ASRock

TWLD5-P1

User Manual

Contact Information

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ASRock Incorporation

e-mail: info@asrock.com.tw

ASRock EUROPE B.V.

e-mail: sales@asrock.nl

ASRock America, Inc.

e-mail: sales@asrockamerica.com

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Chapter 1 Introduction

Thank you for purchasing TWLD5-P1 motherboard. In this documentation, Chapter 1 and 2 contains the introduction of the motherboard and step-by-step installation guides. Chapter 3 contains the operation guide of the software and utilities. Chapter 4 contains the configuration guide of the BIOS setup.



Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice.

1.1 Package Contents

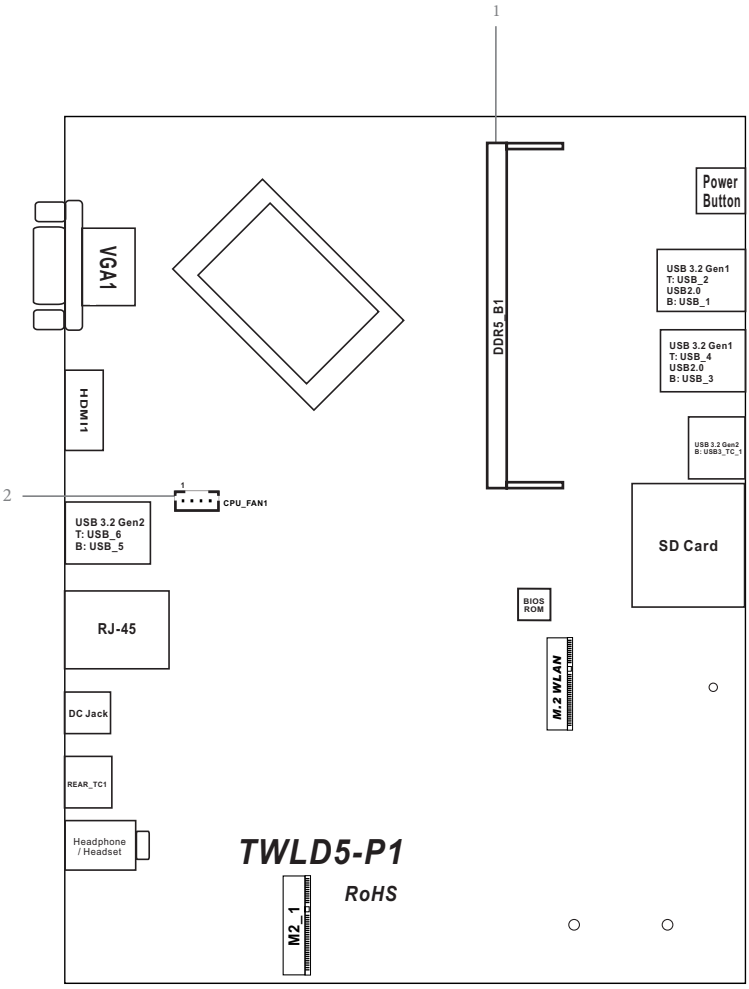
- TWLD5-P1 Motherboard
- 1 x Quick Installation Guide
- 1 x Screw for M.2 Socket (M2*2)
- 1 x Screw for WiFi Module (M2*2)

1.2 Specifications

Platform	• 7.0-in x 5.7-in, 17.8 cm x 14.5 cm
CPU	• Intel® Quad-Core Processor N150 (Twin Lake-N) • Supports Intel® Turbo Boost Technology
Chipset	• SOC
Memory	• 1 x DDR5 SO-DIMM Slot • Supports DDR5 non-ECC, un-buffered memory up to 4800 • Max. capacity of system memory: 16GB
Expansion Slot	• 1 x M.2 Socket (Key E), supports type 2230 Intel® CNVio/ CNVio2 (Integrated WiFi/BT)* * M.2 PCI Express module is not supported
Graphics	• Integrated Intel® UHD Graphics: 24 EUs inside (Up to 1GHz) • Three graphics output options: D-Sub, HDMI and USB Type-C • Supports Triple Monitor • Supports HDMI with max. resolution up to 4K@ 60Hz • Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz • 1 x USB Type-C port (with USB Type-C Alt Mode; supports 20V Power Delivery input only)
Audio	• Realtek ALC269 Audio Codec • 1 x Headset Jack
LAN	• Gigabit LAN 10/100/1000 Mb/s • Realtek 8111H
Front Panel I/O	• 1 x Power Button • 2 x USB 3.2 Gen1 Type-A Ports • 1 x USB 3.2 Gen2 Type-C Port • 2 x USB 2.0 Ports • 1 x SD Card Socket

