ASRock

N100M

User Manual

Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information. For technical questions, please submit a support request form at https://event.asrock.com/tsd.asp

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Contents

Chapter 1 Introduction

Thank you for purchasing ASRock N100M motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website http://www.asrock.com.

1.1 Package Contents

- ASRock N100M Motherboard (Micro ATX Form Factor)
- ASRock N100M User Manual
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 2 x Screws for M.2 Sockets (Optional)
- 1 x I/O Panel Shield

1.2 Specifications

Platform	• Micro ATX Form Factor • Solid Capacitor design
CPU	• Intel® Quad-Core Processor N100 (up to 3.4 GHz) • Supports Intel® Turbo Boost Technology
Memory	• 1 x DDR4 DIMM Slot • Supports DDR4 non-ECC, un-buffered memory up to 3200* * Please refer to Memory Support List on ASRock's website for more information. (http://www.asrock.com/) • Max. capacity of system memory: 32GB
Expansion Slot	• 1 x PCIe 3.0 x16 Slot (PCIE1), supports x2 mode* • 1 x PCIe 3.0 x1 Slot (PCIE2)* • 1 x M.2 Socket (Key E), supports type 2230 Intel® CNVio (Integrated WiFi/BT)** * Supports NVMe SSD as boot disks ** M.2 PCI Express module is not supported
Graphics	• Integrated Intel® UHD Graphics: 24 EUs inside (Up to 750MHz) • Three graphics output options: D-Sub, HDMI and DisplayPort 1.4 • 1 x HDMI 2.1 TMDS Compatible, supports HDCP 2.2 and max. resolution up to 4K 60Hz • 1 x DisplayPort 1.4 with DSC (compressed), supports HDCP 2.2 and max. resolution up to 4K 60Hz • 1 x D-Sub, supports max. resolution up to Full HD (1920x1080) 60Hz
Audio	• 7.1 CH HD Audio (Realtek ALC897 Audio Codec)
LAN	• Gigabit LAN 10/100/1000 Mb/s • Realtek 8111H

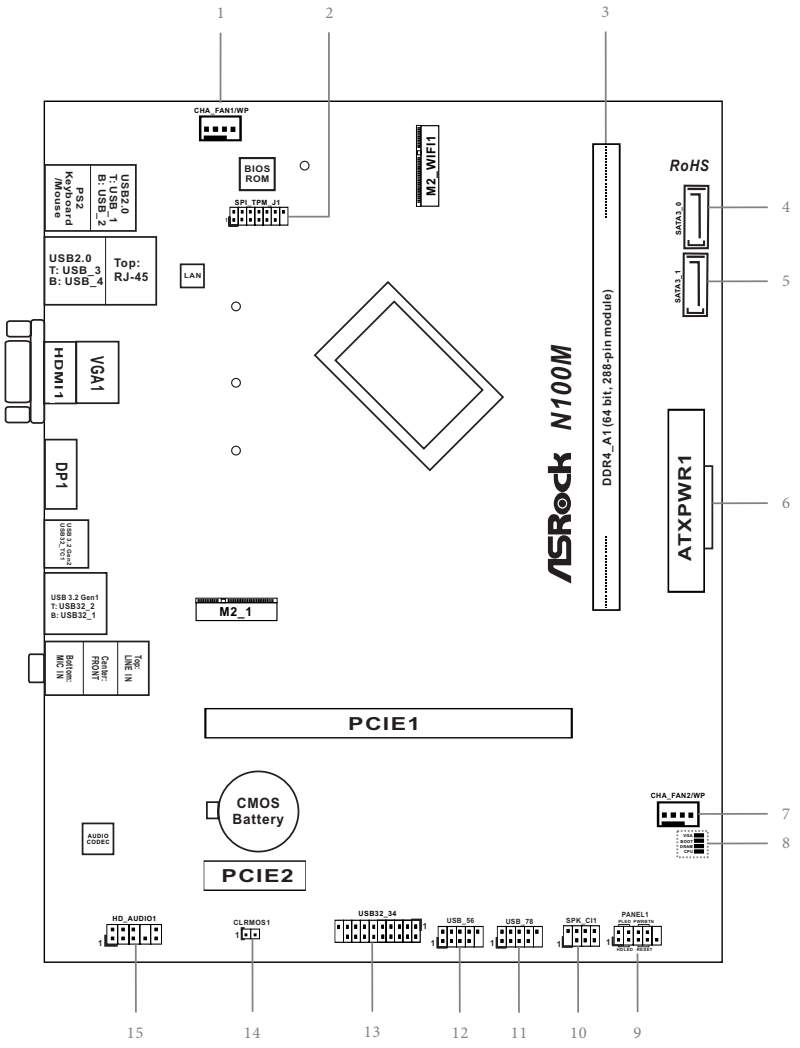
USB	• 1 x USB 3.2 Gen2 Type-C (Rear) • 4 x USB 3.2 Gen1 (2 Rear, 2 Front) • 8 x USB 2.0 (4 Rear, 4 Front) * All USB ports support ESD Protection
Rear Panel I/O	• 2 x Antenna Mounting Points • 1 x PS/2 Mouse/Keyboard Port • 1 x D-Sub Port • 1 x HDMI Port • 1 x DisplayPort 1.4 • 1 x USB 3.2 Gen2 Type-C Port (10 Gb/s) • 2 x USB 3.2 Gen1 Ports • 4 x USB 2.0 Ports • 1 x RJ-45 LAN Port • HD Audio Jacks: Line in / Front Speaker / Microphone
Storage	• 1 x M.2 Socket (M2_1, Key M), supports type 2242/2260/2280 PCIe Gen3x2 (16 Gb/s) mode* • 2 x SATA3 6.0 Gb/s Connectors * Supports NVMe SSD as boot disks
Connector	• 1 x SPI TPM Header • 1 x Chassis Intrusion and Speaker Header • 2 x Chassis/Water Pump Fan Connectors (4-pin) (Smart Fan Speed Control)* • 1 x 24 pin ATX Power Connector • 1 x Front Panel Audio Connector • 2 x USB 2.0 Headers (Support 4 USB 2.0 ports) • 1 x USB 3.2 Gen1 Header (Supports 2 USB 3.2 Gen1 ports) * CHA_FAN1~2/WP support the fan power up to 2A (24W).

