USER MANUAL

Thinvent® Aero Mini PC

Aero-i5_12-4-m1024-12_7-X-11V-0



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Serial number: _____
Thinvent Technologies Private Limited · www.thinvent.in

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1. BEFORE YOU START

The Thinvent Aero is a mini PC in a black powder-coated steel and ABS plastic housing, 198 mm × 187 mm × 40 mm. It runs on a 12 V DC power adapter, accepts a VESA mount, and holds an M.2 SSD or a 2.5-inch SATA drive. Customers use it in offices, home offices, small businesses, education, digital signage, industrial control and thin client set-ups.

- Keep the vents clear, and keep the computer away from water and direct sunlight.
- Use only the power adapter supplied with the Aero.
- Unplug the power adapter before you open the unit or connect internal parts.
- Do not remove the warranty sticker. Removing it affects 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 Aero Mini PC
- Power adapter and power cable

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	4 GB
SSD Storage	1024 GB
Display	
HDMI	1
VGA	1
Audio	
Speaker Out	1
Mic In	1
Front Speaker Out	1
Front Mic In	1
Connectivity	
USB 3.2	2
USB 2.0	2
Front USB 2.0	4
Front USB C	1
Networking	
Ethernet	1000 Mbps
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 ~ 35°C
Operating Humidity	20% ~ 80% RH, non condensing
Certifications	BIS, RoHS, ISO

Physical

Form Factor	Mini PC
Dimensions	198mm × 187mm × 40mm
Housing Material	Steel and ABS Plastic
Housing Finish	Powder Coated
Housing Colour	Black

Operating System

Operating System	Microsoft Windows 11 IoT Enterprise LTSC 2024 Value

4. PORTS AND CONTROLS

Front

From left to right:

#	Port	Description
1	USB 2.0 ports (4)	Connect a keyboard, mouse, USB drive or other USB device.
2	USB Type-C port	Connect a USB Type-C device.
3	Speaker out	3.5 mm audio jack for speakers or headphones.
4	Mic in	3.5 mm audio jack for a microphone.

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

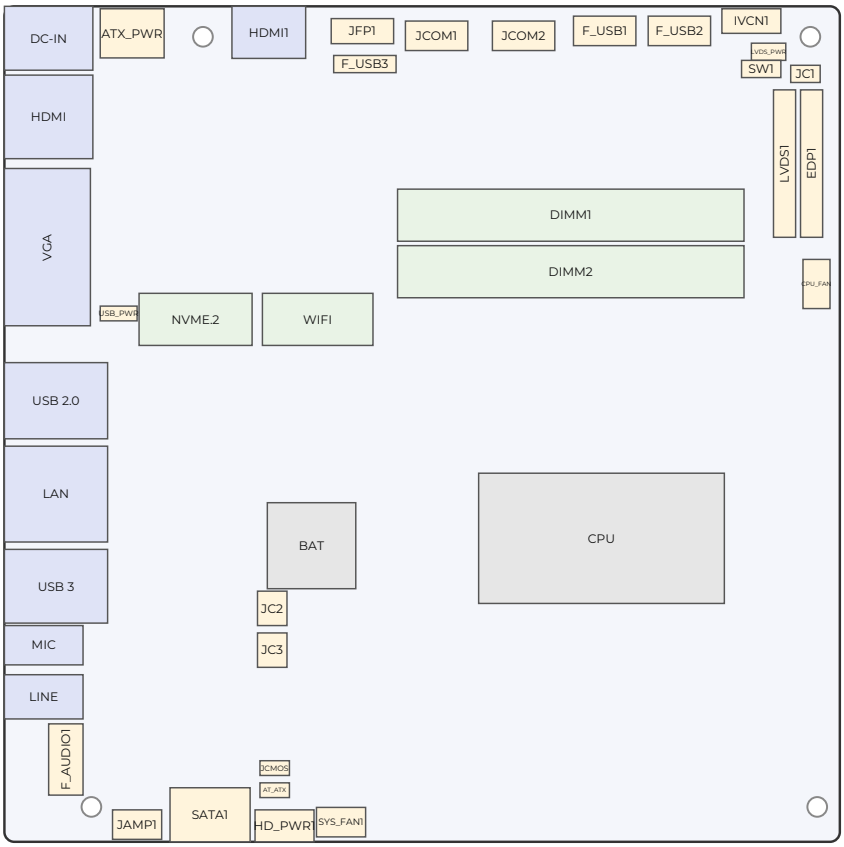
1. Place the Aero on a flat surface or fit it to a VESA mount.
2. Connect a monitor to an HDMI or the VGA port on the rear panel. Connect a second monitor to another video port to use two displays.
3. Connect a keyboard and a mouse to the USB ports.
4. Connect the network cable to the Ethernet port.
5. Connect the power adapter to the DC input on the rear panel and plug it into a wall socket.
6. Press the power button to switch the PC on.