Rear Panel I/O	• 1 x DC Jack (Compatible with the 19V power adapter) • 1 x D-Sub Port • 1 x HDMI Port • 2 x USB 3.2 Gen2 Type-A Ports • 1 x RJ-45 LAN Port • 1 x USB-C Port (only supports 20V PD in & DP out) • 1 x Headphone/Headset Jack
Storage	• 1 x M.2 Socket (M2_1, Key M), supports type 2260/2280 PCIe Gen3x4 (32 Gb/s) mode* * Supports NVMe SSD as boot disks
Connector	• 1 x CPU Fan Connector (4-pin)
BIOS Feature	• AMI UEFI Legal BIOS with multilingual GUI support
Hardware Monitor	• CPU Temperature Sensing • CPU Fan Tachometer • CPU Quiet Fan (Auto adjust chassis fan speed by CPU temperature) • CPU Fan Multi-Speed Control • Voltage monitoring: CPU Vcore, VCCM, +5V, +3.3V
OS	• Microsoft® Windows® 10 64-bit / 11 64-bit
Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required)

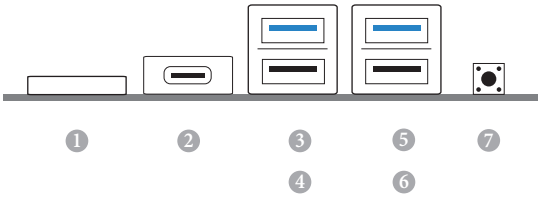
1.3 Motherboard Layout



No.	Description
1	288-pin DDR5 DIMM Slot (DDR5_B1)
2	CPU Fan Connector (CPU_FAN1)

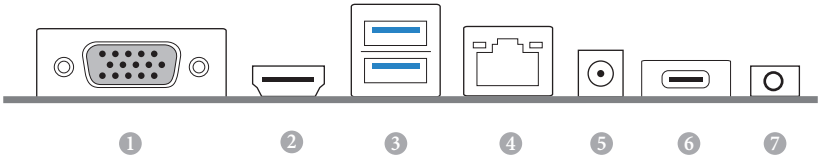
English

1.4 Front Panel



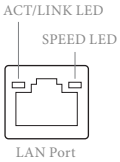
No.	Description	No.	Description
1	SD Card Socket	4	USB 2.0 Port (USB_3)
2	USB 3.2 Gen2 Type-C Port (USB_TC_1)	5	USB 3.2 Gen1 Type-A Port (USB_2)
3	USB 3.2 Gen1 Type-A Port (USB_4)	6	USB 2.0 Port (USB_1)
		7	Power Button (SW1)

1.5 Rear Panel



No.	Description	No.	Description
1	D-Sub Port	4	LAN RJ-45 Port*
2	HDMI Port	5	DC Jack
3	USB 3.2 Gen2 Type-A Ports (USB_5_6)	6	USB-C Port (REAR_TC1)
		7	Headphone/Headset Jack

** There are two LEDs on each 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	Green	100Mbps connection
On	Link	Orange	1Gbps connection

Chapter 2 Installation

This is a Proprietary 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.

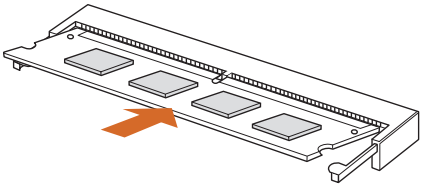
2.1 Installing Memory Module (SO-DIMM)

This motherboard provides a 288-pin DDR5 (Double Data Rate 5) SO-DIMM slot.

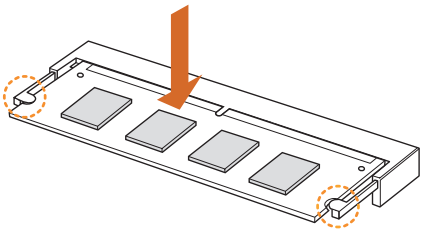
It is not allowed to install a DDR, DDR2 , DDR3 or DDR4 memory module into a DDR5 slot; otherwise, this motherboard and DIMM may be damaged.

The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.

1. Carefully insert the SO-DIMM memory module into the slot at a 30-degree angle.

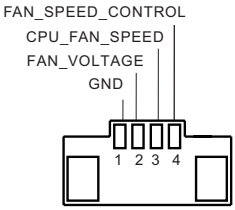


2. Push down until the modules snap into place.



2.2 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.