BIOS Feature	• AMI UEFI Legal BIOS with GUI support
OS	• Microsoft® Windows® 10 64-bit / 11 64-bit
Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required)

** For detailed product information, please visit our website: http://www.asrock.com*

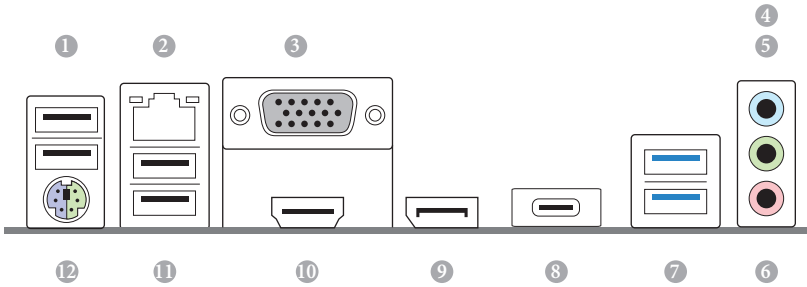
Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

1.3 Motherboard Layout



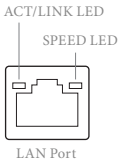
No.	Description
1	Chassis/Water Pump Fan Connector (CHA_FAN1/WP)
2	SPI TPM Header (SPI_TPM_J1)
3	288-pin DDR4 DIMM Slot (DDR4_A1)
4	SATA3 Connector (SATA3_0)
5	SATA3 Connector (SATA3_1)
6	ATX Power Connector (ATXPWR1)
7	Chassis/Water Pump Fan Connector (CHA_FAN2/WP)
8	Post Status Checker (PSC)
9	System Panel Header (PANEL1)
10	Chassis Intrusion and Speaker Header (SPK_CI1)
11	USB 2.0 Header (USB_78)
12	USB 2.0 Header (USB_56)
13	USB 3.2 Gen1 Header (USB32_34)
14	Clear CMOS Jumper (CLRMOS1)
15	Front Panel Audio Header (HD_AUDIO1)

1.4 I/O Panel



No.	Description	No.	Description
1	USB 2.0 Ports (USB_12)	7	USB 3.2 Gen1 Type-A Ports (USB32_12)
2	LAN RJ-45 Port*	8	USB 3.2 Gen2 Type-C Port (USB32_TC1)
3	D-Sub Port	9	DisplayPort 1.4
4	Line In (Light Blue)**	10	HDMI Port
5	Front Speaker (Lime)**	11	USB 2.0 Ports (USB_34)
6	Microphone (Pink)**	12	PS/2 Mouse/Keyboard Port

