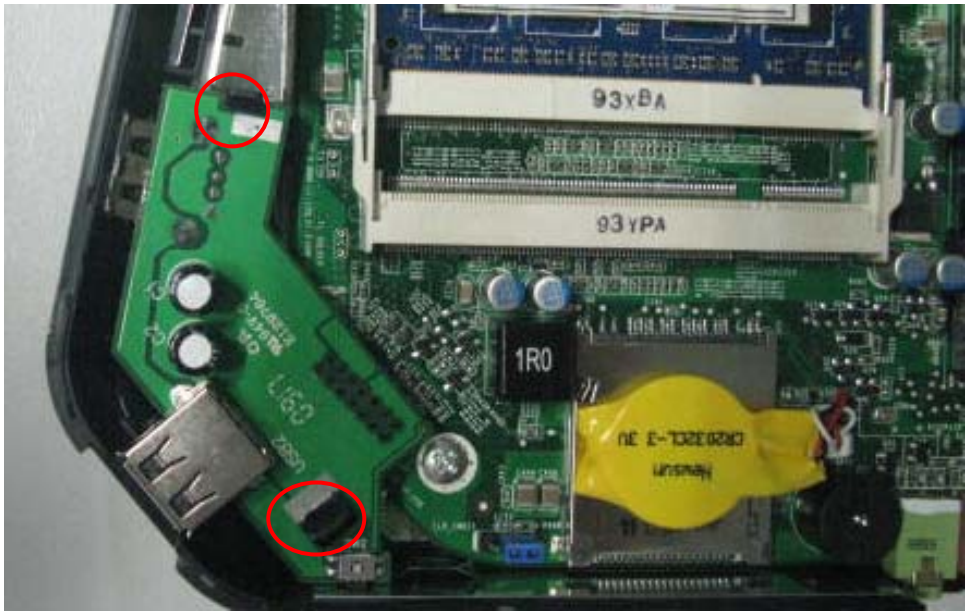
3. Open the side cover

Remove front D/B

Process:

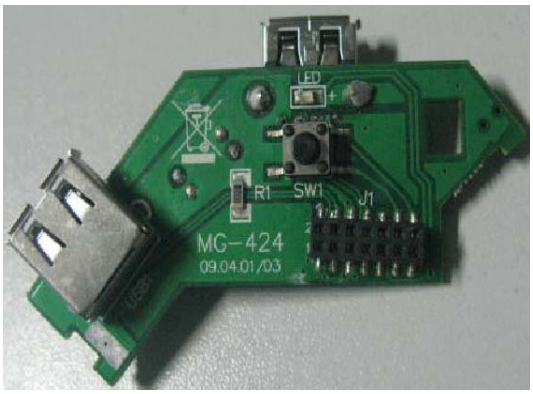
1. Release the front D/B

1-1.Open the clip



2. Release 14pin USB connector

3.Remove the USB daughter board

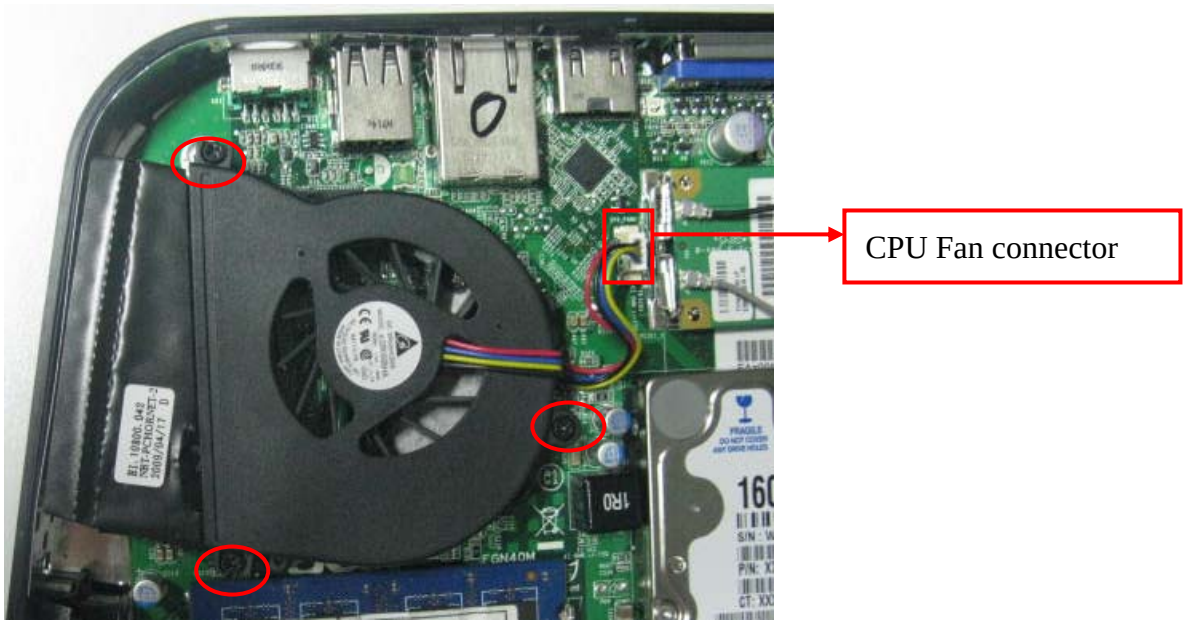


Remove CPU fan

Process:

1. Release the three screws and fan cable.

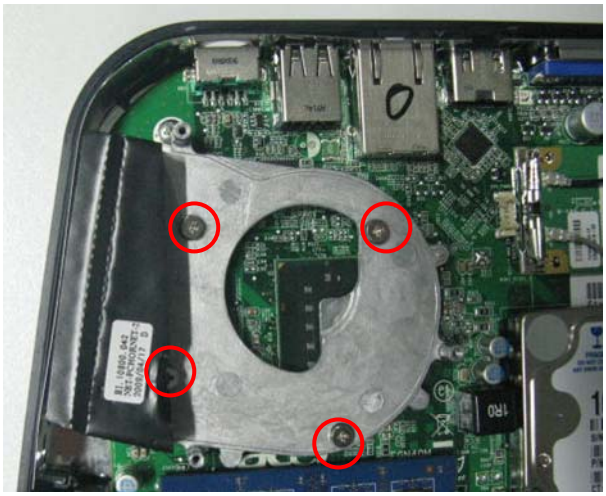
2. Remove CPU fan.



Remove CPU Cooler

Process:

1. Release the four screws.
2. Remove CPU cooler.

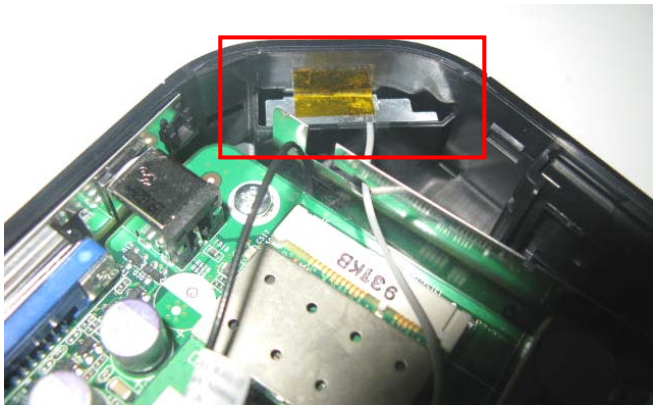


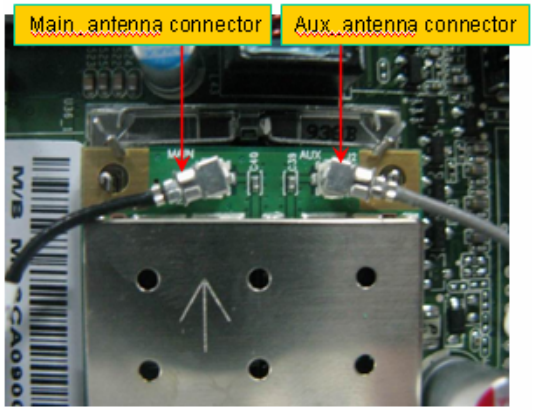
Remove wireless LAN

Process:

1. Remove wireless LAN antenna cable

1-1.Release aux_ antenna cable (gray) from “AUX” connector of wireless Lan。
1-2. Release main_ antenna cable (black) from “MAIN” connector.





2. Remove wireless LAN.
2-1.Release both sides clip

2-2. take off wireless LAN card from MB” MINI-PCIE” connector.

