

SJRC SJ-P6X86

SJRC X86 P6 Fanless Mini PC User Manual

Model: SJ-P6X86

Barebone System: No RAM, No SSD, No OS Included

1. INTRODUCTION

This manual provides comprehensive instructions for the setup, operation, and maintenance of your SJRC X86 P6 Fanless Mini PC. This device is designed as a compact and versatile computing solution, ideal for various applications including home theaters, office tasks, and network appliances like firewalls or NAS.

Please note that this is a **barebone system**. It requires the installation of a memory module (RAM), a storage drive (SSD), and an operating system (OS) to function. Refer to the "Setup" section for detailed installation steps.

2. PRODUCT FEATURES

The SJRC X86 P6 Mini PC offers a robust set of features for its compact size:

- **High-Performance CPU:** Equipped with an Intel N355 processor (8 Cores, 8 Threads, up to 3.9GHz, 15W TDP) with Intel UHD Graphics, providing efficient performance for various computing tasks.
- **Dual 2.5GbE LAN Ports:** Features two Intel i226-V 2.5 Gigabit Ethernet ports, enabling high-speed network connectivity for applications such as VPNs, NAS, and firewall setups.
- **Dual 4K HD Display Output:** Supports dual 4K@60Hz display output via two HD 2.0 ports, suitable for multi-monitor setups, video playback, and digital signage.
- **Expandable Memory & Storage:** Includes one SODIMM DDR5 slot supporting up to 32GB RAM (4800MHz), one M.2 2280 NVMe PCIe 3.0 x2 slot for SSD, and two 12-pin 2.5-inch SATA slots for additional storage.
- **Versatile Connectivity:** Provides 2 x USB 3.2 Gen3 (10Gbps) ports, 4 x USB 2.0 ports, 1 x 10-pin GPIO header, and 1 x COM pin for diverse peripheral and industrial applications.
- **Fanless Cooling System:** Utilizes a 100% silent, fanless design with a copper block and aluminum housing for passive heat dissipation, ensuring quiet operation.
- **Compact and Mountable Design:** With dimensions of 11 cm x 10 cm x 3.5 cm (4.33" x 3.94" x 1.38"), it is lightweight and supports VESA/wall mounting for flexible placement.
- **Broad OS Compatibility:** Compatible with various operating systems including Windows Server, Open-wrt,

PF-sense, OPNsense, Linux distributions (Mint, Ubuntu, Debian, CentOS), and supports UEFI.

- **Advanced BIOS Features:** Supports PXE boot, Wake-on-LAN, Auto Power On, and GPIO for enhanced control and automation.

3. PACKAGE CONTENTS

Please verify that all items are present in the package:

- 1 x SJRC Mini PC (Model: SJ-P6X86)
- 1 x Power Cord
- 1 x Power Adapter (DC 12V)



Figure 3.1: Example of product packaging and label. The label provides product information including model number and manufacturer details.

4. HARDWARE OVERVIEW

Familiarize yourself with the external and internal components of your Mini PC.

4.1 External Ports and Indicators



Figure 4.1: Front and rear views of the SJRC X86 P6 Mini PC. The front panel includes the power button, two HD ports, and two USB 3.2 ports. The rear panel features two 2.5GbE LAN ports (ETH0, ETH1) and the DC-12V power input.

P6-N150/N355 (9 x 9cm Mini Mainboard)

