

**Pro WS
Z890-ACE SE**

ASUS

Motherboard

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Safety information

Electrical safety


- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.
- Your motherboard should only be used in environments with ambient temperatures between 10°C and 35°C.

Button/Coin Batteries Safety Information

1. Remove and immediately recycle or dispose of used batteries according to local regulations and keep out of reach of children. Do not incinerate or dispose of batteries in household trash.
2. If ingested or inserted inside any part of the body, call a local poison control center for treatment information. Even used batteries may cause serious injury or death.
3. This product uses CR2032 type batteries with a nominal voltage of 3V.
4. Do not attempt to recharge non-rechargeable batteries.
5. Do not forcibly discharge, recharge, disassemble, heat above the battery manufacturer's specified temperature rating, or incinerate. Doing so may result in injury or chemical burns caused by venting, leakage, or explosion.
6. This product contains non-replaceable batteries.

⚠ WARNING	
<ul style="list-style-type: none">• INGESTION HAZARD: This product contains a button cell or coin battery.• DEATH or serious injury can occur if ingested.• A swallowed button cell or coin battery can cause Internal Chemical Burns in as little as 2 hours.• KEEP new and used batteries OUT OF REACH of CHILDREN.• Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body.	

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product Introduction**
This chapter describes the features of the motherboard and includes descriptions for each part of the motherboard.
- **Chapter 2: Basic Setup**
This chapter lists the basic setup procedures for setting up your motherboard.
- **Chapter 3: BIOS and RAID Support**
This chapter tells how to boot into the BIOS, upgrade BIOS using the EZ Flash Utility and support on RAID.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. ASUS website

The ASUS website (www.asus.com) provides updated information on ASUS hardware and software products.

2. Optional documentation

Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

3. Motherboard Installation Guide

Please visit <https://www.asus.com/support> for more information on the Motherboard Installation Guide.



4. Driver and Utilities FAQ

Please visit <https://www.asus.com/support> for more information on downloading and installing drivers and utilities for your motherboard.



5. RAID Configuration Guide

Please visit <https://www.asus.com/support> for more information on the RAID Configuration Guide.



6. BIOS FlashBack™ Feature

Please visit <https://www.asus.com/support> for more information on the BIOS FlashBack™ Feature.



Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following notes used throughout this user guide.

CAUTION	Information to prevent damage to the components and injuries to yourself when trying to complete a task.
IMPORTANT	Instructions that you MUST follow to complete a task.
NOTE	Tips and additional information to help you complete a task.

Pro WS Z890-ACE SE specifications summary

CPU	<p>Supports Intel® Core™ Ultra Processors (Series 2), LGA1851</p> <p>Supports Intel® Turbo Boost Technology 2.0 and Intel® Turbo Boost Max Technology 3.0**</p> <p>* Refer to https://www.asus.com/support/download-center/ for CPU support list.</p> <p>** Intel® Turbo Boost Max Technology 3.0 support depends on the CPU types.</p>
Chipset	<p>Intel® Z890</p>
Memory	<p>4 x DIMM slots, max. 192GB, DDR5</p> <p>Support up to 9066+MT/s (OC), Non-ECC, Un-buffered and Clocked Unbuffered DIMM (CUDIMM)*</p> <p>Dual channel memory architecture</p> <p>Supports DIMM Fit</p> <p>Supports DIMM Flex</p> <p>Supports Intel® Extreme Memory Profile (XMP) memory module</p> <p>ASUS Enhanced Memory Profile III (AEMP III)</p> <p>* Supported memory types, data rate (speed), and number of DRAM modules vary depending on the CPU and memory configuration, for more information please refer to CPU/Memory Support list under the Support tab of product information site or visit https://www.asus.com/support/download-center/.</p> <p>* Non-ECC, Un-buffered DDR5 Memory supports On-Die ECC function.</p>
Graphics	<p>1 x HDMI™ port**</p> <p>1 x Intel® Thunderbolt™ 4 port (USB Type-C®) support DisplayPort and Thunderbolt™ video outputs***</p> <p>1 x VGA port from AST2600</p> <p>* Graphics specifications may vary between CPU types. Please refer to www.intel.com for any updates.</p> <p>** Supports 4K@60Hz as specified in HDMI 2.1.</p> <p>*** In Thunderbolt™ 4 mode, supports up to 8K@60Hz x1 with DSC, maximum total bandwidth up to 23.8Gbps, for resolution support please check DisplayPort 2.1 specs. In DP alt mode, supports up to UHBR20.</p> <p>**** VGA resolution support depends on processors' or graphic cards' resolution.</p> <p>***** While installing the operating system, please ensure that your monitor is connected to the HDMI port on the back I/O panel or to a discrete graphics card.</p>
Expansion Slots	<p>Intel® Core™ Ultra Processors (Series 2)*</p> <p>2 x PCIe 5.0 x16 slots*** (supports x16 or x8/x8 modes)**</p> <p>Intel® Z890 Chipset**</p> <p>1 x PCIe 4.0 x16 slot (supports x4 mode)***</p> <p>* Please check PCIe bifurcation table on support site (https://www.asus.com/support/FAQ/1037507/).</p> <p>** To ensure compatibility of the device installed, please refer to https://www.asus.com/support/download-center/ for the list of supported peripherals.</p>
Storage	<p>Total supports 4 x M.2 slots and 8 x SATA 6Gb/s ports*</p> <p>Intel® Core™ Ultra Processors (Series 2)</p> <ul style="list-style-type: none"> - M.2_1 slot (Key M), type 2260/2280 (supports PCIe 5.0 x4 mode) - M.2_2 slot (Key M), type 2242/2260/2280 (supports PCIe4.0 x4 mode)

(continued on the next page)

Pro WS Z890-ACE SE specifications summary

<p>Storage</p>	<p>Intel® Z890 Chipset**</p> <ul style="list-style-type: none"> - M.2_3 slot (Key M), type 2242/2260/2280 (supports PCIe 4.0 x4 mode) - M.2_4 slot (Key M), type 2280 (supports PCIe 4.0 x4 mode) - SlimSAS_1 connector supports PCIe 4.0 x4 mode or up to 4 SATA devices via an adapter cable. The cable is purchased separately.** - 4 x SATA 6Gb/s ports <p>* Intel® Rapid Storage Technology supports PCIe RAID 0/1/5/10, SATA RAID 0/1/5/10. M.2 slot from CPU only supports RAID 0/1/5.</p> <p>** SlimSAS connector connected to a U.2 device via an adapter cable does not support VMD/RST.</p>
<p>Ethernet</p>	<p>1 x Marvell® AQtion 10Gb Ethernet</p> <p>1 x Intel® 2.5Gb Ethernet</p> <p>1 x Realtek 1Gb Ethernet dedicated for AST2600</p>
<p>USB</p>	<p>Rear USB (Total 8 ports)</p> <p>1 x Thunderbolt™ 4 port (1 x USB Type-C®)</p> <p>1 x USB 20Gbps port (1 x USB Type-C®)</p> <p>6 x USB 10Gbps ports (6 x Type-A)</p> <p>Front USB (Total 7 ports)</p> <p>1 x USB 20Gbps connector (supports USB Type-C®)</p> <p>1 x USB 5Gbps header supports 2 additional USB 5Gbps ports</p> <p>2 x USB 2.0 headers supports 4 additional USB 2.0 ports</p>
<p>Audio</p>	<p>Realtek ALC1220P 7.1 Surround Sound High Definition Audio CODEC</p> <ul style="list-style-type: none"> - Impedance sense for front and rear headphone outputs - Internal audio Amplifier to enhance the highest quality sound for headphone and speakers - Supports: Jack-detection, Multi-streaming, Front Panel Jack-retasking - High quality 120 dB SNR stereo playback output and 113 dB SNR recording input (Line-in) - Supports up to 32-Bit/192 kHz playback <p>Audio Features</p> <ul style="list-style-type: none"> - Audio Shielding - Premium audio capacitors
<p>Back Panel I/O Port</p>	<p>1 x Thunderbolt™ 4 USB Type-C® port</p> <p>1 x USB 20Gbps port (1 x USB Type-C®)</p> <p>6 x USB 10Gbps ports (6 x Type-A)</p> <p>1 x HDMI™ port</p> <p>1 x Marvell® AQtion 10Gb Ethernet port</p> <p>1 x Intel® 2.5Gb Ethernet port</p> <p>1 x Realtek 1Gb Ethernet dedicated for AST2600</p> <p>2 x Audio jacks</p> <p>1 x BIOS FlashBack™ button</p> <p>1 x Clear CMOS button</p>

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Pro WS Z890-ACE SE specifications summary

Internal I/O connectors	<p>Fan and Cooling Related</p> <ul style="list-style-type: none">1 x 4-pin CPU Fan header1 x 4-pin CPU OPT Fan header5 x 4-pin Chassis Fan headers1 x W_PUMP+ header <p>Power Related</p> <ul style="list-style-type: none">1 x 24-pin Main Power connector2 x 8-pin +12V CPU Power connector <p>Storage Related</p> <ul style="list-style-type: none">4 x M.2 slots (Key M)4 x SATA 6Gb/s ports1 x SlimSAS connector <p>USB</p> <ul style="list-style-type: none">1 x USB 20Gbps connector (supports USB Type-C®)1 x USB 5Gbps header supports 2 additional USB 5Gbps ports2 x USB 2.0 header supports 4 additional USB 2.0 ports <p>Miscellaneous</p> <ul style="list-style-type: none">1 x Chassis Intrusion header1 x COM Port header1 x CPU Over voltage jumper1 x Front Panel Audio header (F_AUDIO)1 x 10-1 pin Front Panel System header1 x Thermal Sensor header1 x Thunderbolt™ (USB4®) header
Special Features	<p>ASUS 5X PROTECTION III</p> <ul style="list-style-type: none">- DIGI+ VRM (- Digital power design with DrMOS)- ESD Guards- LANGuard- Overvoltage protection- SafeSlot Core+- Stainless-steel back I/O <p>ASUS Q-Design</p> <ul style="list-style-type: none">- M.2 Q-Latch- Q-Release Slim (with PCIe SafeSlot)- Q-Code- Q-Connector- Q-DIMM- Q-LED (CPU [red], DRAM [yellow], VGA [white], Boot Device [yellow green])- Q-Slot <p>ASUS Thermal Solution</p> <ul style="list-style-type: none">- M.2 heatsink- VRM heatsink design

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Pro WS Z890-ACE SE specifications summary

<p>Special Features</p>	<p>ASUS EZ DIY</p> <ul style="list-style-type: none"> - BIOS FlashBack™ button - BIOS FlashBack™ LED - Clear CMOS button - CPU Socket lever protector - ProCool II - SafeSlot - SafeDIMM <p>Bespoke Motherboard Design & Business Focused Features</p> <ul style="list-style-type: none"> - 24/7 reliability - Overcurrent protection
<p>Software Features</p>	<p>ASUS Exclusive Software</p> <p>Armoury Crate</p> <ul style="list-style-type: none"> - Fan Xpert 4 - Power Saving <p>ASUS DriverHub</p> <p>TurboV Core</p> <p>ASUS CPU-Z</p> <p>Adobe Creative Cloud (Free Trial)</p> <p>Norton 360 Deluxe (60 Days Free Trial)</p> <p>WinRAR (40 Days Free Trial)</p> <p>UEFI BIOS</p> <p>AI Overclocking Guide</p> <p>ASUS EZ DIY</p> <ul style="list-style-type: none"> - ASUS CrashFree BIOS 3 - ASUS EZ Flash - ASUS MyHotkey <p>NPU Boost</p>
<p>Remote Management Features</p>	<p>IT Management software supported</p> <ul style="list-style-type: none"> - ASUS Control Center Express(ACCE) <p>BMC Related</p> <ul style="list-style-type: none"> 1 x BMC switch 1 x BMC debug UART header 1 x BMC LAN fixed IP switch 1 x IPMI switch 1 x Message LED header 1 x microSD card socket 1 x Location LED header 1 x Location button header 1 x PSU_SMB header 1 x SMART_PSU switch 1 x VGA switch 1 x VPP_I2C header

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Pro WS Z890-ACE SE specifications summary

Remote Management Features	BMC LED Design - 1 x BMC LED
BIOS	256 Mb Flash ROM UEFI AMI BIOS (text-based)
BIOS CAP Filename	Pro WS Z890-ACE SE: A5588.cap
Manageability	WOL by PME, PXE
Operating System	Windows 11 (22H2 & later) Windows 10 64-bit (21H2 & later)
Form Factor	ATX Form Factor 12 inch x 9.6 inch (30.5 cm x 24.4 cm)

NOTE: Specifications are subject to change without notice. Please refer to the ASUS website for the latest specifications.