Remove M/B

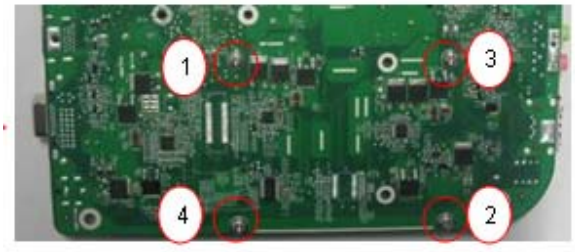
Process:

1. Release the four screws.
2. Remove M/B.

Remove HDD

Process:

1. Release four screws.
2. Remove HDD.



Remove memory

Process:

1. Remove Memory from SODIMM.
2. Remove the second Memory from SODIMM2 (Optional by SKU).

Troubleshooting

Please refer to generic troubleshooting guide for troubleshooting information relating to following topics:

- Power-On Self-Test (POST)
- POST Error Messages List
- Error Symptoms List
- Undetermined Problems

Power-On Self-Test (POST)

Each time you turn on the system, the Power-on Self Test (POST) is initiated. Several items are tested during POST, but is for the most part transparent to the user.

The Power-On Self Test (POST) is a BIOS procedure that boots the system, initializes and diagnoses the system components, and controls the operation of the power-on password option. If POST discovers errors in system operations at power-on, it displays error messages on screen, generates a check point code at port 80h or even halts the system if the error is fatal.

NOTE: When Post executes a task, it uses a series of preset numbers called check points to be latched atport 80h, indicating the stages it is currently running. This latch can be read and shown on a debug board.The following table describes the BIOS common tasks carried out by POST. Each task is denoted by an unique check point number. For other unique check point numbers that are not listed in the table, refer to the corresponding product service guide.

Post Checkpoints List: The list may vary accordingly depending on your BIOS

Bootblock Initialization Code Checkpoints

Checkpoint	Description
Before D1	Early chipset initialization is done. Early super I/O initialization is done including RTC and keyboard controller. NMI is disabled.
D1	Perform keyboard controller BAT test. Check if waking up from power management suspend state. Save power-on CPUID value in scratch CMOS.
D0	Go to flat mode with 4GB limit and GA20 enabled. Verify the bootblock checksum.
D2	Disable CACHE before memory detection. Execute full memory sizing module. Verify that flat mode is enabled.
D3	If memory sizing module not executed, start memory refresh and do memory sizing in Bootblock code. Do additional chipset initialization. Re-enable CACHE. Verify that flat mode is enabled.
D4	Test base 512KB memory. Adjust policies and cache first 8MB. Set stack.
D5	Bootblock code is copied from ROM to lower system memory and control is given to it. BIOS now executes out of RAM.
D6	Both key sequence and OEM specific method is checked to determine if BIOS recovery is forced. If BIOS recovery is necessary, control flows to checkpoint E0. See Bootblock Recovery Code Checkpoints section of document for more information.
D7	Restore CPUID value back into register. The Bootblock-Runtime interface module is moved to system memory and control is given to it. Determine whether to execute serial flash.
D8	The Runtime module is uncompressed into memory. CPUID information is stored in memory.

D9	Store the Uncompressed pointer for future use in PMM. Copying Main BIOS into memory. Leaves all RAM below 1MB Read-Write including E000 and F000 shadow areas but closing SMRAM.
DA	Restore CPUID value back into register. Give control to BIOS POST (ExecutePOSTKernel). See POST Code Checkpoints section of document for more information.
E1-E8 EC-EE	OEM memory detection/configuration error. This range is reserved for chipset vendors & system manufacturers. The error associated with this value may be different from one platform to the next.

Bootblock Recovery Code Checkpoints

Checkpoint	Description
E0	Initialize the floppy controller in the super I/O. Some interrupt vectors are initialized. DMA controller is initialized. 8259 interrupt controller is initialized. L1 cache is enabled.
E9	Set up floppy controller and data. Attempt to read from floppy.
EA	Enable ATAPI hardware. Attempt to read from ARMD and ATAPI CDROM.
EB	Disable ATAPI hardware. Jump back to checkpoint E9.
EF	Read error occurred on media. Jump back to checkpoint EB.
F0	Search for pre-defined recovery file name in root directory.
F1	Recovery file not found.
F2	Start reading FAT table and analyze FAT to find the clusters occupied by the recovery file.
F3	Start reading the recovery file cluster by cluster.
F5	Disable L1 cache.
FA	Check the validity of the recovery file configuration to the current configuration of the flash part.
FB	Make flash write enabled through chipset and OEM specific method. Detect proper flash part. Verify that the found flash part size equals the recovery file size.
F4	The recovery file size does not equal the found flash part size.
FC	Erase the flash part
FD	Program the flash part.
FF	The flash has been updated successfully. Make flash write disabled. Disable ATAPI hardware. Restore CPUID value back into register. Give control to F000 ROM at F000:FFF0h.

POST Code Checkpoints

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags."

04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
07	Fixes CPU POST interface calling pointer.
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache – Init Local APIC
C1	Set up boot strap processor Information
C2	Set up boot strap processor for POST
C5	Enumerate and set up application processors
C6	Re-enable cache for boot strap processor
C7	Early CPU Init Exit
0A	Initializes the 8042 compatible Key Board Controller
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform specific BIOS modules. GPNV is initialized at this checkpoint.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	nitializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See DIM Code Checkpoints section of document for

	more information. USB controllers are initialized at this point.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, … etc.) successfully installed in the system and update the BDA, EBDA…etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested. Check boot password if installed.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported)
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module. Display boot option popup menu.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).

61-70	OEM POST Error. This range is reserved for chipset vendors & system manufacturers. The error associated with this value may be different from one platform to the next.

DIM Code Checkpoints

Checkpoint	Description
2A	Initialize different buses and perform the following functions: Reset, Detect, and Disable (function 0); Static Device Initialization (function 1); Boot Output Device Initialization (function 2). Function 0 disables all device nodes, PCI devices, and PnP ISA cards. It also assigns PCI bus numbers. Function 1 initializes all static devices that include manual configured onboard peripherals, memory and I/O decode windows in PCI-PCI bridges, and noncompliant PCI devices. Static resources are also reserved. Function 2 searches for and initializes any PnP, PCI, or AGP video devices.
38	Initialize different buses and perform the following functions: Boot Input Device Initialization (function 3); IPL Device Initialization (function 4); General Device Initialization (function 5). Function 3 searches for and configures PCI input devices and detects if system has standard keyboard controller. Function 4 searches for and configures all PnP and PCI boot devices. Function 5 configures all onboard peripherals that are set to an automatic configuration and configures all remaining PnP and PCI devices.

ACPI Runtime Checkpoints

Checkpoint	Description
AC	First ASL check point. Indicates the system is running in ACPI mode.
AA	System is running in APIC mode
01, 02, 03, 04, 05	Entering sleep state S1, S2, S3, S4, or S5.
10, 20, 30, 40, 50	Waking from sleep state S1, S2, S3, S4, or S5

POST Error Messages List

If you cannot run the diagnostics program tests but did receive a POST error message, use “POST Error Messages List” to diagnose system problems. If you did not receive any error message, look for a description of your error symptoms in “Error Symptoms List”

NOTE: When you have deemed it necessary to replace an FRU, and have done so, you must run a total system check to ensure that no other activity has been affected by the change. This system check can be done through the diagnostics program.

NOTE: Check all power supply voltages, switch, and jumper settings before you replace the main board. Also check the power supply voltages if you have a “system no-power” condition.

If you are unable to correct the problem by using the “BIOS Messages List” table and “Error Symptoms List” table, go to “Undetermined Problems”.

To diagnose a problem, first find the BIOS error messages in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.

Memory

Gate20 Error	The BIOS is unable to properly control the motherboard’s Gate A20 function, which controls access of memory over 1 MB. This may indicate a problem with the motherboard.
Multi-Bit ECC	This message will only occur on systems using ECC enabled memory modules. ECC memory has the ability to correct single-bit errors that may occur from faulty memory modules A multiple bit corruption of memory has occurred, and the ECC memory algorithm cannot correct it. This may indicate a defective memory module.
Parity Error	Fatal Memory Parity Error. System halts after displaying this message.
RAM R/W test failed	This message is displayed by the AMIBIOS8 when the RAM read/write test fails.
CMOS Memory Size Wrong	The base memory (memory below 1MB) size that is reported in the CMOS (offset 15h) mismatches with the actual size detected. This condition may occur when the hole is set at 512K base memory or when CMOS is corrupted.