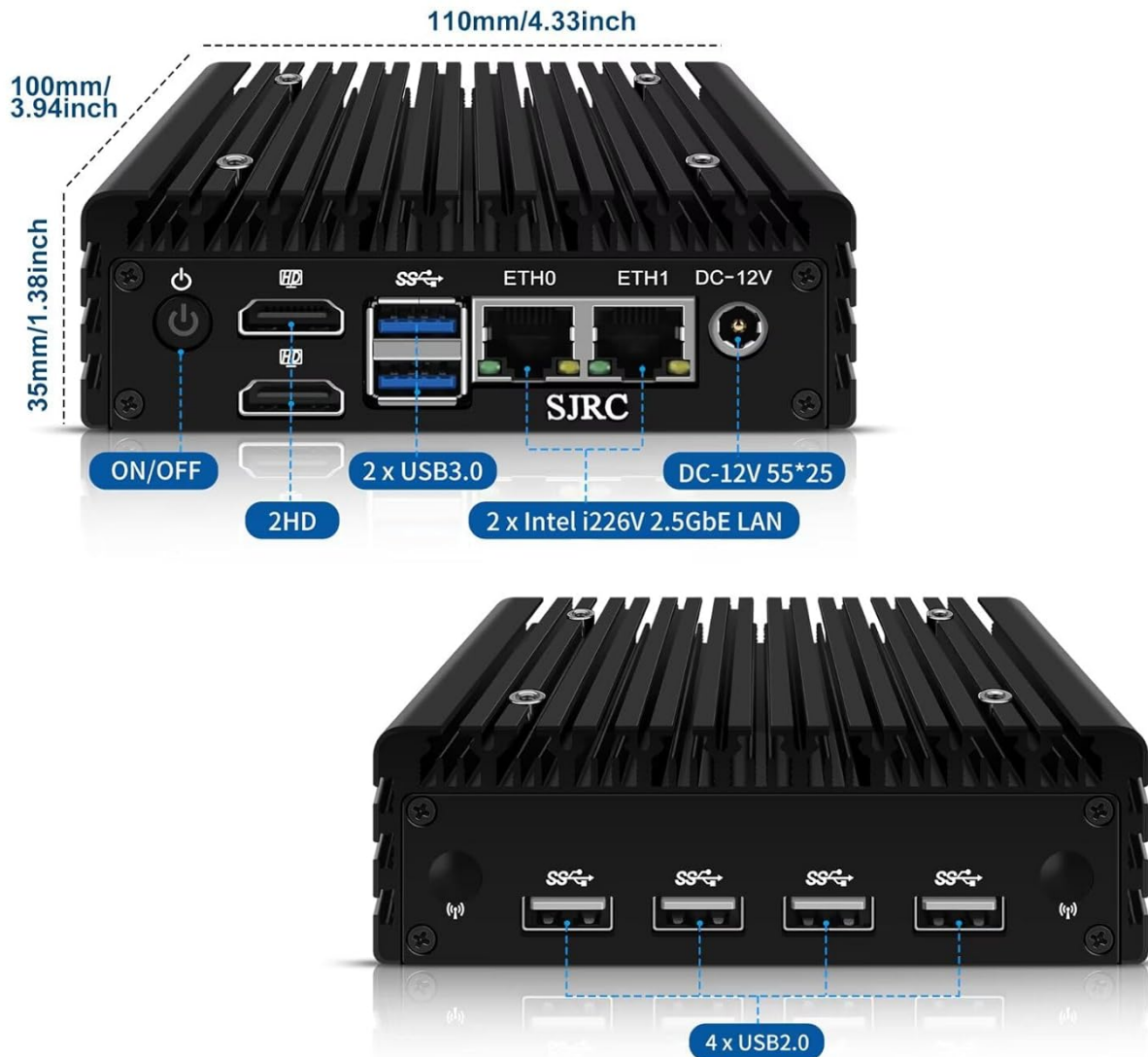


Figure 4.2: Detailed port layout and dimensions (110mm x 100mm x 35mm). This image highlights the ON/OFF button, 2 HD ports, 2 USB 3.0 ports, 2 Intel i226V 2.5GbE LAN ports, DC-12V power input, and 4 USB 2.0 ports on the opposite side.