Package contents

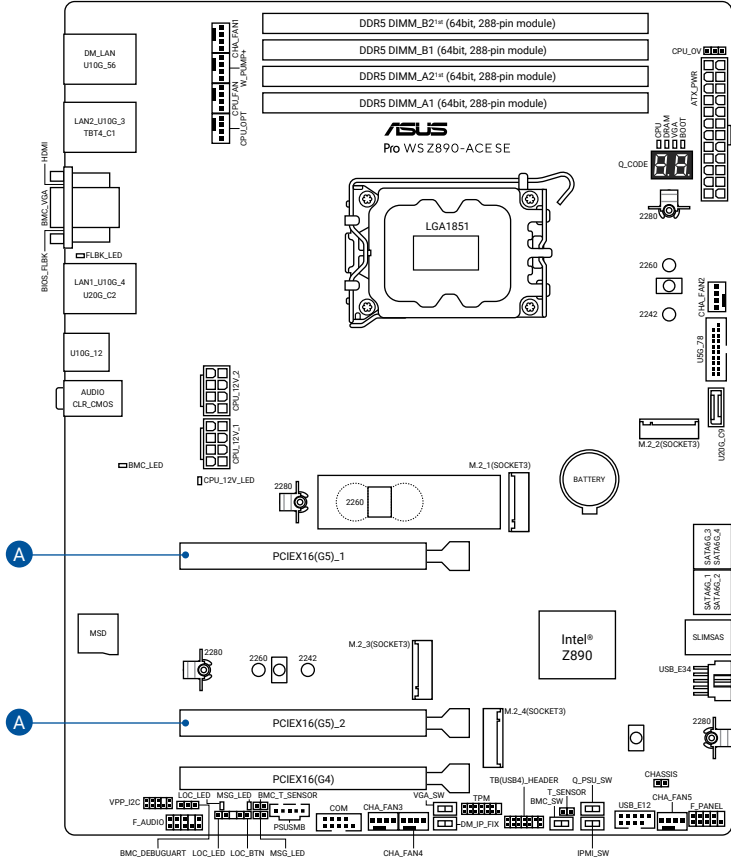
Check your motherboard package for the following items.

Motherboard	1 x Pro WS Z890-ACE SE motherboard
Cables	2 x SATA 6Gb/s cables
	1 x AMI license sticker
	1 x I/O shield
Miscellaneous	2 x M.2 Q-Latch package(s)
	2 x M.2 rubber package(s)
	1 x Q-connector
Documentation	1 x ACC Express activation key card
	1 x Quick start guide

NOTE:

- If any of the above items is damaged or missing, contact your retailer.
 - Items not listed in the Package contents list above are purchased separately and do not come bundled with your motherboard package.
-

Connectors with shared bandwidth



Configuration	1	2
A PCIEX16(G5)_1	x16	x8
A PCIEX16(G5)_2	-	x8

Product Introduction

1.1 Before you proceed

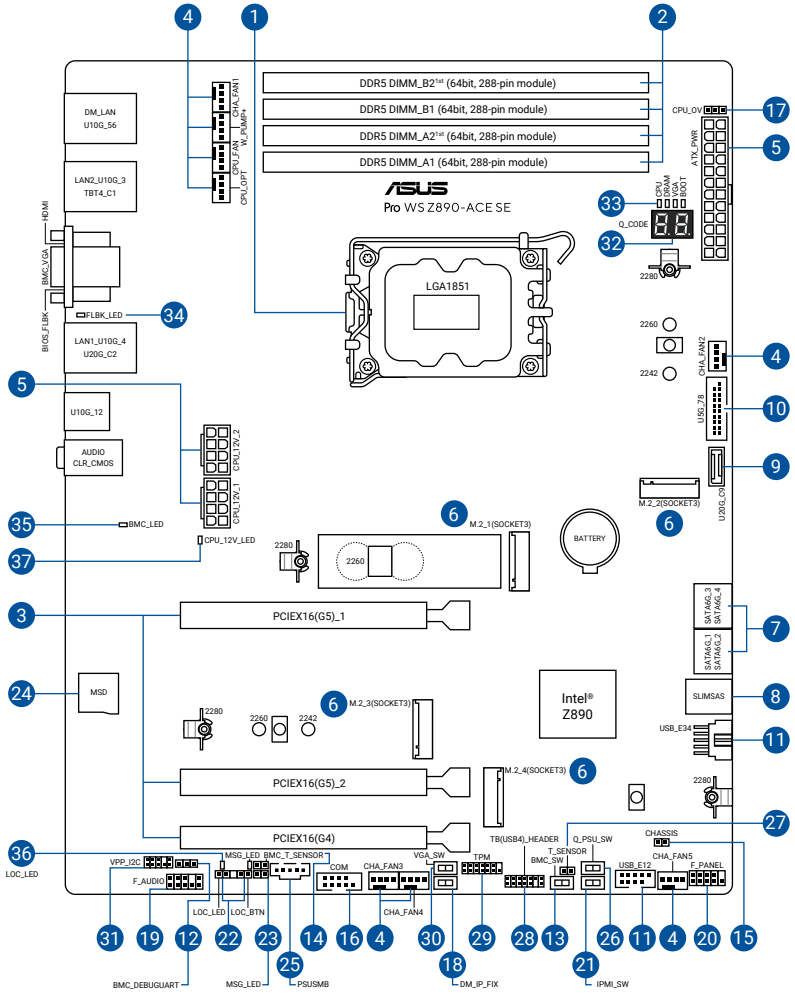
Take note of the following precautions before you install motherboard components or change any motherboard settings.

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, ensure that the power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.

NOTE: The pin definitions in this chapter are for reference only. The pin names depend on the location of the header/jumper/connector.

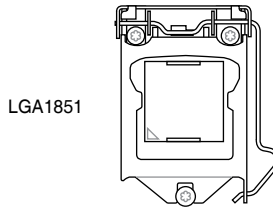
1.2 Motherboard layout



Layout contents	
1.	CPU socket
2.	DIMM slots
3.	Expansion slots
4.	Fan and Pump headers
5.	Power connectors
6.	M.2 slot
7.	SATA 6Gb/s port
8.	SlimSAS connector
9.	USB 20Gbps Type-C® Front Panel connector
10.	USB 5Gbps header
11.	USB 2.0 header
12.	BMC Debug UART connector
13.	BMC switch
14.	BMC Thermal Sensor header
15.	Chassis Intrusion header
16.	COM Port connector
17.	CPU Over Voltage jumper
18.	Fixed Dedicated BMC LAN IP switch
19.	Front Panel Audio header
20.	Front Panel System header
21.	IPMI switch
22.	Location button and LED headers
23.	Message LED header
24.	microSD Card slot
25.	Power Supply SMBus connector
26.	SMART PSU switch
27.	Thermal Sensor header
28.	Thunderbolt™ (USB4®) header
29.	TPM header
30.	VGA switch
31.	VPP_I2C header
32.	Q-Code LED
33.	Q-LEDs
34.	BIOS FlashBack™ LED
35.	BMC LED
36.	Location LED
37.	8-pin CPU Power Plug LED

1. CPU socket

The motherboard comes with a LGA1851 socket designed for Intel® Core™ Ultra Processors (Series 2).

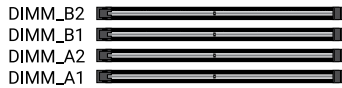


CAUTION!

- Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the CPU 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.
-

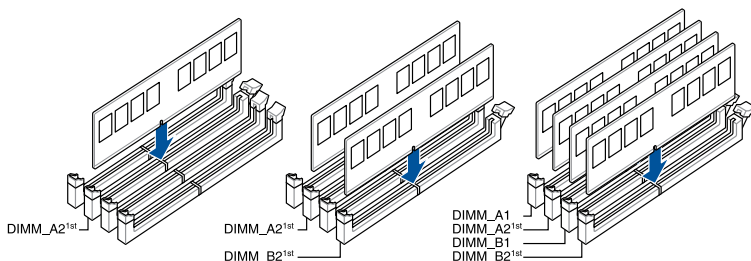
2. DIMM slots

The motherboard comes with Dual Inline Memory Modules (DIMM) slots designed for DDR5 (Double Data Rate 5) memory modules.



CAUTION! A DDR5 memory module is notched differently from a DDR, DDR2, DDR3, or DDR4 module. DO NOT install a DDR, DDR2, DDR3, or DDR4 memory module to the DDR5 slot.

Recommended memory configurations



Memory configurations

You may install Non-ECC, Clocked Unbuffered DIMM (CUDIMM) DDR5 DIMMs into the DIMM sockets.

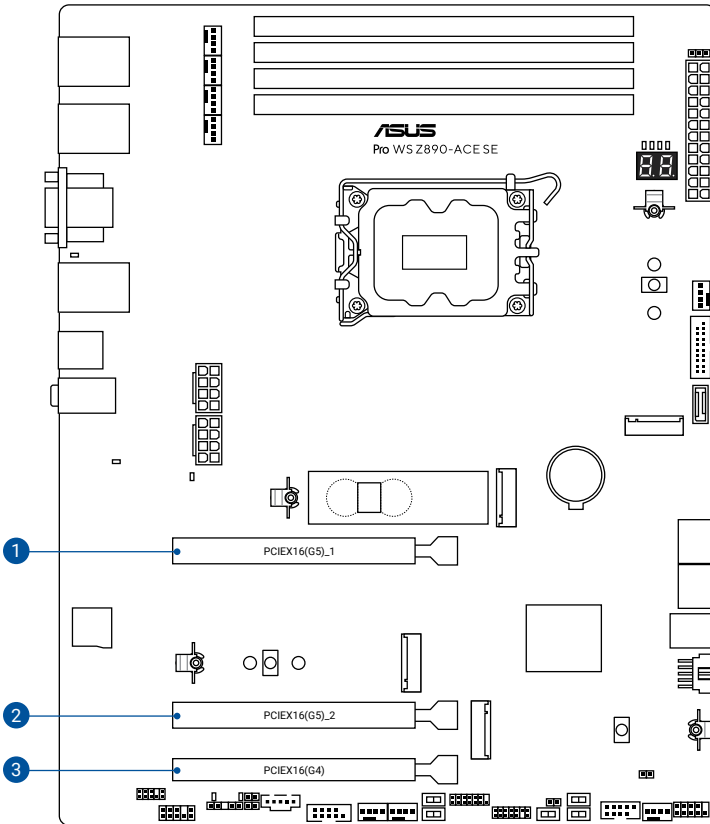
NOTE:

- The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value.
 - For system stability, use a more efficient memory cooling system to support a full memory load or overclocking condition.
 - Always install the DIMMS with the same CAS Latency. For an optimum compatibility, we recommend that you install memory modules of the same version or data code (D/C) from the same vendor. Check with the vendor to get the correct memory modules.
 - Visit the ASUS website for the latest QVL.
-

3. Expansion slots

CAUTION! Unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

NOTE: To install a PCIe expansion card, please refer to the **Motherboard Installation Guide** on the ASUS support site.



Please refer to the following table for PCIe bifurcation configuration.

PCIe bifurcation settings in PCIe x16 slots (from CPU)

Slot Description		Quantity of identifiable Intel M.2 SSD (pcs)
		Situation 1
1	PCIEX16(G5)_1	3 (x8+x4+x4)
2	PCIEX16(G5)_2	-
3	PCIEX16(G4)	-

NOTE:

- Hyper M.2 X16 series card sold separately.
 - Additional PCIe bifurcation and M.2 settings for RAID function are also supported when a Hyper M.2 x16 series card is installed.
 - For more details on the PCIe bifurcation, you may visit the support site at <https://www.asus.com/support/FAQ/1037507/>.
 - Adjust the PCIe bifurcation under BIOS settings.
 - Creating RAID with the Hyper M.2 X16 series card is limited to a maximum of 10 SSDs.
-

Using the Q-Release Slim PCIe slot

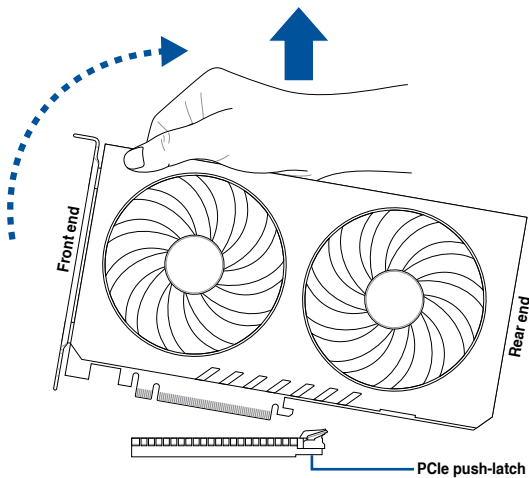
The PCIe slots on this motherboard feature the Q-Release slim feature allowing you to easily remove an expansion card installed to this PCIe slot, even when the expansion card may be blocking the PCIe push-latch, such as a graphics card. You may also remove an expansion card by pushing down on the PCIe push-latch.