** There are two LEDs on the LAN port. Please refer to the table below for the LAN port LED indications.*

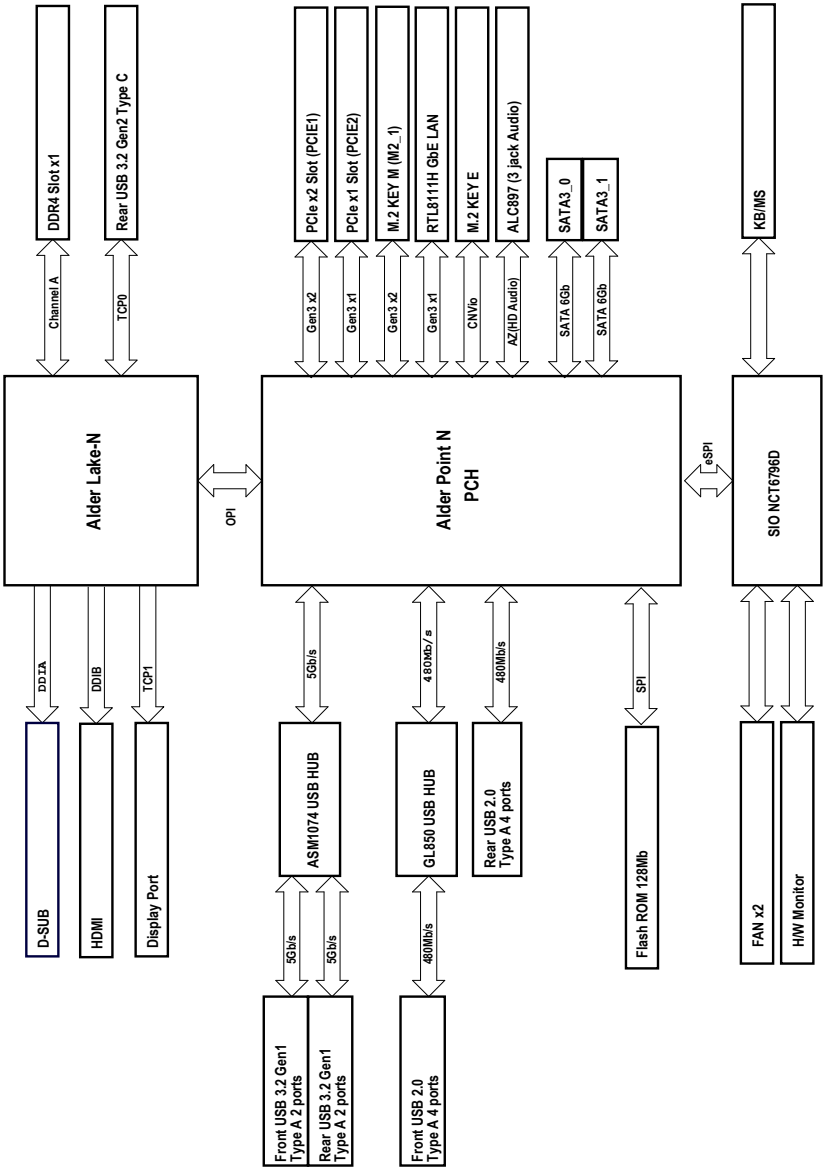


Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

*** **Function of the Audio Ports in 7.1-channel Configuration**:*

Port	Function
Light Blue (Rear panel)	Rear Speaker Out
Lime (Rear panel)	Front Speaker Out
Pink (Rear panel)	Central /Subwoofer Speaker Out
Lime (Front panel)	Side Speaker Out

1.5 Block Diagram



Chapter 2 Installation

This is a Micro ATX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

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

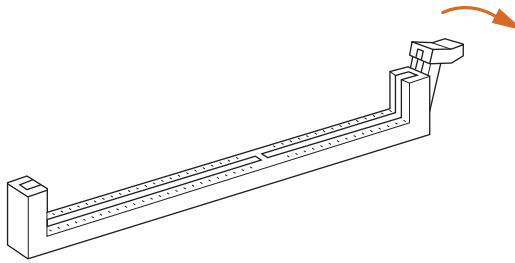
- Make sure to unplug the power cord before installing or removing the motherboard components. Failure to do so may cause physical injuries and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
- Hold components by the edges and do not touch the ICs.
- Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components.
- When placing screws to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

2.1 Installing Memory Module (DIMM)

This motherboard provides a 288-pin DDR4 (Double Data Rate 4) DIMM slot.

1. *It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.*
2. *The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.*

1



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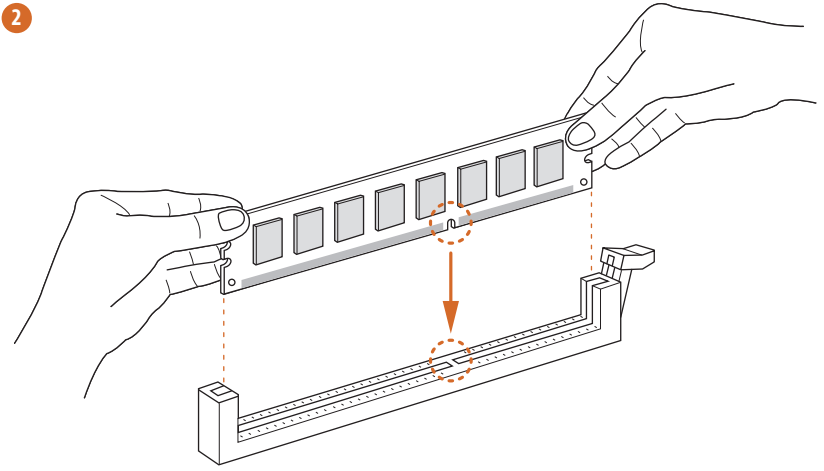

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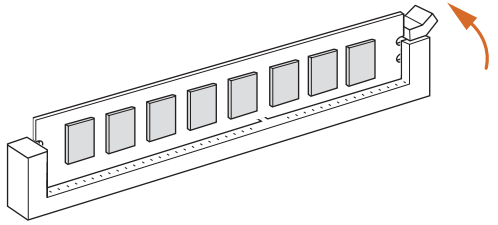
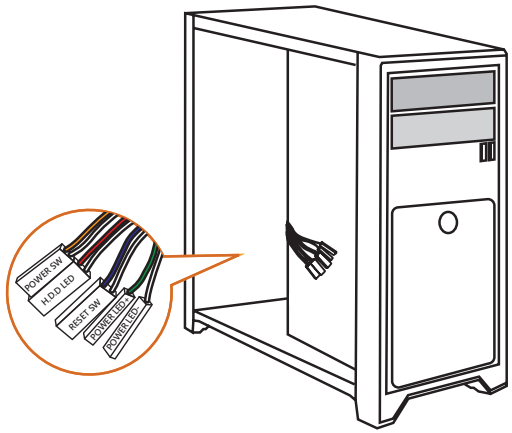
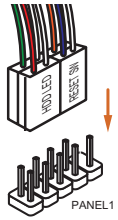


