USER MANUAL

Thinvent® Neo R/4 Mini PC

R-cu5_14l-16_16_5-m512-12_7-X-11V-0



Edition November 2026

Serial number: _____

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1. BEFORE YOU START

The Neo R/4 is Thinvent's steel mini PC for transport, banking, hospitality and healthcare. It takes a Mini-ITX or Thin Mini-ITX board and holds an M.2 SSD and a 2.5 inch drive, and runs Windows or Linux.

- Keep the vents clear, and keep the computer away from water and direct sunlight.
- Use only the power adapter supplied with the mini PC. Another adapter can damage it and affects the warranty.
- Do not cover the ventilation slots or block the air vents. Never run the mini PC with the cover or a side panel removed.
- When the mini PC is plugged in, power reaches the system board. Unplug the power cable before you open the mini PC.
- Be properly grounded when you touch a component, and avoid contact with pins, leads and circuitry.
- Keep the adapter wires undamaged. A damaged wire can cause a short circuit.
- Do not let the power adapter touch your skin or a soft surface while the mini PC runs.
- The mini PC contains a lithium coin cell battery. Do not take it apart, crush, puncture or short it, put it in water or fire, or expose it to temperatures above 60 °C. Do not recharge it. Return used batteries to Thinvent or its authorised partners, not to the household waste.
- Change BIOS settings only with the help of trained service personnel. Wrong settings cause instability or boot failure.
- Contact Thinvent support before you upgrade memory or storage. Some models have a fixed configuration.
- Do not remove or tamper with the warranty seal. Repair or modification by the customer or an unauthorised third party is outside the warranty.

Drivers, other files for this computer and the latest edition of this manual are on the Thinvent Support Downloads page: www.thinvent.in/support/downloads. Enter the serial number or the order number of your computer.

2. WHAT IS IN THE BOX

- Thinvent® Neo R/4 Mini PC
- Power adapter

3. SPECIFICATIONS

Processing	
Generation	14th
Series	Ultra 5
Processor Brand	Intel
Processor Model	125U
Cores	12
Max Frequency	4.3 GHz
Cache	12 MB
Main Memory	32 GB
SSD Storage	512 GB
Display	
HDMI 2.0	1
VGA	1
Audio	
Speaker Out	1
Mic In	1
Connectivity	
USB 3.2	2
USB 2.0	2
RS485 Option	1
Networking	
Ethernet	1000 Mbps
Ethernet Ports	2
Power	
DC Voltage	12 Volts
DC Current	7 Amps
Power Input	100~275 Volts AC, 50~60 Hz, 1.5 Amps maximum
Cable Length	2 Metre

Environmental

Operating Temperature	0°C ~ 40°C
Operating Humidity	20% ~ 80% RH, non condensing
Certifications	BIS, RoHS, ISO

Physical

Form Factor	Mini PC
Dimensions	198mm × 200mm × 73mm
Packing Dimensions	335mm × 240mm × 110mm
Housing Material	Steel
Housing Finish	Powder Coated
Housing Colour	Black
Net and Gross Weight	1.72kg, 2.13kg

Operating System

Operating System	Microsoft Windows 11 IoT Enterprise LTSC 2024 Value

4. PORTS AND CONTROLS

Front

From left to right:

#	Port	Description
1	Power button	Switches the mini PC on or off. Press it gently to switch on. Hold it for at least 4 seconds to force a switch off when the mini PC does not respond.

Rear

From left to right, seen from the back:

#	Port	Description
1	DC-IN	DC power jack, 5.5 x 2.5 mm, 12 V or 19 V
2	HDMI	HDMI 2.0 port, up to 4K at 60 Hz
3	VGA	VGA port, up to 1920 x 1080 at 60 Hz
4	USB 3.2 x 2	Two stacked USB 3.2 Gen1 ports, 5 Gbps
5	LAN2	RJ45 Gigabit Ethernet port
6	LAN1	RJ45 Gigabit Ethernet port
7	LINE_OUT	Audio output jack
8	MIC_IN	Microphone input jack

5. SETTING UP

Connect and switch on

1. Plug the power adapter into the DC Power In jack on the rear panel.
2. Plug the power adapter into a 100 to 240 V AC power source.
3. Connect a monitor with an HDMI cable to the HDMI port, or with a VGA cable to the VGA port. To use two monitors, connect one to each port.
4. Connect a USB keyboard and mouse to any of the USB ports. A USB dongle for a wireless keyboard and mouse also works.
5. Connect an Ethernet cable to the LAN port.
6. Press the Power button gently.