To release an expansion card on a Q-Release Slim PCIe slot:

Pull the front end of the expansion card upwards, this should release the expansion card from the Q-Release Slim PCIe slot, allowing you to remove the expansion card from the Q-Release Slim PCIe slot.


NOTE: The illustration below is for reference only. The motherboard and Q-Release Slim PCIe slot may differ between models, but the steps for using the Q-Release Slim PCIe slot remain the same.

CAUTION! Do not try to remove the expansion card by pulling the rear end of the expansion card upwards without pushing down on the PCIe push-latch first. Doing so with excessive force may cause damages to the motherboard.



4. Fan and Pump headers

The Fan and Pump headers allow you to connect fans or pumps to cool the system.

CPU_FAN	CHA_FAN2	
CPU_OPT	CHA_FAN3	
W_PUMP+	CHA_FAN4	
CHA_FAN1	CHA_FAN5	

CAUTION!

- DO NOT forget to connect the fan cables to the fan headers. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan headers!
 - Ensure the cable is fully inserted into the header.
-

IMPORTANT! For water cooling kits, connect the pump connector to the **W_PUMP+** header.

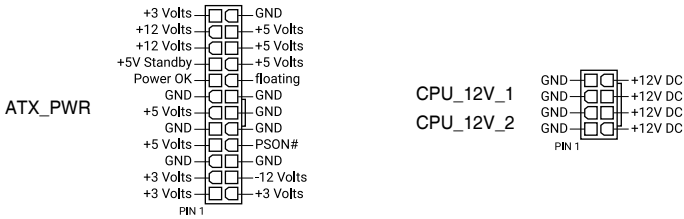
NOTE:

- When connecting a single CPU fan, you may connect it to either the **CPU_FAN** or **CPU_OPT** header.
 - When connecting two CPU fans, ensure to connect the fans to the **CPU_FAN** and the **CPU_OPT** header, and make sure both fans are the same brand and model.
 - **W_PUMP+** function support depends on water cooling device.
-

Header	Max. Current	Max. Power	Default Speed	Shared Control
CPU_FAN	1A	12W	Q-Fan Controlled	A
CPU_OPT	1A	12W	Q-Fan Controlled	A
CHA_FAN1	1A	12W	Q-Fan Controlled	-
CHA_FAN2	1A	12W	Q-Fan Controlled	-
CHA_FAN3	1A	12W	Q-Fan Controlled	-
CHA_FAN4	1A	12W	Q-Fan Controlled	-
CHA_FAN5	1A	12W	Q-Fan Controlled	-
W_PUMP+	3A	36W	Full Speed	-

5. Power connectors

These Power connectors allow you to connect your motherboard to a power supply. The power supply plugs are designed to fit in only one orientation, find the proper orientation and push down firmly until the power supply plugs are fully inserted.



CAUTION! Ensure to connect the 8-pin power plug, or connect both the 8-pin power plugs.

NOTE:

- We recommend that you use a PSU with a higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
 - If you want to use two or more high-end PCI Express x16 cards, we recommend using a PSU with 900W~1200W power or above to ensure the system stability.
 - PSU input: AC 100~240V, 6A/3A, 50/60Hz.
-

6. M.2 slot

The M.2 slot allows you to install M.2 devices such as M.2 SSD modules.

M.2_1(SOCKET3)
M.2_2(SOCKET3)
M.2_3(SOCKET3)
M.2_4(SOCKET3)

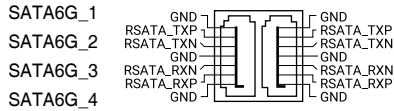


NOTE:

- **Intel® Core™ Ultra Processors (Series 2):**
 - M.2_1 slot (Key M), type 2260/2280 (supports PCIe 5.0 x4 mode)
 - M.2_2 slot (Key M), type 2242/2260/2280 (supports PCIe4.0 x4 mode)
 - **Intel® Z890 Chipset:**
 - M.2_3 slot (Key M), type 2242/2260/2280 (supports PCIe 4.0 x4 mode)
 - M.2_4 slot (Key M), type 2280 (supports PCIe 4.0 x4 mode)
 - Intel® Rapid Storage Technology supports PCIe RAID 0/1/5/10, SATA RAID 0/1/5/10. M.2 slot from CPU only supports RAID 0/1/5.
-

7. SATA 6Gb/s port

The SATA 6Gb/s port allows you to connect SATA devices such as optical disc drives and hard disk drives via a SATA cable.

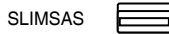


NOTE:

- If you installed SATA storage devices to the SATA6G_1-4 ports, you can create RAID configurations with the Intel® Rapid Storage Technology through the onboard Intel® Z890 chipset.
- To install a SATA device, please refer to the **Motherboard Installation Guide** on the ASUS support site.
- Before creating a RAID set, refer to the **RAID Configuration Guide**. You can download the **RAID Configuration Guide** from the ASUS website.

8. SlimSAS connector

The SlimSAS port allows you to connect NVMe storage devices, and can support up to 4 SATA devices using an adapter cable.

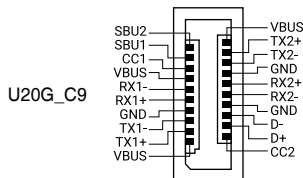


IMPORTANT!

- SLIMSAS supports PCIe 4.0 x4 mode NVMe devices.
- SlimSAS connector connected to a U.2 device via an adapter cable does not support VMD/RST.
- Intel® Rapid Storage Technology supports PCIe RAID 0/1/5/10, SATA RAID 0/1/5/10, M.2 slot from CPU only supports RAID 0/1/5.

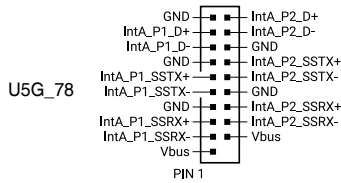
9. USB 20Gbps Type-C® Front Panel connector

The USB 20Gbps Type-C® connector allows you to connect a USB 20Gbps Type-C® module for additional USB 20Gbps ports on the front panel. The USB 20Gbps Type-C® connector provides data transfer speeds of up to 20 Gb/s.



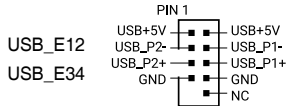
10. USB 5Gbps header

The USB 5Gbps header allows you to connect a USB 5Gbps module for additional USB 5Gbps ports. The USB 5Gbps header provides data transfer speeds of up to 5 Gb/s.



11. USB 2.0 header

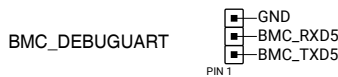
The USB 2.0 header allows you to connect a USB module for additional USB 2.0 ports. The USB 2.0 header provides data transfer speeds of up to 480 Mb/s.



CAUTION! DO NOT connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

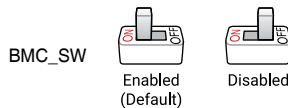
12. BMC Debug UART connector

The BMC Debug UART connector is used for reading the BMC UART Debug log.



13. BMC switch

The BMC switch allows you to enable or disable the BMC.



14. BMC Thermal Sensor header

The BMC Thermal Sensor header allows you to connect a sensor to monitor the temperature of the devices and the critical components inside the motherboard through BMC. Connecting the T sensor cables and setting **BMC_SW** to enabled will allow you to view the sensor readings in both the BIOS and on the web UI.



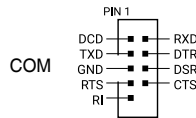
15. Chassis Intrusion header

The Chassis Intrusion header allows you to connect an intrusion sensor or microswitch for the chassis intrusion detection feature. When you remove any chassis component, the sensor or microswitch triggers and sends a high level signal and records a chassis intrusion event.



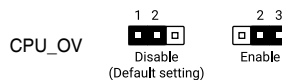
16. COM Port connector

The COM (Serial) Port connector allows you to connect a COM port module. Connect the COM port module cable to this connector, then install the module to a slot opening on the system chassis.



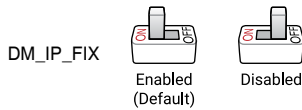
17. CPU Over Voltage jumper

The CPU Over Voltage jumper allows you to set a higher CPU voltage for a flexible overclocking system (depending on the type of the installed CPU). Set to pins 2-3 to increase the CPU voltage setting, or set to pins 1-2 to use the default CPU voltage setting.



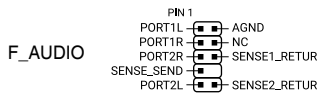
18. Fixed Dedicated BMC LAN IP switch

The Fixed Dedicated BMC LAN IP switch allows you to set a fixed IP (10.10.10.10) when set to enabled.



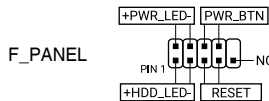
19. Front Panel Audio header

The Front Panel Audio header is for a chassis-mounted front panel audio I/O module that supports HD Audio. Connect one end of the front panel audio I/O module cable to this header.



20. Front Panel System header

The Front Panel System header supports several chassis-mounted functions.



- **System Power LED header (+PWR_LED-)**

The 2-pin header allows you to connect the System Power LED. The System Power LED lights up when the system is connected to a power source, or when you turn on the system power, and blinks when the system is in sleep mode.

- **Storage Device Activity LED header (+HDD_LED-)**

The 2-pin header allows you to connect the Storage Device Activity LED. The Storage Device Activity LED lights up or blinks when data is read from or written to the storage device or storage device add-on card.

- **System Warning Speaker header (SPEAKER)**

The 4-pin header allows you to connect the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **Power Button/Soft-off Button header (PWR_BTN)**

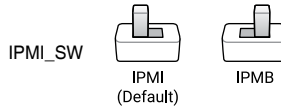
The 3-1 pin header allows you to connect the system power button. Press the power button to power up the system, or put the system into sleep or soft-off mode (depending on the operating system settings).

- **Reset button header (RESET)**

The 2-pin header allows you to connect the chassis-mounted reset button. Press the reset button to reboot the system.

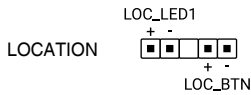
21. IPMI switch

The IPMI switch allows you to switch I2C BUS for instances where I2C may clash due to all PCIe slots being occupied with the same expansion cards.



22. Location button and LED headers

The Location button and LED headers allow you to connect a locator button and locator LED on the front panel. This button queries the state of the system locator, and the LEDs will light up when the Locator button is pressed.



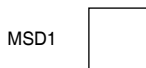
23. Message LED and header

The 2-pin Message LED header is for the message LED cable that connects to the front message LED. The message LED is controlled by the BMC to indicate an abnormal event occurrence.



24. microSD Card slot

The microSD Card slot allows you to install a microSD memory card v2.00 (SDHC) / v3.00 (SDXC) to log BMC events.



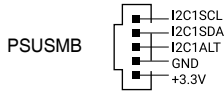
CAUTION!

- Disconnect all power (including redundant PSUs) from the existing system before you add or remove a memory card, then reboot the system to access the memory card.
- Some memory cards may not be compatible with your motherboard. Ensure that you use only compatible memory cards to prevent loss of data, damage to your device, or memory card, or both.

NOTE: The microSD Slot is only supported with BMC Function and not supported for normal use under the OS.

25. Power Supply SMBus connector

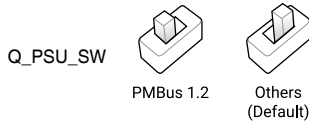
The Power Supply SMBus connector allows you to connect the SMBus (System Management Bus) to the PSU (power supply unit) to read the PSU information. Devices communicate with an SMBus host and/or other SMBus devices using the SMBus interface.



NOTE: Power supply is required to meet PMBus specification and customized BMC FW may be needed. Please contact ASUS if you need further support

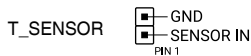
26. SMART PSU switch

This switch allows you to select PSU PMBus version.