Boot

Message Displayed	Description
Boot Failure ...	This is a generic message indicating the BIOS could not boot from a particular device. This message is usually followed by other information concerning the device.
Invalid Boot Diskette	A diskette was found in the drive, but it is not configured as a bootable diskette.
Drive Not Ready	The BIOS was unable to access the drive because it indicated it was not ready for data transfer. This is often reported by drives when no media is present.
A: Drive Error	The BIOS attempted to configure the A: drive during POST, but was unable to properly configure the device. This may be due to a bad cable or faulty diskette drive.
B: Drive Error	The BIOS attempted to configure the B: drive during POST, but was unable to properly configure the device. This may be due to a bad cable or faulty diskette drive.
Insert BOOT diskette in A:	The BIOS attempted to boot from the A: drive, but could not find a proper boot diskette.
Reboot and Select proper Boot device or Insert Boot Media in selected Boot device	BIOS could not find a bootable device in the system and/or removable media drive does not contain media.
NO ROM BASIC	This message occurs on some systems when no bootable device can be detected.

Storage Device

Message Displayed	Description
Primary Master Hard Disk Error	The IDE/ATAPI device configured as Primary Master could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Primary Slave Hard Disk Error	The IDE/ATAPI device configured as Primary Slave could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Secondary Master Hard Disk Error	The IDE/ATAPI device configured as Secondary Master could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in

	POST.
Secondary Slave Hard Disk Error	The IDE/ATAPI device configured as Secondary Slave could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
3rd Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 3rd IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
3rd Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 3rd IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 4th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 4th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 5th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 5th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 6th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 6th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Primary Master Drive - ATAPI	The IDE/ATAPI device configured as Primary Master failed an ATAPI compatibility test. This message is typically displayed when the BIOS is

Incompatible	trying to detect and configure IDE/ATAPI devices in POST.
Primary Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Primary Slave failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Secondary Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Secondary Master failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Secondary Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Secondary Slave failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
3rd Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 3rd IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
3rd Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Slave in the 3rd IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 4th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Slave in the 4th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 5th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Slave in the 5th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 6th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Slave Drive -	The IDE/ATAPI device configured as Slave in the 6th IDE controller

ATAPI Incompatible	failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
S.M.A.R.T. Capable but Command Failed	The BIOS tried to send a S.M.A.R.T. message to a hard disk, but the command transaction failed. This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.
S.M.A.R.T. Command Failed	The BIOS tried to send a S.M.A.R.T. message to a hard disk, but the command transaction failed. This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.
S.M.A.R.T. Status BAD, Backup and Replace	A S.M.A.R.T. capable hard disk sends this message when it detects an imminent failure. This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.
S.M.A.R.T. Capable and Status BAD	A S.M.A.R.T. capable hard disk sends this message when it detects an imminent failure. This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.

Virus Related

Message Displayed	Description
BootSector Write !!	The BIOS has detected software attempting to write to a drive's boot sector. This is flagged as possible virus activity. This message will only be displayed if Virus Detection is enabled in AMIBIOS setup.
VIRUS: Continue (Y/N)?	If the BIOS detects possible virus activity, it will prompt the user. This message will only be displayed if Virus Detection is enabled in AMIBIOS setup.

System Configuration

Message Displayed	Description
DMA-1 Error	Error initializing primary DMA controller. This is a fatal error, often indication a problem with system hardware
DMA-2 Error	Error initializing secondary DMA controller. This is a fatal error, often

	indication a problem with system hardware.
DMA Controller Error	POST error while trying to initialize the DMA controller. This is a fatal error, often indication a problem with system hardware.
Checking NVRAM..Update Failed	BIOS could not write to the NVRAM block. This message appears when the FLASH part is write-protected or if there is no FLASH part (System uses a PROM or EPROM).
Microcode Error	BIOS could not find or load the CPU Microcode Update to the CPU. This message only applies to INTEL CPUs. The message is most likely to appear when a brand new CPU is installed in a motherboard with an outdated BIOS. In this case, the BIOS must be updated to include the Microcode Update for the new CPU.
NVRAM Checksum Bad, NVRAM Cleared	There was an error in while validating the NVRAM data. This causes POST to clear the NVRAM data.
Resource Conflict	More than one system device is trying to use the same non-shareable resources (Memory or I/O).
NVRAM Ignored	The NVRAM data used to store Plug'n'Play (PnP) data was not used for system configuration in POST.
NVRAM Bad	The NVRAM data used to store Plug'n'Play (PnP) data was not used for system configuration in POST due to a data error.
Static Resource Conflict	Two or more Static Devices are trying to use the same resource space (usually Memory or I/O).
PCI I/O conflict	A PCI adapter generated an I/O resource conflict when configured by BIOS POST.
PCI ROM conflict	A PCI adapter generated an I/O resource conflict when configured by BIOS POST.
PCI IRQ conflict	A PCI adapter generated an I/O resource conflict when configured by BIOS POST.
PCI IRQ routing table error	BIOS POST (DIM code) found a PCI device in the system but was unable to figure out how to route an IRQ to the device. Usually this error is causing by an incomplete description of the PCI Interrupt Routing of the system.
Timer Error	Indicates an error while programming the count register of channel 2 of the 8254 timer. This may indicate a problem with system hardware.
Refresh timer test failed	BIOS POST found that the refresh timer hardware failed to pass the Refresh Retrace Test.
Interrupt Controller-1 error	BIOS POST could not initialize the Master Interrupt Controller. This may indicate a problem with system hardware.
Interrupt Controller-2	BIOS POST could not initialize the Slave Interrupt Controller. This

error	may indicate a problem with system hardware.

CMOS

Message Displayed	Description
CMOS Date/Time Not Set	The CMOS Date and/or Time are invalid. This error can be resolved by readjusting the system time in AMIBIOS Setup.
CMOS Battery Low	CMOS Battery is low. This message usually indicates that the CMOS battery needs to be replaced. It could also appear when the user intentionally discharges the CMOS battery.
CMOS Settings Wrong	CMOS settings are invalid. This error can be resolved by using AMIBIOS Setup.
CMOS Checksum Bad	CMOS contents failed the Checksum check. Indicates that the CMOS data has been changed by a program other than the BIOS or that the CMOS is not retaining its data due to malfunction. This error can typically be resolved by using AMIBIOS Setup.

Miscellaneous

Message Displayed	Description
KBC BAT Test failed	Keyboard controller BAT test failed. This may indicate a problem with keyboard controller initialization.
Keyboard Error	Keyboard is not present or the hardware is not responding when the keyboard controller is initialized.
PS2 Keyboard not found	PS2 Keyboard support is enabled in the BIOS setup but the device is not detected.
PS2 Mouse not found	PS2 Mouse support is enabled in the BIOS setup but the device is not detected.
Keyboard/Interface Error	Keyboard Controller failure. This may indicate a problem with system hardware.
Unlock Keyboard	PS2 keyboard is locked. User needs to unlock the keyboard to continue the BIOS POST.
System Halted	The system has been halted. A reset or power cycle is required to reboot the machine. This message appears after a fatal error has been detected.
<INS> Pressed	Indicates that <INS> key is pressed during the BIOS POST. The POST will load and use default CMOS settings.
Password check failed	The password entered does not match the password set in the setup. This condition may occur for both Supervisor and User

	password verification.
Unknown BIOS error. Error code = 004Ah	This message is displayed when ADM module is not present in the AMIBIOS8 ROM.
Unknown BIOS error. Error code = 004Bh	This message is displayed when language module is not present in the AMIBIOS8 ROM.
Floppy Controller Failure	Error in initializing legacy Floppy Controller.

USB eModule Error Messages

Message Displayed	Description
Warning! Unsupported USB device found and disabled!	This message is displayed when a non-bootable USB device is enumerated and disabled by the BIOS.
Warning! Port 60h/64h emulation is not supported by this USB Host Controller!	This message is displayed to indicate that port 60h/64h emulation mode cannot be enabled for this USB host controller. This condition occurs if USB KBC emulation option is set for non-SMI mode.
Warning! EHCI controller disabled. It requires 64bit data support in the BIOS.	This message is displayed to indicate that EHCI controller is disabled because of incorrect data structure. This condition occur if the USB host controller needs 64-bit data structure while the USB is ported with 32-bit data structure.