4.2 Internal Components

P6-N150/355

Intel 7nm Alder Lake-N Low Power Mini PC

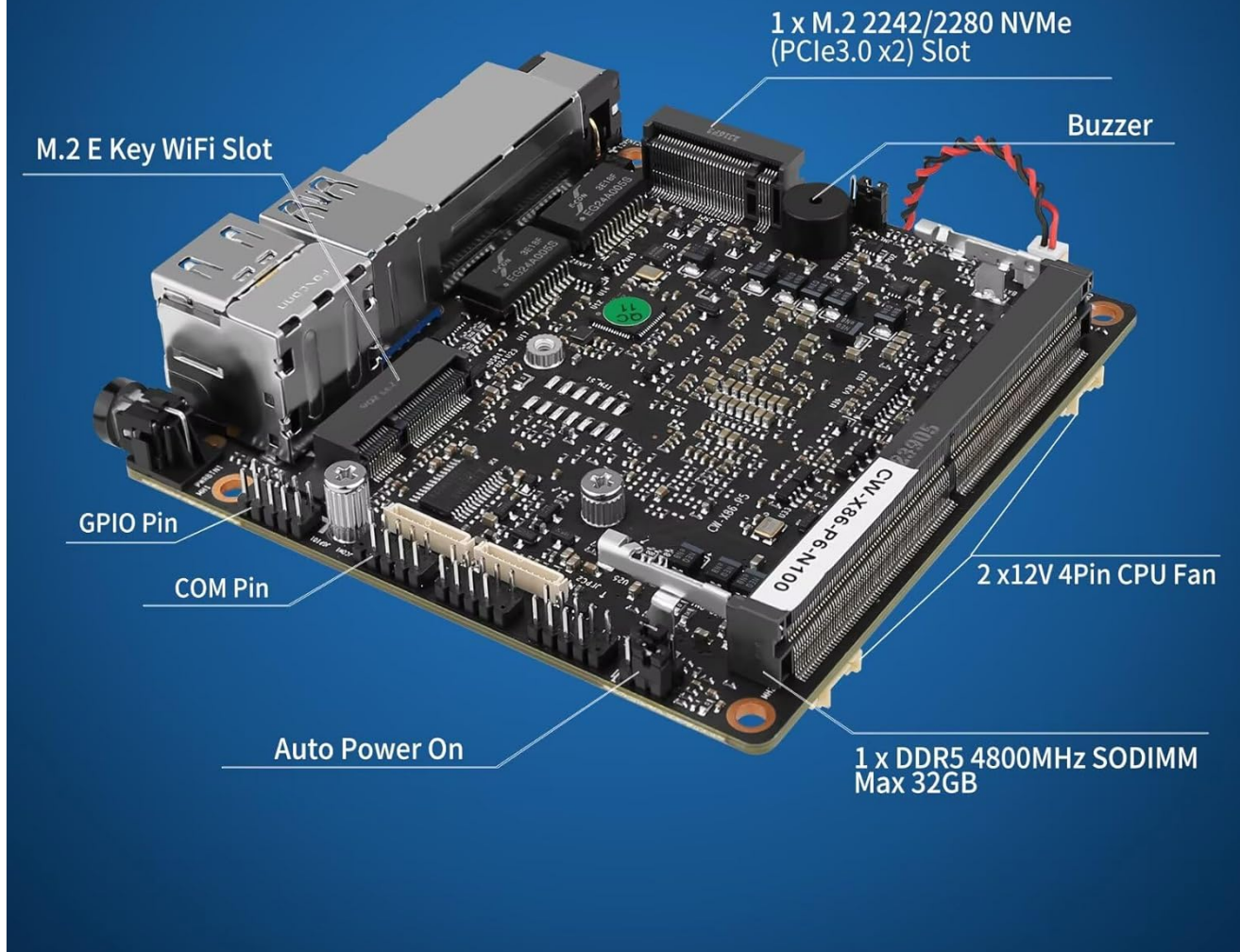


Figure 4.3: Internal view of the P6-N150/355 motherboard. Key components include the M.2 2242/2280 NVMe (PCIe 3.0 x2) Slot, M.2 E Key WiFi Slot, Buzzer, GPIO Pin, COM Pin, Auto Power On jumper, 2 x 12V 4Pin CPU Fan headers, and 1 x DDR5 4800MHz SODIMM slot (Max 32GB).

5. SETUP GUIDE

As a barebone system, the SJRC X86 P6 Mini PC requires the installation of RAM, an SSD, and an operating system before first use.

