DN-300-R1

Industrial Motherboard

E15652
First Edition
August 2019

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Chapter 1
Product overview

Specifications

CPU	LGA1151 socket for 8th/9th Generation Intel® Core™ i7/ i5/ i3, Pentium®, and Celeron® processors Supports Intel® 14nm CPU *** CPU only supports up to 65W.** ****Refer to www.asus.com for Intel® CPU support list.**
Chipset	Intel® Q370 Chipset
Memory	2 x SO-DIMM, max.32GB, DDR4 2666*/2400/2133 MHz, non-ECC, un-buffered memory Dual-channel memory architecture *** DDR4 2666MHz and higher memory modules will run at max. 2666MHz on Intel® 8th Gen. 6-core or higher processors.** ****Refer to www.asus.com for the latest Memory QVL (Qualified Vendors List).**
Display	Integrated graphics processor - Intel® HD Graphics support Multi-VGA output support: 2x PanelLink 2.0 (DVI-D)/VGA ports Supports up to 3 displays simultaneously
Expansion Slots	1 x M.2 Socket 3 with M key, type 2260/2280 (SATA/PCIe mode) storage devices support 1 x PCIe x16 slot 2 x PCIe x1 slots 1 x slot for USB Type-C card
LAN	1 x Intel® I219LM PCIe Gigabit LAN
Audio	Realtek® ALC887-VD2 2-channel High Definition Audio CODEC
USB	2 x USB 3.1 Gen 2 connectors (@back I/O) 4 x USB 2.0 headers support additional 6 USB 2.0 connectors (@mid-board, 1 from USB1_hub, 2 from USB2_Front, 2 from USB3, 1 from USB4) 2 x USB 2.0 connectors (@back I/O)
Serial Port	1 x COM connector (RS232) @back I/O 5 x COM headers (RS232)* *** The five on-board COM headers are powered by +12V/+5V.**
SIO	NCT6116D

(continued on the next page)

Rear Panel I/O Ports	1 x PS/2 keyboard/mouse combo port 1 x COM connector 1 x LAN (RJ45) port 1 x VGA port 2 x DVI-D/PanelLink 2 x USB 2.0 connectors 2 x USB 3.1 Gen 2 connectors 3 x Audio jacks
Front Panel I/O Ports	3 x SATA 6.0 Gb/s connectors 1 x CPU fan connector 1 x PSU fan connector 1 x Front panel header 1 x 3-pin Clear RTC jumper 1 x Clear Password jumper 1 x 24-pin EATX power connector 1 x 4-pin ATX power connector 1 x 3-pin Chassis Intrusion connector 4 x USB 2.0 headers 5 x COM connectors 1 x TPM 14-1 pin header 1 x LPT header 1 x SPI header 1 x LPC debug header 1 x Disable ME jumper
BIOS	256 Mb Flash ROM, UEFI AMI BIOS
Watch dog timer	Yes
Possible wake-up sources	Wake on Time Wake on LAN Wake on USB Wake on PS/2 Wake on PCIe Wake on Ring Wake on PLink1 Wake on PLink2
Operation Temperature	0~60°C
Non-operation Temperature	-40~85°C
Relative Humidity	0%~85%
Certification	CE, FCC, CB
OS Support	Windows® 10 (64-bit), Linux 64-bit (WNLPOS, CentOS 7 based)
Form Factor	Micro-ATX form factor, 8.9” x 8.2” (22.6cm x 20.8cm)

Chapter 2
Motherboard information

2.1 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

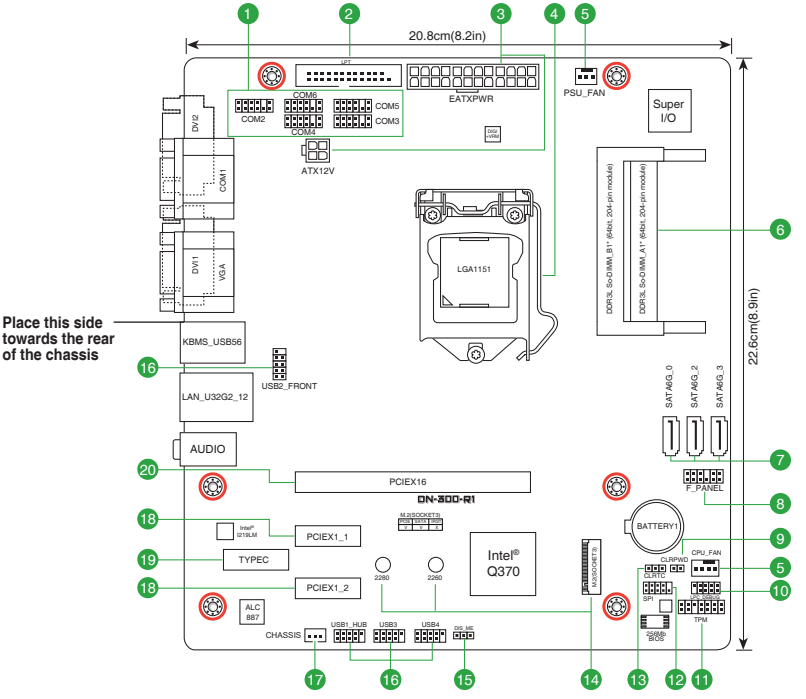
CAUTION!

- Unplug the power cord from the wall socket before touching any component.
- Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, always remove the AC power by unplugging the power cord from the power outlet. Failure to do so may cause severe damage to the motherboard, peripherals, or components.

2.2 Motherboard layout

NOTE: Place four screws into the holes indicated by circles to secure the motherboard to the chassis.

CAUTION! Do not overtighten the screws! Doing so can damage the motherboard.



Connectors/Jumpers/Slots		Page
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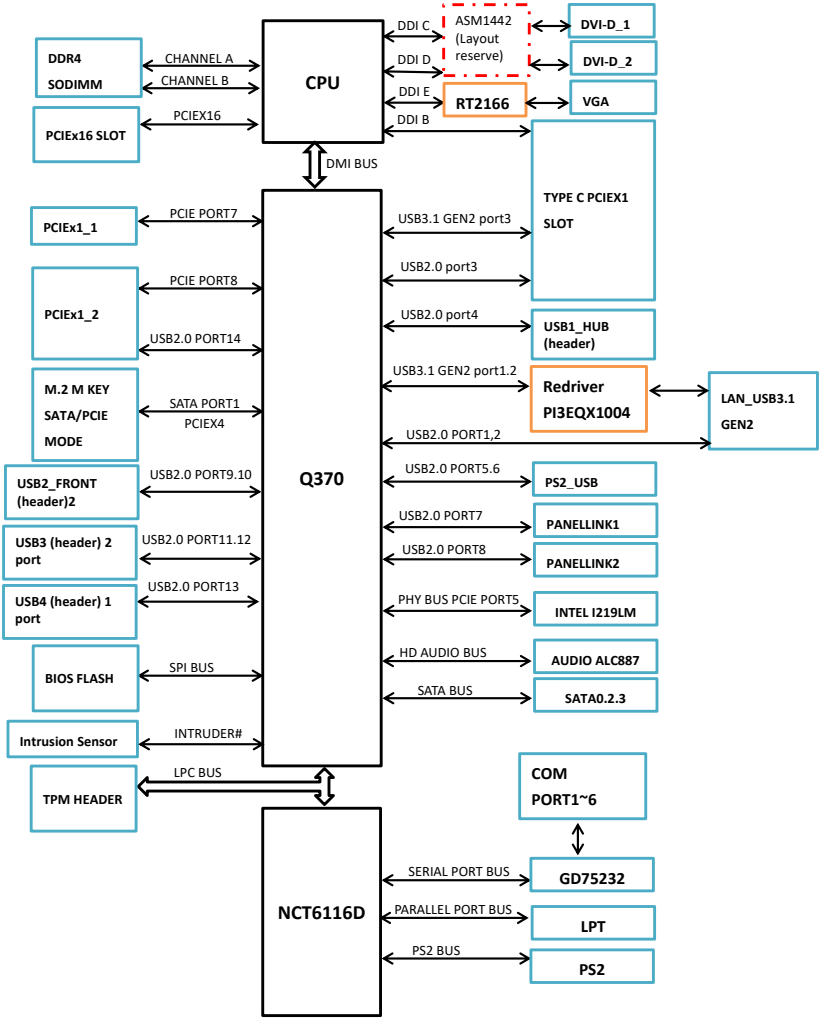
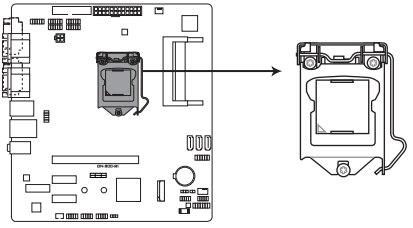
2.3 Block diagram



2.4 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA1151 socket designed for the 8th/9th Generation Intel® Core™ i7/ i5/ i3, Pentium®, and Celeron® processors.