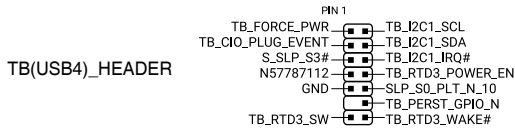
27. Thermal Sensor header

The Thermal Sensor header allows you to connect a sensor to monitor the temperature of the devices and the critical components inside the motherboard. Connect the thermal sensor and place it on the device or the motherboard's component to detect its temperature.



28. Thunderbolt™ (USB4®) header

The Thunderbolt™ (USB4®) header allows you to connect an add-on Thunderbolt™ I/O card that supports Intel®'s Thunderbolt™ Technology, allowing you to connect Thunderbolt™-enabled devices to form a daisy-chain configuration.

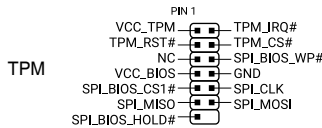


NOTE: Please visit the official website of your purchased Thunderbolt™ card for more details on compatibility.

IMPORTANT! The Thunderbolt™ card can only be used when installed to the PCIEX16(G4) slot. Ensure to install your Thunderbolt™ card to the PCIEX16(G4) slot.

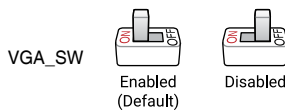
29. TPM header

The TPM header allows you to connect a TPM module, which securely stores keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protect digital identities, and ensures platform integrity.



30. VGA switch

The VGA switch allows you to enable or disable the onboard VGA controller.



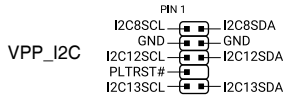
CAUTION! Ensure the ATX power supply is switched off or the power cord is detached from the power supply when enabling or disabling the VGA controller settings using this switch.

NOTE:

- If a VGA Card is installed into a PCI Express x16 Slot, the onboard VGA function will still be enabled.
 - BMC Remote Management Function will still be available when VGA controller settings is set to disabled, but the display will be disabled on the client device.
-

31. VPP_I2C header

The VPP_I2C header is used for the storage backplane with sensor readings.



32. Q-Code LED

The Q-Code LED design provides you with a 2-digit error code that displays the system status.

Q_CODE



NOTE:

- The Q-Code LEDs provide the most probable cause of an error code as a starting point for troubleshooting. The actual cause may vary from case to case.
 - Please refer to the Q-Code table in the **Appendix** section for more details.
-

33. Q-LEDs

The Q-LEDs check key components (CPU, DRAM, VGA, and booting devices) during the motherboard booting process. If an error is found, the critical component's LED stays lit up until the problem is solved.

CPU (RED)	■
DRAM (YELLOW)	■
VGA (WHITE)	□
BOOT (YELLOW GREEN)	■

NOTE: The Q-LEDs provide the most probable cause of an error code as a starting point for troubleshooting. The actual cause may vary from case to case.

34. BIOS FlashBack™ LED

The BIOS FlashBack™ LED lights up or blinks to indicate the status of the BIOS FlashBack™.

FLBK_LED1 □

NOTE: Refer to the **BIOS FlashBack™** section for more information on using the BIOS FlashBack™ feature.

35. BMC LED

The BMC LED works with the ASUS ASMB management device and indicates its initiation status. When the PSU is plugged and the system is OFF, ASUS ASMB management device starts system initiation for about one (1) minute. The BMC LED blinks after system initiation finishes.

BMC_LED □

36. Location LED

The Location LED lights up when the Location button on the server is pressed or when triggered by a system management software. The Location LED helps visually locate and quickly identify the server in error on a server rack.

LOC_LED □

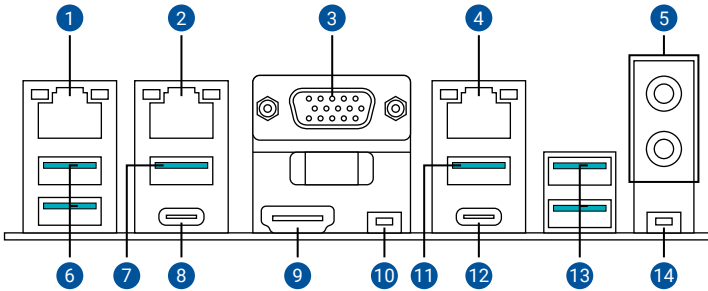
37. 8-pin CPU Power Plug LED

The 8-pin CPU Power Plug LED lights up to indicate that the 8-pin CPU power plug is not connected.

CPU_12V_LED □

1.3 Motherboard rear and audio connections

1.3.1 Rear I/O connection



Rear panel connectors

1.	Realtek 1Gb Ethernet dedicated for AST2600
2.	Marvell® AQtion 10Gb Ethernet port
3.	VGA port from AST26000
4.	Intel® 2.5Gb Ethernet port*
5.	Audio jacks*
6.	USB 10Gbps (Teal) Type-A ports 5 and 6
7.	USB 10Gbps (Teal) Type-A port 3
8.	Thunderbolt™ 4 USB Type-C® port C1
9.	HDMI™ port
10.	BIOS FlashBack™ button
11.	USB 10Gbps (Teal) Type-A port 4
12.	USB 20Gbps Type-C® port C2
13.	USB 10Gbps (Teal) Type-A ports 1 and 2
14.	Clear CMOS button (CLR_CMOS). Press this button to clear the BIOS setup information only when the systems hangs due to overclocking.

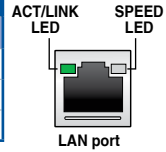
* and **: Refer to the tables under LAN port LEDs, and Audio I/O connections sections.

NOTE: We strongly recommend that you connect your devices to ports with matching data transfer rate. For example connecting your USB 5Gbps devices to USB 5Gbps ports for faster and better performance for your devices.

1.3.2 LAN port LEDs

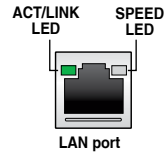
Realtek 1Gb Ethernet port LED indications

Activity Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection



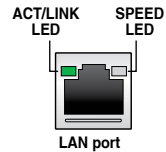
Marvell® AQtion 10Gb Ethernet port LED indications

Activity Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	No link
GREEN	Linked	GREEN	10 Gbps
BLINKING	Data activity	ORANGE	5 Gbps/ 2.5 Gbps/ 1Gbps/ 100 Mbps connection



Intel® 2.5Gb Ethernet port LED indications

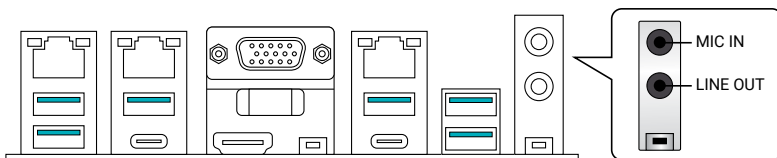
Activity Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	No link
GREEN	Linked	OFF	100 Mbps / 10 Mbps connection
BLINKING	Data activity	GREEN	2.5 Gbps connection
		ORANGE	1 Gbps connection



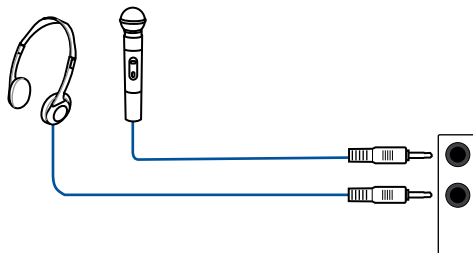
1.3.3 Audio I/O connections

Audio 2, 4, 5.1 or 7.1-channel configuration

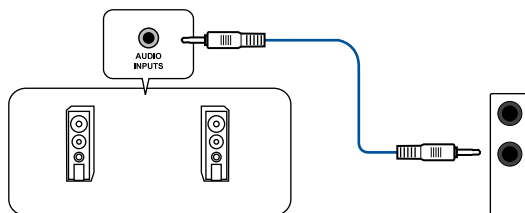
Port	2-channel	4-channel	5.1-channel	7.1-channel
Rear panel				
LINE OUT	Front Speaker Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
MIC IN	-	-	Center/ Subwoofer	Center/ Subwoofer
Front panel				
HEADPHONE (Lime)	-	-	-	Side Speaker Out
MIC IN (Pink)	-	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out



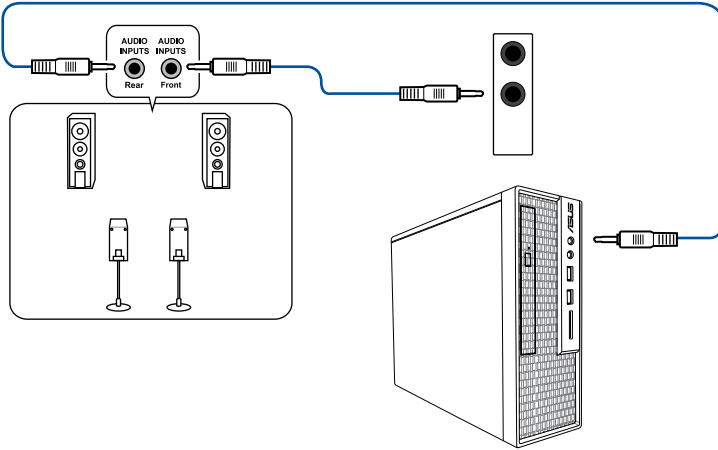
Connect to Headphone and Mic



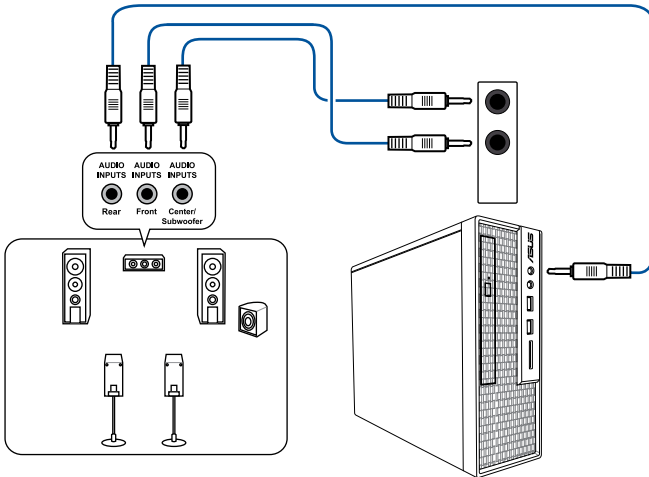
Connect to 2-channel Speakers



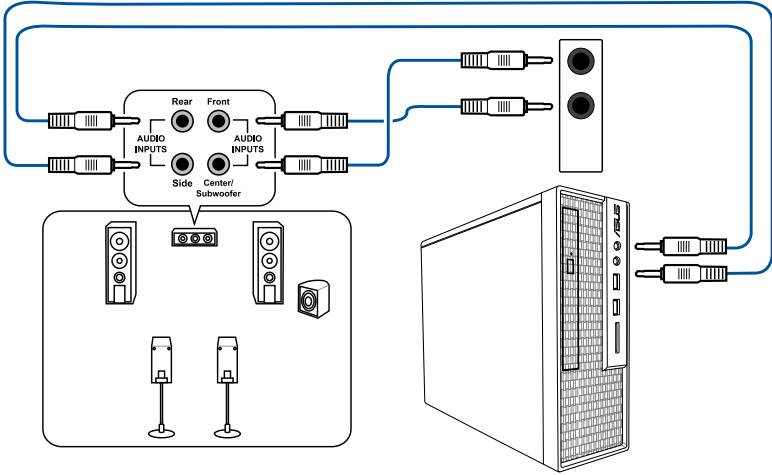
Connect to 4-channel Speakers



Connect to 5.1-channel Speakers



Connect to 7.1-channel Speakers



Basic Setup

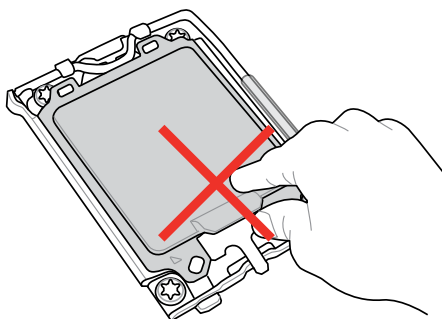
NOTE: The installation diagrams in this section are for reference only. The motherboard layout may vary with models, but the installation steps are the same for all models.