5.1 Installing RAM and SSD

1. **Prepare the Device:** Ensure the Mini PC is powered off and disconnected from all power sources.
2. **Open the Chassis:** Carefully remove the screws securing the bottom panel of the Mini PC. Gently lift the panel to expose the motherboard.
3. **Install RAM:** Locate the DDR5 SODIMM slot (refer to Figure 4.3). Align your DDR5 SODIMM module with the slot, ensuring the notch on the module matches the key in the slot. Insert the module at a 45-degree angle and press down firmly until the retaining clips snap into place.
4. **Install M.2 NVMe SSD:** Locate the M.2 2280 NVMe slot. Insert your M.2 SSD into the slot at a slight angle.

Once fully seated, gently push down the end of the SSD and secure it with the provided screw.

5. **Install 2.5-inch SATA Drive (Optional):** If using a 2.5-inch SATA drive, connect it to the 12-pin SATA slots (non-standard, refer to motherboard layout for specific connection points) and secure it within the chassis if mounting points are available.
6. **Close the Chassis:** Carefully replace the bottom panel and secure it with the screws.

5.2 Initial Connections

1. **Connect Display:** Connect your monitor(s) to the HD 2.0 ports on the front panel (refer to Figure 4.1). The device supports dual 4K@60Hz displays.
2. **Connect Peripherals:** Connect your keyboard, mouse, and other USB devices to the available USB 3.2 or USB 2.0 ports.
3. **Connect Network (Optional):** For wired network access, connect an Ethernet cable from your router/modem to one of the 2.5GbE LAN ports (ETH0 or ETH1) on the rear panel (refer to Figure 4.1).
4. **Connect Power:** Connect the power adapter to the DC-12V input port on the rear panel, then plug the power cord into an electrical outlet.

6. OPERATING INSTRUCTIONS

6.1 Powering On/Off

- **Power On:** Press the power button located on the front panel (refer to Figure 4.1). The power indicator light will illuminate.
- **Power Off:**
 - **Software Shutdown:** For safe shutdown, always use the operating system's shutdown function.
 - **Hard Shutdown:** In case of system unresponsiveness, press and hold the power button for approximately 5-7 seconds until the device powers off. Use this method only when necessary to prevent data loss.

6.2 Operating System Installation

The SJRC X86 P6 Mini PC supports various operating systems. You will need to create a bootable USB drive with your preferred OS installer.

1. **Prepare Bootable Media:** Create a bootable USB drive with your chosen operating system (e.g., Windows 10/11, Linux distributions like Ubuntu, Debian, CentOS, or specialized OS like Open-wrt, PF-sense, OPNsense). Ensure the USB drive is formatted correctly for UEFI boot.
2. **Access BIOS/UEFI:** Power on the Mini PC and repeatedly press the **DEL** or **F2** key (common keys, may vary slightly) to enter the BIOS/UEFI setup utility.
3. **Configure Boot Order:** Navigate to the "Boot" or "Boot Options" section in the BIOS/UEFI. Set your bootable USB drive as the primary boot device. Save changes and exit the BIOS/UEFI.
4. **Install OS:** The Mini PC will now boot from your USB drive, and you can proceed with the operating system installation as per the OS's instructions.

6.3 BIOS Features

The BIOS/UEFI offers several advanced features:

- **PXE Boot:** Allows the Mini PC to boot from a network server.
- **Wake-on-LAN (WoL):** Enables the device to be powered on remotely via a network signal.

Auto Power On: Configures the Mini PC to automatically power on when AC power is restored after an outage.

- **VT-x/VT-d:** Virtualization technology support for running virtual machines.
- **GPIO:** General Purpose Input/Output pins for custom automation and control (refer to Figure 4.3 for location).

7. MAINTENANCE

The SJRC X86 P6 Mini PC features a fanless design, which significantly reduces maintenance requirements related to dust accumulation in fans. However, proper care is still essential for optimal performance and longevity.