2.2 Connecting the Front Panel Header

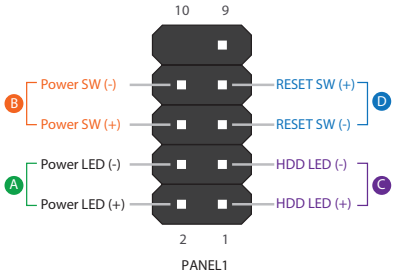
1



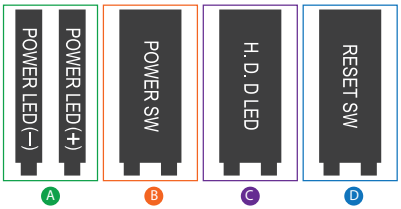
2



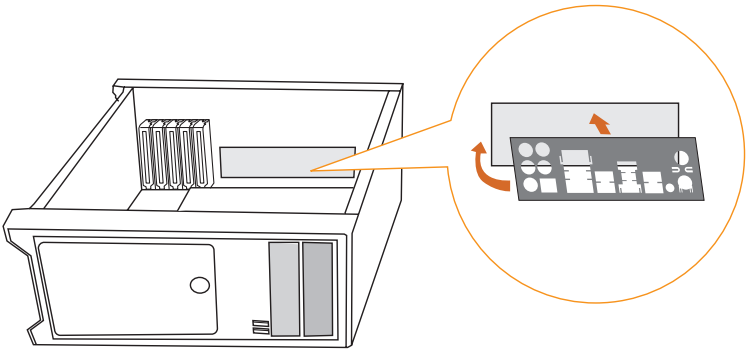
System Panel Header



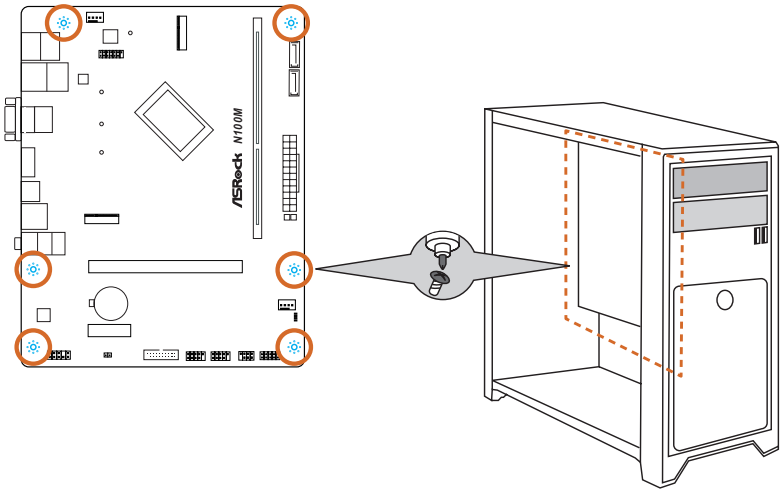
Front Panel Wires



2.3 Installing the I/O Panel Shield

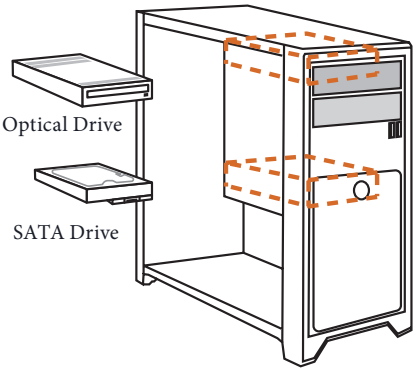


2.4 Installing the Motherboard



2.5 Installing SATA Drives

1



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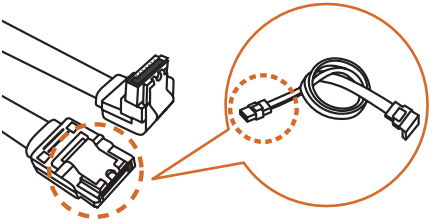

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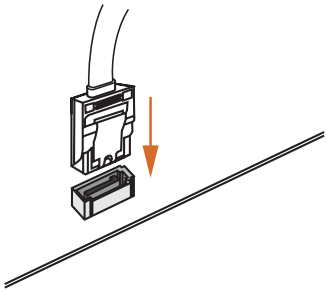

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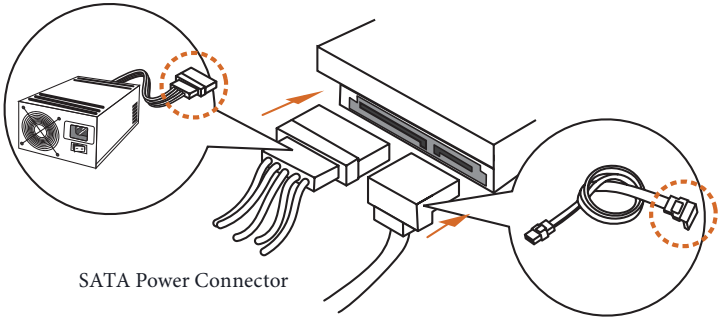
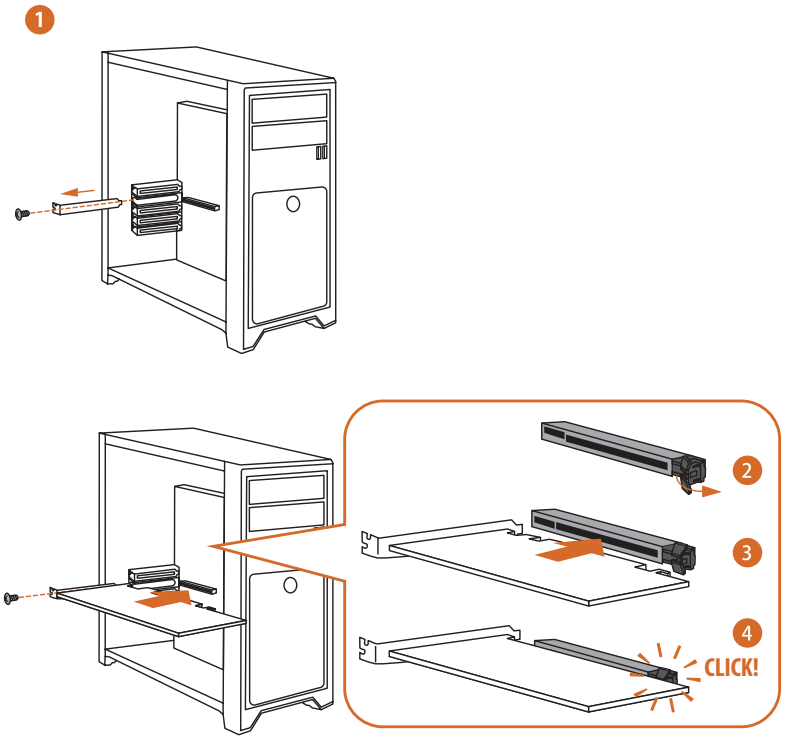