6. 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.

7. INSIDE THE COMPUTER: THE MOTHERBOARD



170 mm × 170 mm

Component side of the board. Positions are approximate.

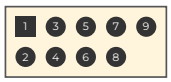
Label	Connector or component
DC-IN	12 V to 19 V DC jack, 5.5 × 2.5 mm
HDMI	Rear HDMI 2.0 port
VGA	Rear VGA port
USB 2.0	Two rear USB 2.0 ports
LAN	RJ45 Gigabit Ethernet port
USB 3	Two rear USB 3 ports
MIC	Microphone input jack
LINE	Line output jack
F_AUDIO1	Front audio header, 2 × 5 pins
ATX_PWR	4-pin 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

8. 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.

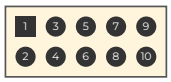


Pin 1 is square.

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.

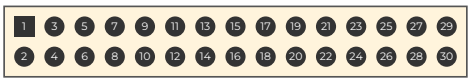


Pin 1 is square.

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.

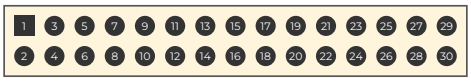


Pin 1 is square.

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.

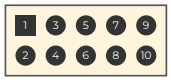


Pin 1 is square.

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.

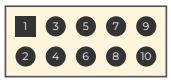


Pin 1 is square.

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		

9. 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

10. 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.

11. 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	Intel Ethernet driver (I219-V) for Windows 10 and 11	31.2.2
4	Realtek ALC897 audio driver (UAD) for Windows 10 and 11	9079
5	Realtek audio driver (UAD) for the i3-1215U board	6.0.9597.1
6	Realtek audio driver (UAD, DCH) and Intel Trace Hub driver for Windows 10 and 11	6.0.9239.1-dch
7	Realtek audio driver fix for the Core Ultra 5 board	rtk-audio-fix
8	Intel Management Engine software and driver (CSME 15)	2052.15.0.2069
9	Intel Management Engine software and driver (CSME 16, Alder Lake-P)	2201.16.0.2645

12. CARE

- Keep the unit in a room with an air temperature of 0°C to 35°C and a humidity of 20% to 80% RH, without condensation.
- Keep the ventilation openings of the housing clear of paper, cloth and walls.
- Unplug the power adapter before you clean the unit. Wipe the housing with a dry or slightly damp soft cloth.

13. TROUBLESHOOTING

Windows shows yellow warnings in Device Manager or the display, audio or network adapter is missing

1. Open the Support Downloads page on the Thinvent website and find the drivers for the part number printed on the unit.
2. Install the graphics driver first, then the chipset and management engine drivers, then the audio and Ethernet drivers. Restart Windows after each one.
3. If the yellow warnings stay, contact Thinvent Support. Thinvent Support can connect to the PC with AnyDesk and install the drivers.

The PC does not show a wired network connection after a clean Windows install

1. Download the Ethernet driver for your board from the Support Downloads page on another PC and copy it to the Aero with a USB drive.
2. Extract the archive and run its installer.
3. Restart Windows and check that the network adapter appears in Device Manager.

The PC stops working after Windows installs driver updates on its own

1. Contact Thinvent Support and give the part number, the Windows version and the date of the update.
2. Thinvent Support sends the Windows ISO and the drivers for the unit. Reinstall Windows and then the drivers from the Support Downloads page.
3. If the PC still does not start, pack it with its power adapter and send it to the Thinvent repair centre. Thinvent Support gives the address.

14. SUPPORT

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

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