6. USING THE COMPUTER

Switch the mini PC on and off

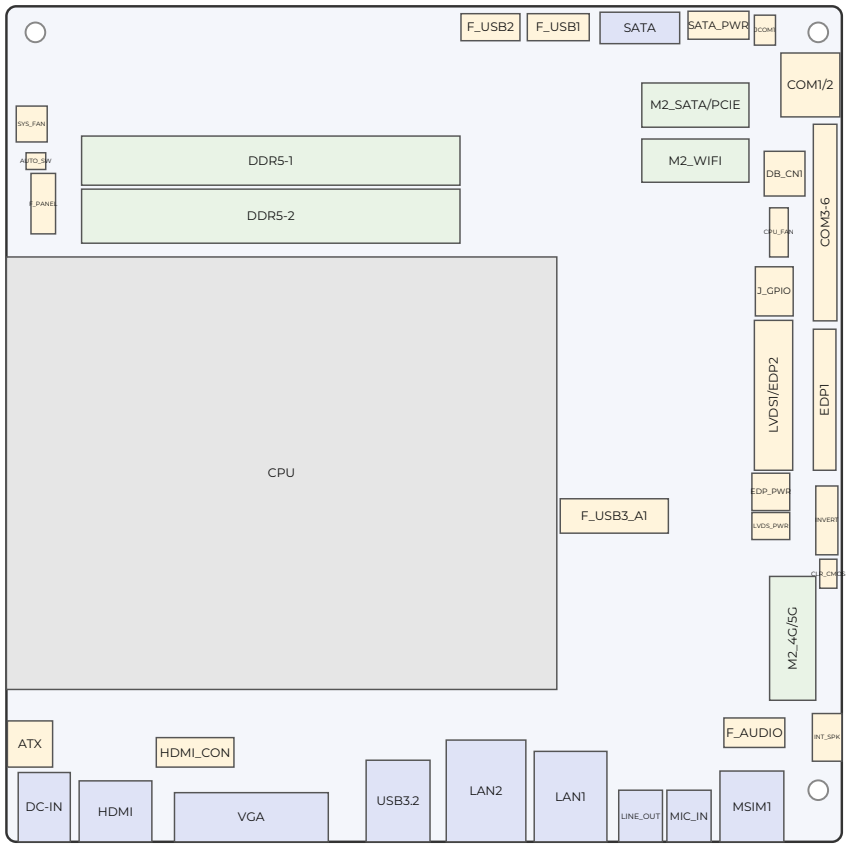
1. Press the Power button gently to switch on.
2. To switch off in Windows, select the Start menu, select the Power icon, then select Shut down.
3. If the mini PC does not respond, hold the Power button for at least 4 seconds until it switches off.

7. OPERATING SYSTEM

This computer comes with Microsoft Windows 11 IoT Enterprise LTSC 2024 Value.

1. Switch the computer on. Windows starts its setup on the first start.
2. Pick your country, keyboard layout and network, then sign in or create a local account.
3. Install the drivers in the Drivers chapter of this manual if Device Manager lists a device without a driver.

8. INSIDE THE COMPUTER: THE MOTHERBOARD



170 mm × 170 mm

Component side of the board. Positions are approximate.

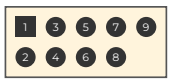
Label	Connector or component
CPU	Intel Core Ultra 5 125U under the heatsink and fan
DDR5-1	DDR5 SO-DIMM slot
DDR5-2	DDR5 SO-DIMM slot
SYS_FAN	System fan header, 3 pins, full speed
AUTO_SW	3-pin header for hardware power-on
F_PANEL	Front panel header: LEDs, reset and power switch
F_USB2	Front USB 2.0 header, 2 ports
F_USB1	Front USB 2.0 header, 2 ports
SATA	SATA 3.0 connector, SATA1
SATA_PWR	4-pin power connector for a SATA drive, 5 V and 12 V
JCOM1	Jumper that sets the voltage on pin 9 of COM1
M2_SATA/PCIE	M.2 Key-M slot for a 2280 NVMe or SATA SSD
COM1/2	Serial port header for COM1 (RS-232, RS-422 or RS-485) and COM2 (RS-232)
M2_WIFI	M.2 Key-E slot for a 2230 Wi-Fi and Bluetooth module
DB_CN1	10-pin header marked DB_CN1 on the board
COM3-6	Serial port header for COM3 to COM6 (RS-232)
CPU_FAN	CPU fan header, 4 pins, temperature controlled
J_GPIO	General purpose input and output header
LVDS1/EDP2	LVDS screen header (eDP with a changed fitting), 30 pins
EDP1	eDP screen header, 30 pins, with backlight pins
EDP_PWR	Jumper header that sets the supply voltage of the EDP1 screen
LVDS_PWR	Jumper header that sets the supply voltage of the LVDS1/EDP2 screen
INVERT	6-pin LVDS backlight header
CLR_CMOS	3-pin header that clears the CMOS settings
M2_4G/5G	M.2 Key-B slot for a 3052 or 3042 5G module or a 3042 4G module
F_USB3_A1	Front USB 3.2 Gen1 header, 2 ports