2.6 Installing a Graphics Card



Expansion Slots (PCIe Slots)

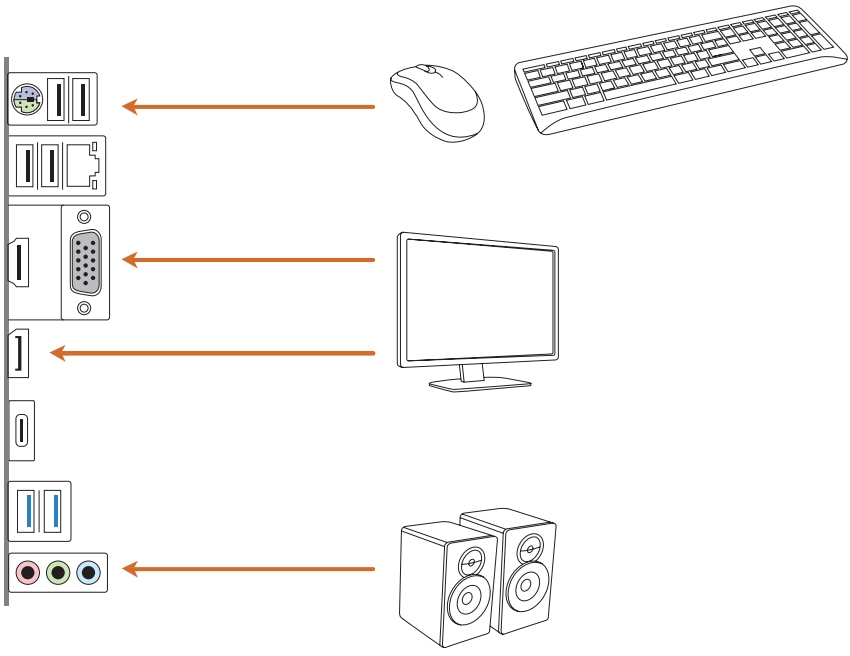
There are 2 PCI Express slots on the motherboard.

Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

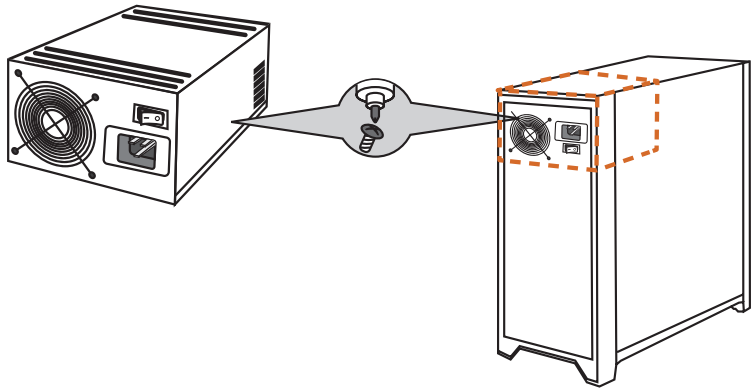
PCIe slots:

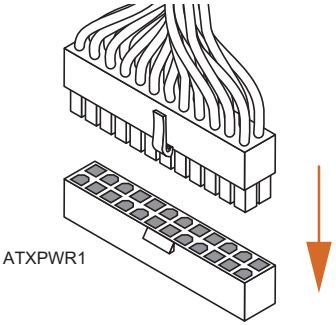
PCIE1 (PCIe 3.0 x16 slot) is used for PCIe x2 lane width graphics cards.
PCIE2 (PCIe 3.0 x1 slot) is used for PCIe x1 lane width cards.