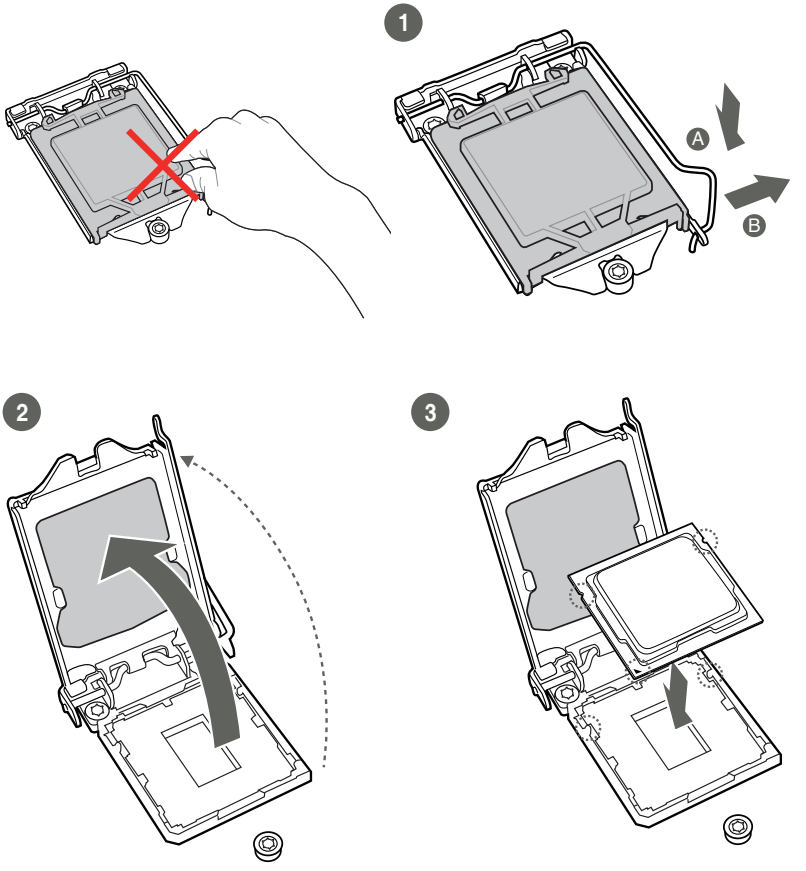
DN-300-R1 CPU socket LGA1151

IMPORTANT: Unplug all power cables before installing the CPU.

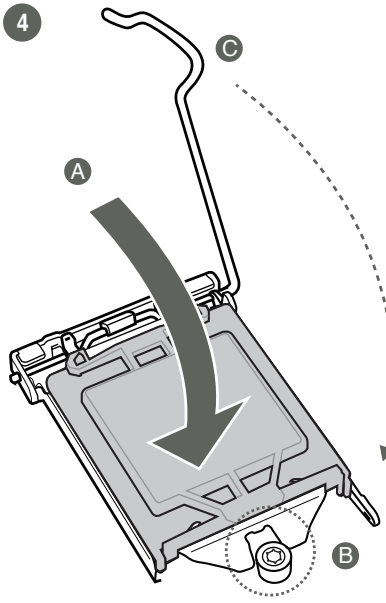
CAUTION!

- Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. The manufacturer will shoulder the cost of repair only if the damage is shipment/transit-related.
- Keep the cap after installing the motherboard. The manufacturer will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA1151 socket.
- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/ incorrect removal of the PnP cap.

2.4.1 Installing the CPU



CAUTION! LGA1156 CPU is not compatible with the LGA1151 socket. DO NOT install an LGA1156 CPU on the LGA1151 socket.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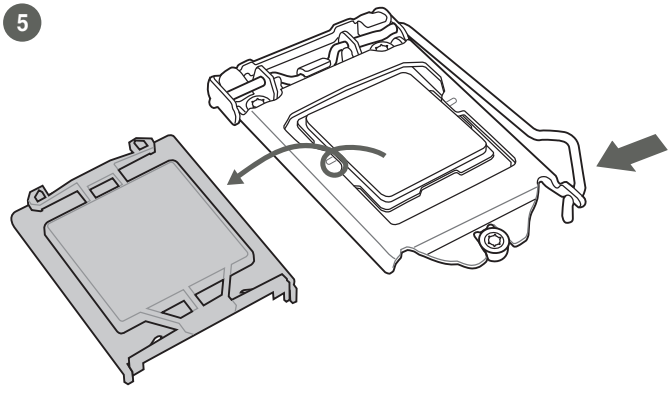
C
A
B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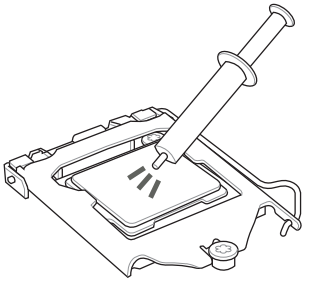
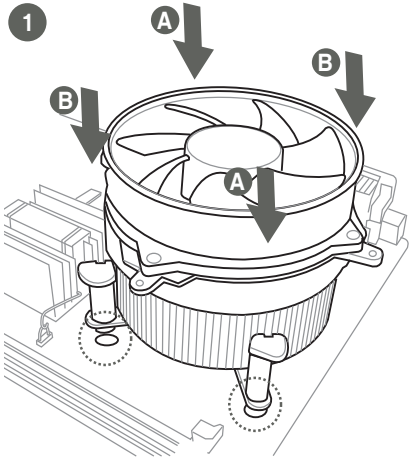
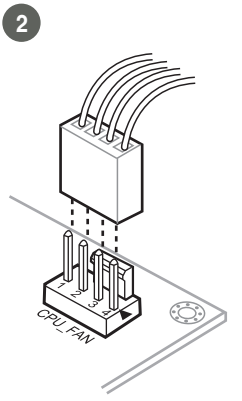
2.4.2 CPU heatsink and fan assembly installation

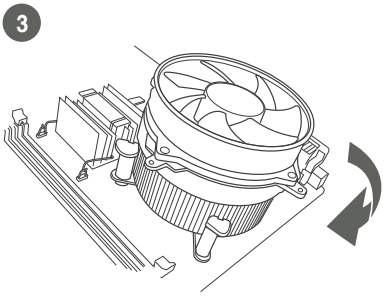


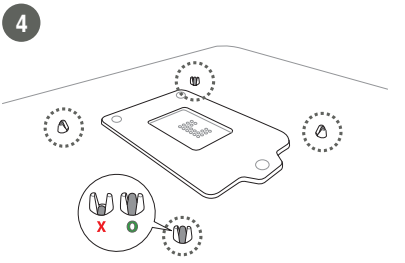
CAUTION! Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary.

To install the CPU heatsink and fan assembly



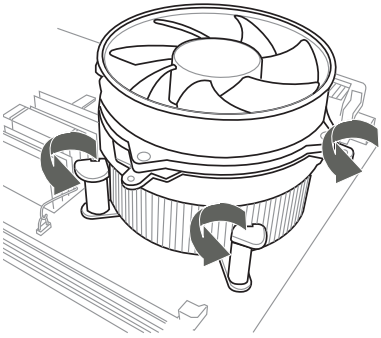






To uninstall the CPU heatsink and fan assembly

1



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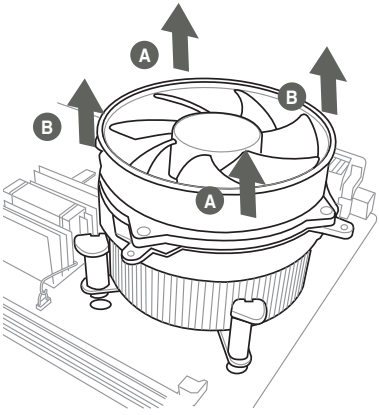
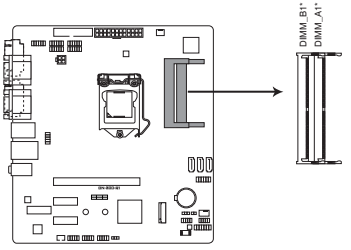


2.5 System memory

This motherboard comes with two Double Data Rate 4 (DDR4) Small Outline Dual Inline Memory Module (SO-DIMM) sockets. The figure below illustrates the location of the DDR4 SO-DIMM sockets:

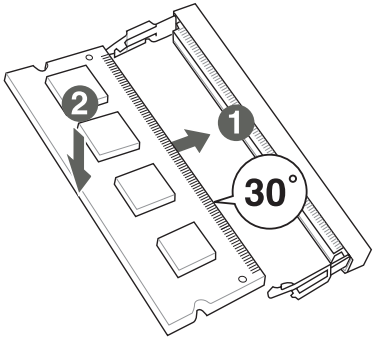


Channel	Sockets
Channel A	SO-DIMM_A1*
Channel B	SO-DIMM_B1*

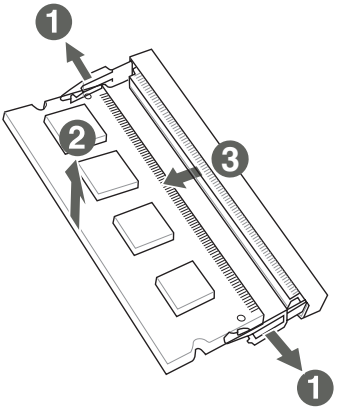
DN-300-R1 260-pin DDR4 SO-DIMM sockets

Installing a DIMM

To install a DIMM



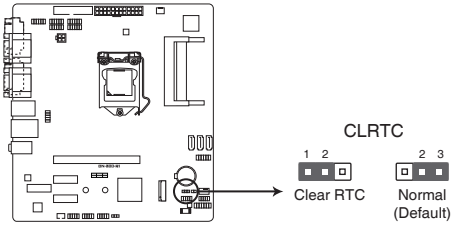
To remove a DIMM



2.6 Jumpers

1. Clear RTC RAM (3-pin CLRTC)

This header allows you to clear the CMOS RTC RAM data.