SMBIOS eModule Error Messages

Message Displayed	Description
Not enough space in Runtime area!!. SMBIOS data will not be available.	This message is displayed when the size of the SMBIOS data exceeds the available SMBIOS runtime storage size

CPU eModule Error Messages

Message Displayed	Description
Warning! This system board does not support the power requirements of the installed processor. The processor will be run at a reduced frequency, which will impact system performance. area!!. SMBIOS data will not be available.	This message is displayed when the power requirements of the board do not match the power requirement of the CPU.

MPS Table (Multi-processor) eModule Error Messages

Message Displayed	Description
Insufficient Runtime space for MPS data! System may operate in PIC or Non-MPS mode.	This message is displayed when there is not enough space in the 0F000h runtime area for creating MPS table.

Error Symptoms List

NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/ FRU listed in right column is the most likely cause.

Error Symptom	Action/FRU
Processor / Processor Fan	
NOTE: Normally, the processor fan should be operative, and the processor clock setting should be exactly set to match its speed requirement before diagnosing any processor problems.	
Processor fan does not run but power supply fan runs.	1. Ensure the system is not in power saving mode.See “Power Management”in chapter2. 2.With the system power on, measure the voltage of processor fan connector. Its reading should be +12Vdc. Its reading should be +12Vdc. If the reading shows normal, but the fan still does not work, then replace a good fan.3. Main board.
Processor test failed.	1.Processor. 2.Main board.
Main board and Memory	
NOTE: Ensure the memory modules are installed properly and the contact leads are clean before diagnosing any system problems.	
Memory test failed.	1.See "Memory" 2.Main board
Incorrect memory size shown or repeated during POST.	1.Insert the memory modules in the DIMM sockets properly, then reboot the system. 2.Memory module. 3.Main board.
System works but fails to enter power saving mode when the Power Management Mode is set to Enabled.	1.Enter BIOS Setup and load default settings.In Windows Systems, check settings in Power Management Property of Control Panel. 2.Reload software from Recovery CD.
Blinking cursor only; system does not work.	1.Diskette/IDE drive connection/cables 2. Diskette/IDE disk drives 3.See “Undetermined Problems”. 4.Main board
Diskette Drive	
NOTE: Ensure the diskette drive is auto-setting in BIOS Setup and its read/write head is clean	

before diagnosing any diskette drive problems.(If only one drive is installed, please make sure the drive is connected to master connector or the drive is set to master.)	
Media and drive are mismatched.	1.Ensure the diskette drive is configured correctly in the Disk Drives of BIOS Setup. 2.Ensure the diskette drive is correctly formatted. 3.Diskette drive connection/cable 4.Diskette drive 5.Main board
Diskette drive does not work.	1.Ensure the diskette drive is not set to None in the Disk Drives of BIOS Setup. 2.Diskette drive power 3.Diskette drive connection/cable 4.Diskette drive 5.Main board
Diskette drive read/write error.	1.Diskette. 2.Diskette drive cable. 3.Diskette drive. 4.Main board
Diskette drive LED comes on for more than 2 minutes when reading data.	1.Diskette 2.Diskette drive connection/cable 3.Diskette drive 4.Main board
Diskette drive LED fails to light, and the drive is unable to access for more than 2 minutes.	1.Diskette 2.Diskette drive power 3.Diskette drive connection/cable 4.Diskette drive 5.Main board
Diskette drive test failed.	1.Diskette 2.Diskette drive 3.Diskette drive cable 4.Main board
Hard Disk Drive	
NOTE: Ensure hard disk drive is configured correctly in BIOS Setup, cable/jumper are set correctly before diagnosing any hard disk drive problems. (If only one drive is installed, please make sure the drive is connected to master connector or the drive is set to master.)	
Hard disk drive test failed.	1.Enter BIOS Setup and Load default settings. 2.Hard disk drive cable. 3.Hard disk drive. 4. Main board.

Hard disk drive cannot format completely.	1.Enter BIOS Setup and Load default settings. 2.Hard disk drive cable. 3.Hard disk drive. 4.Main board.
Hard disk drive has write error.	1.Enter BIOS Setup and Load default settings. 2.Hard disk drive.
Hard disk drive LED fails to light, but system operates normally.	1.With the system power on, measure the voltage of hard disk LED connector. 2.Hard drive LED cable.
CD/DVD-ROM Drive	
NOTE: Ensure CD/DVD-ROM drive is configured correctly in BIOS Setup, cable/jumper are set correctly and its laser beam is clean before diagnosing any CD/DVD-ROM drive problems.	
CD/DVD-ROM drive LED doesn't come on but works normally.	1.CD/DVD-ROM drive
CD/DVD-ROM drive LED flashes for more than 30 seconds before LED shutting off. Software asks to reinstall disc.Software displays a reading CD/DVD error.	1.CD/DVD-ROM may have dirt or foreign material on it. Check with a known good disc. 2. CD/DVD-ROM is not inserted properly. 3.CD/DVD-ROM is damaged.
CD/DVD-ROM drive cannot load or eject when the system is turned on and its eject button is pressed and held.	1.Disconnect all cables from CD/DVD-ROM drive except power cable, then press eject button to try to unload the disk. 2.CD/DVD-ROM drive power. 3.CD/DVD-ROM drive
CD/DVD-ROM drive does not read and there are no messages are displayed.	1.CD may have dirt or foreign material on it. Check with a known good disc. 2.Ensure the CD/DVD-ROM driver is installed properly. 3.CD/DVD-ROM drive.
CD/DVD-ROM drive can play audio CD but no sound output.	1.Ensure the headphone jack of the CD/DVD-ROM has an output. 2.Turn up the sound volume. 3.Speaker power/connection/cable. 4.CD/DVD-ROM drive.
Real-Time Clock	
Error Symptom	**Action/FRU**
Real-time clock is inaccurate.	1.Ensure the information in the Standard CMOS Feature of BIOS Setup is set correctly. 2.RTC battery.

	3.Main board.
Audio	
Audio software program invokes but no sound comes from speakers.	1.Speaker power/connection/cable.
Modem	
Modem ring cannot wake up system from suspend mode.	1.For the External Modem, make sure Power on By Ring in BIOS Setup or Power Management is set to Enabled. For the PCI modem, make sure Wake up by PCI card is set to Enabled. 2.If PCI modem card is used, reinsert the modem card to PCI slot firmly or replace the modem card. 3.In Win 98, ensure the telephone application is configured correctly for your modem and set to receive messages and/or fax.
Data/fax modem software program invokes but cannot receive/send data/fax	1.Ensure the modem card is installed properly.
Fax/voice modem software program invokes but has no sound output. (Data files are received normally; voice from modem cannot be produced, but system sound feature works normally.)	1.Ensure the modem voice-in cable from modem adapter card to main board
Video and Monitor	
Video memory test failed.Video adapter failed.	1.Remove all non-factory-installed cards. 2.Load default settings (if screen is readable). 3.Main board
Display problem: - Incorrect colors No high intensity Missing, broken, or incorrect characters Blank monitor (dark) Blank monitor (bright) Distorted image Unreadable monitor **Error Symptom**	1.Monitor signal connection/cable. 2.Monitor 3.Video adapter card 4.Main board **Action/FRU**
Other monitor problems	
Display changing colors.	1.Monitor signal connection/cable 2.Monitor 3.Main board

Display problem not listed above (including blank or illegible monitor).	1.“Monitor" 2.Load default settings (if screen is readable). 3.Main board
Parallel/Serial Ports	
Execute “Load BIOS Default Settings” in BIOS Setup to confirm ports presence before diagnosing any parallel/serial ports problems.	
Serial or parallel port loop-back test failed.	1.Make sure that the LPT# or COM# you test is the same as the setting in BIOS Setup. 2.Loop-back. 3.Main board
Printing failed.	1.Ensure the printer driver is properly installed. Refer to the printer service manual. 2.Printer. 3.Printer cable. 4.Main board.
Printer problems.	1.Refer to the service manual for the printer.
Keyboard	
Some or all keys on keyboard do not work.	1.Keyboard
Power Supply	
Pressing power switch does not turn off system. (Only unplugging the power cord from electrical outlet can turn off the system.)	1.Ensure the Soft-off by PWR-BTTN. in BIOS Setup of Power Management is not set to Instant-off. 2.Power switch cable assembly
Pressing power switch does not turn on the system.	1.Ensure the power override switch (situated at the back of the machine, just above the connector for the power cable) is not set to OFF. 2.Power switch cable assembly.
Executing software shutdown from Windows98 Start menu does not turn off the system. (Only pressing power switch can turn off the system).	1.Load default settings. 2.Reload software from Recovery CD.
Error Symptom	**Action/FRU**
No system power, or power supply fan is not running.	1.Power Supply 2.Main board
Other Problems	
Any other problems.	1.Undetermined Problems

