

User Manual

NX6412 Ultra Compact Fanless Mini PC



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NX6412

User Manual

(Version 0.5)



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Chapter 1 Product Introduction

1.1 Brief Introduction

The NX6412 is a compact fanless mini pc based on the Intel Elkhart Lake platform and features a small form factor, low power consumption, and high performance.

1.2 Parameters

CPU: Intel® Celeron® Processor J6412, 4Cores 4Threads, Base Frequency: 2.00GHz, Burst Frequency: 2.60 GHz, TDP 10W

Memory: 2x SO-DIMM DDR4-3200, support dual-channel, maximum capacity 32GB

GPU: Integrated Graphics based on CPU, display via 2x HDMI2.0

Storage: 1 x M.2 Key B slot for 2242/2280 SATA SSD or 4G module, 1x SATA

USB: 2x USB3.2 Gen 2, 2x USB2.0, 1x Type-C (USB3.2 Gen 2)

Ethernet: 2x Gigabyte Network Controllers on-board (RTL8111H)

Audio: High-Definition Audio Codec, supports Line-out+Mic-in CTIA.

Serial I/O: 1x RS232 COM

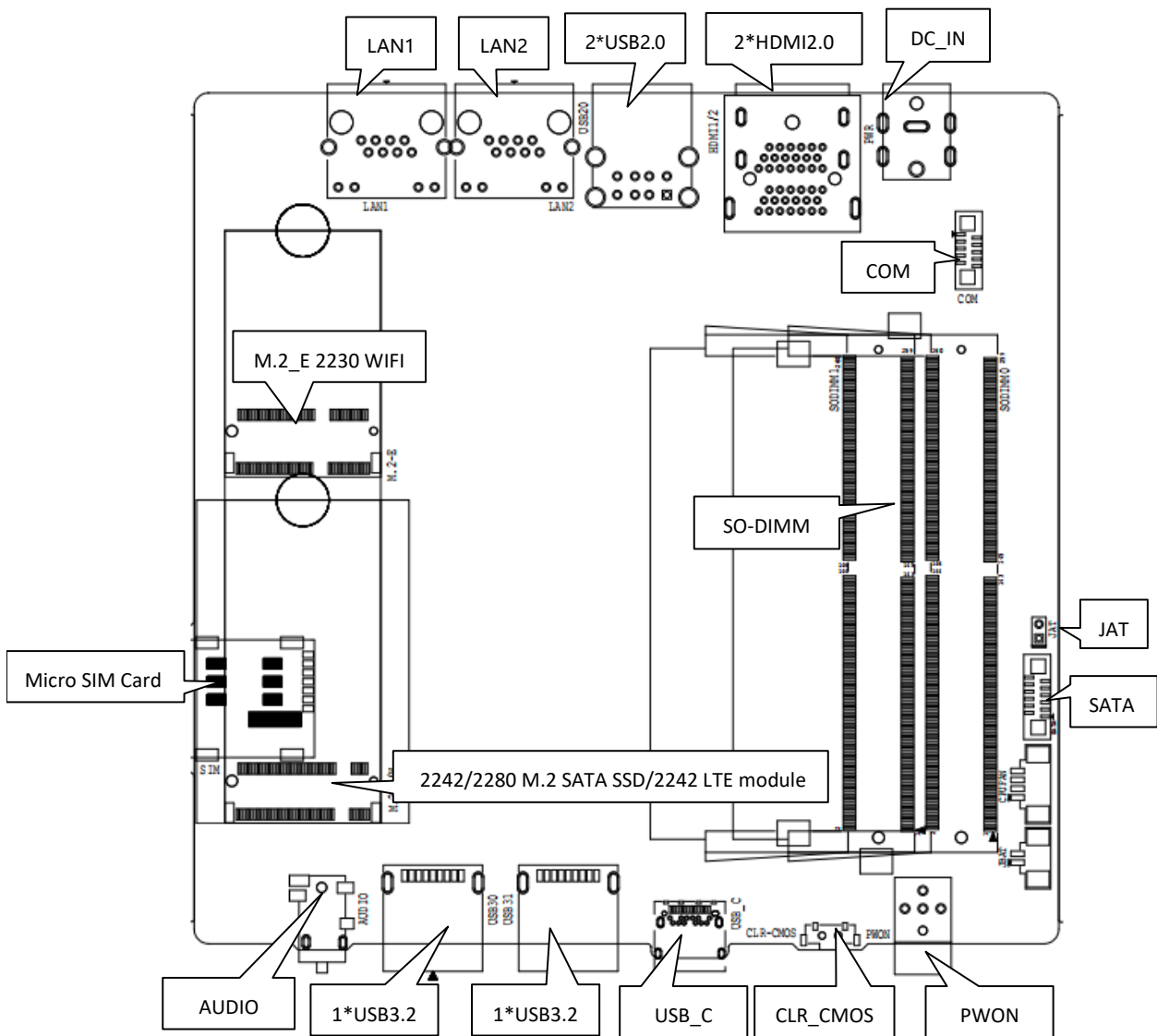
Other I/O: 1x M.2_Key E for 2230 Wi-Fi & BT, 1xPower button (PWON),1xSIM Slot