DN-300-R1 Clear RTC RAM

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 2-3 (default) to pins 1-2. Keep the cap on pins 1-2 for about 5~10 seconds, then move the cap back to pins 2-3.
3. Plug the power cord and turn ON the computer.
4. Hold down the **<Del>** key during the boot process and enter BIOS setup to reenter data.

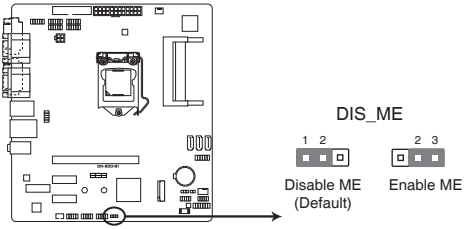
CAUTION! Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

NOTES:

- You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.
- This jumper will just load BIOS defaults, and will not clear BIOS password.

2. Intel® ME Jumper (3-pin DIS_ME)

This jumper allows you to enable or disable the Intel® ME function. Set this jumper to pins 1-2 to enable (default) the Intel® ME function and to pins 2-3 to disable it.

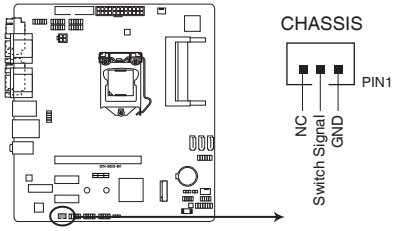


DN-300-R1 Intel® ME jumper

NOTE: Disable the Intel® ME function before updating it.

3. Chassis intrusion connector (3-pin CHASSIS)

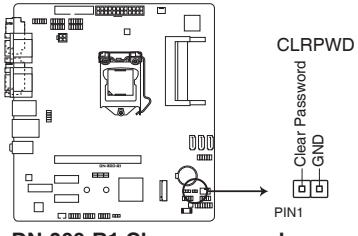
This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.



DN-300-R1 Chassis intrusion connector

4. Clear password jumper (2-pin CLRPWD)

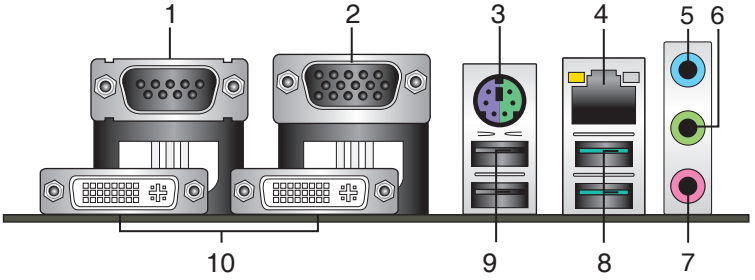
Short the two pins, and press <F2> to enter BIOS at the next boot. The BIOS password will be removed.



DN-300-R1 Clear password

2.7 Connectors

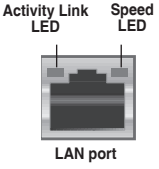
2.7.1 Rear panel connectors



1. **Serial port connectors (COM).** These ports connect a modem, or other devices that conform with serial specification.
2. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.
3. **PS/2 keyboard/mouse port**. This port is for a PS/2 keyboard or mouse.
4. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.

   LAN port LED indications

Activity/Link LED		Speed LED	
Status	Description	Status	Description
Off	No link	OFF	10Mbps connection
Orange	Linked	ORANGE	100Mbps connection
Orange (Blinking)	Data activity	GREEN	1Gbps connection
Orange (Blinking then steady)	Ready to wake up from S5 mode		



5. **Line In port (light blue).** This port connects to the tape, CD, DVD player, or other audio sources.
6. **Line Out port (lime).** This port connects to a headphone or a speaker.
7. **Microphone port (pink)**. This port connects to a microphone.

8. **USB 3.1 Gen 2 (up to 10Gbps) ports.** These 9-pin Universal Serial Bus (USB) ports are for USB 3.1 Gen 2 devices.

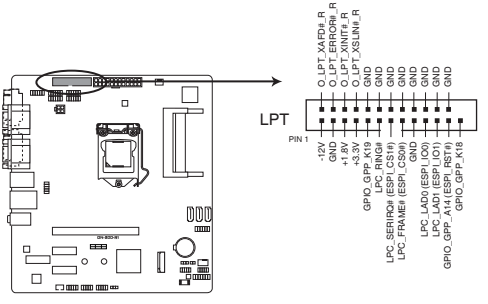
- USB 3.1 Gen 2 devices can only be used for data storage.
- We strongly recommend that you connect USB 3.1 Gen 2 devices to USB 3.1 Gen 2 ports for faster and better performance from your USB 3.1 Gen 2 devices.
- Due to the design of the Intel® 300 series chipset, all USB devices connected to the USB 2.0 and USB 3.1 Gen 2 ports are controlled by the xHCI controller. Some legacy USB devices must update their firmware for better compatibility.

9. **USB 2.0 ports.** These 4-pin Universal Serial Bus (USB) ports are for USB 2.0/1.1 devices.
10. **DVI-D and PLINK port.** This port is for DVI-D and PLINK display devices.

2.7.2 Internal connectors

1. LPT connector (26-1 pin LPT)

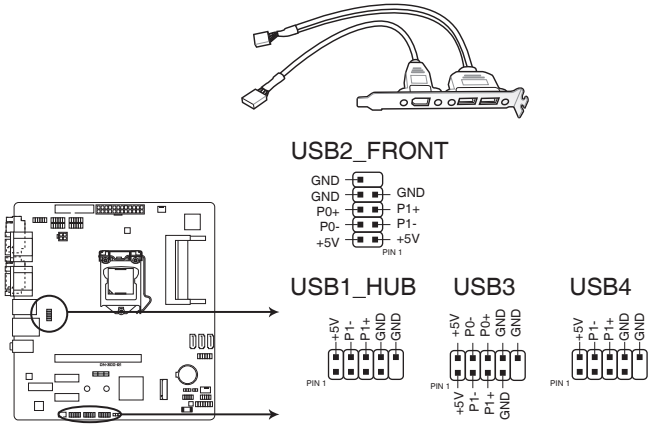
The LPT (Line Printing Terminal) connector supports devices such as a printer. LPT is standardized as IEEE 1284, which is the parallel port interface on IBM PC-compatible computers.



DN-300-R1 LPT connector

2. USB 2.0 connectors (10-pin USB1_HUB, USB2_FRONT, USB3, USB4)

These connectors are for USB 2.0 ports. Connect the USB cable to these connectors. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.



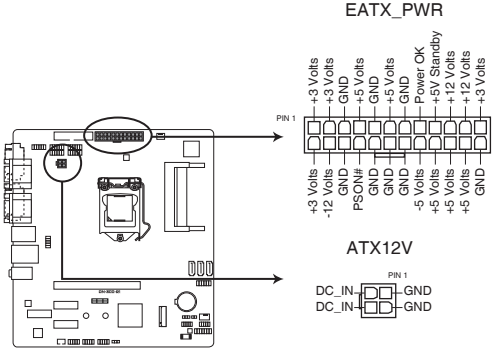
DN-300-R1 USB2.0 connectors

CAUTION! Never connect a 1394 cable to the USB connector. Doing so will damage the motherboard.

NOTE: The USB cable is purchased separately.

3. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

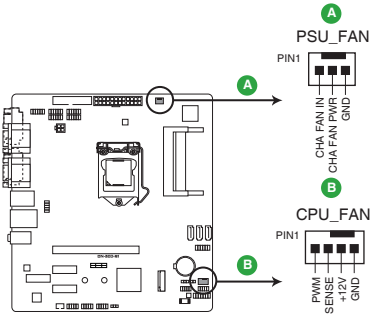
Correctly orient the ATX power supply plugs into these connectors and push down firmly until the connectors completely fit.



DN-300-R1 ATX power connectors

4. CPU and PSU fan connectors (4-pin CPU_FAN, 3-pin PSU_FAN)

Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.

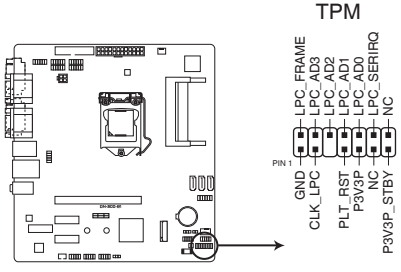


DN-300-R1 Fan connectors

CAUTION: Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!