Undetermined Problems

If an error message is present, go to “POST Error Messages List” on page 85. If you did not receive any messages, if the symptom is listed in “or “Error Symptoms List” on page 87. If you still cannot solve the problem, continue with this check:

1. Check the power supply voltage. If the voltage are correct continue with the following steps:
2. Power off the system unit.
3. Perform the following checks, one by one, until you have isolated the problem FRU.
4. Load default settings in setup.
5. Check all main board jumper positions and switch settings.
6. Check all adapter card jumper positions.
7. Check all device jumper positions.
8. Check all cables and connectors for proper installation.
9. If the jumpers, switches and voltage settings are correct, remove or disconnect the following, one at a time:
10. Non-Acer devices
    - ☐ **External devices**
    - ☐ **Any adapter card (modem card, LAN card or video card, if installed)**
    - ☐ **CD/DVD-ROM drive**
    - ☐ **Diskette drive**
    - ☐ **Hard disk drive**
    - ☐ **DIMM**
    - ☐ **Processor**
    - ☐ **Main board**
11. Power on the system unit.
12. Repeat steps 2 through 5 until you find the failing device or adapter.

Jumper and Connector Information

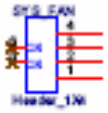
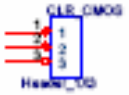
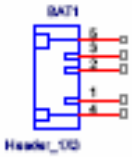
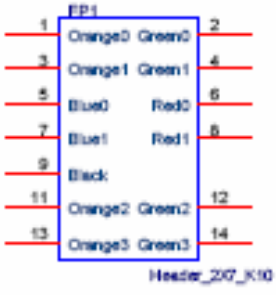
Jumper Setting

The section explains how to set jumper for correct configuration of the mainboard.

Setting Jumper

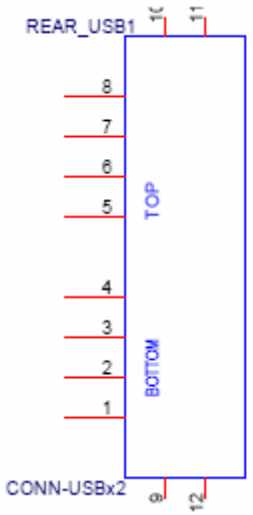
Use the motherboard jumpers to set system configuration options. Jumpers with more Than one pin are numbered. When setting the jumpers, ensure that the jumper caps are Placed on the correct pins.

System Board Jumper Setting

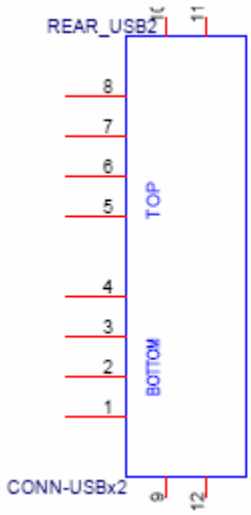
Jumper/Header Name	Function	Definition
SYS_FAN (4 PIN) 	SYSTEM FAN HEADER	1: GND 2: 5V_S0 3: SENSE 4. PWM CONTROL
CLR_CMOS 	CLEAR CMOS HEADER	1-2: CLEAR CMOS 2-3: NORMAL (Default)
BAT1(3 PIN) 	BATTERY HEADER	3: Battery power output 2: RTC_SENSE# 1,4,5: GND
FP1 	Front panel header	1: GND 2: F_USBPWR2 3: USB_P5+ 4: USB_P5- 5: GND 6: F_USBPWR2 7: USB_P4+ 8: USB_P4- 9: OBR_GPIO 10: KEY 11: PANSWHJ 12: LEDP 13: GND

USB CONNECTORS (Stacked)(Black)

REAR_USB1, REAR_USB2

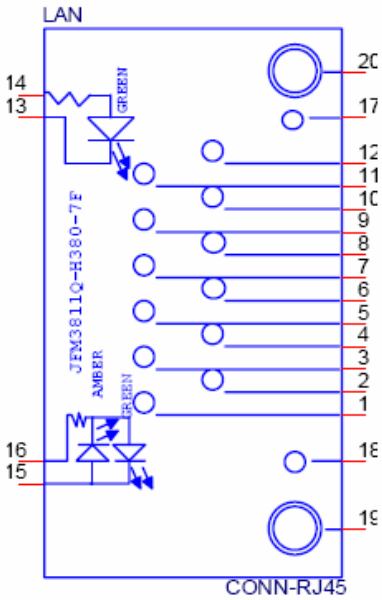


Pin	Signal Name
1,5	USB_REAR_PWR
2	USB_0_FBJ
3	USB_0_FB
6	USB_2_FBJ
7	USB_2_FB
4,8,9,10,11,12	GND



Pin	Signal Name
1,5	F_USBPWR1
2	USB_1_FBJ
3	USB_1_FB
6	USB_3_FBJ
7	USB_3_FB
4,8,9,10,11,12	GND

LAN1

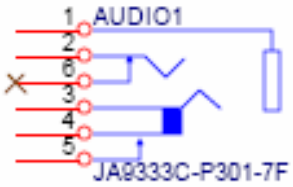


Pin	Signal Name
3,6,9,12	AVDD18
17,18	GND
1	MDI0+
2	MDI0-
4	MDI1+
5	MDI1-
7	MDI2+
8	MDI2-
10	MDI3+
11	MDI3-
19,20	GND
14	LAN_ACT_LED+
13	LAN_ACT_LED-
15	LINK_1000_LEDJ
16	LINK_100_LEDJ

NOTE: Pins 1-12 for RJ-45 LAN Jack pin definition, 13-16 for LAN LED definition

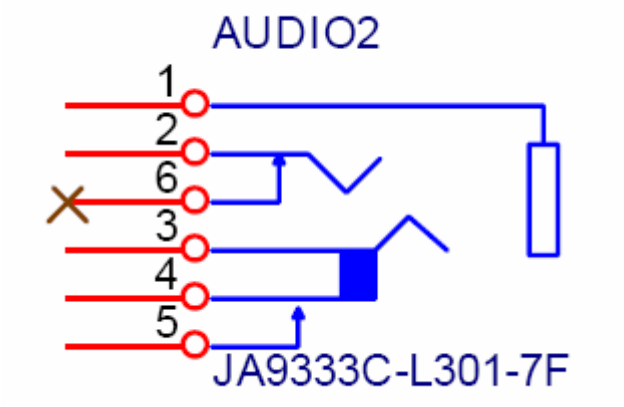
Audio Back Panel Connectors (Vertical)

AUDIO1 (MIC IN /Pink in Color)



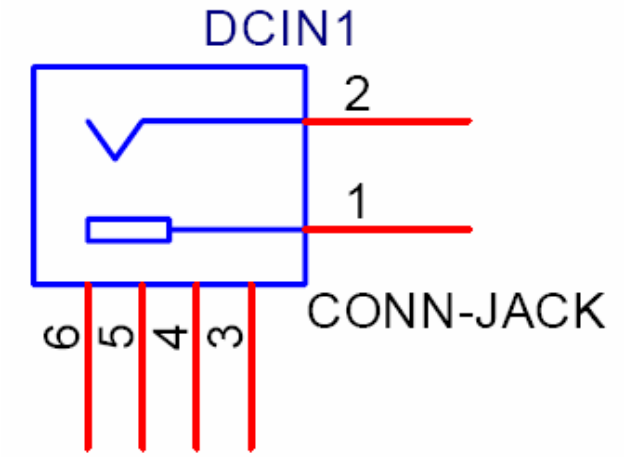
Pin	Signal Name
1	GND
2	MIC1_L2
3	MIC1_R5
4	MIC1-JD
5	FRONT-IO-SENSE1
6	NC

AUDIO2 (LINE OUT /Lime in Color)



