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› MACHINIST H610 Motherboard User Manual - LGA 1700 for Intel 12th/13th Gen CPUs

## MACHINIST H610 Swordsman

# MACHINIST H610 Motherboard User Manual

Model: H610 Swordsman | Brand: MACHINIST

## 1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your MACHINIST H610 Motherboard. Designed for Intel 12th and 13th generation Core, Pentium, and Celeron series processors, this Micro ATX motherboard offers robust performance and essential features for gaming and general computing. Please read this manual thoroughly before beginning installation to ensure proper setup and to maximize the performance and longevity of your system.

## 2. PRODUCT FEATURES

- **Intel LGA 1700 Socket:** Supports Intel 12th/13th Gen Core, Pentium, and Celeron series processors.
- **Dual-Channel DDR4 Memory:** Two DDR4 memory slots, non-ECC unbuffered, supporting XMP. Effective frequencies: 2133/2400/2666/3000/3200MHz. Maximum capacity: 64GB (32GB\*2).
- **Storage Options:** Two NVMe M.2 slots (PCIe GEN3 X4 3.0 bandwidth) and one M.2 Wi-Fi slot.
- **Expansion Slots:** One PCIe 5.0 X16 slot and one PCIe 3.0 X1 slot.
- **Connectivity:** Realtek 2.5GbE LAN, USB 3.2 Gen2 ports.
- **Integrated Display Support:** Compatible with HDMI, DisplayPort (DP), and VGA interfaces.
- **Power Design:** 8+1+1 phase CPU power supply, 8-layer PCB for enhanced stability.
- **Security:** Supports Trusted Platform Module (TPM).

## H610 SWORDSMAN MOTHERBOARD

Dual M.2 PCIe 3.0x4 • Wifi M.2  
PCIe 5.0 X16 • For HDMI DP and VGA  
USB 3.2 • Support TPM • 2.5GbE LAN

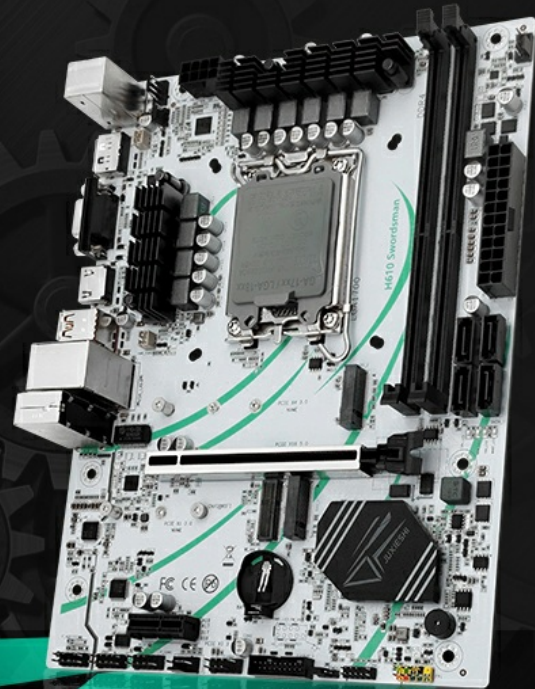


Figure 2.1: Overview of the MACHINIST H610 Swordsman motherboard, highlighting key features such as Intel LGA 1700 socket, 10-layer PCB, dual-channel DDR4, 4 SATA 3.0 ports, dual M.2 PCIe 3.0x4, Wi-Fi M.2, PCIe 5.0 X16, HDMI/DP/VGA compatibility, USB 3.2, and 2.5GbE LAN.