2.7 Connecting Peripheral Devices

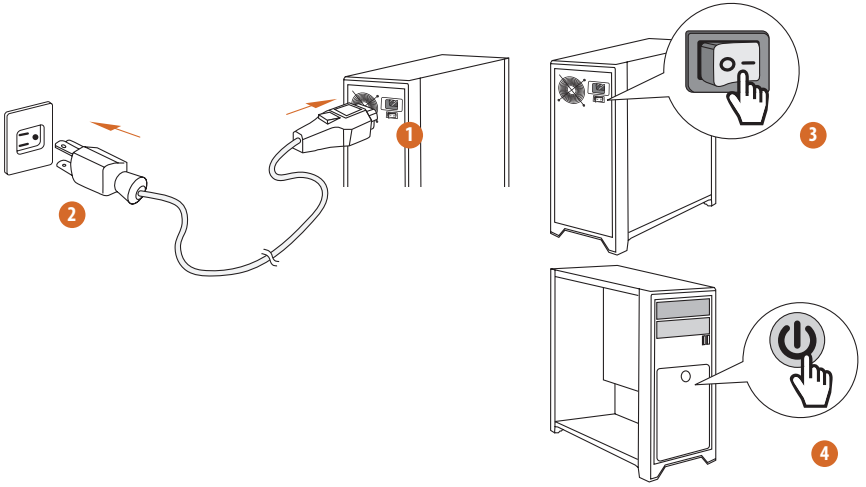


2.8 Connecting the Power Connectors



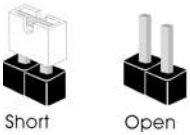


2.9 Power On



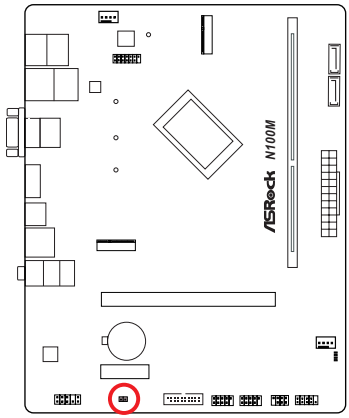
2.10 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”.



Clear CMOS Jumper
(CLRMOS1) (see p.6, No. 14)

CLRMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap to short the pins on CLRMOS1 for 3 seconds. Please remember to remove the jumper cap after clearing the CMOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action.



CLRMOS1

2-pin Jumper

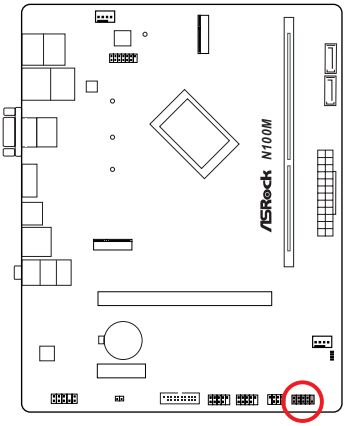
Short: Clear CMOS
Open: Default

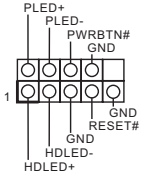
2.11 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1) (see p.6, No. 9)

Connect the power button, reset button and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.





PWRBTN (Power Button):
Connect to the power button on the chassis front panel. You may configure the way to turn off your system using the power button.

RESET (Reset Button):
Connect to the reset button on the chassis front panel. Press the reset button to restart the computer if the computer freezes and fails to perform a normal restart.

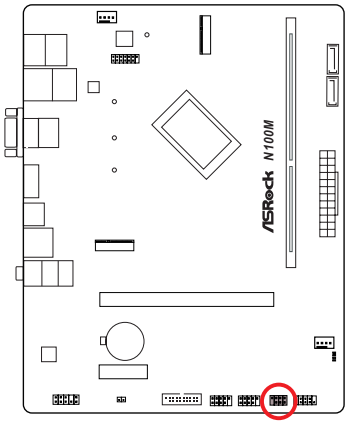
PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

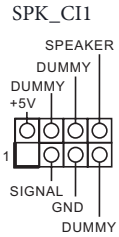
HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power button, reset button, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Chassis Intrusion and Speaker Header
(7-pin SPK_CI1) (see p.6, No. 10)

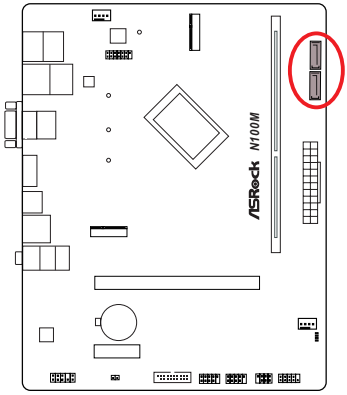
Please connect the chassis intrusion and the chassis speaker to this header.





Serial ATA3 Connectors
Vertical:
(SATA3_0) (see p.6, No. 4)
(SATA3_1) (see p.6, No. 5)

These two SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

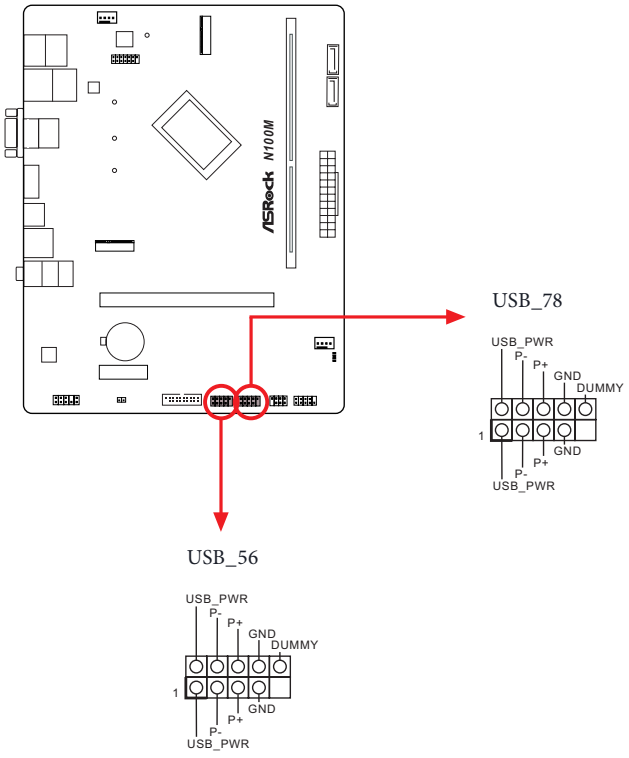


USB 2.0 Headers

(9-pin USB_56) (see p.6, No. 12)