2.1 CPU installation

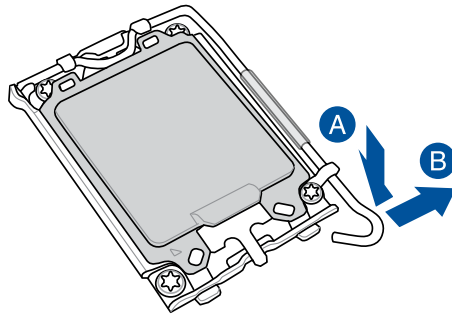
CAUTION!

- Ensure that you install the correct CPU designed for LGA1851 socket only. DO NOT install a CPU designed for LGA1155, LGA1156, LGA1151, LGA1200, and LGA1700 sockets on the LGA1851 socket.
 - The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU.
 - Ensure that all power cables are unplugged before installing the CPU.
 - 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. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.
-

IMPORTANT! Install a heatsink or AIO cooler after installing the CPU. Please refer to the **Motherboard Installation Guide** on the ASUS support site, or to the user manual of the heatsink/AIO cooler for steps on installing the heatsink/AIO cooler.

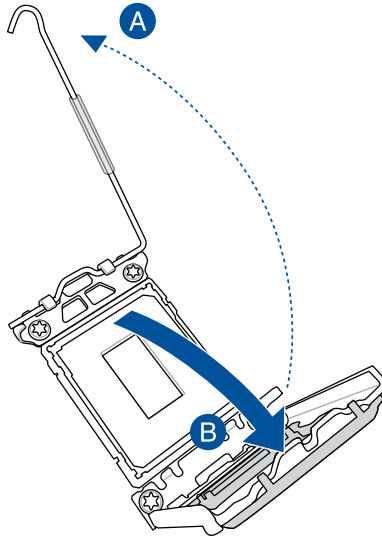


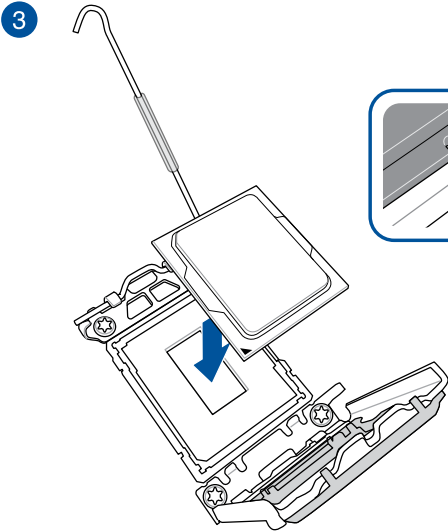
1



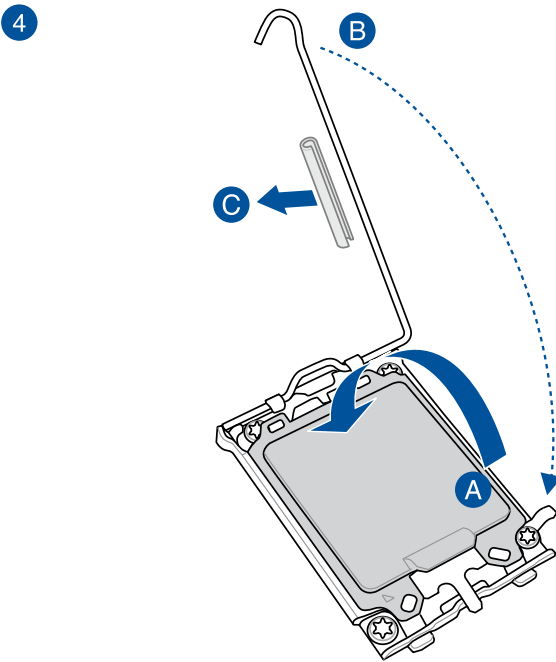
CAUTION! Take caution when lifting the load lever, ensure to hold onto the load lever when releasing the load lever. Letting go of the load lever immediately after releasing it may cause the load lever to spring back and cause damage to your motherboard.

2



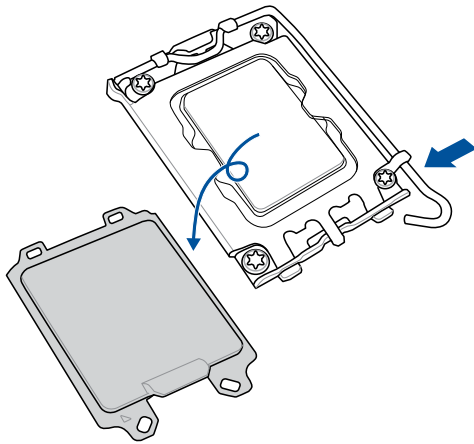


IMPORTANT! Ensure the notches on the CPU are properly aligned to the tabs in the CPU socket, and the triangle mark on the CPU is aligned to the same corner as the triangle mark on the socket.

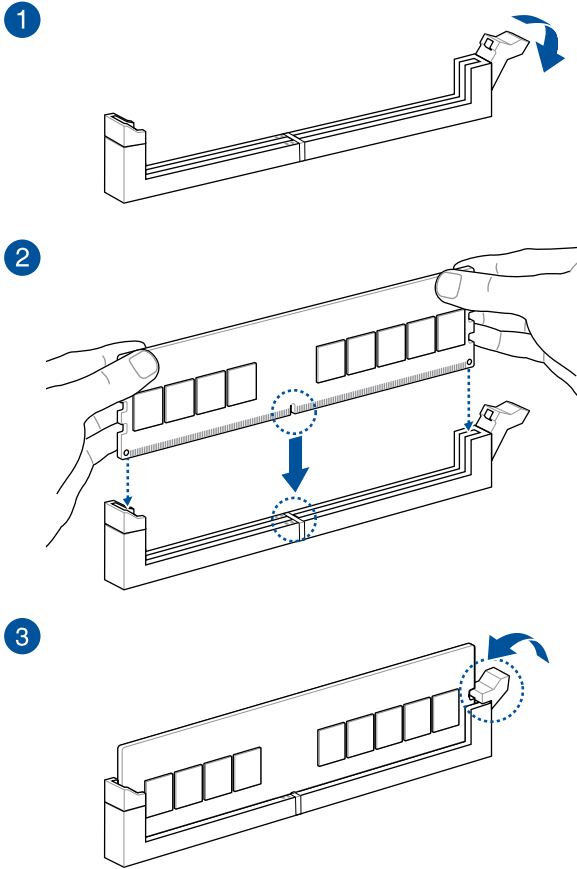


CAUTION! Ensure to remove the CPU Socket lever protector on the lever latch before locking the lever latch under the retention tab. Failure to do so may cause damages to your system when installing the cooling system.

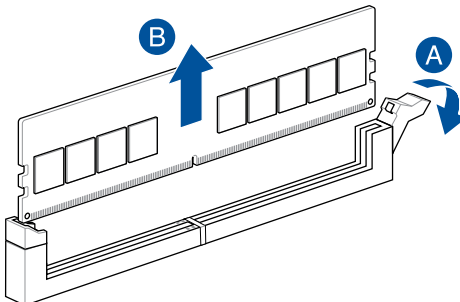
5



2.2 DIMM installation



DIMM removal

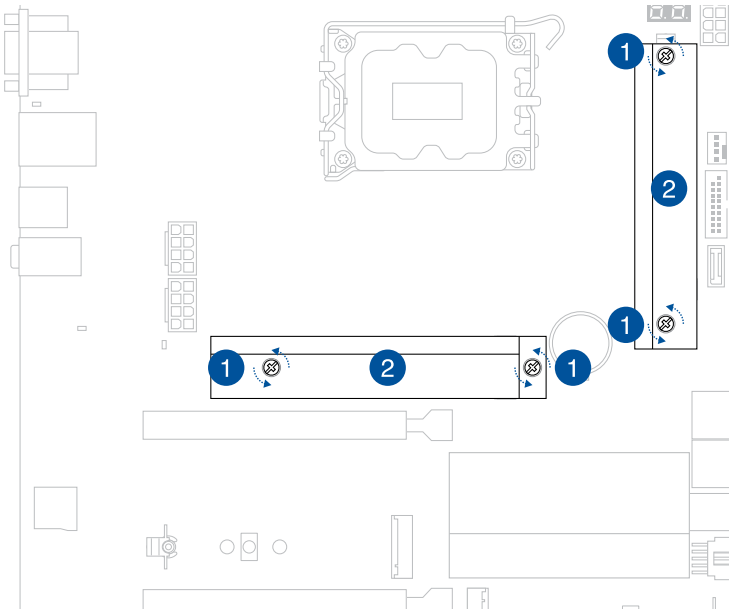


2.3 M.2 module installation

NOTE:

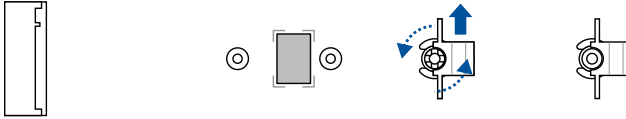
- The illustrations only show the installation steps for selected M.2 slots, the steps are the same for the other M.2 slots.
- Use a Phillips screwdriver when removing or installing the screws or screw stands mentioned in this section.
- If the thermal pad on the M.2 heatsink becomes damaged, we recommend replacing it with a thermal pad with a thickness of 1.25mm.
- Supported M.2 type varies per motherboard.

1. Loosen the screws from the M.2 heatsinks.
2. Lift and remove the heatsinks.



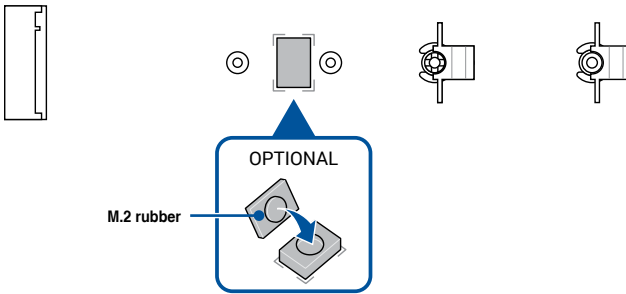
- (optional) If required, remove the pre-installed removable M.2 Q-Latch screw at the 2280 length screw hole.

NOTE: Only follow this step if a removable M.2 Q-Latch screw is pre-installed at the 2280 length screw hole and can be removed.



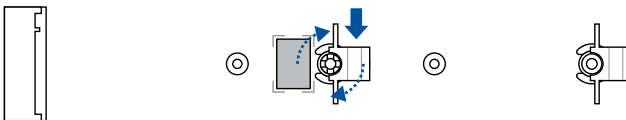
- (optional) Install the bundled M.2 rubber if you are installing a single sided M.2 module. **DO NOT** install the bundled M.2 rubber when installing a double-sided M.2 module. The rubber installed by default is compatible with double sided M.2 modules.

NOTE: Only follow this step if installing a 22110 or 2280 length M.2 module and when the M.2 rubber comes bundled with your motherboard package.



- (optional) Install the M.2 Q-Latch to the M.2 length screw hole you wish to install your M.2 module to.

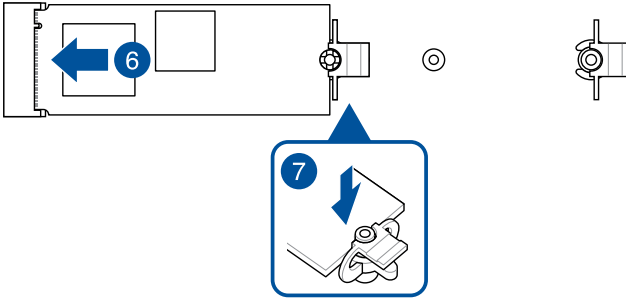
NOTE: You can use a bundled M.2 Q-Latch screw or a pre-installed removable M.2 Q-Latch screw.



6. Install your M.2 module to the M.2 slot.

IMPORTANT! Ensure that there is nothing obstructing your M.2 module when installing the M.2 module to the M.2 slot.