Dimension: 127mm x 127mm x 37mm

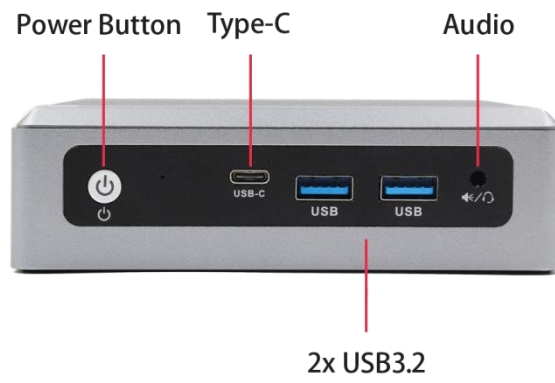
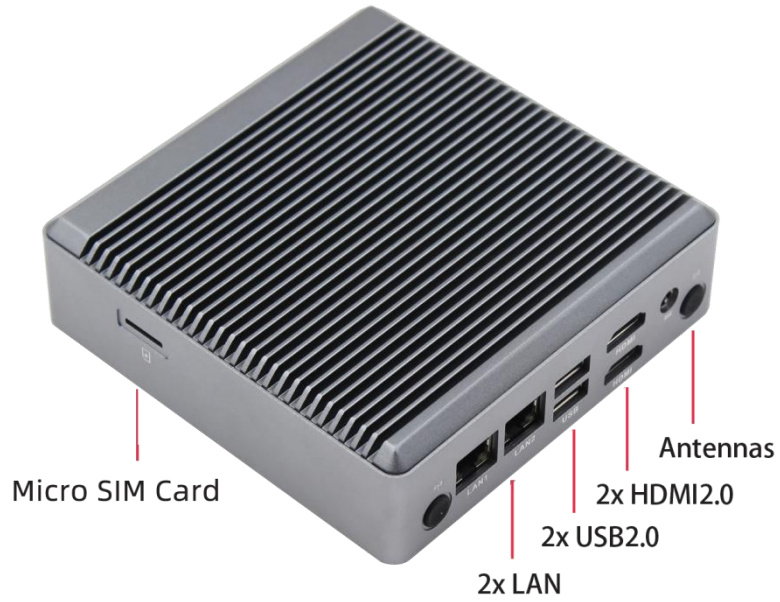
Power: 12V DC-in

Working Temperature: -20°C~60°C

1.3 Connector Diagram



1.4 I/O Interface



Chapter 2 Hardware

2.1 Installations

Please refer to the following steps for installations:

1. Read the user manual carefully to make sure all the adjustments on the NX6412 are correct.
2. Installing the Memory:
 - Press the ejector tab of the memory slot outwards with your fingertips.
 - Hold the memory module and align the key to the module with that on the memory slot.
 - Gently push the module into the slot until the ejector levers return completely to the closed position, holding the module in place when the module touches the bottom of the slot. To remove the module, press the ejector levers outwards to unseat the module.
3. Installing the expansion cards:
 - Locate the expansion slots and remove the screw, insert the cards into the slot at a 45-degree angle then attach the screw to the expansion cards, gently press down on it then install the screw back.
4. Connect all signal wires, cables, panel control wiring, and power supplies.
5. Start the computer and complete the setup of the BIOS program.

The board's components are integrated circuits and can easily be damaged by Electrostatic Discharge or ESD; therefore, please follow the instructions:

- Hold the board's edge when handing, and do not touch onboard pins, components, or plug sockets.
- When touching integrated circuit components (such as CPU, RAM, etc.), please wear an anti-static wrist strap/glove to avoid electrostatic discharge damage to the board or other sensitive components.
- Before installing the integrated circuits/sensitive components, place the sensitive components in anti-static bags to keep them safe from ESD.
- Please make sure the power switch is OFF before plugging the power plug.

2.2 Jumper Setting

Please configure the jumpers according to your requirements before installing the hardware.

How to identify the first header of jumpers and pins: Observe the mark beside the jumper or pins and find the header marked by "1" or bold line or triangular symbol. Or observe the rear panel and the header with a square solder pad is the first header.

2.3 Memory Slots

The board provides two SO-DIMM DDR4-3200 slots and supports dual-channel; maximum capacity of 32GB.

Attention: Make sure to hold the memory module and align the key to the module with that on the memory slot. While choosing a memory module, please make sure the module matches the board's specifications.

2.4 Display Interfaces

The board features Integrated Intel UHD graphics, supports 2xHDMI2.0 standard interface, and 4K support at 60Hz.

2.5 Storage

1x M.2 Key B for 2242/2280 SATA SSD or 4G module with micro-SIM card slot.
1x SATA interface.

2.6 Expansion Slot

The board provides 1xM.2 Key E slot for 2230 Wi-Fi & Bluetooth.

2.7 USB Interface

The board supports 2x USB3.2 Gen2 and 2x USB2.0, 1x Type-C(USB3.2 Gen 2).

2.8 LAN

The board features 2xRJ45 interfaces with high-speed Realtek 8111H Gigabit network controllers, supports Magic packet wake-up, and the LAN1 supports PXE network boot.


LED Status Indicators:

LI_LED Status (Green)	Function	ACT_LED Status (Orange)	Function
Always on	Network Connected	Blinking	Data transfer

2.9 COM

The board provides one RS232 DB-9 serial port.

COM DB-9 (Screen printing:COM1)

Pin	RS232	Interface
1	DCD#	
2	RXD	
3	TXD	
4	DTR#	
5	GND	
6	DSR#	
7	RTS#	
8	CTS#	
9	RI#	

2.10 Board Power Supply

The board supports 12V DC-in for power supply.

2.11 CMOS Clearance/Retention

CMOS is powered by onboard button batteries. Clearing CMOS will permanently remove the previous system settings and restore the board system to original settings (factory settings).

Step 1: Turn off the PC and disconnect the power adapter.

Step 2: Press JCMOS for 10 seconds then disconnect.

Step 3: Restart the device, press the button to enter the BIOS, load the optimal default value, save, and exit the settings.

CMOS (Screen Printing: CLR_CMOS)

Setting	CLR_CMOS
Close	Clear CMOS



Please do not clear COMS when the PC is connected to power in case board damages.