### 3. PACKAGE CONTENTS

Upon opening your MACHINIST H610 Motherboard package, please verify that all the following items are included:

- 1 x MACHINIST H610 Motherboard
- 1 x SATA Cable
- 1 x I/O Baffle

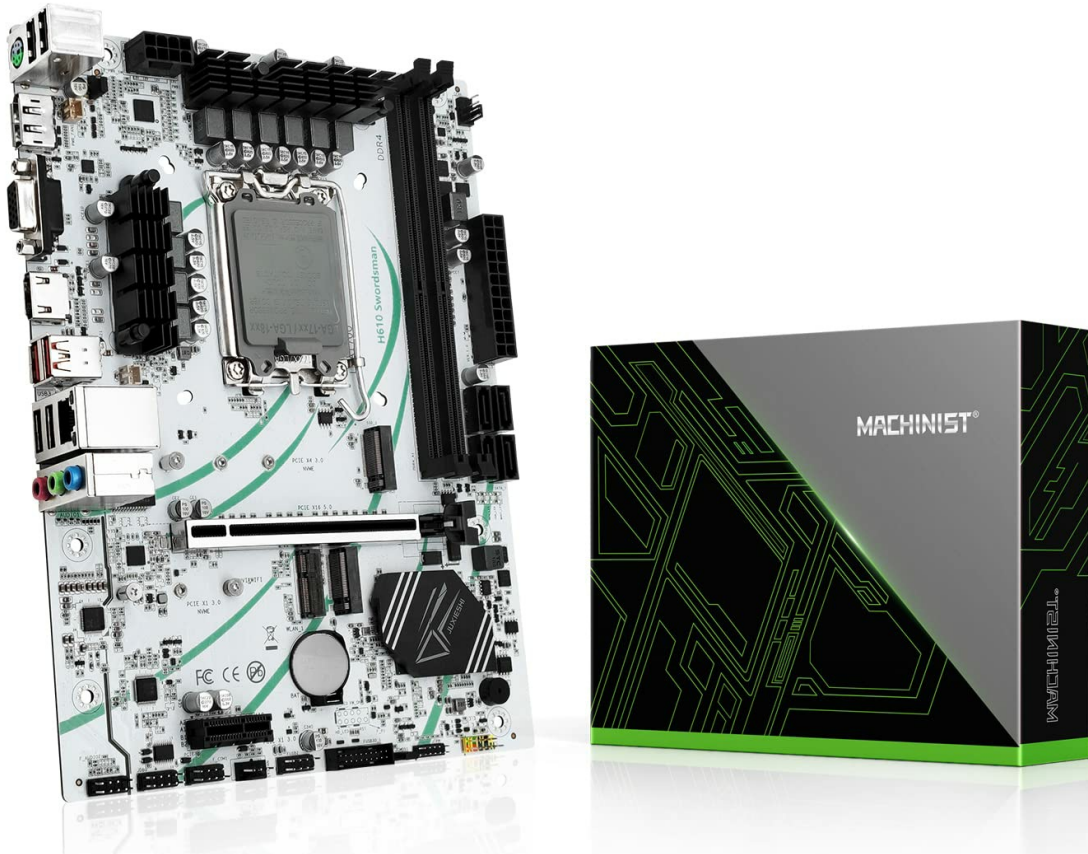


Figure 3.1: Image showing the contents of the MACHINIST H610 motherboard package, including the motherboard, I/O baffle, and SATA cable.

## 4. SETUP AND INSTALLATION

Before beginning installation, ensure your system is powered off and unplugged from the wall outlet. Wear an anti-static wrist strap to prevent electrostatic discharge (ESD) damage to components.

### 4.1. Motherboard Layout

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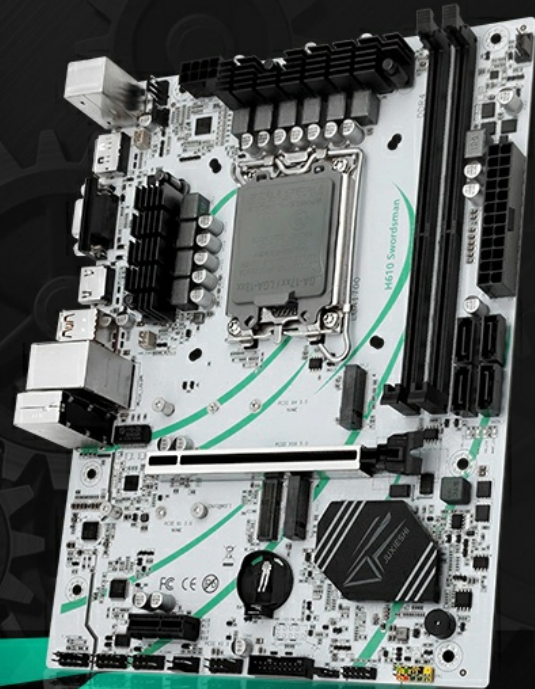


