USER MANUAL

Thinvent® Neo R/4 Mini PC

R-i5_12-16-S32T-12_7-m-DOS-0



Edition November 2026

Serial number: _____

Thinvent Technologies Private Limited · www.thinvent.in

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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	12th
Series	i5
Processor Brand	Intel
Processor Model	1240P
Cores	12
Max Frequency	4.4 GHz
Cache	12 MB
Main Memory	16 GB
SSD Storage	32 GB
Display	
HDMI	1
VGA	1
Audio	
Speaker Out	1
Mic In	1
Connectivity	
USB 3.2	2
USB 2.0	2
Networking	
Ethernet	1000 Mbps
Wireless Networking	Wi-Fi 5 (802.11ac), dual band
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	FreeDOS

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	12 V to 19 V DC input, 5.5 × 2.5 mm
2	HDMI	HDMI 2.0 port, up to 4096 × 2304 at 60 Hz
3	VGA	VGA port, up to 1920 × 1200 at 60 Hz
4	USB 2.0 × 2	Two stacked USB 2.0 ports
5	LAN	RJ45 Gigabit Ethernet port, Realtek RTL8111H
6	USB 3 × 2	Two stacked USB 3 ports
7	MIC	3.5 mm microphone input (pink)
8	LINE	3.5 mm line output (green)

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, or connect to Wi-Fi in the network settings of the operating system.
6. Press the Power button gently.

6. USING THE COMPUTER

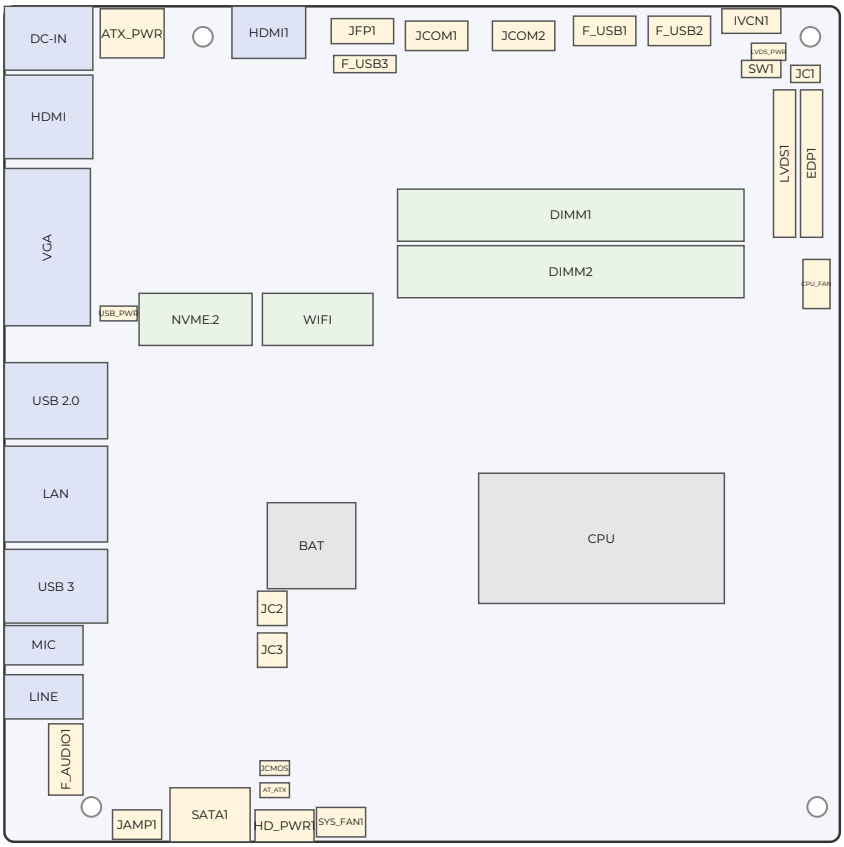
Switch the mini PC on and off

1. Press the Power button gently to switch on.
2. 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 FreeDOS.

8. INSIDE THE COMPUTER: THE MOTHERBOARD



170 mm × 170 mm

Component side of the board. Positions are approximate.