5. TPM connector (14-1 pin TPM)

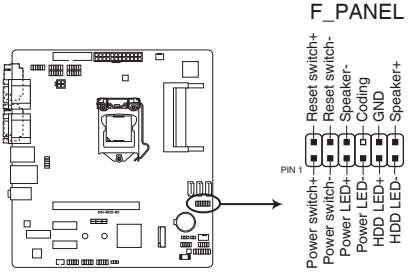
This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.



DN-300-R1 TPM connector

6. Front panel system panel connector (12-1 pin F_PANEL)

This connector supports several chassis-mounted functions.



DN-300-R1 Front panel connector

- **System power LED (2-pin Power LED)**

  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED (2-pin HDD LED)**

  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

- **System warning speaker (4-1 pin Speaker)**

  This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **ATX power button/soft-off button (2-pin Power switch)**

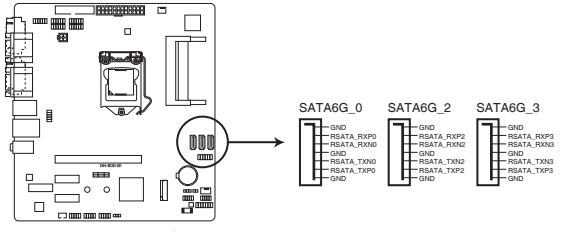
  This 2-pin connector is for the system power button.

- **Reset button (2-pin Reset)**

  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

7. Serial ATA 6.0Gb/s connectors (7-pin SATA6G_0/2/3)

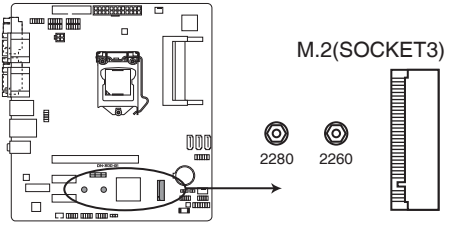
These connector connects to Serial ATA 6.0 Gb/s hard disk drives or an optical drive via Serial ATA 6.0 Gb/s signal cables.



DN-300-R1 Intel® SATA 6 Gb/s connectors

8. M.2 socket 3

This socket allows you to install an M.2 (NGFF) SSD module.



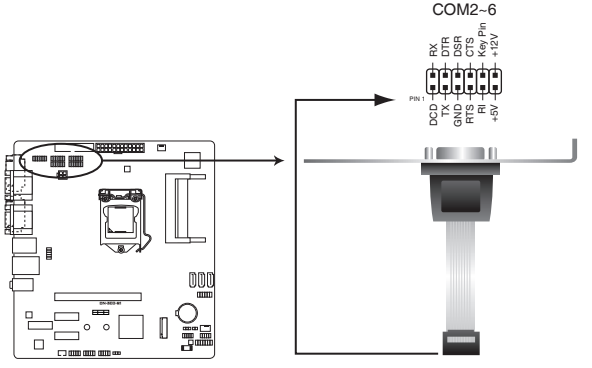
DN-300-R1 M.2 socket

NOTES:

- The M.2 SSD module is purchased separately.
- This socket supports M Key and 2260/2280 SATA/PCIe mode storage devices.

9. Serial port connectors (12-1 pin COM2, COM3, COM4, COM5, COM6)

These connectors are for serial (COM) ports. Connect the serial port cables to these connectors, then install the module to a slot opening at the back of the system chassis.

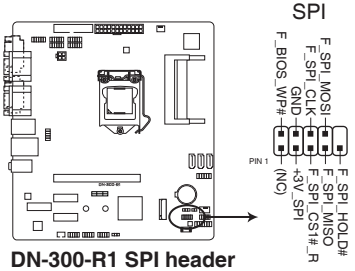


DN-300-R1 Serial port (COM) connectors

NOTE: The serial port cables are purchased separately.

10. SPI header (10-1 pin SPI)

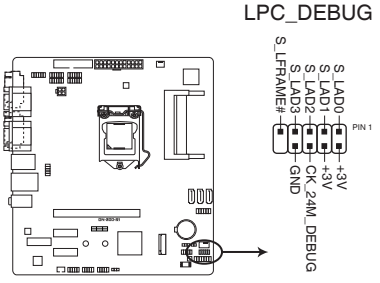
Use this connector to flash the BIOS ROM.



DN-300-R1 SPI header

11. LPC debug header

This header allows connection to a LPC debug card.



DN-300-R1 LPC debug header

IMPORTANT!

- Scan the QR code to view the meaning of each debug code.
- Debug codes are only available for ASUS LPC debug card.
- Contact your region sales representative for LPC debug header ordering.

Chapter 3

BIOS setup

Scan the QR code to view the BIOS update guide.

3.1 BIOS setup program

Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program.

Entering BIOS Setup at startup

To enter BIOS Setup at startup:

Press <F2> during the Power-On Self Test (POST). If you do not press <F2>, POST continues with its routines.

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

- Press **<Ctrl>+<Alt>+<Del>** simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options.

NOTE: Using the power button, reset button, or the <Ctrl>+<Alt>+<Del> keys to reboot a running operating system can cause damage to your data or system. Always shut down the system properly from the operating system.

IMPORTANT:

- Visit the ASUS website at www.asus.com to download the latest BIOS file for this motherboard.
- The default BIOS settings for this motherboard apply to most working conditions and ensures optimal performance. If the system becomes unstable after changing any BIOS settings, load the default settings to regain system stability. Select the option **Load Optimized Defaults** under the Exit Menu or press hotkey F3.
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

3.1.1 ASUS Self-Recovering BIOS

ASUS-exclusive BIOS protection technology automatically recovers the system's BIOS with a verified backup in the event of an update failure, preventing the need to replace or reinstall your hardware.

How ASUS Self-Recovering BIOS works?

ASUS EZ Flash utility keeps an verified backup of the BIOS (.cap) file in a hidden area of your HDD. Once the crash happens, all you need to do is reboot. Your system will automatically activate BIOS self-recovery. ASUS EZ Flash will read the BIOS (.cap) file stored in the hidden area of your HDD, and start recovering the BIOS.

3.1.2 BIOS menu screen

Menu bar

The menu bar on top of the screen has the following main items:

Info	An overview of the basic system information
Main	For changing the basic system configuration.
Advanced	For changing the advanced system settings.
Monitor	For displaying the system temperature, power status, and changing the fan settings
Boot	For changing the system boot configuration.
Tool	For configuring options for special functions
Exit	For selecting the exit options and loading default settings.
Event Logs	For easier troubleshooting by capturing useful system information.

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

3.2 Main menu

The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, and security settings.

3.2.1 System Date [Day MM/DD/YYYY]

Allows you to set the system date.

3.2.2 System Time [HH:MM:SS]

Allows you to set the system time.

3.2.3 System Information

This menu provides you an overview of the basic system information.

3.2.4 Security

The Security menu items allow you to change the system security settings.

- If you have forgotten your BIOS password, use the clear password jumper to clear the BIOS password. See section **2.6 Jumpers** for information on how to use the clear password jumper.
- The **Administrator** or **Boot Menu Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system.

To set an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. From the **Confirm New Password** box, key in your password again to confirm the password, then click **OK**.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. From the **Confirm New Password** box, key in your password again to confirm the password, then click **OK**.

To clear the administrator password, follow the same steps as in changing an administrator password, but click **OK** when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

Boot Menu Password

If you have set a Boot Menu password, you must enter the password for accessing the Boot Menu. The **Boot Menu Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a Boot Menu password:

1. Select the **Boot Menu Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.

3. From the **Confirm New Password** box, key in your password again to confirm the password, then click **OK**.

To change a Boot Menu password:

1. Select the **Boot Menu Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. From the **Confirm New Password** box, key in your password again to confirm the password, then click **OK**.

To clear the Boot Menu password, follow the same steps as in changing a Boot Menu password, but click **OK** when prompted to create/confirm the password. After you clear the password, the **Boot Menu Password** item on top of the screen shows **Not Installed**.

Clear password jumper support [Enabled]

When this item is set to [Enabled], and the clear password jumper is set to clear password pins, the BIOS password will be cleared at the next boot when entering BIOS setup by pressing <F2>. Configuration options: [Disabled] [Enabled]

Chassis Intrusion [Disabled]

This item allows you to enable or disable the chassis intrusion detection function. Connect one end of the chassis intrusion sensor or switch cable to the chassis instrusion connector. The chassis intrusion sensor or switch cable sends high--level signal to the connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event. Configuration options: [Disabled] [Enabled]

TPM clear on intrusion [Disabled]

When this item is set to [Enabled], an intrusion event must clear the active TPM without requiring any user confirmation. Configuration options: [Disabled] [Enabled]

3.3 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

Be cautious when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

3.3.1 Platform Misc Configuration

The items in this menu allow you to configure the platform-related features.

PCI Express Native Power Management [Disabled]

This item allows you to enhance the power saving feature of PCI Express and perform ASPM operations in the operating system. Configuration options: [Disabled] [Enabled]

The following item appears only when you set the PCI Express Native Power Management to **[Enabled]**.