F_AUDIO	Front audio header
INT_SPK	4-pin header for an internal speaker pair with its own amplifier
MSIM1	SIM card slot for the 4G or 5G module
ATX	4-pin ATX power connector
DC-IN	DC power jack, 5.5 x 2.5 mm
HDMI	HDMI 2.0 port
HDMI_CON	16-pin header for an HDMI cable to another connector
VGA	VGA port (DisplayPort on the DisplayPort version)
USB3.2	Two stacked USB 3.2 Gen1 ports
LAN2	RJ45 Gigabit Ethernet port
LAN1	RJ45 Gigabit Ethernet port
LINE_OUT	Audio output jack
MIC_IN	Microphone input jack

9. INTERNAL CONNECTORS AND HEADERS

F_PANEL: Front panel header

Connects the chassis LEDs, reset button and power button. 2 x 5 pins, 2.54 mm pitch. Pin 10 has no pin. The hard disk LED flashes while the drive is in use. The power LED is lit while the board is on. The reset button restarts the system. The power button, on pins 6 and 8, turns the board on and off.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	HDLED+ (hard disk LED positive)	2	PWRLED+ (power LED positive)
3	HDLED- (hard disk LED negative)	4	GND (power LED negative)
5	RST (reset button)	6	P_SW IN (power button)
7	GND (reset button)	8	GND (power button)
9	NC		

ATX: 4-pin ATX power connector

Alternative power input to the DC jack. 2 x 2 pins, 4.2 mm pitch.

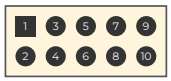


Pin 1 is square.

Pin	Signal	Pin	Signal
1	GND	2	GND
3	+12V	4	+12V

COM1/2: Serial port header for COM1 and COM2

Two headers with the same pin layout, one for COM1 and one for COM2. 2 x 5 pins, 2.54 mm pitch. Both are RS-232. COM1 can be set to RS-422 or RS-485 in the BIOS.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

COM1: COM1 in RS-422 mode

With COM1 set to RS-422 in the BIOS, pins 1 to 4 of the COM1 header carry the RS-422 signals.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	TXD-	2	TXD+
3	RXD+	4	RXD-

COM1: COM1 in RS-485 mode

With COM1 set to RS-485 in the BIOS, pins 1 and 2 of the COM1 header carry the RS-485 signals.

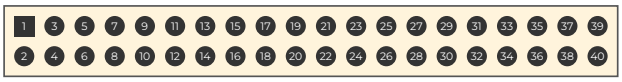


Pin 1 is square.

Pin	Signal	Pin	Signal
1	S485-	2	S485+

COM3-6: Serial port header for COM3 to COM6

2 x 20 pins, 2.0 mm pitch. All four ports are RS-232.

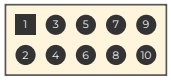


Pin 1 is square.

Pin	Signal	Pin	Signal
1	COM3_DCD	2	COM3_RXD
3	COM3_TXD	4	COM3_DTR
5	GND	6	COM3_DSR
7	COM3_RTS	8	COM3_CTS
9	COM3_RI	10	NC
11	COM4_DCD	12	COM4_RXD
13	COM4_TXD	14	COM4_DTR
15	GND	16	COM4_DSR
17	COM4_RTS	18	COM4_CTS
19	COM4_RI	20	NC
21	COM5_DCD	22	COM5_RXD
23	COM5_TXD	24	COM5_DTR
25	GND	26	COM5_DSR
27	COM5_RTS	28	COM5_CTS
29	COM5_RI	30	NC
31	COM6_DCD	32	COM6_RXD
33	COM6_TXD	34	COM6_DTR
35	GND	36	COM6_DSR
37	COM6_RTS	38	COM6_CTS
39	COM6_RI	40	NC

F_USB1, F_USB2: Front USB 2.0 headers

Two headers with the same pin layout. Each header connects 2 USB 2.0 ports. 2 x 5 pins, 2.54 mm pitch.

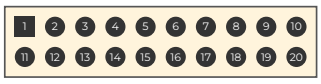


Pin 1 is square.