(9-pin USB_78) (see p.6, No. 11)

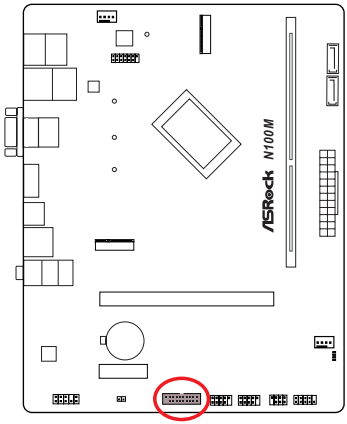
There are two headers on this motherboard. Each USB 2.0 header can support two ports.



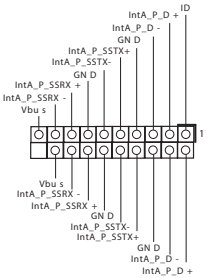
USB 3.2 Gen1 Header

(19-pin USB32_34) (see p.6, No. 13)

There is one header on this motherboard. This USB 3.2 Gen1 header can support two ports.

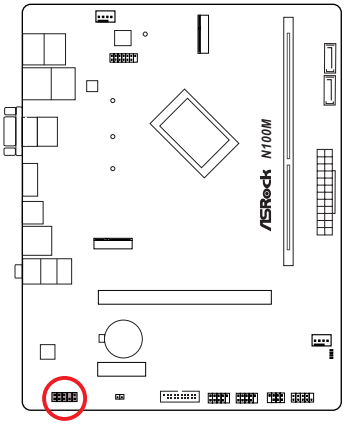


USB32_34

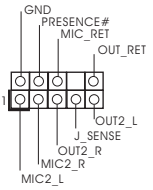


Front Panel Audio Header
(9-pin HD_AUDIO1) (see p.6, No. 15)

This header is for connecting audio devices to the front audio panel.



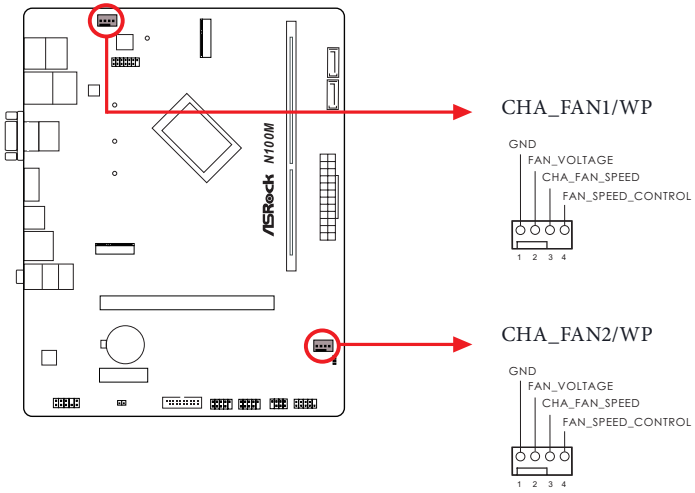
HD_AUDIO1



High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.

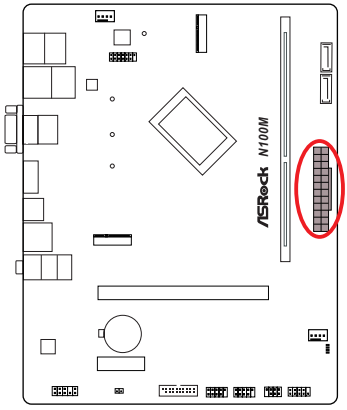
Chassis/Water Pump Fan Connectors
(4-pin CHA_FAN1/WP) (see p.6, No. 1)
(4-pin CHA_FAN2/WP) (see p.6, No. 7)

This motherboard provides two 4-Pin water cooling chassis fan connectors. If you plan to connect a 3-Pin chassis water cooler fan, please connect it to Pin 1-3.

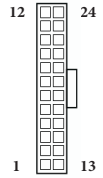


ATX Power Connector
(24-pin ATXPWR1) (see p.6, No. 6)

This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.



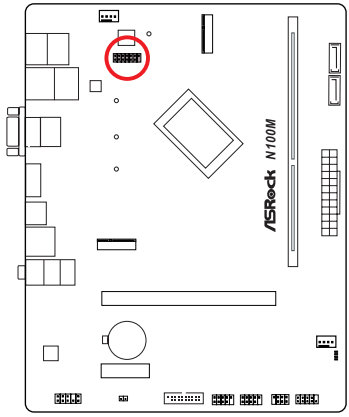
ATXPWR1



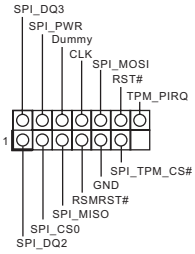
SPI TPM Header

(13-pin SPI_TPM_J1) (see p.6, No. 2)

This connector supports SPI 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.