Native ASPM [Disabled]

[Enabled]	Windows® Vista OS controls the ASPM (active state power management) support for devices.
[Disabled]	BIOS controls the ASPM support for the device.
[Auto]	Automatic configuration.

PCH - PCI Express options

PCH DMI ASPM [Disabled]

This item allows you to control the Active State Power Management on both NB (NorthBridge) side and SB (SouthBridge) side of the DMI Link. Configuration options: [Disabled] [L0s] [L1] [L0sL1] [Auto]

ASPM [Disabled]

This item allows you to select the ASPM state for energy-saving conditions. Configuration options: [Disabled] [L0s] [L1] [L0sL1] [Auto]

L1 Substates [Disabled]

This item allows you to select the PCI Express L1 Substates settings. Configuration options: [Disabled] [L1.1] [L1.1 & L1.2]

PCI Express Clock Gating [Enabled]

This item allows you to enable or disable PCI Express Clock Gating for each port. Configuration options: [Disabled] [Enabled]

PCIe Speed [Auto]

Allows you to configure the PCIe speed. Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

SA - PCI Express options

DMI Link ASPM Control [Disabled]

This item allows you to control the Active State Power Management on both CPU and PCH (platform controller hub) Both DMI link ASPM control items of the CPU and PCH sides must be enabled for the ASPM to take effect. Configuration options: [Disabled] [L0s] [L1] [L0sL1]

PEG-ASPM [Disabled]

This item allows you to select the ASPM state for energy-saving conditions, or use the ASUS optimized energy saving profile. Configuration options: [Disabled] [Auto] [ASPM L0s] [ASPM L1] [ASPM L0sL1]

SR-IOV Support [Disabled]

This option enables or disables Single Root IO Virtualization Support if the system has SR-IOV capable PCIe devices. Configuration options: [Disabled] [Enabled]

3.3.2 CPU Configuration

The items in this menu show CPU-related information the BIOS automatically detects.

The items shown in the submenu may be different depending on the type of CPU installed.

Software Guard Extensions (SGX) [Software Controlled]

This item allows you to enable or disable Software Guard Extensions (SGX). Configuration options: [Disabled] [Enabled] [Software Controlled]

Tcc Offset Time Window [Auto]

This item allows you to set the TCC Offset Time Window for Running Average Temperature Limit (RATL) feature. RATL allows setting an average max thermal temperature. Temperatures within the time window can get higher than the temperature threshold but only the average is used to cause frequency clipping. Configuration options: [Auto] [Disabled] [5 ms] - [448 sec]

Hardware Prefetcher [Enabled]

This item allows you to turn on/off the MLC streamer prefetcher. Configuration options: [Disabled] [Enabled]

Adjacent Cache Line Prefetcher [Enabled]

This item allows you to turn on/off prefetching adjacent cache lines. Configuration options: [Disabled] [Enabled]

Intel (VMX) Virtualization Technology [Disabled]

When set to **[Enabled]**, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. Configuration options: [Disabled] [Enabled]

Active Processor Cores [All]

This item allows you to select the number of CPU cores to activate in each processor package. Configuration options: [All] [1] [2] [3] [4] [5]

For some CPU types, only [**All**] and [**1**] appear.

Hyper-threading [Enabled]

The Intel Hyper-Threading Technology allows a hyper-threading processor to appear as two logical processors to the operating system, allowing the operating system to schedule two threads or processes simultaneously.

[Enabled] Two threads per activated core are enabled.

[Disabled] Only one thread per activated core is enabled.

Thermal Monitor [Enabled]

This item allows you to enable or disable the Thermal Monitor.
Configuration options: [Disabled] [Enabled]

CPU Power Management Control

This item allows you to manage and configure the CPU's power.

Intel(R) SpeedStep(tm) [Auto]

This item allows your system to support more than two frequency ranges. Configuration options: [Auto] [Disabled] [Enabled]

Intel(R) Speed Shift Technology [Auto]

This item allows you to enable or disable Intel(R) Speed Shift Technology support. When enabled, CPPC v2 interface allows hardware controlled P-states. Configuration options: [Auto] [Disabled] [Enabled]

Turbo Mode [Enabled]

This item allows you to automatically set the CPU cores to run faster than the base operating frequency when it is below the operating power, current and temperature specification limit. Configuration options: [Enabled] [Disabled]

Turbo Mode is only available on selected CPU models only.

CPU C-states [Auto]

This item allows you to set the power saving of the CPU states. Configuration options: [Auto] [Disabled] [Enabled]

The following items appear only when you set the CPU C-States to [Enabled].

Enhanced C-states [Enabled]

[Enabled] Enables enhanced C1 state.

[Disabled] Disables enhanced C1 state.

CPU C3 Report [Enabled]

Allows you to disable or enable the CPU C3 report to OS. Configuration options: [Enabled] [Disabled]

CPU C6 Report [Enabled]

Allows you to disable or enable the CPU C6 report to OS. Configuration options: [Enabled] [Disabled]

CPU C7 Report [CPU C7s]

Allows you to disable or enable the CPU C7 report to OS. Configuration options: [Disabled] [CPU C7] [CPU C7s]

CPU C8 Report [Enabled]

Allows you to disable or enable the CPU C8 report to OS. Configuration options: [Enabled] [Disabled]

CPU C9 Report

This item allows you to disable or enable the CPU C9 report to the operating system. Configuration options: [Enabled] [Disabled]

CPU C10 Report

This item allows you to disable or enable the CPU C10 report to the operating system. Configuration options: [Enabled] [Disabled]

Package C State Limit

This item allows you to set the C-state limit for the CPU package. Configuration options: [C0/C1] [C2] [C3] [C6] [C7] [C7s] [C8] [C9] [C10] [CPU Default] [Auto]

CFG Lock [Disabled]

This item allows you to enable or disable the CFG lock. Configuration options: [Disabled] [Enabled]

3.3.3 System Agent (SA) Configuration

VT-d [Disabled]

Allows you to enable or disable VT-d function on MCH. Configuration options: [Enabled] [Disabled]

Above 4G Decoding [Disabled]

Allows you to enable or disable the 4G decoding for 64-bit devices when the system supports the 64-bit PCI decoding. Configuration options: [Enabled] [Disabled]

Memory Configuration

Memory Remap [Enabled]

Allows you to enable or disable remapping the memory above 4GB. Configuration options: [Disabled] [Enabled]

Graphics Configuration

Allows you to select a primary display from iGPU, and PCIe graphical devices.

Primary IGFX Boot Display [BIOS Default]

Select the Video Device to be activated during POST. Your selection does not take effect if you have installed an external graphics device. Secondary boot display selection will appear based on your selection. VGA modes can be supported only on the primary display. Configuration options: [BIOS Default] [USB-C] [Disp.2] [Disp.1] [VGA]

Primary Display [Auto]

Allows you to select which of the iGPU/PCIE Graphics device should be the Primary Display. Configuration options: [Auto] [CPU Graphics] [PCIE] [PEG]

DVMT Pre-Allocated [64M]

Allows you to select DVMT 5.0 Pre_Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device. Configuration options: [32M] [64M] [96M] ~ [1024M]

RC6(Render Standby) [Auto]

Allows you to enable or disable render standby support. Configuration options: [Disabled] [Auto]

PEG Port Configuration

Allows you to configure the PEG Port settings.

PCIEX16_1 Link Speed [Auto]

Allows you to configure the PCIEX16_1 speed. Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

3.3.4 PCH Storage Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Empty** if no SATA device is installed to the corresponding SATA port.

SATA Controller(s) [Enabled]

Enables or disables onboard the SATA device. Configuration options: [Disabled] [Enabled]

The following items appear only when you set SATA Controller(s) to **[Enabled]**.

SATA Mode Selection

This item allows you to set the SATA configuration.

[AHCI]	Set to [AHCI] when you want the SATA hard disk drives to use the AHCI (Advanced Host Controller Interface). The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.
[Intel RST Premium With Intel Optane System Acceleration (RAID)]	Set to [Intel RST Premium With Intel Optane System Acceleration (RAID)] when you want to create a RAID configuration from the SATA hard disk drives.

Aggressive LPM Support [Disabled]

This item is designed for LPM (link power management) support with a better energy saving conditions. When disabled, the hot plug function of SATA ports are disabled. Configuration options: [Disabled] [Enabled]

SMART Self Test [Disabled]

This item allows you to enable or disable the SMART Self Test on all HDDs during POST. Configuration options: [Disabled] [Enabled]

SATA6G_0(White), SATA6G_2(Blue), SATA6G_3(Black) [Enabled]

Allows you to enable/disable the SATA6G ports. Configuration options: [Disabled] [Enabled]

SATA6G_0, SATA6G_2, SATA6G_3 Hot Plug [Disabled]

These items allow you to enable/disable SATA Hot Plug Support. Configuration options: [Disabled] [Enabled]

SATA6G_1(M.2) [Enabled]

Allows you to enable/disable the M.2(SOCKET3). Configuration options: [Disabled] [Enabled]

3.3.5 AMT Configuration

The items in this menu allow you to change the Intel® Active Management Technology (AMT) feature.