CPU Fan Connector (4-pin CPU_FAN1) (see p.4, No. 2)		This header allows you to connect CPU fan. If you plan to connect a 3-pin fan, please connect it to Pin 1-3.

English

2.3 Smart Button

The motherboard has one smart button: Power Button.

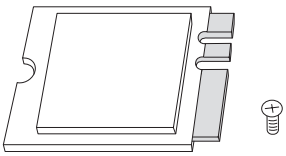
Power Button (PWR_BTN1) (see p.6, No. 7)		Power Button allows users to quickly turn on/off the system.

2.4 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).
* M2 Socket (Key E) and PCIE2 share lanes. If either one of them is in use, the other will be disabled.
* M.2 PCI Express module is not supported

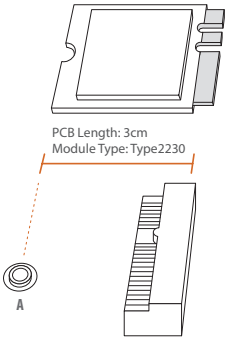
Before you install Intel® Integrated Connectivity (CNVi) module, be sure to turn off the AC power.

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



Step 1

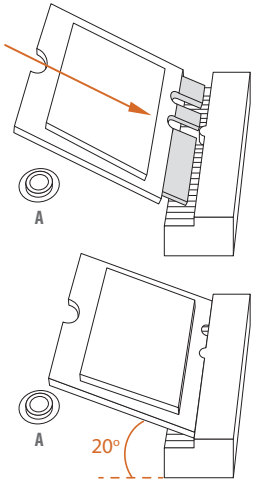
Prepare a type 2230 Intel® CNVi (Integrated WiFi/BT) and the screw.



Step 2

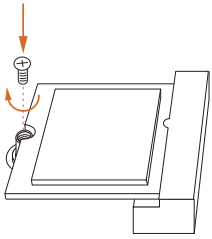
Find the nut location to be used.

English



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.



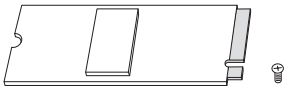
Step 4

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

2.5 M.2 SSD Module Installation Guide (M2_1)

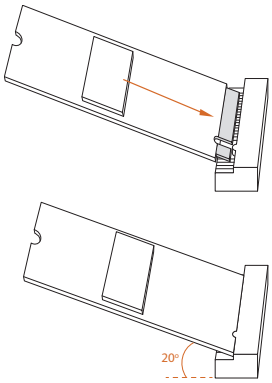
The Ultra M.2 is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket (M2_1, Key M) supports type 2260/2280 PCIe Gen3x4 (32 Gb/s) mode.

Installing the M.2 SSD Module



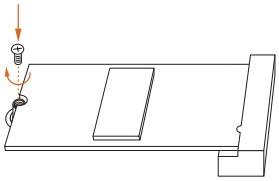
Step 1

Prepare a M.2 SSD module and the screw.



Step 2

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.



Step3

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

M.2 SSD Module Support List

Vendor	Interface	P/N
ADATA	PCIe	ADATA ASX7000NPC-512GT-C (XPG SX7000) (NVMe)
ADATA	PCIe	ADATA ASX8000NPC-512GM-C (XPG ASX8000) (NVMe)
Apacer	PCIe	Apacer Z280 AP240GZ280-240G (NVMe)
Intel	PCIe	Intel Optane Memory 32GB (MEMPEK1W032GA)(NVMe)
Intel	PCIe	Intel Optane Memory 16GB (MEMPEK1W016GA)(NVMe)
INTEL	PCIe	INTEL 600P-SSDPEKKW256G7-256GB (NVMe)
INTEL	PCIe	INTEL 600P-SSDPEKKW128G7-128GB (NVMe)
INTEL	PCIe	INTEL 6000P-SSDPEKKF256G7-256GB (NVMe)
INTEL	PCIe	INTEL 6000P-SSDPEKKF512G7-512GB (NVMe)
Kingston	PCIe	Kingston SHPM2280P2/240G
PATRIOT	PCIe	PATRIOT Hellfire M2 (240G) (NVMe)
PLEXTOR	PCIe	PLEXTOR PX-256M8PeG (NVMe)
PLEXTOR	PCIe	PLEXTOR PX-256M8SeGN (NVMe)
Samsung	PCIe	Samsung XP941-512G (MZHPU512HCGL)
Samsung	PCIe	Samsung 950Pro-512G (NVMe)
Samsung	PCIe	Samsung 950Pro-256G (NVMe)
Samsung	PCIe	Samsung MZ-VLW1280 (PM961) (NVMe)
Samsung	PCIe	Samsung MZ-VPW1280 (SM961) (NVMe)
TOSHIBA	PCIe	TOSHIBA XG3-128G (NVMe)
TOSHIBA	PCIe	TOSHIBA OCZ RD400-256G (NVMe)
WD	PCIe	WD WDS512G1X0C-00ENX0 (NVMe)
WD	PCIe	WD WDS256G1X0C-00ENX0 (NVMe)
ADATA	SATA	ADATA - SU800-SU800NS38-256GT-C-256G
ADATA	SATA	ADATA - SU800-SU800NS38-512GT-C-512G
Crucial	SATA	Crucial-CT240M500SSD4-240GB
Ezlink	SATA	Ezlink P51B-80-120GB
INTEL	SATA	INTEL-535-SSDSCKJF240A5-QS63-MLC-240G
INTEL	SATA	INTEL 540S-SSDSCKKW240H6-240GB
Kingston	SATA	Kingston-RBU-SNS8400S3/180GD
LITON	SATA	LITON LJH-256V2G-11-256GB
PLEXTOR	SATA	PLEXTOR - M7V-PX-128M7VG-128GB
PLEXTOR	SATA	PLEXTOR PX-128M6G-128GB
Sandisk	SATA	Sandisk X400-SD8SN8U-128G
Sandisk	SATA	Sandisk Z400s-SD8SNAT-128G
Transcend	SATA	Transcend TS256GMTS800-256GB
V-Color	SATA	V-Color 120G
V-Color	SATA	V-Color 240G
WD	SATA	WD BLUE WDS100T1B0B
WD	SATA	WD Green WDS240G1G0B-00RC30