Figure 4.1: Detailed diagram of the MACHINIST H610 motherboard, labeling all major ports and connectors including USB, PS/2, DP, VGA, HDMI, LAN, Audio, PCIe slots, M.2 slots, SATA ports, and front panel headers.

### 4.2. CPU Installation

1. Locate the LGA 1700 socket on the motherboard.
2. Open the CPU socket lever and lift the load plate.
3. Carefully align your Intel 12th/13th Gen CPU with the socket, ensuring the golden triangle on the CPU matches the indicator on the socket. Do not force the CPU into the socket.
4. Lower the load plate and secure it with the lever.
5. Install the CPU cooler according to its manufacturer's instructions.

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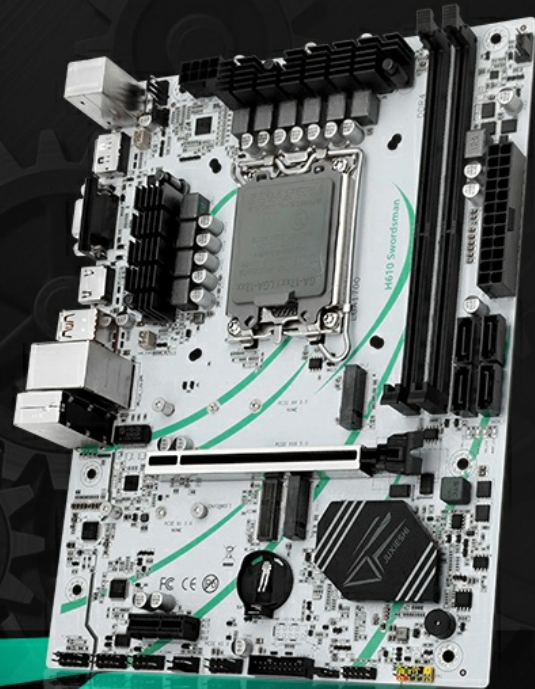


Figure 4.2: Close-up view of the Intel LGA 1700 CPU socket on the MACHINIST H610 motherboard, highlighting compatibility with 12th/13th generation Intel Core, Pentium, and Celeron processors.

### 4.3. Memory (RAM) Installation

1. Open the clips on both ends of the DDR4 memory slots.
2. Align the notch on the DDR4 memory module with the key in the slot.
3. Press down firmly on both ends of the memory module until the clips snap into place.

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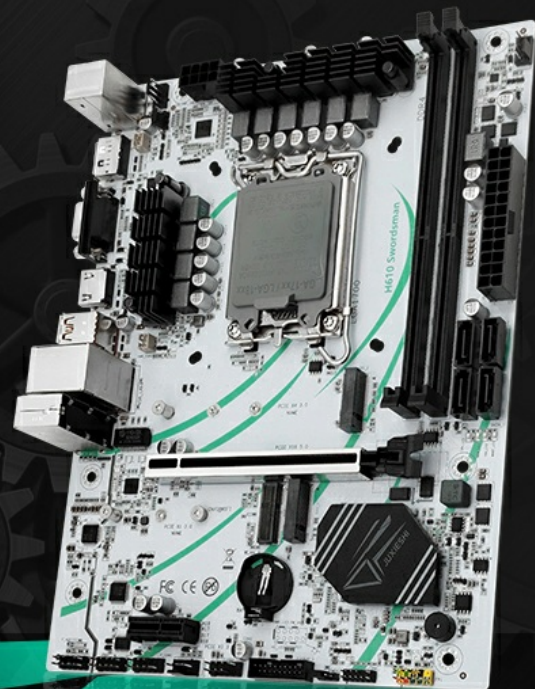


Figure 4.3: Illustration of the dual-channel DDR4 memory slots on the MACHINIST H610 motherboard, supporting XMP and up to

#### 4.4. M.2 SSD and Wi-Fi Module Installation

1. Locate the NVMe M.2 slots and the M.2 Wi-Fi slot.
2. Remove the retaining screw from the desired M.2 slot.
3. Insert the M.2 SSD or Wi-Fi module into the slot at an angle.
4. Gently push down the module and secure it with the retaining screw.