End of POST Message [Send in DXE]

Allows you to set whether to send the End of POST Message to ME. Configuration options: [Send in DXE] [Disabled]

USB Provisioning of AMT [Disabled]

Allows you to enable/disable AMT USB Provisioning. Configuration options: [Enabled] [Disabled]

ME Unconfig on RTC Clear [Disabled]

When this item is set to [Disabled], ME will not be unconfigured on RTC clear. Configuration options: [Disabled] [Enabled]

Secure Erase Configuration

Secure Erase mode [Simulated]

[Simulated] Clean your SSD without erasing it.

[Real] Erase your SSD.

Force Secure Erase [Disabled]

Allows you to enable/disable Secure Erase. Configuration options: [Disabled] [Enabled]

OEM Flags Settings

MEBx Hotkey Pressed [Disabled]

This item allows you to enable or disable this function. Configuration options: [Disabled] [Enabled]

MEBx Selection Screen [Disabled]

This item allows you to enable or disable this function. Configuration options: [Disabled] [Enabled]

Un-Configure ME [Disabled]

Sets this item to [Disabled] to unconfigure ME without using a password or set it to [Enabled] to use a password. Configuration options: [Disabled] [Enabled]

3.3.6 Trusting Computing

TPM Device Selection [Firmware TPM]

This item allows you to select the TPM device. Configuration options: [Discrete TPM] [Firmware TPM]

Security Device Support [Enable]

Allows you to enable or disable BIOS support for security devices. Configuration options: [Disable] [Enable]

SHA-1 PCR Bank [Enabled]

Allows you to enable or disable SHA-1 PCR Bank. Configuration options: [Enabled] [Disabled]

SHA256 PCR Bank [Enabled]

Allows you to enable or disable SHA256 PCR Bank. Configuration options: [Enabled] [Disabled]

Pending operation [None]

Allows you to schedule an operation for security devices. Reboot your system for the changes to take effect. Configuration options: [None] [TPM Clear]

Platform Hierarchy [Enabled]

Allows you to enable or disable Platform Hierarchy. Configuration options: [Enabled] [Disabled]

Storage Hierarchy [Enabled]

Allows you to enable or disable Storage Hierarchy. Configuration options: [Enabled] [Disabled]

Endorsement Hierarchy [Enabled]

Allows you to enable or disable Endorsement Hierarchy. Configuration options: [Enabled] [Disabled]

TPM2.0 UEFI Spec Version [TCG_2]

Allows you to select the TCG2 spec version support.

[TCG_1_2] Compatible mode for Windows® 8 / Windows® 10.

[TCG_2] Newer TCG2 protocol and event format for Windows® 10 or later.

Physical Presence Spec Version [1.3]

Allows you to select which TCG Physical Presence Interface Specification Version is supported by the OS. Configuration options: [1.2] [1.3]

3.3.7 Onboard Devices Configuration

Setup Mouse Support [Enabled]

Configuration options: [Disabled] [Enabled]

HD Audio [Enabled]

[Enabled] Enables the HD Audio Device.

[Disabled] Disables the HD Audio Device.

Intel LAN Controller [Enabled]

[Enabled] Enables the Intel LAN controller.

[Disabled] Disables the controller.

Serial Port Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port 1~6 Configuration

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Disabled] [Enabled]

Parallel Port Configuration

The sub-items in this menu allow you to set the parallel port configuration.

Parallel Port [Enabled]

Allows you to enable or disable the parallel port (LPT/LPTE).Configuration options: [Disabled] [Enabled]

3.3.8 APM Configuration

ErP Ready [Disabled]

Allows BIOS to switch off some power at S4/S5 to get the system ready for ErP requirement. When set to [Enabled], all other PME options will be switched off. Configuration options: [Enabled] [Disabled]

Restore AC Power Loss [Power Off]

[Follow AC Power] The system goes into on state once the AC power is restored from a power loss.

[Power Off] The system goes into off state after an AC power loss.

[Last State] The system goes into the last state (on or off state) once the AC power is restored from a power loss.

Power Button in S0 [Enabled]

This item allows you to enable or disable the power button in the S0 state. Configuration options: [Enabled] [Disabled]

Wake on LAN/PCIe [Disabled]

Enables or disables the wake-on-LAN function of the onboard LAN controller or the PCIe LAN devices. Configuration options: [Disabled] [S3] [S3/S4/S5]

Wake on Ring [Disabled]

Enables or disables Wake on Ring support. Configuration options: [Disabled] [S3] [S3/S4/S5]

Wake on Time [Disabled]

Enables or disables Wake on Time support. Configuration options: [Disabled] [S3] [S3/S4/S5]

Wake on USB [Disabled]

Enables or disables USB S5 wakeup support. Configuration options: [Disabled] [S3] [S3/S4/S5]

Wake on PLink1 [S3/S4/S5]

Enables or disables Wake on PLink1 support. Configuration options: [Disabled] [S3] [S3/S4/S5]

Wake on PLink2 [S3/S4/S5]

Enables or disables Wake on PLink2 support. Configuration options: [Disabled] [S3] [S3/S4/S5]

3.3.9 Serial Port Console Redirection

COM0

Console Redirection [Disabled]

Allows you to enable or disable the console redirection feature.
Configuration options: [Disabled] [Enabled]

The following item appears only when you set **Console Redirection** to **[Enabled]**.

Console Redirection Settings

These items become configurable only when you enable the **Console Redirection** item. The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Terminal Type [ANSI]

Allows you to set the terminal type.

[VT100]	ASCII char set.
[VT100+]	Extends VT100 to support color, function keys, etc.
[VT-UTF8]	Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
[ANSI]	Extended ASCII char set.

Bits per second [115200]

Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds. Configuration options: [9600] [19200] [38400] [57600] [115200]

Data Bits [8]
Configuration options: [7] [8]

Parity [None]
A parity bit can be sent with the data bits to detect some transmission errors. [Mark] and [Space] parity do not allow for error detection.

[None]	None
[Even]	parity bit is 0 if the num of 1's in the data bits is even
[Odd]	parity bit is 0 if num of 1's in the data bits is odd
[Mark]	parity bit is always 1
[Space]	parity bit is always 0

Stop Bits [1]

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning.) The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. Configuration options: [1] [2]

Flow Control [None]

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals. Configuration options: [None] [Hardware RTS/CTS]

VT -UTF8 Combo Key Support [Enabled]

This allows you to enable the VT -UTF8 Combination Key Support for ANSI/VT100 terminals. Configuration options: [Disabled] [Enabled]

Recorder Mode [Disabled]

With this mode enabled only text will be sent. This is to capture Terminal data. Configuration options: [Disabled] [Enabled]

Resolution 100x31 [Disabled]

This allows you to set whether to use the resolution 100x31. Configuration options: [Disabled] [Enabled]

Putty Keypad [VT100]

This allows you to select the FunctionKey and Keypad on Putty. Configuration options: [VT100] [LINUX] [XTERMR6] [SCO] [ESCN] [VT400]

Legacy Console Redirection Settings

Redirection COM Port [COM0]

Allows you to select a COM port to display redirection of Legacy OS and Legacy OPROM Messages. Configuration options: [COM0] [COM1(PCI Bus0, Dev0, Func0) (Disabled)]

Resolution [80x24]

This allows you to set the number of rows and columns supported on the Legacy OS. Configuration options: [80x24] [80x25]

Redirection After POST [Always Enable]

This setting allows you to specify if Bootloader is selected than Legacy console redirection. Configuration options: [Always Enable] [Bootloader]

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

Console Redirection [Disabled]

Allows you to enable or disable the console redirection feature.
Configuration options: [Disabled] [Enabled]

The following item appears only when you set **Console Redirection** to **[Enabled]**.

Console Redirection Settings

Out-of-Band Mgmt Port [COM0]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port. Configuration options: [COM0] [COM1(PCI Bus0, Dev0, Func0) (Disabled)]

Terminal Type [VT-UTF8]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port. Configuration options: [VT100] [VT100+] [VT-UTF8] [ANSI]

Bits per second [115200]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port. Configuration options: [9600] [19200] [57600] [115200]

Flow Control [None]

Microsoft Windows Emergency Management Services (EMS) allow for remote management of a Windows Server OS through a serial port. Configuration options: [None] [Hardware RTS/CTS] [Software Xon/Xoff]

3.3.10 Intel® TXT Information

This menu displays Intel® Trusted Execution Technology (TXT) related information.

3.3.11 USB Configuration

The USB Devices item lists auto-detected values. If no USB device is detected, the item shows None.

XHCI Hand-off [Disabled]

This item is set to [Disabled] by default for the EHCI (enhanced host controller interface) support by XHCI drivers in operating systems.

[Disabled] Support XHCI by XHCI drivers for operating systems with XHCI support.

[Enabled] Support XHCI by BIOS for operating systems without XHCI support.

USB hardware delays and time-outs

USB transfer time-out [20 sec]

Allows you to select the USB transfer time-out value. Configuration options: [1 sec] [5 sec] [10 sec] [20 sec]

Device reset time-out [20 sec]

Allows you to select the USB device reset time-out value. Configuration options: [10 sec] [20 sec] [30 sec] [40 sec]

Device power-up delay [Auto]

This allows you to set the maximum time the device will take before it properly reports itself to the Host Controller. Configuration options: [Auto] [Manual]

USB Single Port Control

This item allows you to enable or disable the individual USB ports.