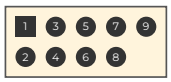
Label	Connector or component
DC-IN	12 V to 19 V DC jack, 5.5 × 2.5 mm
HDMI	Rear HDMI 2.0 port
VGA	Rear VGA port
USB 2.0	Two rear USB 2.0 ports
LAN	RJ45 Gigabit Ethernet port
USB 3	Two rear USB 3 ports
MIC	Microphone input jack
LINE	Line output jack
F_AUDIO1	Front audio header, 2 × 5 pins
ATX_PWR	4-pin ATX power input
HDMI1	HDMI 2.0 port on the top edge
JFP1	Front panel header: LEDs, reset, power button
F_USB3	Front USB header, 1 × 5 pins
JCOM1	RS-232 serial header COM1
JCOM2	RS-232 serial header COM2
F_USB1	Front USB 2.0 header, 2 ports
F_USB2	Front USB 2.0 header, 2 ports
IVCN1	LVDS backlight power and control header
LVDS_PWR	LVDS and eDP screen voltage pins
SW1	LVDS resolution switch
JC1	Screen voltage jumper
LVDS1	LVDS screen header, 2 × 15 pins
EDP1	eDP screen header, 2 × 15 pins
CPU_FAN	CPU fan header, 4 pins
DIMM1	DDR4 SO-DIMM slot
DIMM2	DDR4 SO-DIMM slot

NVME.2	M.2 slot for an NVMe or SATA SSD
WIFI	M.2 2230 slot for a Wi-Fi card
USB_PWR	Rear USB standby power jumper
CPU	Intel Core i5-1240P processor
BAT	CR2032 coin cell battery holder
JC2	Storage mode switch for the M.2 slot
JC3	Storage mode switch for the M.2 slot
JCMOS	Clear CMOS jumper
AT_ATX	Power-on-after-power-loss jumper
JAMP1	Speaker amplifier output header
SATA1	SATA 3.0 port
HD_PWR1	Hard disk power header, 12 V and 5 V
SYS_FAN1	System fan header, 3 pins

9. INTERNAL CONNECTORS AND HEADERS

JCOM1, JCOM2: Serial port headers

Two identical RS-232 headers, 2 × 5 pins at 2.54 mm. The pin table below applies to both.



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		

F_USB3: Front USB header

1 × 5 pins at 2.54 mm.

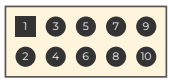


Pin 1 is square.

Pin	Signal	Pin	Signal
1	VCC	2	D-
3	D+	4	GND
5	NC		

F_USB1, F_USB2: Front USB 2.0 headers

Two identical headers, 2 × 5 pins at 2.54 mm, each with two USB 2.0 ports. The pin table below applies to both.

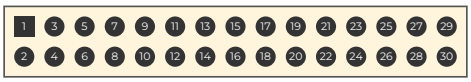


Pin 1 is square.

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

LVDS1: LVDS screen header

2 × 15 pins at 2.0 mm. Supports up to 1920 × 1080 at 60 Hz. Pin 1 of the screen cable goes on pin 1.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	VCC	2	VCC
3	VCC	4	GND
5	GND	6	GND
7	LVDS_U0_N	8	LVDS_U0_P
9	LVDS_U1_N	10	LVDS_U1_P
11	LVDS_U2_N	12	LVDS_U2_P
13	GND	14	GND
15	LVDS_CLKU_N	16	LVDS_CLKU_P
17	LVDS_U3_N	18	LVDS_U3_P
19	LVDS_L0_N	20	LVDS_L0_P
21	LVDS_L1_N	22	LVDS_L1_P
23	LVDS_L2_N	24	LVDS_L2_P
25	GND	26	GND
27	LVDS_CLKL_N	28	LVDS_CLKL_P
29	LVDS_L3_N	30	LVDS_L3_P

IVCN1: LVDS backlight header

1 × 6 pins at 2.0 mm. Powers and controls the screen backlight.

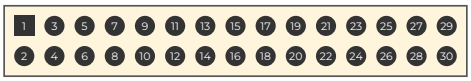


Pin 1 is square.

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

EDP1: eDP screen header

2 × 15 pins at 2.0 mm. Pin 1 of the screen cable goes on pin 1. The screen voltage is set with JC1, the same as for LVDS.

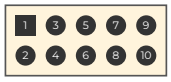


Pin 1 is square.

Pin	Signal	Pin	Signal
1	VCC	2	VCC
3	GND	4	GND
5	EDP_TX0_P	6	EDP_TX0_N
7	GND	8	GND
9	EDP_TX1_P	10	EDP_TX1_N
11	GND	12	GND
13	EDP_TX2_P	14	EDP_TX2_N
15	GND	16	GND
17	EDP_TX3_P	18	EDP_TX3_N
19	GND	20	GND
21	EDP_AUX_P	22	EDP_AUX_N
23	GND	24	EDP_HPD
25	EDP_PWM	26	EDP_EN
27	GND	28	GND
29	+12V	30	+12V

F_AUDIO1: Front audio header

2 × 5 pins at 2.54 mm.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	MIC-L	2	GND
3	MIC-R	4	NC
5	LINE OUT-R	6	RET_R
7	SENSE	8	NC
9	LINE OUT-L	10	RET_L

JAMP1: Speaker amplifier header

1 × 4 pins at 2.0 mm. Outputs to a speaker through the onboard amplifier.