7. Push the M.2 module down until it is secured by the M.2 Q-Latch.

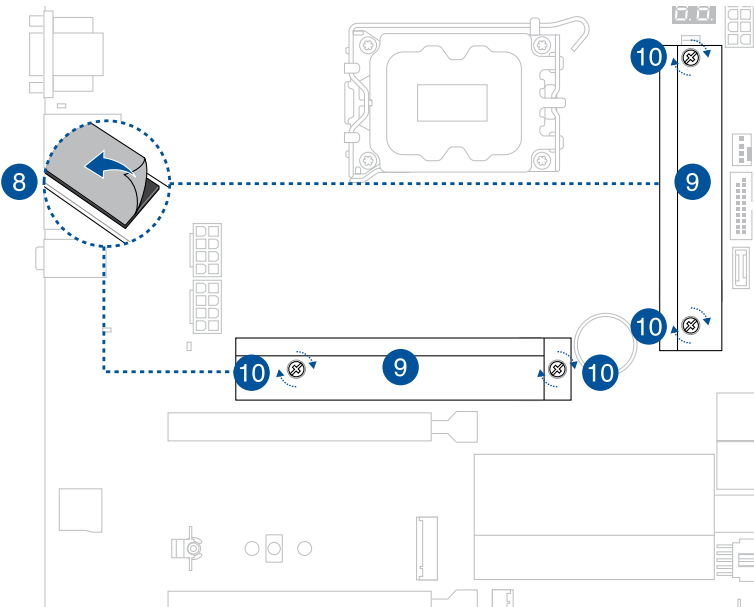


8. Remove the plastic film from the thermal pads on the bottom of the heatsinks.

NOTE: If the thermal pad on the M.2 heatsink becomes damaged, we recommend replacing it with a thermal pad with a thickness of 1.25mm.

9. Replace the heatsinks.

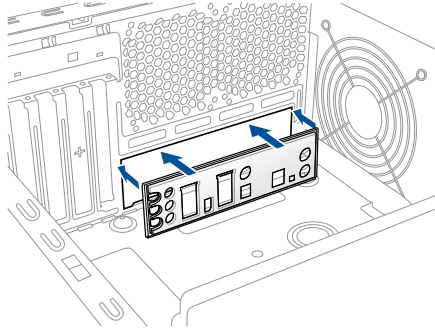
10. Secure the heatsinks using the screws on the heatsinks.



2.4 Motherboard installation

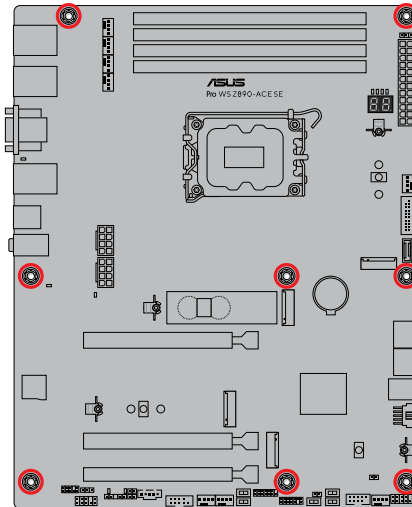
1. (on selected models) Install the bundled I/O Shield to the chassis rear I/O panel.

NOTE: Only install the I/O Shield if your motherboard does not have a pre-installed I/O shield.



2. Place the motherboard into the chassis, ensuring that its rear I/O ports are aligned to the chassis' rear I/O panel.
3. Place eight (8) screws into the holes indicated by circles to secure the motherboard to the chassis.

NOTE: This instruction is for reference only, please place the amount of screws according to your installation situation.



CAUTION! DO NOT over tighten the screws! Doing so can damage the motherboard.

2.5 BIOS FlashBack™

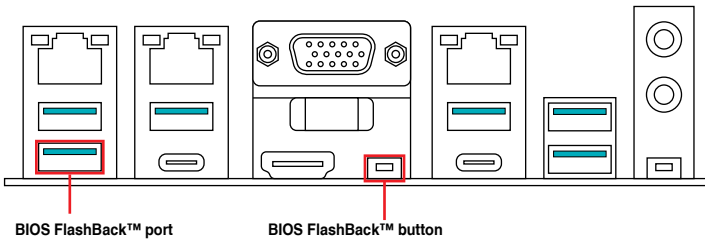
BIOS FlashBack™ allows you to easily update the BIOS without entering the existing BIOS or operating system.

To use BIOS FlashBack™:

1. Visit <https://www.asus.com/support/> and download the latest BIOS version for this motherboard.
2. Launch the **BIOSRenamer.exe** application to automatically rename the file or manually rename the file to the BIOS CAP filename specified in the **Specifications summary** section, then copy it to your USB storage device.

NOTE: The **BIOSRenamer.exe** application is zipped together with your BIOS file when you download a BIOS file for a BIOS FlashBack™ compatible motherboard.

3. Plug the 24-pin power connector to the motherboard and turn on the power supply (no need to power on the system). Insert the USB storage device to the USB port with BIOS FlashBack™ function.
4. Press the BIOS FlashBack™ button for three (3) seconds until the BIOS FlashBack™ LED blinks three times, indicating that the BIOS FlashBack™ function is enabled.



5. Wait until the light goes out, indicating that the BIOS updating process is completed.

NOTE: For more BIOS update utilities in BIOS setup, refer to **BIOS and RAID Support** section.

CAUTION!

- Do not unplug portable disk, power system, press the Clear CMOS button, or short the CLRRTC header while BIOS update is ongoing, otherwise update will be interrupted. In case of interruption, please follow the steps again.
 - If the light flashes for five seconds and turns into a solid light, this means that the BIOS FlashBack™ is not operating properly. This may be caused by improper installation of the USB storage device and filename/file format error. If this scenario happens, please restart the system to turn off the light.
 - Updating BIOS may have risks. If the BIOS program is damaged during the process and results to the system's failure to boot up, please contact your local ASUS Service Center.
-

2.6 Starting up for the first time

1. After making all the connections, replace the system case cover.
2. Ensure that all switches are off.
3. Connect the power cord to the power connector at the back of the system chassis.
4. Connect the power cord to a power outlet that is equipped with a surge protector.
5. Turn on the devices in the following order:
 - a. Monitor
 - b. External storage devices (starting with the last device on the chain)
 - c. System power
6. After applying power, the system power LED on the system front panel case lights up. For systems with ATX power supplies, the system LED lights up when you press the ATX power button. If your monitor complies with the “green” standards or if it has a “power standby” feature, the monitor LED may light up or change from orange to green after the system LED turns on.

The system then runs the power-on self tests (POST). While the tests are running, additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections or call your retailer for assistance.
7. At power on, hold down the <Delete> key to enter the BIOS Setup. Follow the instructions in Chapter 3.

2.7 Turning off the computer

While the system is ON, press the power button for less than four seconds to put the system on sleep mode or soft-off mode, depending on the BIOS setting. Press the power button for more than four seconds to let the system enter the soft-off mode regardless of the BIOS setting.

BIOS and RAID Support

NOTE: For more details on BIOS and RAID configurations, please refer to Manual & Document under the Support tab of the product information site, or visit <https://www.asus.com/support>.

3.1 Knowing UEFI BIOS

BIOS (Basic Input and Output System) stores system hardware settings such as storage device configuration, overclocking settings, advanced power management, and boot device configuration that are needed for system startup in the motherboard CMOS. In normal circumstances, the default BIOS settings apply to most conditions to ensure optimal performance. **DO NOT change the default BIOS settings** except in the following circumstances:

- An error message appears on the screen during the system bootup and requests you to run the BIOS Setup.
- You have installed a new system component that requires further BIOS settings or update.

CAUTION! Inappropriate BIOS settings may result to instability or boot failure. **We strongly recommend that you change the BIOS settings only with the help of a trained service personnel.**

NOTE: BIOS settings and options may vary due to different BIOS release versions. Please refer to the latest BIOS version for settings and options.

Entering BIOS at startup

To enter BIOS Setup at startup, press <Delete> or <F2> during the Power-On Self Test (POST). If you do not press <Delete> or <F2>, POST continues with its routines.

IMPORTANT!

- If the system becomes unstable after changing any BIOS setting, load the default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** menu or press the <F5> hotkey.
 - If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value.
 - The BIOS setup program does not support Bluetooth devices.
-

3.2 ASUS EZ Flash Utility

The ASUS EZ Flash Utility feature allows you to update the BIOS without using an OS-based utility.

IMPORTANT! Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** menu or press hotkey **<F5>**.

To update the BIOS:

CAUTION!

- This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.
 - DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!
-

1. Insert the USB flash disk that contains the latest BIOS file to the USB port.
2. Enter the BIOS setup program, then go to the **Tool** menu to select **Start ASUS EzFlash** and press **<Enter>**.
3. Press the Left arrow key to switch to the **Drive** field.
4. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press **<Enter>**.
5. Press the Right arrow key to switch to the **Folder** field.
6. Press the Up/Down arrow keys to find the BIOS file, and then press **<Enter>** to perform the BIOS update process. Reboot the system when the update process is done.

3.3 ASUS CrashFree BIOS 3

The ASUS CrashFree BIOS 3 utility is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can restore a corrupted BIOS file using a USB flash drive that contains the BIOS file.

Recovering the BIOS

1. Download the latest BIOS version for this motherboard from <https://www.asus.com/support/>.
2. Rename the file using one of the following methods:
 - Launch the **BIOSRenamer.exe** application to automatically rename the file.
 - Manually rename the file to the BIOS CAP filename specified in the **Specifications summary** section.
 - Manually rename the file to **ASUS.CAP**.
3. Copy the renamed file to your USB storage device.
4. Turn on the system.
5. Insert the USB flash drive containing the BIOS file to a USB port.
6. The utility automatically checks the devices for the BIOS file. When found, the utility reads the BIOS file and enters ASUS EZ Flash Utility automatically.
7. The system requires you to enter BIOS Setup to recover the BIOS setting. To ensure system compatibility and stability, we recommend that you press <F5> to load default BIOS values.

CAUTION! DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

3.4 RAID configurations

The motherboard supports RAID configurations.

RAID definitions

RAID 0 (Data striping) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage. Use of two new identical hard disk drives is required for this setup.

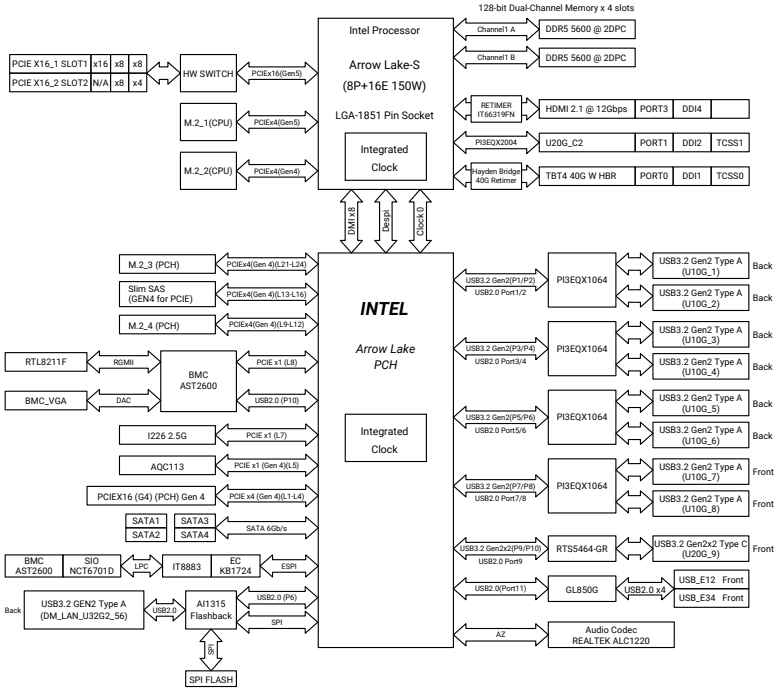
RAID 1 (Data mirroring) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive.

RAID 5 stripes both data and parity information across three or more hard disk drives. Among the advantages of RAID 5 configuration include better HDD performance, fault tolerance, and higher storage capacity. The RAID 5 configuration is best suited for transaction processing, relational database applications, enterprise resource planning, and other business systems. Use a minimum of three identical hard disk drives for this setup.

RAID 10 is data striping and data mirroring combined without parity (redundancy data) having to be calculated and written. With the RAID 10 configuration you get all the benefits of both RAID 0 and RAID 1 configurations. Use four new hard disk drives or use an existing drive and three new drives for this setup.