For the latest updates of M.2 SSD (NFGG) module support list, please visit our website for details.

Chapter 3 Auto Driver Installer

After you install the Windows OS and boot into the system, a notification will pop up to help you to install and update required drivers.



Version 1.0
Published March 2026

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Licensee's specific rights may vary from country to country.

FCC Compliance Statement

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.

Button Battery Safety Notice

⚠WARNING

- **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.



- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- Battery type: CR2032
- Battery voltage: 3V
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- This product contains an irreplaceable battery.
- This icon indicates that a swallowed button battery can cause serious injury or death. Please keep batteries out of sight or reach of children.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

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

CALIFORNIA, USA ONLY



WARNING: Risk of cancer and reproductive harm from exposure to Lead. See www.P65Warnings.ca.gov

CE Conformity

CE

ASRock INC. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of related Directives. Full text of EU declaration of conformity is available at: http://www.asrock.com

ASRock follows the green design concept to design and manufacture our products, and makes sure that each stage of the product life cycle of ASRock product is in line with global environmental regulations. In addition, ASRock disclose the relevant information based on regulation requirements.

Please refer to https://www.asrock.com/general/about.asp?cat=Responsibility for information disclosure based on regulation requirements ASRock is complied with.

UKCA Conformity

UK CA

ASRock INC. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of related UKCA Directives. Full text of UKCA declaration of conformity is available at: http://www.asrock.com

Consumer Limited Warranty - Australia

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage caused by our goods. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you require assistance please call ASRock Tel : +886-2-28965588 ext.123 (Standard International call charges apply)



WARNING

THIS PRODUCT CONTAINS A BUTTON BATTERY
If swallowed, a button battery can cause serious injury or death.
Please keep batteries out of sight or reach of children.

Proper Disposal



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.

Class B ITE

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

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HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Product Name : Motherboard

Model Number : TWLD5-P1

Conforms to the following specifications:

☒ FCC Part 15, Subpart B, Unintentional Radiators

Supplementary Information:

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.

EU Declaration of Conformity

For the following equipment:

Motherboard

(Product Name)

TWLD5-P1

(Model Designation / Trade Name)

EMC Directive – 2014/30/EU

EN 55032: 2015 / A11: 2020, EN 55035: 2017 / A11: 2020

EN IEC 61000-3-2: 2019, EN 61000-3-3: 2013

RoHS directive - 2011/65/EU, and (EU) 2015/863

EN IEC63000:2018

CE (EU conformity marking)

UKCA Declaration of Conformity

Product: Motherboard
Model Number: TWLD5-P1

This declaration is issued under the sole responsibility of the mentioned Manufacturer. The subject equipment under declaration is in conformity with the UK-GB Regulation(s) below:

The Electromagnetic Compatibility Regulations 2016 (S.I. 2016/1091)
EN 55032: 2015 / A11: 2020, EN 55035: 2017 / A11: 2020, EN IEC 61000-3-2: 2019, EN 61000-3-3: 2013

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
2015/863/EU, EN IEC 63000:2018