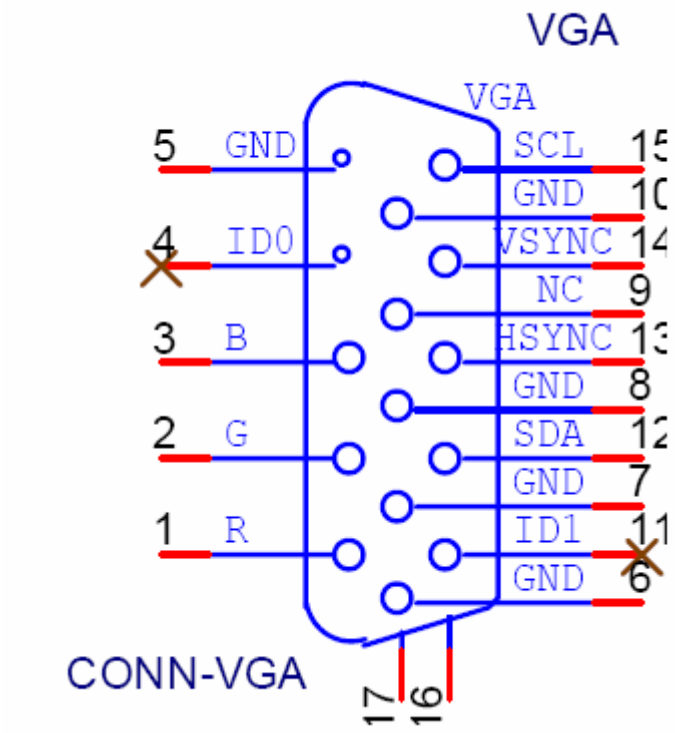
Pin	Signal Name
1	GND
2	LINE_OUT_L2
3	LINE_OUT_R5
4	FRONT-JD
5	FRONT-IO-SENSE2
6	NC

DCIN



Pin	Signal Name
1	DCIN
2	GND
3	GND
4	GND
5	GND
6	GND

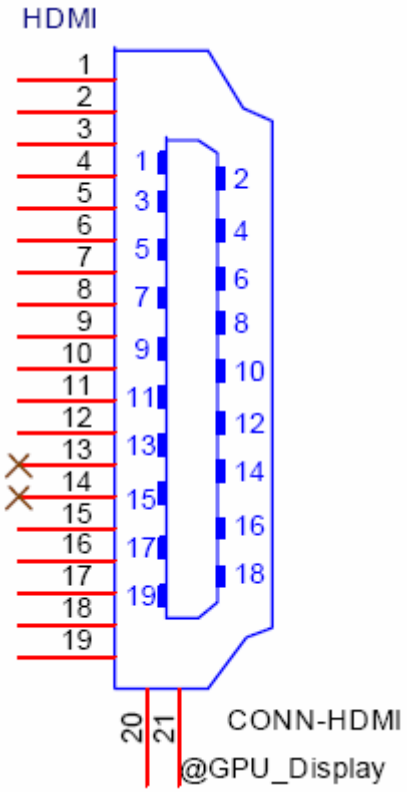
VGA(D-SUB)



Pin	Signal Name
1	LRED
2	LGREEN
3	LBLUE
4	NC
5	GND
6	GND
7	GND

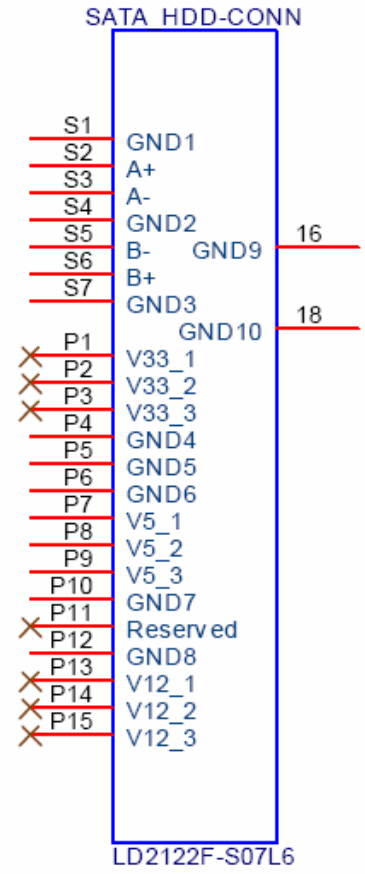
8	GND
9	5V_CONN
10	GND
11	NC
12	5V_DDCA_DATA
13	HSYNC_R
14	VSYNC_R
15	5V_DDCA_CLK
16	GND
17	GND

HDMI



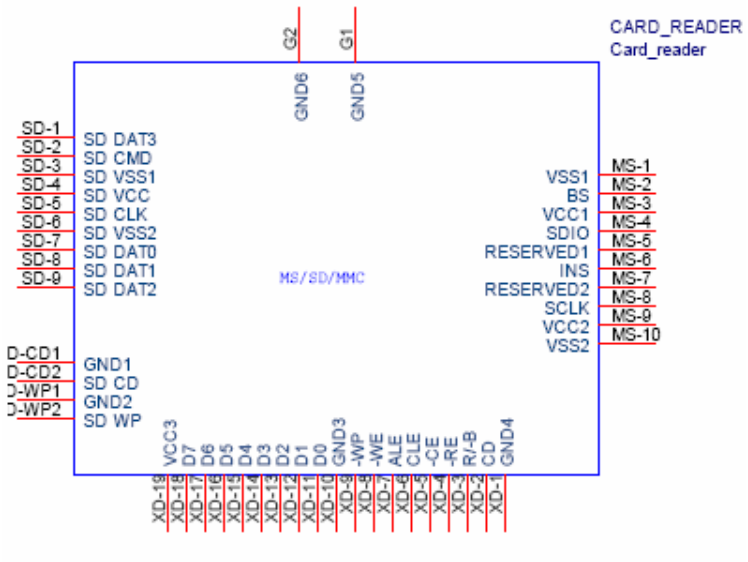
Pin	Signal Name
1	TX2+
2	GND
3	TX2-
4	TX1+
5	GND
6	TX1-
7	TX0+
8	GND
9	TX0-
10	TXC+
11	GND
12	TXC-
13	HDMI_CEC_C
14	NC
15	HDMI_DDCCLK
16	HDMI_DDCDATA
17	GND
18	5V_CONN
19	TMDS_HPD_HDMI
GROUND1	GND
GROUND1	GND
GND	GND
GND	GND

SATA CONN



Pin	Signal Name
S1	GND
S2	STXP_0
S3	STXN_0
S4	GND
S5	SRXN_0
S6	SRXP_0
S7	GND
P1	3D3V_S0
P2	3D3V_S0
P3	3D3V_S0
P4	GND
P5	GND
P6	GND
P7	5V_S0
P8	5V_S0
P9	5V_S0
P10	GND
P11	NC
P12	GND
P13	NC
P14	NC
P15	NC

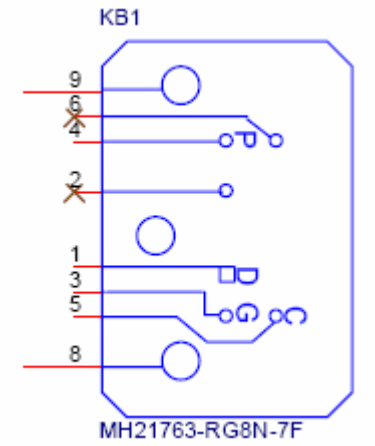
Card reader



Pin	Signal Name
SD-1	SD_DAT3
SD-2	SD_CMD
SD-3	GND
SD-4	CARD_3V3
SD-5	SD_CLK
SD-6	GND
SD-7	MS_SD_DAT0
SD-8	SD_DAT1
SD-9	SD_DAT2
SD-CD1	GND
SD-CD2	SD_CD#
SD-WP1	GND
SD-WP2	SD_WP
MS-1	GND
MS-2	MS_BS
MS-3	MS_D1

MS-4	MS_SD_DAT0
MS-5	MS_D2
MS-6	MS_INS#
MS-7	MS_D3
MS-8	CR_CLK
MS-9	CARD_3V3
MS-10	GND
G1	GND
G2	GND
XD-1	GND
XD-2	XD_CD#
XD-3	XD_RDY
XD-4	XD_RE#
XD-5	XD_CE#
XD-6	XD_CLE
XD-7	XD_ALE
XD-8	XD_WE#
XD-9	XD_WP#
XD-10	GND
XD-11	XD_D0
XD-12	XD_D1
XD-13	XD_D2
XD-14	XD_D3
XD-15	XD_D4
XD-16	XD_D5
XD-17	XD_D6
XD-18	XD_D7
XD-19	CARD_3V3