Appendix

Pro WS Z890-ACE SE block diagram



Q-Code table

Code	Description
00	Not used
01	Power on. Reset type detection (soft/hard).
02	AP initialization before microcode loading
03	System Agent initialization before microcode loading
04	PCH initialization before microcode loading
06	Microcode loading
07	AP initialization after microcode loading
08	System Agent initialization after microcode loading
09	PCH initialization after microcode loading
0B	Cache initialization
0C – 0D	Reserved for future AMI SEC error codes
0E	Microcode not found
0F	Microcode not loaded
10	PEI Core is started
11 – 14	Pre-memory CPU initialization is started
15 – 18	Pre-memory System Agent initialization is started
19 – 1C	Pre-memory PCH initialization is started
2B – 2F	Memory initialization
30	Reserved for ASL (see ASL Status Codes section below)
31	Memory Installed
32 – 36	CPU post-memory initialization
37 – 3A	Post-Memory System Agent initialization is started
3B – 3E	Post-Memory PCH initialization is started
4F	DXE IPL is started
50 – 53	Memory initialization error. Invalid memory type or incompatible memory speed
54	Unspecified memory initialization error
55	Memory not installed
56	Invalid CPU type or Speed
57	CPU mismatch
58	CPU self test failed or possible CPU cache error
59	CPU micro-code is not found or micro-code update is failed
5A	Internal CPU error
5B	Reset PPI is not available
5C – 5F	Reserved for future AMI error codes

(continued on the next page)

Q-Code table

Code	Description
E0	S3 Resume is started (S3 Resume PPI is called by the DXE IPL)
E1	S3 Boot Script execution
E2	Video repost
E3	OS S3 wake vector call
E4 – E7	Reserved for future AMI progress codes
E8	S3 Resume Failed
E9	S3 Resume PPI not Found
EA	S3 Resume Boot Script Error
EB	S3 OS Wake Error
EC – EF	Reserved for future AMI error codes
F0	Recovery condition triggered by firmware (Auto recovery)
F1	Recovery condition triggered by user (Forced recovery)
F2	Recovery process started
F3	Recovery firmware image is found
F4	Recovery firmware image is loaded
F5 – F7	Reserved for future AMI progress codes
F8	Recovery PPI is not available
F9	Recovery capsule is not found
FA	Invalid recovery capsule
FB – FF	Reserved for future AMI error codes
60	DXE Core is started
61	NVRAM initialization
62	Installation of the PCH Runtime Services
63 – 67	CPU DXE initialization is started
68	PCI host bridge initialization
69	System Agent DXE initialization is started
6A	System Agent DXE SMM initialization is started
6B – 6F	System Agent DXE initialization (System Agent module specific)
70	PCH DXE initialization is started
71	PCH DXE SMM initialization is started
72	PCH devices initialization
73 – 77	PCH DXE Initialization (PCH module specific)
78	ACPI module initialization
79	CSM initialization
7A – 7F	Reserved for future AMI DXE codes

(continued on the next page)

Q-Code table

Code	Description
90	Boot Device Selection (BDS) phase is started
91	Driver connecting is started
92	PCI Bus initialization is started
93	PCI Bus Hot Plug Controller Initialization
94	PCI Bus Enumeration
95	PCI Bus Request Resources
96	PCI Bus Assign Resources
97	Console Output devices connect
98	Console input devices connect
99	Super IO Initialization
9A	USB initialization is started
9B	USB Reset
9C	USB Detect
9D	USB Enable
9E – 9F	Reserved for future AMI codes
A0	IDE initialization is started
A1	IDE Reset
A2	IDE Detect
A3	IDE Enable
A4	SCSI initialization is started
A5	SCSI Reset
A6	SCSI Detect
A7	SCSI Enable
A8	Setup Verifying Password
A9	Start of Setup
AA	Reserved for ASL (see ASL Status Codes section below)
AB	Setup Input Wait
AC	Reserved for ASL (see ASL Status Codes section below)
AD	Ready To Boot event
AE	Legacy Boot event
AF	Exit Boot Services event
B0	Runtime Set Virtual Address MAP Begin
B1	Runtime Set Virtual Address MAP End
B2	Legacy Option ROM Initialization
B3	System Reset

(continued on the next page)

Q-Code table

Code	Description
B4	USB hot plug
B5	PCI bus hot plug
B6	Clean-up of NVRAM
B7	Configuration Reset (reset of NVRAM settings)
B8– BF	Reserved for future AMI codes
D0	CPU initialization error
D1	System Agent initialization error
D2	PCH initialization error
D3	Some of the Architectural Protocols are not available
D4	PCI resource allocation error. Out of Resources
D5	No Space for Legacy Option ROM
D6	No Console Output Devices are found
D7	No Console Input Devices are found
D8	Invalid password
D9	Error loading Boot Option (LoadImage returned error)
DA	Boot Option is failed (StartImage returned error)
DB	Flash update is failed
DC	Reset protocol is not available

ACPI/ASL Checkpoints (under OS)

Code	Description
03	System is entering S3 sleep state
04	System is entering S4 sleep state
05	System is entering S5 sleep state
30	System is waking up from the S3 sleep state
40	System is waking up from the S4 sleep state
AC	System has transitioned into ACPI mode. Interrupt controller is in PIC mode.
AA	System has transitioned into ACPI mode. Interrupt controller is in APIC mode.

General 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.

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HDMI™

HIGH-DEFINITION MULTIMEDIA INTERFACE

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VCCI: Japan Compliance Statement

Class B ITE

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V C C I - B

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Please refer to <https://esg.asus.com/Compliance.htm> for information disclosure based on regulation requirements ASUS is complied with:

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Các sản phẩm ASUS bán tại Việt Nam, vào ngày 23 tháng 9 năm 2011 trở về sau, đều phải đáp ứng các yêu cầu của Thông tư 30/2011/TT-BCT của Việt Nam.

Türkiye RoHS

AEEE Yönetmeliğine Uygundur

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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 <https://esg.asus.com/en/Takeback.htm> for detailed recycling information in different regions.



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.

France sorting and recycling information



Points de collecte sur www.quefairedemesdechets.fr
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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

Lietuviai „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 u usaglašenosti je dostupan da adresi: www.asus.com/support

Slovensky Spoločnosť ASUSTeK Computer Inc. týmto vyhlasuje, že toto zariadenie vyhovuje základným požiadavkám a ostatným 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

Türkçe ASUSTeK Computer Inc., bu aygıtın temel gereksinimlerle ve ilgilili Yönergelerin diğer ilgili koşullarına uyumlu olduğunu beyan eder. AB uygunluk bildiriminin tam metni şu adreste bulunabilir: 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 ЕС доступний на: www.asus.com/support

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

עברית ASUSTeK Computer Inc. מצהיר כי מכשיר זה תואם לדרישות החיוניות ולתנאים הרלוונטיים האחרים של ההחזית הקשורות. הטקסט המלא של הצהרת התאמות של האיחוד האירופי זמין בכתובת: www.asus.com/support

Warranty

EN: ASUS Guarantee information

- ASUS offers a voluntary manufacturer's Commercial Guarantee.
- ASUS reserves the right to interpret the provisions of the ASUS Commercial Guarantee.
- This ASUS Commercial Guarantee is provided independently and in addition to the statutory Legal Guarantee and in no way affects or limits the rights under the Legal Guarantee.

For all the guarantee information, please visit <https://www.asus.com/support>.

F: Garantie ASUS

- ASUS fournit une garantie commerciale en tant que garantie volontaire du fabricant.
- ASUS se réserve le droit d'interpréter et de clarifier les informations relatives à la garantie commerciale ASUS.
- Cette garantie commerciale ASUS est fournie indépendamment et parallèlement à la garantie légale, elle n'affecte ou ne limite d'aucune façon les droits acquis par la garantie légale.

Pour plus d'informations sur la garantie, consultez le site <https://www.asus.com/fr/support/>.

G: ASUS Garantieinformationen

- ASUS bietet eine freiwillige Warengarantie des Herstellers an.
- ASUS behält sich das Recht zur Auslegung der Bestimmungen in der ASUS Warengarantie vor.
- Diese ASUS Warengarantie wird unabhängig und zusätzlich zur rechtmäßigen gesetzlichen Garantie gewährt und beschränkt oder beschränkt in keiner Weise die Rechte aus der gesetzlichen Garantie.

Die vollständigen Garantieinformationen finden Sie unter <https://www.asus.com/de/support/>.

I: Informativa sulla Garanzia ASUS

- ASUS offre una Garanzia Commerciale volontaria del produttore.
- ASUS si riserva il diritto di interpretare le disposizioni della Garanzia Commerciale ASUS.
- La presente Garanzia Commerciale ASUS viene fornita in modo indipendente e in aggiunta alla Garanzia Legale prevista per legge e non pregiudica o limita in alcun modo i diritti previsti dalla Garanzia Legale.

Per tutte le informazioni sulla garanzia, visitare <https://www.asus.com/it/support>.

R: Информация о гарантии ASUS

- ASUS предлагает добровольную гарантию от производителя.
- ASUS оставляет за собой право интерпретирование положений гарантии ASUS.
- Настоящая гарантия ASUS никоим образом не ограничивает Ваш выбор, предусмотренные локальным законодательством.

Для получения полной информации о гарантии посетите <https://www.asus.com/ru/support/>.

BG: Информация за гаранцията от ASUS

- ASUS предлага доброволна търговска гаранция от производителя.
- ASUS си запазва правото да тълкува условията на търговската гаранция на ASUS.
- Тази търговска гаранция на ASUS се предлага независимо от и в допълнение на законната гаранция. Тя по никакъв начин не оказва влияние върху правата на потребителя в законната гаранция и по никакъв начин не ги ограничава.

За цялостна информация относно гаранцията, моля, посетете <https://www.asus.com/support>.

CR: Informacije o ASUS jamstvu

- ASUS dragovoljno nudi komercijalno proizvođačko jamstvo.
- ASUS zadržava prava na tumačenje odredbi ASUS komercijalnog jamstva.
- Ovo ASUS komercijalno jamstvo daje se neovisno i kao dodatak zakonskom jamstvu i ni na koji način ne ograničava prava iz okvira zakonskog jamstva.

Sve informacije o jamstvu potražite na <https://www.asus.com/support>.

CZ: Informace o záruce společnosti ASUS

- Společnost ASUS nabízí dobrovolnou komerční záruku výrobce.
- Společnost ASUS si vyhrazuje právo uplatňovat ustanovení komerční záruky společnosti ASUS.
- Tato komerční záruka společnosti ASUS je poskytována nezávisle a jako doplněk zákonné záruky a žádným způsobem neovlivňuje ani neomezuje práva vyplývající ze zákonné záruky.

Všechny informace o záruce najdete na adrese <https://www.asus.com/cz/support/>.

DA: ASUS garantioplysninger

- ASUS tilbyder en valgfri handelsmæssig garanti.
- ASUS forbeholder sig retten til at fortolke bestemmelserne i ASUS' handelsmæssige garanti.
- Denne handelsmæssige garanti fra ASUS tilbydes uafhængigt, som en tilføjelse til den lovbestemte juridiske garanti og den påvirker eller begrænser på ingen måde rettighederne i den juridiske garanti.

Alle garantioplysningerne kan findes på <https://www.asus.com/dk/support/>.

DU: ASUS-garantie-informatie

- SUS biedt een vrijwillige commerciële garantie van de fabrikant.
- ASUS behoudt zich het recht voor om de bepalingen van de commerciële garantie van ASUS uit te leggen.
- Deze commerciële garantie van ASUS wordt onafhankelijk en als aanvulling op de statutaire Wettelijke garantie geboden en beïnvloedt of beperkt in geen geval de rechten onder de wettelijke garantie.

Voor alle informatie over de garantie, gaat u naar <https://www.asus.com/nl/support/>.

EE: Teave ASUS-e garantii kohta

- ASUS pakub vabataltlikku tasulist tootjagarantiid.
- ASUS jätab endale õiguse jälgendada ASUS-e tasulise garantii tingimusi.
- See ASUS-e tasuline garantii on sõltumatu liisagarantii seadusega kehtestatud garantiile ega mõjuta mingil määral seadusega kehtestatud garantiid ning seadusega kehtestatud garantiid piiranguid.

Vaadake garantiiga seotud teavet veebisaidil <https://www.asus.com/ee/>.

FI: ASUS-takuutiedot

- ASUS tarjoaa vapaaehtoisien valmistajan kaupallisen takuun.
- ASUS pidättää oikeuden tulkita ASUS-kaupallisen takuun ehdot.
- Tämä ASUS-kaupallinen takuu tarjotaan itsenäisesti lakisääteisen oikeudellisen takuun lisäksi eikä se vaikuta millään tavoin laillisen takuun oikeuksiin tai rajoita niitä.

Saadaksesi kaikki takuutiedot, siirry osoitteeseen <https://www.asus.com/fi/support>.