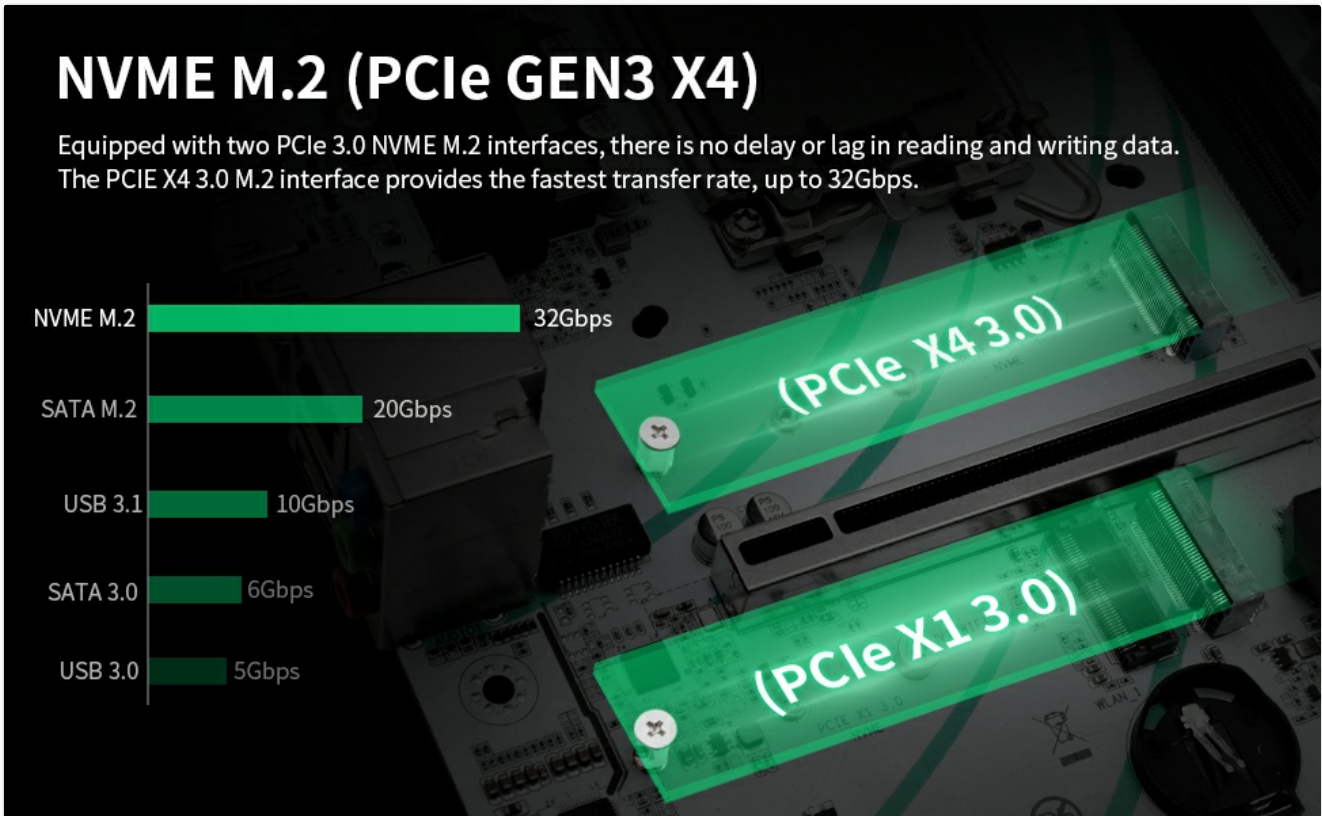


Figure 4.4: Diagram showing the two NVMe M.2 slots (PCIe GEN3 X4 bandwidth) and one M.2 Wi-Fi slot, along with the PCIe 5.0 X16 graphics slot and PCIe 3.0 X1 slot on the MACHINIST H610 motherboard.