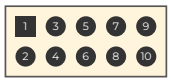


Pin 1 is square.

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

JFP1: Front panel header

2 × 5 pins at 2.54 mm. Pins 1 and 3 are the hard disk LED, pins 2 and 4 the power LED, pins 5 and 7 the reset button, pins 6 and 8 the power button. Pin 1 and pin 2 are the LED positive pins.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	HDD_LED+	2	PWR_LED+
3	HDD_LED-	4	GND
5	GND	6	PWR_BTN#
7	RESET	8	GND
9	NC	10	NC

ATX_PWR: 4-pin ATX power input

2 × 2 pins. An alternative to the DC jack.



Pin 1 is square.

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

SATA1: SATA 3.0 port

Standard 7-pin SATA data connector.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	GND	2	SATA_TXP
3	SATA_TXN	4	GND
5	SATA_RXN	6	SATA_RXP
7	GND		

HD_PWR1: Hard disk power header

1 × 4 pins at 2.54 mm. Use the standard power cable. Pin 1 supplies 12 V and pin 4 supplies 5 V.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	12V	2	GND
3	GND	4	5V

CPU_FAN: CPU fan header

1 × 4 pins at 2.54 mm. TACH reads the fan speed and CTRL sets the fan speed.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	GND	2	VCC12
3	TACH	4	CTRL

SYS_FAN1: System fan header

1 × 3 pins at 2.54 mm. TACH reads the fan speed.



Pin 1 is square.

Pin	Signal	Pin	Signal
1	GND	2	VCC12
3	TACH		

10. JUMPERS AND SWITCHES

JCMOS: Clear CMOS

Setting	Function
1-2	Normal operation (default)
2-3	Clear the CMOS and restore the BIOS factory values

AT_ATX1: Power on after power loss

Setting	Function
1-2	Power-on function off
2-3	Power-on function on: the board starts when power is applied

USB_PWR: Rear USB power when the computer is off

Setting	Function
1-2	Rear USB ports have no power when the computer is off
2-3	Rear USB ports have power when the computer is off

LVDS_PWM: Backlight PWM polarity

Setting	Function
1-2	Positive PWM signal
2-3	Inverted PWM signal

JC1: LVDS and eDP screen voltage

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

JC2 and JC3: M.2 slot storage mode switches

Setting	Function
Position 1-3 (switch down)	NVMe SSD in the M.2 slot
Position 3-5 (switch up)	SATA SSD in the M.2 slot

SW1: LVDS screen resolution

Setting	Function
0000	1280 × 800, single channel, 6 bit
0001	800 × 600, single channel, 8 bit
0010	1024 × 600, single channel, 8 bit
0011	1024 × 768, single channel, 8 bit
0100	1024 × 768, single channel, 6 bit
0101	800 × 480, single channel, 8 bit
0110	1366 × 768, single channel, 6 bit
0111	1400 × 900, single channel, 8 bit
1000	1366 × 768, single channel, 8 bit
1001	1400 × 900, dual channel, 8 bit
1010	1280 × 1024, dual channel, 8 bit
1011	1400 × 1050, dual channel, 8 bit
1100	1600 × 900, dual channel, 8 bit
1101	1920 × 1080, dual channel, 6 bit
1110	1600 × 1200, dual channel, 8 bit
1111	1920 × 1080, dual channel, 8 bit

11. BIOS SETUP

Press **Del** right after power-on to open BIOS setup. Press **F11** to open the boot menu and pick a boot device once. Open the Save & Exit menu to save the settings and restart, or press **F10**. Press **F9** to load the default settings.

Updating the BIOS

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

1. Thinvent does not publish a BIOS file for this board on the Support Downloads page.
2. To update the BIOS, contact Thinvent support using the details in the Support section. Give the part id (i5_12 or i5_12l) and the BIOS version shown in BIOS setup.
3. Thinvent support sends the BIOS file and the steps for your board.
4. Use only the BIOS file that Thinvent support sends for this board.

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 graphics driver (11th-14th Gen and N-series) for Windows 10 and 11	31.0.101.7092
3	Realtek 8111H Ethernet driver	11016
4	Realtek ALC897 HD audio driver (legacy, Windows 7 and 10, 64-bit)	8988
5	Realtek ALC897 audio driver (UAD) for Windows 10 and 11	9079
6	Intel Bluetooth driver (Wireless-AC 8260, 8265, 9560 and Wi-Fi 6 AX200) for Windows 10 and 11	22.200.0
7	Intel Wi-Fi driver (Wireless-AC 8260, 8265, 9560 and Wi-Fi 6 AX200) for Windows 10 and 11	22.200.2
8	Intel Management Engine software and driver (CSME 16, Alder Lake-P)	2201.16.0.2645

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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