Pin	Signal	Pin	Signal
1	VCC +5V	2	VCC +5V
3	DATA0-	4	DATA1-
5	DATA0+	6	DATA1+
7	GND	8	GND
9	NC	10	GND

F_USB3_A1: Front USB 3.2 Gen1 header

Connects 2 USB 3.2 Gen1 ports. 2 x 10 pins, 2.0 mm pitch. Pins 1 to 10 are in one row. Pins 20 to 11 run back along the other row, so pin 20 is beside pin 1.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	USB3_VCC	2	USB3_RX4N
3	USB3_RX4P	4	GND
5	USB3_TX4N	6	USB3_TX4P
7	GND	8	USB PN3
9	USB PP3	10	NC
11	USB PP2	12	USB PN2
13	GND	14	USB3_TX3P
15	USB3_TX3N	16	GND
17	USB3_RX3P	18	USB3_RX3N
19	USB3_VCC	20	NC

CPU_FAN: CPU fan header

4 pins in one row, 1.25 mm pitch. The board controls the fan speed from the processor temperature.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	GND	2	+12V
3	TAC (fan speed signal)	4	CTL (fan control)

SYS_FAN: System fan header

3 pins in one row, 2.54 mm pitch. The fan runs at full speed.

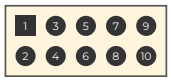


Pin 1 is square.

Pin	Signal	Pin	Signal
1	GND	2	+12V
3	TAC (fan speed signal)		

F_AUDIO: Front audio header

2 x 5 pins, 2.54 mm pitch.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	MIC-L	2	GND
3	MIC-R	4	NC
5	LINE OUT-R	6	MIC_JD
7	FAUDIO_JD	8	NC
9	LINE OUT-L	10	LINE_JD

INT_SPK: Internal speaker header

Connects two speakers of 8 ohm and 5 W through the board amplifier. 4 pins in one row, 2.0 mm pitch.

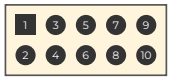


Pin 1 is square.

Pin	Signal	Pin	Signal
1	L+	2	L-
3	R-	4	R+

J_GPIO: General purpose input and output header

2 x 5 pins, 2.0 mm pitch. The direction of each GPIO pin can be changed to suit the application.

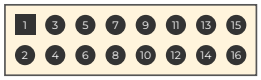


Pin 1 is square.

Pin	Signal	Pin	Signal
1	GND	2	+5V
3	GPIO_IN0	4	GPIO_OUT0
5	GPIO_IN1	6	GPIO_OUT1
7	GPIO_IN2	8	GPIO_OUT2
9	GPIO_IN3	10	GPIO_OUT3

HDMI_CON: HDMI signal header

Carries a second HDMI signal to a cable. 2 x 8 pins, 2.0 mm pitch. Up to 4K at 60 Hz.

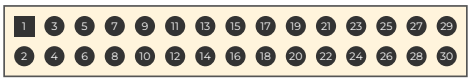


Pin 1 is square.

Pin	Signal	Pin	Signal
1	HDMI_TXD2P	2	HDMI_TXD1P
3	HDMI_TXD2N	4	HDMI_TXD1N
5	GND	6	GND
7	HDMI_TXD0P	8	HDMI_TXC0P
9	HDMI_TXD0N	10	HDMI_TXC0N
11	GND	12	HDMI_5V
13	HDMI_CLK	14	HDMI_5V
15	HDMI_DATA	16	HDMI_HPD

LVDS1/EDP2: LVDS screen header

LVDS signals, the default fitting. 2 x 15 pins, 2.0 mm pitch. Up to 2K at 60 Hz.

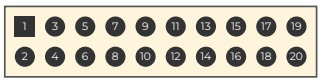


Pin 1 is square.

Pin	Signal	Pin	Signal
1	VCC	2	VCC
3	VCC	4	GND
5	GND	6	GND
7	ADO0-	8	ADO0+
9	ADO1-	10	ADO1+
11	ADO2-	12	ADO2+
13	GND	14	GND
15	ACLK-	16	ACLK+
17	ADO3-	18	ADO3+
19	BDO0-	20	BDO0+
21	BDO1-	22	BDO1+
23	BDO2-	24	BDO2+
25	GND	26	GND
27	BCLK-	28	BCLK+
29	BDO3-	30	BDO3+

LVDS1/EDP2: eDP screen header, 20-pin cable

The same header with an eDP fitting and a 20-pin screen cable. The screen cable and the backlight are separate. Pins 21 to 30 carry no signal.

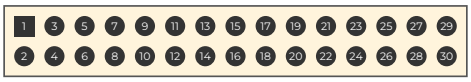


Pin 1 is square.