#### 4.5. Graphics Card Installation

1. Locate the PCIe 5.0 X16 slot.
2. Remove the corresponding expansion slot cover from your PC case.
3. Align your graphics card with the slot and press down firmly until it is seated correctly and the retention clip locks.
4. Secure the graphics card to the case with a screw.



Figure 4.5: Diagram illustrating the bandwidth capabilities of PCIe 5.0 X16 (64GB/s), PCIe 4.0 (32GB/s), and PCIe 3.0 (16GB/s), highlighting the high-speed PCIe 5.0 X16 slot on the MACHINIST H610 motherboard.

## 4.6. Power Connections

1. Connect the 24-pin ATX main power connector from your power supply to the corresponding slot on the motherboard.
2. Connect the 8-pin CPU power connector (EPS 12V) from your power supply to the CPU power slot near the CPU socket.
3. Connect any necessary PCIe power cables to your graphics card, if applicable.

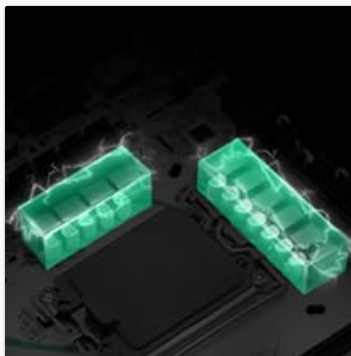


Figure 4.6: Detailed view of the 8+1+1 phase digital power supply components on the MACHINIST H610 motherboard, emphasizing the robust design for stable CPU power delivery.

## 4.7. Front Panel Connectors

Connect the front panel headers (Power LED, HDD LED, Power Switch, Reset Switch, USB, Audio) from your PC case to the corresponding pins on the motherboard. Refer to the motherboard layout diagram (Figure 4.1) for precise locations.

# 5. OPERATING INSTRUCTIONS

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## 5.1. Initial Boot-up

After all components are installed and connected, power on your system. The system should initiate the boot process. If no display appears, refer to the Troubleshooting section.

## 5.2. Accessing BIOS/UEFI

To enter the BIOS/UEFI setup utility, continuously press the "**Del**" key immediately after pressing the power button. Waiting until the startup logo appears may be too late.

## 5.3. Driver Installation

After installing your operating system, install the necessary drivers for the motherboard chipset, LAN, audio, and any other integrated components. These drivers are typically available on the manufacturer's website.

# 6. MAINTENANCE

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Regular maintenance helps ensure the longevity and optimal performance of your motherboard and PC system.

- **Dust Removal:** Periodically clean dust from inside your PC case, especially from fans and heatsinks, using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **Cable Management:** Ensure cables are neatly routed to improve airflow and prevent obstruction.
- **Software Updates:** Keep your operating system, drivers, and BIOS/UEFI firmware updated to benefit from

performance improvements and security patches.

- **Temperature Monitoring:** Use monitoring software to keep an eye on CPU and system temperatures to prevent overheating.

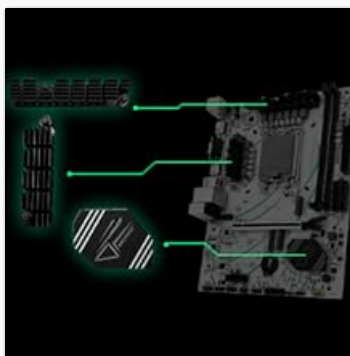


Figure 6.1: Illustration showing the VRM cooling solution on the MACHINIST H610 motherboard, indicating the heatsinks designed to dissipate heat from the voltage regulator modules.

## 7. TROUBLESHOOTING

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This section addresses common issues you might encounter during setup or operation.