PS2 combo port



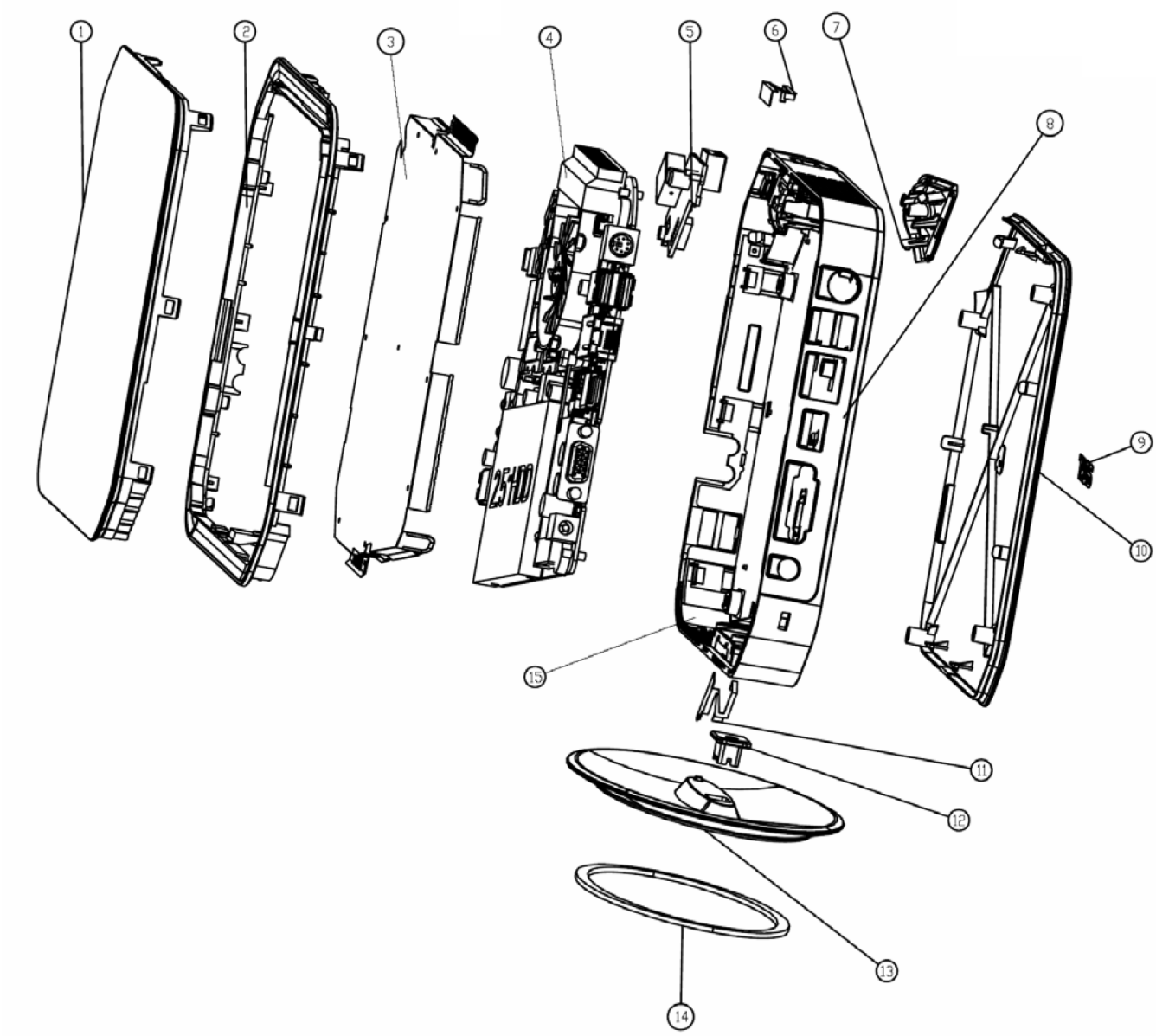
Pin	Signal Name
1	KB_DATA
2	NC
3	GND
4	USB_REAR_PWR
5	KB_CLK
6	NC
8	GND
9	GND

FRU (Field Replaceable Unit) List

This chapter gives you the FRU (Field Replaceable Unit) listing in global configurations of **Veriton N260/N260G** Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).

NOTE: Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. For whatever reasons a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the local FRU list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

Exploded Diagram



NO	PART NO	DESCRIPTION	Q'TY
1	bot-cover		1
2	cover-pannel		1
3	SHEETMETAL-TOP		1
4	ACER-1L-MB-LAYOUT		1
5	1L-POWER-SWITCH		1
6	ANTENNA_P_7		1
7	POWER-BUTTON		1
8	01-main-base		1
9	2009_ACER		1
10	top-cover		1
11	ANTENNA_B_8		1
12	ACER-1L-STAND-2		1
13	ACER-1L-STAND-1		1
14	RUBBER-STAND		1
15	SHEETMETAL-BOT		1

Veriton N260/N260G FRU List

Category	Description	Part Number
MAINBOARD		
	vHornet FGN40MK_1394(N)_Logo(Y)	MB.VA309.002
CPU Cooler		
	vhornet Cooler Intel ATOM NBT-PCHORNET-2 w/i 0712 blower	HI.10800.042
Memory		
	SO-DIMM DDRII667 1GB	KN.1GB0B.027
	SO-DIMM DDRII667 1GB	KN.1GB03.026
	SO-DIMM DDRII667 1GB	KN.1GB04.010
HDD		
	**HGST 2.5" 5400rpm 160GB HTS543216L9A300 Falcon-B SATA LF F/W:C40C**	KH.16007.019
	SEAGATE 2.5" 5400rpm 160GB ST9160310AS Crockett SATA LF F/W:0303	KH.16001.034
	WD 2.5" 5400rpm 160GB WD1600BEVT-22ZCTO ML160 SATA LF F/W:11.01A11	KH.16008.022
	HGST 2.5" 5400rpm 250GB HTS545025B9A300 Panther B SATA LF F/W:C60F	KH.25007.015
	SEAGATE 2.5" 5400rpm 250GB ST9250315AS Wyatt SATA LF F/W:0001SDM1	KH.25001.016
	WD 2.5" 5400rpm 250GB WD2500BEVT-22ZCT0 ML160 SATA LF F/W:11.01A11	KH.25008.021
Wireless Lan		
	T60H976.00, WLAN mini-card 802.11 b/g Atheros XB63 PCI-Express (firmware : v0.7)	NI.10200.010

	T77H053.00, WLAN mini-card,802.11 b/g/n 1T x 2R Atheros XB91	NI.10200.012
Adapter		
	ADP-65JH DBA (LV5)	AP.06501.026
	HP-A0652R3B 2LF (LV5)	AP.0650A.012
Mouse		
	Logitech 0810_USB Optical mouse USB M-UAY-ACR2	MS.11200.014
	Lite-On PS2 optical mouse PS2 SM-9620	MS.11200.018
	Chicony RF2.4G mouse RF2.4G MG-0766	MS.11200.015
KEYBOARD		
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black US with eKey Vista	KB.PS203.096
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Traditional Chinese with eKey Vista	KB.PS203.097
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Simplified Chinese with eKey Vista	KB.PS203.098
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black US International with eKey Vista	KB.PS203.099
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Arabic/English with eKey Vista	KB.PS203.100
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Thailand with eKey Vista	KB.PS203.101
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Spanish with eKey Vista	KB.PS203.102
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Portuguese with eKey Vista	KB.PS203.103
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Canadian French with eKey Vista	KB.PS203.104

	Keyboard CHICONY KB-0759 PS/2 Standard 107KS With eKey Black Brazilian Portuguese with eKey Vista	KB.PS203.105
	Keyboard CHICONY KB-0759 PS/2 Standard 109KS With eKey Black Japanese with eKey Vista	KB.PS203.106
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black German with eKey Vista	KB.PS203.107
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Italian with eKey Vista	KB.PS203.108
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black French with eKey Vista	KB.PS203.109
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Swedish with eKey Vista	KB.PS203.110
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black UK with eKey Vista	KB.PS203.111
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Dutch with eKey Vista	KB.PS203.112
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Swiss/G with eKey Vista	KB.PS203.113
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Belgium with eKey Vista	KB.PS203.114
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Icelandic with eKey Vista	KB.PS203.115
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Norwegian with eKey Vista	KB.PS203.116
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Hebrew with eKey Vista	KB.PS203.117
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Polish with eKey Vista	KB.PS203.118
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Slovenian with eKey Vista	KB.PS203.119
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Slovak with eKey Vista	KB.PS203.120
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Russian with eKey Vista	KB.PS203.121
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Hungarian with eKey Vista	KB.PS203.122
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Greek with eKey Vista	KB.PS203.123