Refer to the manual for the location of the USB ports.

3.3.12 Network Stack Configuration

Network Stack [Enabled]

This item allows user to disable or enable the UEFI network stack. Configuration options: [Disabled] [Enabled]

The following two items appear only when you set the previous item to [Enabled].

Ipv4 PXE Support [Enabled]

This item allows user to disable or enable the Ipv4 PXE Boot support. Configuration options: [Disabled] [Enabled]

Ipv6 PXE Support [Enabled]

This item allows user to disable or enable the Ipv6 PXE Boot support. Configuration options: [Disabled] [Enabled]

3.3.13 NVMe Configuration

This menu displays the NVMe controller and drive information of the connected devices.

3.3.14 HDD/SSD SMART Information

This menu displays the SMART information of the connected devices.

NVM Express devices do not support SMART information.

3.3.15 Intel(R) Rapid Storage Technology

This menu allows you to configure the RAID settings.

This menu appears only when you set the **SATA Mode Selection** item to [Intel RST Premium With Intel Optane System Acceleration (RAID)]. See section **3.3.4 PCH Storage Configuration** for details.

RAID Volumes:

Displays all RAID volumes. Select one and change it's settings.

Volume1, RAID0 (Stripe), xxxGB

Delete

Select Yes to delete the RAID volume. All hard drives under this RAID volume will be reset to non-RAID disks. Configuration options: [Yes] [No]

SATA xx, xxx (HDD name), xxxGB

Reset to non-RAID

Select Yes to remove the selected hard drive from the RAID structure. Configuration options: [Yes] [No]

3.3.16 Intel(R) Ethernet Connection (7) I219LM

This menu allows you to configure the Ethernet settings.

NIC Configuration

Link Speed [Auto Negotiated]

Specifies the port speed for the selected boot device. Configuration options: [Auto Negotiated] [10 Mbps Half] [10 Mbps Full] [100 Mbps Half] [100 Mbps Full]

Wake On LAN [Enabled]

Allows you to enable or disable the server powered on using an magic packet. Configuration options: [Disabled] [Enabled]

Blink LEDs

Identify the physical port by blinking the associated LED.

Link Status [Disconnected]

Displays the Ethernet connection status.

3.4 Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.

CPU / MotherBoard Temperature [xxxºC/xxxºF]

The onboard hardware monitor automatically detects and displays the CPU/ motherboard temperatures.

CPU / PSU Fan Speed [xxxx RPM]

The onboard hardware monitor automatically detects and displays the CPU / PSU fan speeds in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A.

CPU Core Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage, VBAT 3.0V

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

Sensor configuration

HW info	SIO Pin	Register	Calculation
+3V	3VCC	Bank0, Index03	3V Voltage = Reading*0.008*2V
+12V	VIN2	Bank0, Index05	12V Voltage = Reading*0.008*12V
+5V	VIN1	Bank0, Index04	5V Voltage = Reading*0.008*5.02V
Vcore	CPUVCORE	Bank0, Index00	Vcore = Reading*0.008*2V
Battery	VBAT	Bank0, Index08	Vbat = Reading*0.008*2V
MB Temperature	SYSTIN	Bank3, Index0C	Compared to 80H, when <80H, the temperature is positive. The value shown on the UI will be temperature.
CPU Temperature	CPUTIN	Bank3, Index0D	
PECI	PECI	Bank0, Index19	
PSU FAN Speed	SYSFANIN	Bank0, Index30[bit 15:8], Index31[bit 7:0]	Conversion to decimal is the speed value.
CPU FAN Speed	CPUFANIN	Bank0, Index32[bit 15:8], Index33[bit 7:0]	Conversion to decimal is the speed value.

CPU Fan Speed Low Limit [Ignore]

This item appears only when you enable the CPU Q-Fan Control feature and allows you to disable or set the CPU fan warning speed. Configuration options: [Ignore] [200RPM] [300 RPM] [400 RPM] [500 RPM] [600RPM]

PSU Fan Speed Low Limit [400 RPM]

This item appears only when you enable the PSU Fan Q-Fan Control feature and allows you to disable or set the PSU Fan warning speed. Configuration options: [Ignore] [200RPM] [300 RPM] [400 RPM] [500 RPM] [600RPM]

BAT Voltage Low Warning [Enabled]

Allows you to set whether to show a warning message when the BAT voltage is getting low. Configuration options: [Disabled] [Enabled]

3.5 Boot menu

The Boot menu items allow you to change the system boot options.

Boot Configuration

Boot Logo Display [Disabled]

[Auto] Adjusts logo automatically based on Windows® display requirements.

[Full Screen] Maximize the boot logo size.

[Disabled] Hide the logo during POST.

POST Delay Time [3 sec]

This item appears only when you set Boot Logo Display to [Auto] and [Full Screen] This item allows you to select the desired additional POST waiting time to easily enter the BIOS setup. You can only execute the POST delay time during Normal Boot. The values range from 0 to 10 seconds.

This feature will only work under normal boot.

POST Report Delay Time [3 sec]

This item appears only when you set Boot Logo Display to [Disabled]. This item allows you to select a desired post report waiting time. Configuration options: [1 sec] ~ [10 sec] [Until Press ESC].

Bootup NumLock State [On]

This item allows you to enable or disable power-on state of the NumLock. Configuration options: [On] [Off]

POST Warnings [Just Warning]

Configuration options: [Just Warning] [Warning and Stop Booting]

AMI Native NVMe Driver Support [Enabled]

Configuration options: [Disabled] [Enabled]

F10 Boot Menu [Enabled]

Configuration options: [Disabled] [Enabled]

USB Boot [Enabled]

Configuration options: [Disabled] [Enabled]

Watch Dog [Disabled]

Enables/disables the watchdog feature. Configuration options: [Disabled] [Enabled]

POST End Beep [Enabled]

When this item is enabled, there will be a short beep at the end of the POST phase. Configuration options: [Disabled] [Enabled]

LED Error Codes

Error	Frequency
RAM Error	2Hz
CPU Error	1Hz
Chipset Initialization Error	
UEFI/NVRAM error	0.5Hz
GFX Error	0.25Hz
CPU temperature too high	0.125Hz
FAN speed below 400rpm	0.0625Hz
Disabled	Drive low

The items below allow you to select whether to show the LED error codes.

RAM Error LED [Enabled]

Configuration options: [Disabled] [Enabled]

CPU/Chipset Init Error LED [Enabled]

Configuration options: [Disabled] [Enabled]

NVRAM Error LED [Enabled]

Configuration options: [Disabled] [Enabled]

GFX Error LED [Enabled]

Configuration options: [Disabled] [Enabled]

CPU temperature Error LED [Enabled]

Configuration options: [Disabled] [Enabled]

FAN Speed Error LED [Disabled]

Configuration options: [Disabled] [Enabled]

Secure Boot

Allows you to configure the Windows® Secure Boot settings and manage its keys to protect the system from unauthorized access and malwares during POST.

OS Type [Other OS]

Allows you to select your installed operating system.

[Windows UEFI mode]	This item allows you to select your installed operating system. Execute the Microsoft® Secure Boot check. Only select this option when booting on Windows® UEFI mode or other Microsoft® Secure Boot compliant OS.
[Other OS]	Get the optimized function when booting on Windows® non-UEFI mode. Microsoft® Secure Boot only supports Windows® UEFI mode.

Key Management

This allows you to manage the Secure Boot keys.

Install Default Secure Boot keys

This item allows you to immediately load the default Security Boot keys, Platform key (PK), Key-exchange Key (KEK), Signature database (db), and Revoked Signatures (dbx). When the default Secure boot keys are loaded, the PK state will change from Unloaded mode to loaded mode.

Clear Secure Boot keys

This item appears only when you load the default Secure Boot keys. This item allows you to clear all the previously applied Secure Boot keys.

Save all Secure Boot variables

This item allows you to save all the Secure Boot keys to a USB storage device.

PK Management

The Platform Key (PK) locks and secures the firmware from any non-permissible changes. The system verifies the PK before your system enters the OS.

Save to File

This item allows you to save the downloaded PK to a USB storage device.

Set New Key

This item allows you to load the downloaded PK from a USB storage device.

The PK file must be formatted as a UEFI variable structure with time-based authenticated variable.

Delete Key

This item allows you to delete the PK from your system. Once the PK is deleted, all the system's Secure Boot keys will not be active.

KEK Management

The KEK (Key-exchange Key or Key Enrollment Key) manages the Signature database (db) and Revoked Signature database (dbx).

Key-exchange Key (KEK) refers to Microsoft® Secure Boot Key-Enrollment Key (KEK).

Save to File

Allows you to save the downloaded KEK to a USB storage device.

Set New Key

Allows you to load the downloaded KEK from a USB storage device.

Append Key

Allows you to load the additional KEK from a storage device for an additional db and dbx loaded management.

The KEK file must be formatted as a public key certificate or UEFI variable structure with time-based authenticated variable.