### 7.1. No Display on Boot

- Ensure all power cables (24-pin ATX, 8-pin CPU, GPU PCIe) are securely connected.
- Verify that the graphics card is properly seated in the PCIe slot.
- Check that your monitor cable is connected to the graphics card (or motherboard if using integrated graphics) and the monitor is powered on and set to the correct input.
- Reseat RAM modules to ensure they are properly installed.
- If using a dedicated graphics card, try removing it and connecting the display to the motherboard's integrated graphics ports (HDMI, DP, VGA) to test if the issue is with the graphics card.

### 7.2. System Instability or Crashes

- Check for proper CPU cooler installation and thermal paste application to prevent overheating.
- Ensure RAM modules are compatible and correctly installed. If you purchased memory with a frequency exceeding 3200MHz, note that the 12th generation non-K CPUs lock the voltage of the memory controller, and entry-level H610 motherboards may not run high-frequency memory optimally. For higher frequencies, K/KF series CPUs and 660/690 series motherboards are recommended.
- Verify that your power supply unit (PSU) has sufficient wattage for all your components.
- Update motherboard drivers and BIOS/UEFI firmware.

### 7.3. Cannot Enter BIOS

As noted in the operating instructions, press the **"Del"** key repeatedly immediately after powering on the system. Do not wait for the startup logo to appear.

## 8. SPECIFICATIONS

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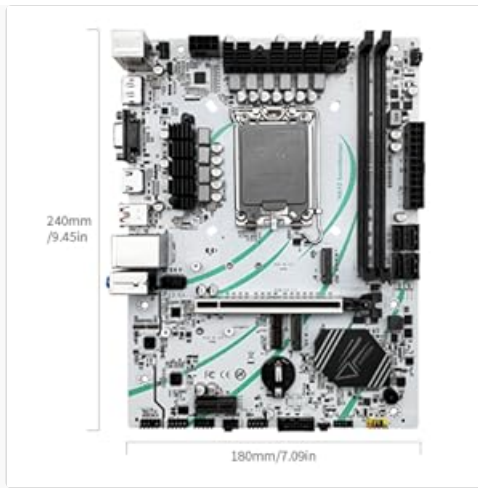


Figure 8.1: Dimensions of the MACHINIST H610 motherboard, showing a length of 240mm (9.45in) and a width of 180mm (7.09in), indicating its Micro ATX form factor.

Feature	Specification
Brand	MACHINIST
Model Number	H610 Swordsman
CPU Socket	LGA 1700
Compatible Processors	Intel 12th/13th Gen Core, Pentium, Celeron Series (e.g., Core i3-12100F, Core i5-12400, Core i5-12490F, Celeron G6900)
Chipset Type	Intel H610
RAM Memory Technology	DDR4
Memory Slots Available	2 DDR4 (Dual-channel, non-ECC unbuffered, XMP support)
Memory Clock Speed	2133/2400/2666/3000/3200 MHz
Ram Memory Maximum Size	64 GB (32GB*2)
Graphics Card Interface	PCI Express (1x PCIe 5.0 X16, 1x PCIe 3.0 X1)
Integrated Display	HDMI, DisplayPort (DP), VGA
Storage Interfaces	2x NVMe M.2 (PCIe GEN3 X4), 1x M.2 Wi-Fi, 4x SATA 3.0
LAN	Realtek 2.5GbE LAN
USB Ports	USB 3.2 Gen2, USB 2.0 (Total 6 ports)
Main Power Connector	24 + 8 pin
Form Factor	Micro ATX
Dimensions (L x W x H)	9.45"L x 7.1"W x 1.5"H (240mm x 180mm x 38mm)
Platform	Windows

## 9. WARRANTY INFORMATION

MACHINIST products are manufactured to high-quality standards. For specific warranty terms and conditions, please refer to the product packaging or contact MACHINIST customer support. Keep your proof of purchase for warranty claims.

## 10. SUPPORT

For technical assistance, driver downloads, or further inquiries, please visit the official MACHINIST website or contact their customer support channels. You may also find helpful information and community support through

online forums dedicated to PC hardware and component building.

**MACHINIST Official Store:** [Visit Store](#)