Pin	Signal	Pin	Signal
1	VCC	2	VCC
3	VCC	4	HPD
5	GND	6	GND
7	TX0N	8	TX0P
9	TX1N	10	TX1P
11	TX2N	12	TX2P
13	GND	14	GND
15	AUX-	16	AUX+
17	TX3N	18	TX3P
19	NC	20	NC

EDP1: eDP screen header, 30-pin cable

A 30-pin eDP screen cable with the backlight power in the same cable. 2 x 15 pins, 2.0 mm pitch. Up to 4K at 60 Hz.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	VCC	2	VCC
3	GND	4	GND
5	TX0P	6	TX0N
7	GND	8	GND
9	TX1P	10	TX1N
11	GND	12	GND
13	TX2P	14	TX2N
15	GND	16	GND
17	TX3P	18	TX3N
19	GND	20	GND
21	AUXP	22	AUXN
23	GND	24	HPD
25	BKLT_CTL	26	BKLT_EN
27	GND	28	GND
29	BLPWR	30	BLPWR

INVERT: LVDS backlight header

6 pins in one row, 2.0 mm pitch.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	+12V	2	+12V
3	ON/OFF (backlight switch)	4	ADJ (brightness adjustment)
5	GND	6	GND

10. JUMPERS AND SWITCHES

JCOM1: Voltage on pin 9 of COM1

Setting	Function
1-2 closed	+5 V on pin 9
3-4 closed	+12 V on pin 9
5-6 closed	No voltage on pin 9 (0 V) (default)

LVDS_PWR: Supply voltage of the LVDS1/EDP2 screen

Setting	Function
1-2 closed	+3.3 V
3-4 closed	+5 V
5-6 closed	+12 V

EDP_PWR: Supply voltage of the EDP1 screen

Setting	Function
1-2 closed	+3.3 V
3-4 closed	+5 V
5-6 closed	+12 V

11. BIOS SETUP

Open the Save & Exit menu to save the settings and restart.

Updating the BIOS

> Keep the power connected during a BIOS update. A power cut during the update leaves the board unable to start.

1. The Thinvent Support Downloads page does not have a BIOS file for this board.
2. Contact Thinvent support with the serial number of your computer and ask for a BIOS file. The contact details are in the Support section of this manual.
3. Thinvent support sends the BIOS file for your board with its instructions. Follow those instructions.
4. Keep the power adapter connected until the update finishes.

12. DRIVERS

Install the drivers in this order. Each one is on the Support Downloads page.

#	Driver	Version
1	Intel Chipset INF Utility for Windows 10 and 11	10.1.20658.8883
2	Intel Arc graphics driver (Core Ultra) for Windows 10 and 11	32.0.101.9034

3	Intel Ethernet driver (I219-V) for Windows 10 and 11	31.2.2
4	Realtek 8111H Ethernet driver	11016
5	Realtek audio driver fix for the Core Ultra 5 board	rtk-audio-fix
6	Intel NPU driver for Windows 11	32.0.100.5540

Other files for this computer

These files are on the Support Downloads page, www.thinvent.in/support/downloads.

File	Kind	Version
Neo user manual	manual	1

13. CARE

- Keep the mini PC away from excessive moisture, direct sunlight and extremes of heat and cold.
- Keep liquids away from the mini PC.
- Clean the air vents on all vented sides now and then. Unplug the mini PC first, because lint and dust block the vents and limit the airflow.
- Use the mini PC on a hard, flat surface. Do not place it on a lap, a pillow, a rug or clothing.
- Do not stack other computers on top of the mini PC.
- If you run the mini PC inside a separate enclosure, give the enclosure intake and exhaust ventilation.

14. TROUBLESHOOTING

The mini PC does not switch on

1. Check that the power adapter is firmly plugged into the DC Power In jack and into the wall socket.
2. Check that the socket supplies the correct voltage (100 to 240 V AC).
3. Use only the adapter that came with the mini PC.
4. Press the Power button gently.

The monitor stays blank after you connect the mini PC

1. Check that the monitor is switched on and set to the input you connected.
2. Check that the HDMI or VGA cable is firmly connected at both ends.
3. Try the other video port, or another monitor.

The mini PC runs slowly

1. Close applications you do not need.
2. Put the mini PC where the air moves freely and clean dust from the vents.
3. Check that the mini PC is not overheating.

The headphones do not work in the Mic and Speaker jacks

1. Connect the headphones through a converter, or use USB headphones.

15. SUPPORT

Support Downloads	www.thinvent.in/support/downloads
Email	support@thinvent.in
Phone	+91-11-411-71494
WhatsApp	+91 9990344247

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