- **Keep Clean:** Regularly wipe the exterior of the Mini PC with a soft, dry cloth to remove dust. Avoid using liquid cleaners directly on the device.
- **Ensure Airflow:** Although fanless, the aluminum housing acts as a heatsink. Ensure the device is placed in a location with adequate air circulation to allow for proper heat dissipation. Do not obstruct the cooling fins.
- **Operating Environment:** Operate the Mini PC within its specified temperature range of -0°C to +70°C and humidity range of 5%-90% (non-condensing). Avoid extreme temperatures or high humidity environments.
- **Software Updates:** Keep your operating system and drivers updated to ensure system stability and security.

8. TROUBLESHOOTING

This section addresses common issues you might encounter with your Mini PC.

Problem	Possible Cause	Solution
No power / Device does not turn on.	<ul style="list-style-type: none">• Power adapter not connected properly.• Power outlet issue.• Faulty power adapter.	<ul style="list-style-type: none">• Ensure power adapter is securely connected to the Mini PC and the electrical outlet.• Test the power outlet with another device.• If possible, try a different compatible 12V DC power adapter.
No display output.	<ul style="list-style-type: none">• Display cable loose or incorrect port.• Monitor input not selected correctly.• RAM or SSD not installed or faulty.	<ul style="list-style-type: none">• Ensure HD cable is securely connected to both the Mini PC and the monitor. Try a different HD port.• Select the correct input source on your monitor.• Verify that RAM and SSD are correctly installed and seated. Re-seat them if necessary.
Operating system does not boot.	<ul style="list-style-type: none">• OS not installed.• Incorrect boot order in BIOS.• Corrupted OS installation.	<ul style="list-style-type: none">• Install an operating system (refer to Section 6.2).• Enter BIOS/UEFI and verify the boot order.• Attempt to reinstall the operating system.
Network connectivity issues.	<ul style="list-style-type: none">• Ethernet cable loose or faulty.• Network driver not installed.• Router/modem issue.	<ul style="list-style-type: none">• Ensure Ethernet cable is securely connected to both the Mini PC and the network device. Try a different cable or port.• Install the correct network drivers for your operating system.• Restart your router/modem.

9. SPECIFICATIONS

Feature	Detail
Model Number	SJ-P6X86
Processor	Intel Core 3 N355 (8 Cores, 8 Threads, up to 3.9GHz, 15W TDP)
Graphics	Intel UHD Graphics
Memory (RAM)	1 x SODIMM DDR5 slot, supports up to 32GB (4800MHz)
Storage	1 x M.2 2280 NVMe PCIe 3.0 x2 slot, 2 x 12-pin 2.5-inch SATA slots
LAN Ports	2 x Intel i226-V 2.5GbE LAN ports
Video Output	2 x HD 2.0 (supports 4K@60Hz)
USB Ports	2 x USB 3.2 Gen3 (10Gbps), 4 x USB 2.0
Other I/O	1 x ON/OFF button, 1 x DC-12V Power Input, 1 x 10-pin GPIO, 1 x COM pin, M.2 E-key slot (for WiFi/BT module, not included)
Cooling	Fanless design (copper block + aluminum housing)
Operating Temperature	-0°C to +70°C
Operating Humidity	5%-90% (non-condensing)
Dimensions (LxWxH)	11 cm x 10 cm x 3.5 cm (4.33" x 3.94" x 1.38")
Weight	0.44 kg (0.97 lb)
Power Input	DC 12V
Mounting	VESA/Wall-mountable
Supported OS	Win Server, Open-wrt, PF-sense, OPNsense, Linux (Mint, Ubuntu, Debian, CentOS), UEFI support only

10. WARRANTY AND SUPPORT

For information regarding the warranty period and terms for your SJRC X86 P6 Mini PC, please refer to the documentation provided at the time of purchase or contact your seller directly. Warranty terms may vary based on region and retailer.

For technical support, troubleshooting assistance beyond this manual, or inquiries about replacement parts, please contact SJRC customer support through their official channels or the retailer from whom you purchased the product. Keep your purchase receipt and product model number (SJ-P6X86) ready when contacting support.