	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Danish with eKey Vista	KB.PS203.124
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Czech with eKey Vista	KB.PS203.125
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Romanian with eKey Vista	KB.PS203.126
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Turkish with eKey Vista	KB.PS203.127
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Spanish Latin with eKey Vista	KB.PS203.128
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Turkish-Q with eKey Vista	KB.PS203.129
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Arabic/French with eKey Vista	KB.PS203.130
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Kazakh	KB.PS203.138
	Keyboard CHICONY KB-0759 PS/2 Standard 104KS With eKey Black Turkmen	KB.PS203.172
	Keyboard CHICONY KB-0759 PS/2 Standard 105KS With eKey Black Nordic	KB.PS203.211
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black US with eKey Vista	KB.USB03.062
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black Traditional Chinese with eKey Vista	KB.USB03.063
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black Simplified Chinese with eKey Vista	KB.USB03.064
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black US International with eKey Vista	KB.USB03.065
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black Arabic/English with eKey Vista	KB.USB03.066
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	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Spanish with eKey Vista	KB.USB03.068
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Portuguese with eKey Vista	KB.USB03.069
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Canadian French with eKey Vista	KB.USB03.070

	Keyboard CHICONY KU-0760 USB Standard 107KS With eKey Black Brazilian Portuguese with eKey Vista	KB.USB03.071
	Keyboard CHICONY KU-0760 USB Standard 109KS With eKey Black Japanese with eKey Vista	KB.USB03.072
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black German with eKey Vista	KB.USB03.073
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	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black French with eKey Vista	KB.USB03.075
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Swedish with eKey Vista	KB.USB03.076
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black UK with eKey Vista	KB.USB03.077
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Dutch with eKey Vista	KB.USB03.078
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Swiss/G with eKey Vista	KB.USB03.079
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Belgium with eKey Vista	KB.USB03.080
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Icelandic with eKey Vista	KB.USB03.081
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Norwegian with eKey Vista	KB.USB03.082
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black Hebrew with eKey Vista	KB.USB03.083
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Polish with eKey Vista	KB.USB03.084
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Slovenian with eKey Vista	KB.USB03.085
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Slovak with eKey Vista	KB.USB03.086
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black Russian with eKey Vista	KB.USB03.087
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Hungarian with eKey Vista	KB.USB03.088
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black Greek with eKey Vista	KB.USB03.089

	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Danish with eKey Vista	KB.USB03.090
	Keyboard CHICONY KU-0760 USB Standard 104KS With eKey Black Czech with eKey Vista	KB.USB03.091
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Romanian with eKey Vista	KB.USB03.092
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Turkish with eKey Vista	KB.USB03.093
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Spanish Latin with eKey Vista	KB.USB03.094
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Turkish-Q with eKey Vista	KB.USB03.095
	Keyboard CHICONY KU-0760 USB Standard 105KS With eKey Black Arabic/French with eKye Vista	KB.USB03.096
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	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Spanish Latin with eKey Vista	KB.PS20B.007
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Turkish-Q with eKey Vista	KB.PS20B.008
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Danish with eKey Vista	KB.PS20B.009
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Czech with eKey Vista	KB.PS20B.010
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Slovak with eKey Vista	KB.PS20B.011
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Russian with eKey Vista	KB.PS20B.012
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Hungarian with eKey Vista	KB.PS20B.013
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	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Hebrew with eKey Vista	KB.PS20B.020
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Dutch with eKey Vista	KB.PS20B.021
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Swiss/G with eKey Vista	KB.PS20B.022
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Italian with eKey Vista	KB.PS20B.023
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	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black UK with eKey Vista	KB.PS20B.026
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	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Portuguese with eKey Vista	KB.PS20B.030
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Canadian French with eKey Vista	KB.PS20B.031
	Keyboard LITE-ON SK-9620 PS/2 Standard 107KS With eKey Black Brazilian Portuguese with eKey Vista	KB.PS20B.032
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Arabic/English with eKey Vista	KB.PS20B.033
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Thailand with eKey Vista	KB.PS20B.034
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black US with eKey Vista	KB.PS20B.035

	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Traditional Chinese with eKey Vista	KB.PS20B.036
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Simplified Chinese with eKey Vista	KB.PS20B.037
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black US International with eKey Vista	KB.PS20B.038
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Arabic/French with eKey Vista	KB.PS20B.039
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Kazakh	KB.PS20B.041
	Keyboard LITE-ON SK-9620 PS/2 Standard 104KS With eKey Black Turkmen	KB.PS20B.042
	Keyboard LITE-ON SK-9620 PS/2 Standard 105KS With eKey Black Nordic	KB.PS20B.043
	Keyboard LITE-ON SK-9625 USB Standard 104KS With eKey Black US with eKey Vista	KB.USB0B.043
	Keyboard LITE-ON SK-9625 USB Standard 104KS With eKey Black Traditional Chinese with eKey Vista	KB.USB0B.044
	Keyboard LITE-ON SK-9625 USB Standard 104KS With eKey Black Simplified Chinese with eKey Vista	KB.USB0B.045
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	Keyboard LITE-ON SK-9625 USB Standard 105KS With eKey Black Turkish-Q with eKey Vista	KB.USB0B.076
	Keyboard LITE-ON SK-9625 USB Standard 105KS With eKey Black Arabic/French with eKey Vista	KB.USB0B.077
	Keyboard CHICONY KG-0766 RF2.4 Standard 104KS With eKey Black US with eKey Vista	KB.RF403.027
	Keyboard CHICONY KG-0766 RF2.4 Standard 104KS With eKey Black Traditional Chinese with eKey Vista	KB.RF403.028
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	Keyboard CHICONY KG-0766 RF2.4 Standard 104KS With eKey Black US International with eKey Vista	KB.RF403.030
	Keyboard CHICONY KG-0766 RF2.4 Standard 104KS With eKey Black Arabic/English with eKey Vista	KB.RF403.031
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	Keyboard CHICONY KG-0766 RF2.4 Standard 105KS With eKey Black German with eKey Vista	KB.RF403.038

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	Keyboard CHICONY KG-0766 RF2.4 Standard 105KS With eKey Black Turkish-Q with eKey Vista	KB.RF403.060
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black US with eKey Vista / smaller gift box	KB.USB0B.006
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Traditional Chinese with eKey Vista / sm	KB.USB0B.007
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Simplified Chinese with eKey Vista / sma	KB.USB0B.008
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black US International with eKey Vista / small	KB.USB0B.009
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Arabic/English with eKey Vista / smaller	KB.USB0B.010
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Thailand with eKey Vista / smaller gift	KB.USB0B.011
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Spanish with eKey Vista / smaller gift b	KB.USB0B.012
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Portuguese with eKey Vista / smaller gif	KB.USB0B.013
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	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Swedish with eKey Vista / smaller gift b	KB.USB0B.020
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black UK with eKey Vista / smaller gift box	KB.USB0B.021
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Dutch with eKey Vista / smaller gift box	KB.USB0B.022
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Swiss/G with eKey Vista / smaller gift b	KB.USB0B.023
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	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Icelandic with eKey Vista / smaller gift	KB.USB0B.025
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Norwegian with eKey Vista / smaller gift	KB.USB0B.026
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Hebrew with eKey Vista / smaller gift bo	KB.USB0B.027
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Polish with eKey Vista / smaller gift bo	KB.USB0B.028
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Slovenian with eKey Vista / smaller gift	KB.USB0B.029
	Keyboard LITE-ON SK-9610 USB Standard 105KS	KB.USB0B.030

	With eKey Black Slovak with eKey Vista / smaller gift bo	
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Turkish-Q with eKey Vista / smaller gift	KB.USB0B.031
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Russian with eKey Vista / smaller gift b	KB.USB0B.032
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Hungarian with eKey Vista / smaller gift	KB.USB0B.033
	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Greek with eKey Vista / smaller gift box	KB.USB0B.034
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	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Turkish with eKey Vista / smaller gift b	KB.USB0B.038
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Arabic/French with eKey Vista / smaller	KB.USB0B.039
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Spanish Latin with eKey Vista / smaller	KB.USB0B.040
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Italian Ver. S1(with eKey) RoHS / smaller	KB.USB0B.041
	Keyboard LITE-ON SK-9610 USB Standard 105KS With eKey Black Italian Ver. S1(with eKey Vista) RoHS/sm	KB.USB0B.042

	Keyboard LITE-ON SK-9610 USB Standard 104KS With eKey Black Kazakh with eKey Vista / smaller gift box	KB.USB0B.078