Delete key

Allows you to delete the Key from your system. Configuration options: [Yes] [No]

DB Management

The db (Authorized Signature database) lists the signers or images of UEFI applications, operating system loaders, and UEFI drivers that you can load on the single computer.

Save to File

Allows you to save the downloaded db to a USB storage device.

Set New Key

Allows you to load the downloaded db from a USB storage device.

Append Key

Allows you to load the additional KEK from a storage device for an additional db

and dbx loaded management.

The db file must be formatted as a UEFI variable structure with time-based authenticated variable.

Delete Key

Allows you to delete the db file from your system. Configuration options: [Yes] [No]

DBX Management

The DBX (Revoked Signature database) lists the forbidden images of db items that are no longer trusted and cannot be loaded.

Save to File

Allows you to load the downloaded dbx to a USB storage device.

Set New Key

Allows you to load the downloaded dbx from a USB storage device.

Append Key

Allows you to load the additional KEK from a storage device for an additional db and dbx loaded management.

The dbx file must be formatted as a UEFI variable structure with time-based authenticated variable.

Delete key

Allows you to delete the Key from your system. Configuration options: [Yes] [No]

Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

To select the boot device during system startup, press <F8> when ASUS Logo appears.

UEFI Network Device Priorities

This item allows you to set the booting order of the UEFI Network devices.

Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

3.6 Tool menu

The Tool menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.

ASUS EZ Flash 3 Utility

This item allows you to run ASUS EZ Flash 3 utility. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice.

Start Quick Memory Diagnosis

This item allows you to run quick memory diagnosis. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice.

Start Quick HDD Diagnosis

This item allows you to run quick HDD diagnosis. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice.

Start CPU Stress Diagnosis

This item allows you to run CPU stress diagnosis. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice.

3.7 Exit menu

The Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items. You can access the EZ Mode from the Exit menu.

Load Optimized Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F3>, a confirmation window appears. Select **OK** to load the default values.

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select **OK** to save changes and exit.

Discard Changes & Exit

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select **Yes** to discard changes and exit.

Launch EFI Shell from USB drives

This item allows you to attempt to launch the EFI Shell application (shellx64.efi) from one of the available filesystem devices.

3.8 Event Logs

A built-in event log enables easier troubleshooting by capturing useful system information.

3.8.1 Change Smbios Event Log Settings

Allows you to change the Smbios event log configuration.

Smbios Event Log [Enabled]

Configuration options: [Disabled] [Enabled]

Erase Event Log [No]

Allows you to choose options for erasing Smbios Event Log.
Configuration options: [No] [Yes, Next reset] [Yes, Every reset]

When Log is Full [Do Nothing]

Allows you to choose options for reactions to a full Smbios Event Log.
Configuration options: [Do Nothing] [Erase Immediately]

Smbios Event Log Standard Settings

Log System Boot Event [Disabled]

Allows you to enable or disable logging of System boot event. Configuration options: [Enabled] [Disabled]

3.8.2 View Smbios Event Log

Allows you to view all the events in the Smbios event logs.

Type	Event log
1. Flash Update	Type: 0xA0, Log: Flash Update
2. RTC Clear	Type: 0xA1, Log: RTC Clear
3. Battery Removed	Type: 0xA2, Log: Battery Removed
4. Chassis Intrusion	Type: 0xA3, Log: Chassis Intrusion
5. AC Power Loss	Type: 0xA4, Log: AC Power Loss
6. USB Over Current	Type: 0xA5, Log: USB Over Current
7. CPU Over Heating	Type: 0xA6, Log: CPU Over Heating
8. CPU Over Voltage	Type: 0xA7, Log: CPU Over Voltage
9. Fan Slow	Type: 0xA8, Log: Fan Slow
10. 4S Forced Shutdown	Type: 0xA9, Log: 4S Forced Shutdown

Appendix

Notices

FCC Compliance Information

Responsible Party:	Asus Computer International
Address:	48720 Kato Rd., Fremont, CA 94538, USA
Phone / Fax No:	(510)739-3777 / (510)608-4555

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Compliance Statement of Innovation, Science and Economic Development Canada (ISED)

This device complies with Innovation, Science and Economic Development Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-3(B)/NMB-3(B)

Déclaration de conformité de Innovation, Sciences et Développement économique Canada (ISED)

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3(B)/NMB-3(B)

VCCI: Japan Compliance Statement

Class B ITE

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取扱説明書に従って正しい取り扱いをして下さい。

ＶＣＣＩ－Ｂ

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Avis concernant les batteries remplaçables

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- La batterie et ses composants doivent être recyclés de façon appropriée.

REACH

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DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

ASUS Recycling/Takeback Services

ASUS recycling and takeback programs come from our commitment to the highest standards for protecting our environment. We believe in providing solutions for you to be able to responsibly recycle our products, batteries, other components as well as the packaging materials. Please go to http://csr.asus.com/english/Takeback.htm for detailed recycling information in different regions.

Regional notice for California

WARNING

Cancer and Reproductive Harm -
www.P65Warnings.ca.gov

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Magyar Az ASUSTeK Computer Inc. ezennel kijelenti, hogy ez az eszköz megfelel a kapcsolódó Irányelvek lényeges követelményeinek és egyéb vonatkozó rendelkezéseinek. Az EU megfelelőségi nyilatkozat teljes szövege innen letölthető: www.asus.com/support

Latviski ASUSTeK Computer Inc. ar šo paziņo, ka šī ierīce atbilst saistīto Direktīvu būtiskajām prasībām un citiem citiem saistošajiem nosacījumiem. Pilns ES atbilstības paziņojuma teksts pieejams šeit: www.asus.com/support

Lietuvių „ASUSTeK Computer Inc." šiuo tvirtina, kad šis įrenginys atitinka pagrindinius reikalavimus ir kitas svarbias susijusių direktyvų nuostatas. Visą ES atitikties deklaracijos tekstą galima rasti: www.asus.com/support

Norsk ASUSTeK Computer Inc. erklærer herved at denne enheten er i samsvar med hovedsaklige krav og andre relevante forskrifter i relaterte direktiver. Fullstendig tekst for EU-samsvarserklæringen finnes på: www.asus.com/support

Polski Firma ASUSTeK Computer Inc. niniejszym oświadcza, że urządzenie to jest zgodne z zasadniczymi wymogami i innymi właściwymi postanowieniami powiązanych dyrektyw. Pełny tekst deklaracji zgodności UE jest dostępny pod adresem: www.asus.com/support

Português A ASUSTeK Computer Inc. declara que este dispositivo está em conformidade com os requisitos essenciais e outras disposições relevantes das Diretivas relacionadas. Texto integral da declaração da UE disponível em: www.asus.com/support

Română ASUSTeK Computer Inc. declară că acest dispozitiv se conformează cerințelor esențiale și altor prevederi relevante ale directivelor conexe. Textul complet al declarației de conformitate a Uniunii Europene se găsește la: www.asus.com/support

Srpski ASUSTeK Computer Inc. ovim izjavljuje da je ovaj uređaj u saglasnosti sa osnovnim zahtevima i drugim relevantnim odredbama povezanih Direktiva. Pun tekst EU deklaracije o usaglašenosti je dostupan da adresi: www.asus.com/support

Slovensky Spoločnosť ASUSTeK Computer Inc. týmto vyhlasuje, že toto zariadenie vyhovuje základným požiadavkám a ostatým príslušným ustanoveniam príslušných smerníc. Celý text vyhlásenia o zhode pre štáty EÚ je dostupný na adrese: www.asus.com/support

Slovenščina ASUSTeK Computer Inc. izjavlja, da je ta naprava skladna z bistvenimi zahtevami in drugimi ustreznimi določbami povezanih direktiv. Celotno besedilo EU-izjave o skladnosti je na voljo na spletnem mestu: www.asus.com/support

Español Por la presente, ASUSTeK Computer Inc. declara que este dispositivo cumple los requisitos básicos y otras disposiciones pertinentes de las directivas relacionadas. El texto completo de la declaración de la UE de conformidad está disponible en: www.asus.com/support

Svenska ASUSTeK Computer Inc. förklarar härmed att denna enhet överensstämmer med de grundläggande kraven och andra relevanta föreskrifter i relaterade direktiv. Fulltext av EU-försäkran om överensstämmelse finns på: www.asus.com/support

Українська ASUSTeK Computer Inc. заявляє, що цей пристрій відповідає основним вимогам та іншим відповідним положенням відповідних Директив. Повний текст декларації відповідності стандартам ЄС доступний на: www.asus.com/support

Türkçe AsusTek Computer Inc., bu aygıtın temel gereksinimlerle ve ilişkili Yönergelerin diğer ilgili koşullarıyla uyumlu olduğunu beyan eder. AB uygunluk bildiriminin tam metni şu adreste bulunabilir: www.asus.com/support

Bosanski ASUSTeK Computer Inc. ovim izjavljuje da je ovaj uređaj usklađen sa bitnim zahtjevima i ostalim odgovarajućim odredbama vezanih direktiva. Cijeli tekst EU izjave o usklađenosti dostupan je na: www.asus.com/support

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