GK: Πληροφορίες εγγύησης ASUS

- Η ASUS προσφέρει μια εθελοντική Εμπορική εγγύηση κατασκευαστή.
- Η ASUS διατηρεί το δικαίωμα ερμηνείας των διατάξεων της Εμπορικής εγγύησης ASUS.
- Αυτή η Εμπορική εγγύηση ASUS παρέχεται ανεξάρτητα και επιπροσθέτως της θεσμικής Νομικής εγγύησης και σε καμία περίπτωση δεν επηρεάζει ή περιορίζει τα δικαιώματα βάσει της Νομικής εγγύησης.

Για όλες τις πληροφορίες εγγύησης, επισκεφθείτε τη διεύθυνση <https://www.asus.com/gr/el/>.

HUG: ASUS garanciális információk

- Az ASUS önkéntes gyártói kereskedelmi garanciát kínál.
- Az ASUS fenntartja magának a jogot, hogy értelmezze az ASUS kereskedelmi garanciáira vonatkozó rendelkezéseket.
- Ezt a kereskedelmi garanciát az ASUS függetlenül és a törvényes garancia mellett nyújtja és semmilyen módon nem befolyásolja, vagy korlátozza a jogi garancia nyújtotta jogokat.

A garanciára vonatkozó teljes körű információkért látogasson el a <https://www.asus.com/hu/support/oldalra>.

LT: Informacija apie ASUS garantiją

- ASUS siūlo savanorišką komercinę gamintojo garantiją.
- ASUS pasilieka teisę savo nuožūria aiškinti šios komercinės ASUS garantijos nuostatas.
- Ši komercinė ASUS garantija suteikiama nepriklausoma, be įstatyminės teisinės garantijos, ir jokiu būdu nepaveikia ar neapriboja teisinės garantijos suteikiamų teisių.

Norėdami gauti visą informaciją apie garantiją, apsilankykite <https://www.asus.com/lt/>.

LV: ASUS garantijas informācija

- ASUS piedāvā brīvprātīgu ražotāja komerciālo garantiju.
- ASUS patur tiesības interpretēt ASUS komerciālās garantijas noteikumus.
- Šī ASUS komerciālā garantija tiek piedāvāta neatkarīgi un papildus likumā noteiktajai juridiskajai garantijai, un tā nekādā neietekmē vai neierobežo juridiskajai garantijai noteiktās tiesības.

Lai iegūtu informāciju par garantiju, apmeklējiet vietni <https://www.asus.com/lv/>.

MX: Garantía y Soporte

Esta Garantía aplica en el país de compra. Usted acepta que en esta garantía:

- Los procedimientos de servicio pueden variar en función del país.
- Algunos servicios y/o piezas de reemplazo pudieran no estar disponibles en todos los países.
- Algunos países pueden tener tarifas y restricciones que se apliquen en el momento de realizar el servicio, visite el sitio de soporte de ASUS en <https://www.asus.com/mx/support/> para ver más detalles.
- Si tiene alguna queja o necesidad de un centro de reparación local o el periodo de garantía del producto ASUS, por favor visite el sitio de Soporte de ASUS en <https://www.asus.com/mx/support/> para mayores detalles.

Información de contacto ASUS

Esta garantía está respaldada por:
ASUSTeK Computer Inc.
Centro de Atención ASUS +52 (55) 1946-3663

NW: Informasjon om ASUS-garanti

- ASUS tilbyr som produsent en frivillig kommersiell garanti.
- ASUS forbeholder seg retten til å tolke bestemmelsene i ASUS sin kommersielle garanti.
- ASUS sin kommersielle garanti gir uavhengig og i tillegg til den lovbestemte juridiske garantien, og verken påvirker eller begrenser rettighetene under den juridiske garantien på noen måte.

Du finner fullstendig informasjon om garanti på <https://www.asus.com/no/support/>.

PG: Informações de Garantia ASUS

- A ASUS oferece uma Garantia Comercial voluntária do fabricante.
- A ASUS reserva o direito de interpretar as disposições da Garantia Comercial da ASUS.
- Esta Garantia Comercial da ASUS é fornecida de forma independente além da Garantia Legal estatutária e não afeta nem limita de qualquer forma os direitos estabelecidos na Garantia Legal.

Para consultar todas as informações sobre a garantia, visite <https://www.asus.com/pt/support/>.

PL: Informacje o gwarancji firmy ASUS

- Firma ASUS oferuje dobrowolną gwarancję handlową producenta.
- Firma ASUS zastrzega sobie prawo do interpretacji warunków gwarancji handlowej firmy ASUS.
- Niniejsza gwarancja handlowa firmy ASUS jest udzielana niezależnie, jako dodatek do wymaganej ustawowo gwarancji prawnej i w żaden sposób nie wpływa na prawa przysługujące na mocy gwarancji prawnej ani ich nie ogranicza.

Wszelkie informacje na temat gwarancji można znaleźć na stronie <https://www.asus.com/pl/support/>.

RO: Informații despre garanția ASUS

- ASUS oferă o garanție comercială voluntară a producătorului.
- ASUS își rezervă dreptul de a interpreta prevederile garanției comerciale ASUS.
- Această garanție comercială ASUS este oferită independent și în plus față de garanția obligatorie legală și nu afectează sau limitează în niciun fel drepturile acordate conform garanției legale.

Pe lângă toate informațiile legate de garanție, vizitați <https://www.asus.com/ro/support/>.

S: Información de garantía de ASUS

- ASUS ofrece una garantía comercial voluntaria del fabricante.
- ASUS se reserva el derecho de interpretar las disposiciones de esta garantía comercial de ASUS.
- Esta garantía comercial de ASUS se proporciona de forma independiente y adicional a la garantía estatutaria y de ninguna manera afecta a los derechos bajo la garantía legal ni los limita.

Para obtener toda la información sobre la garantía, visite <https://www.asus.com/ES/support/>.

SB: Informacije o ASUS garanciji

- ASUS nudi dobроволjnu proizvođačku komercijalnu garanciju.
- ASUS zadržava pravo da tumači odredbe svoje ASUS komercijalne garancije.
- Ova ASUS komercijalna garancija daje se nezavisno, kao dodatak zakonskoj pravnoj garanciji, i ni ka koji način ne utiče na i ne ograničava prava data pravnom garancijom.

Za sve informacije o garanciji, posetite <https://www.asus.com/support/>.

SK: Informácie o záruke ASUS

- ASUS ponúka dobrovoľnú obchodnú záruku výrobcu.
- ASUS si vyhradzuje právo interpretovať ustanovenia obchodnej záruky ASUS.
- Táto obchodná záruka ASUS je poskytnutá nezávisle a navyše k zákonnej záruke a v žiadnom prípade neovplyvňuje ani neobmedzuje tieto práva podľa tejto zákonnej záruky.

Všetky ďalšie informácie o záruke nájdete na <https://www.asus.com/sk/support/>.

SL: Informacije o garanciji ASUS

- ASUS ponuja prostovoljno tržno garancijo proizvajalca.
- ASUS si pridružuje pravico do razlage določb tržne garancije družbe ASUS.
- Ta tržna garancija družbe ASUS je na voljo neodvisno in kot dodatek zakonsko predpisani pravni garanciji ter na noben način ne vpliva na pravice, ki jih zagotavlja pravna garancija, oziroma jih omejuje.

Vse informacije o garanciji najdete na spletnem mestu <https://www.asus.com/support/>.

SW: ASUS garantinformation

- ASUS erbjuder en frivillig kommersiell tillverkningsgaranti.
- ASUS förbehåller sig rätten att tolka bestämmelserna i ASUS kommersiella garanti.
- Denna kommersiella garanti från ASUS tillhandahålls separat och som tillägg till den lagstadgade garantin, och påverkar eller begränsar på intet sätt rättsföretagerna under den lagstadgade garantin.

För all garantinformation, besök <https://www.asus.com/se/support/>.

TR: ASUS Garantî Bilgileri

- ASUS, gönüllü olarak üretici Ticari Garantisi sunar.
- ASUS, ASUS Ticari Garantisinin hükümlerini yorumlama hakkını saklı tutar.
- Bu ASUS Ticari Garantisi, bağımsız olarak ve hukuki Yasal Garantî ye ek olarak sağlanır ve hiçbir şekilde Yasal Garantî kapsamındaki hakları etkilemez veya sınırlamaz.

Tüm garanti bilgileri için lütfen <https://www.asus.com/tr/support/> adresini ziyaret edin.

UA: Інформація про Гарантію ASUS

- ASUS пропонує добровільну Комерційну Гарантію виробника.
- ASUS застерігає за собою право тлумачити положення Комерційної Гарантії ASUS.
- Ця Комерційну Гарантію надано незалежно і на додаток до обов'язкової Законної Гарантії, вона жодним чином не впливає на права за Законовою Гарантією і не обмежує їх.

Всю інформацію про гарантію подано тут: <https://www.asus.com/ua/support/>.

Компанія ASUS не несе відповідальності за шкоду, заподіяну життю, здоров'ю чи майну користувача або інших осіб внаслідок використання несправного Виробу або такого Виробу, що не пройшов діагностику після закінчення терміну служби.

З метою перевірки технічного стану Виробу та визначення безпеки його подальшого використання після закінчення терміну служби користувачу необхідно припинити використання Виробу та передати його в авторизований сервісний центр компанії ASUS протягом одного місяця з моменту виявлення пошкодження та/або закінчення терміну служби Виробу.

BP: Informações de garantia ASUS

Esta garantía aplica-se ao período definido pela garantia legal (90 dias) mais o período de garantia comercial oferecido pela ASUS. Por exemplo: 12M significa 12 meses de garantia no total (3 meses de garantia legal mais 9 meses de garantia contratual), 24 meses significa 24 meses de garantia no total (3 meses de garantia legal mais 21 meses de garantia contratual) e 36 meses significa 36 meses de garantia no total (3 meses de garantia legal e 33 de garantia contratual) a contar da data da garantia declarada (Data de Inicio da Garantia).

Para todas as informações de garantia, visite <https://www.asus.com/bt/support/>.

ID: Informasi Garansi ASUS

Garansi ini berlaku di negara tempat pembelian.

Periode Garansi tertera pada kemasan/kotak dari Produk dan Masa Garansi dimulai sejak tanggal pembelian Produk ASUS dengan kondisi baru.

Silahkan pindai Kode di bagian bawah halaman terakhir untuk Kartu Garansi versi Web dalam format PDF untuk lebih informasi jelas mengenai jaminan garansi Produk ASUS.

- Informasi Dukungan ASUS, silakan kunjungi <https://www.asus.com/id/support>.
- Informasi Lokasi Layanan, silakan kunjungi <https://www.asus.com/id/support/Service-Center/Indonesia>.
- Layanan Call Center: 1500128

VN: Thông tin đảm bảo của ASUS

- ASUS cung cấp Bảo hành thương mại tự nguyện của nhà sản xuất.
- ASUS bảo lưu quyền giải thích các điều khoản của Bảo hành thương mại của ASUS.
- Bảo hành thương mại này của ASUS được cung cấp độc lập và ngoài Bảo đảm pháp lý theo luật định và không có cách nào ảnh hưởng đến hoặc giới hạn các quyền theo Bảo lãnh pháp lý. Để biết tất cả các thông tin bảo hành, vui lòng truy cập

<https://www.asus.com/vn/support>

ASUS מידע על אחריות :HB

- ASUS מציעה אחריות מסחרית של יצרן מוצג.
- ASUS שומרת לעצמה את הזכות לפרש את הוראות הערבות המסחרית של ASUS.
- אחריות מסחרית זו של ASUS ניתנת באופן עצמאי ובנוסף לערבות המשפטית הטסטוטורית ואינה משפיעה או מגבילה בשום אופן את הזכויות במסגרת הערבות המשפטית.

למידע אודות האחריות, אנא בקר ב <https://www.asus.com/support>



Warranty Card (Online)

ASUS contact information

ASUSTeK COMPUTER INC.

Address: 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112

<https://qr.asus.com/ProductSafety>

ASUS COMPUTER INTERNATIONAL (America)

Address: 48720 Kato Rd., Fremont, CA 94538, USA

ASUS COMPUTER GmbH (Germany and Austria)

Address: Harkortstrasse 21-23, 40880 Ratingen, Germany

ASUSTeK (UK) LIMITED

Address: 1st Floor, Sackville House, 143-149 Fenchurch Street, London, EC3M 6BL,
England, United Kingdom

ASUS GLOBAL PTE. LTD.

Address: 10 Changi Business Park Central 2 #02-01 Hansapoint Singapore 486030

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