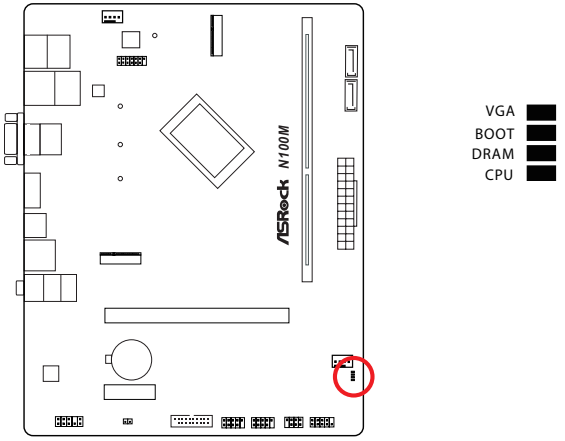


SPI_TPM_J1



2.12 Post Status Checker

Post Status Checker (PSC) diagnoses the computer when users power on the machine. It emits a red light to indicate whether the CPU, memory, VGA or storage is dysfunctional. The lights go off if the four mentioned above are functioning normally.

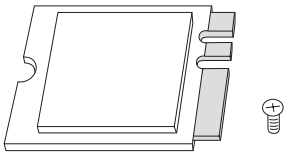


2.13 Intel® CNVi (Integrated WiFi/BT) Installation Guide

The M.2 is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket (Key E) supports type 2230 Intel® CNVi (Integrated WiFi/BT).
* M.2 PCI Express module is not supported

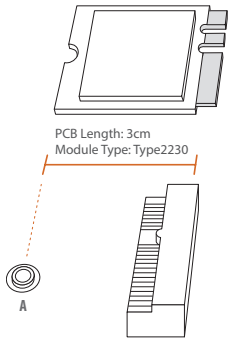
Before you install Intel® Integrated Connectivity (CNVi) module, be sure to turn off the AC power.

Installing the WiFi/BT module or Intel® CNVi (Integrated WiFi/BT)



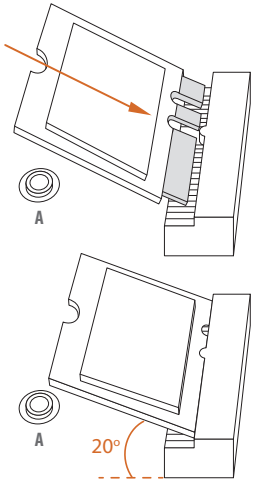
Step 1

Prepare a type 2230 Intel® CNVi (Integrated WiFi/BT) and the screw.



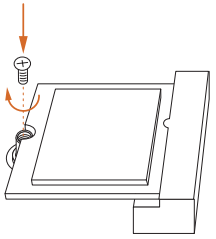
Step 2

Find the nut location to be used.



Step 3

Gently insert the Intel® CNVi (Integrated WiFi/BT) into the M.2 slot. Please be aware that the module only fits in one orientation.



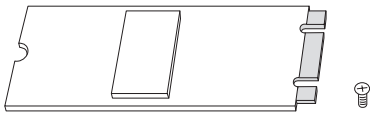
Step 4

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

2.14 M.2 SSD Module Installation Guide (M2_1)

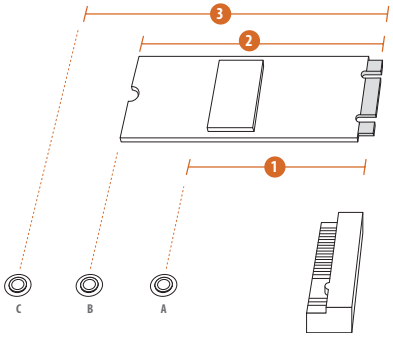
The M.2 is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket (M2_1, Key M) supports type 2242/2260/2280 PCIe Gen3x2 (16 Gb/s) mode.

Installing the M.2 SSD Module



Step 1

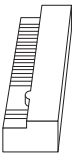
Prepare a M.2 SSD module and the screw.



Step 2

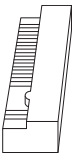
Depending on the PCB type and length of your M.2 SSD module, find the corresponding nut location to be used.

No.	1	2	3
Nut Location	A	B	C
PCB Length	4.2cm	6cm	8cm
Module Type	Type2242	Type2260	Type 2280



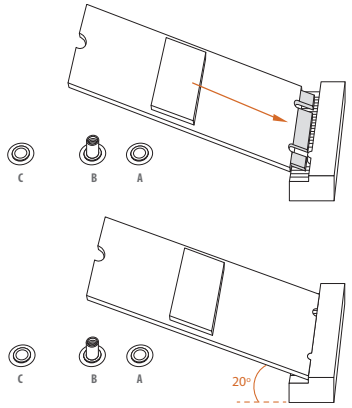
Step 3

Move the standoff based on the module type and length.
The standoff is placed at the nut location C by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut. Otherwise, release the standoff by hand.



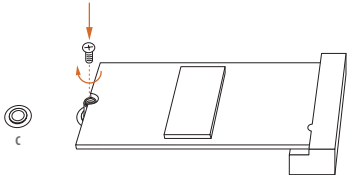
Step 4

Peel off the yellow protective film on the nut to be used. Hand tighten the standoff into the desired nut location on the motherboard.



Step 5

Align and gently insert the M.2 SSD module into the M.2 slot. Please be aware that the M.2 SSD module only fits in one orientation.



Step 6

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

For the latest updates of M.2 SSD module support list, please visit our website for details: http://www.asrock.com

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"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

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