

# Protectli Appliance

Protectli Vault VP3230 - Intel® Core™  
i3-N305

October 22, 2024

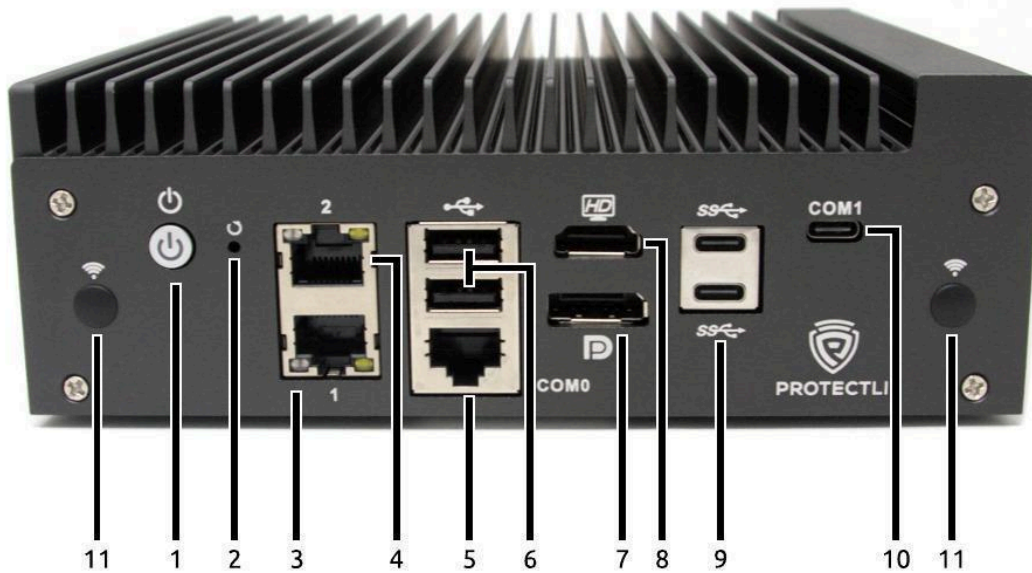
# Specifications

<b>Model</b>	VP3230
<b>Description</b>	2x 2.5G Network Port Fanless Appliance
<b>Processor</b>	Intel® Core™ i3-N305 Processor 6M Cache, up to 3.80 GHz
<b>Processor Cores</b>	8
<b>Processor Threads</b>	8
<b>Intel® AES-NI</b>	Supported
<b>Virtualization</b>	Intel® Vt-x, Vt-d
<b>Network</b>	2x Intel® I226-V 2.5G Ethernet, RJ-45
<b>Video / Graphics</b>	Intel® UHD Graphics
<b>Audio</b>	Audio over HDMI
<b>Memory</b>	1x SO-DIMM DDR5-4800, Max 16GB
<b>Storage</b>	1x M.2 2280 NVMe x1, 1x M.2 2280 NVMe x4, 1x 32G eMMC on board
<b>Optional Storage</b>	4x Internal 2.5" SATA 3.0 SSD (power on board, data via M.2 2280 PCIe expansion card)
<b>External I/O</b>	2x RJ-45 Ethernet 2x USB 3.2 Gen 1 Type A 2x USB 3.2 Gen 1 Type-C with DisplayPort 1x RJ-45 type COM port 1x USB Type-C COM Port 1x HDMI 2.0 1x DisplayPort 1.4 8x WiFi/LTE Antenna Mounting Holes + 2x on Expansion 1x 12V at 7.5A DC Power Jack 1x Reset Button (Recessed)
<b>Internal I/O</b>	1x M.2 2280 M-Key PCIe 3.0 x4 (NVMe) 1x M.2 2280 M-Key PCIe 3.0 x1 (NVMe) 4x SATA SSD Power (1.0A at 5V) 1x M.2 2280 E-Key PCIe 3.0 x1 (WiFi) 1x M.2 3052 B-Key USB 3.2 Gen 1 (LTE)

	1x Nano (4FF) SIM Slot
	1x USB 2.0 Header
	1x Trusted Platform Module Header (2x6 pin)
	1x CMOS Reset (2 pin)
	2x PWM Fan Headers (4 pin, 12v)
	1x Front Panel Header (9 pin)
	1x PCIe Gen3 x4 m.2 2280 to PCIE x4 card header (open ended)
	1x GPIO Header (PH2.0)
	1x NTP Header
	1x eSPI Header
	1x BIOS flash header
<b>Super I/O Chip</b>	IT8659E
<b>BIOS</b>	AMI®
<b>Indicators</b>	1x LED Power Button (Blue)
<b>Power</b>	Input 12V DC, 1x DC Power Jack, Threaded connector
<b>Power Usage</b>	Idle: 12W: Max: 75W
<b>Chassis</b>	Aluminum, Gray
	Base: 7.13 x 6.88 x 2.33 in (181.10 x 174.63 x 59.18 mm)
<b>Chassis Dimensions</b>	Base + Expansion: 7.13 x 6.88 x 4.27 in (181.10 x 174.63 x 108.46 mm)
<b>Mounting Options</b>	Desktop, VESA Bracket, Optional 1RU Rack Mount
	Base: 3 lb 4.7 oz, 1.49 kg
<b>Weight</b>	Base + Expansion: 4 lb 10.4 oz (2.11 kg)
<b>Shipping Weight</b>	7 lb 7.0 oz (3.37 kg)
<b>Operating Temperature</b>	+14° - +122° F, -10° - +50° C
<b>Operating Humidity</b>	0 – 95% relative humidity, non-condensing
<b>Approvals</b>	UL (Power Supply), FCC Part 15 Class B, CE, RoHS
<b>Country of Origin</b>	Made in China, Assembled in USA, Canada, Germany, or China
<b>Optional WiFi</b>	1x M.2 2230 E-Key PCIe 802.11ac/a/b/g/n (PCIe)
<b>Optional LTE Cellular</b>	1x M.2 3052 B-Key USB 3.2 Gen 1 (LTE), with Nano (4FF) SIM holder
<b>Optional TPM</b>	1x Trusted Platform Module, TPM 2.0

# System Features

## Front Features



Item #	Object	Description
1	Power Button	Pressing the Power Button will power the unit on and illuminate with a blue LED.  <i>In OSes configured to handle ACPI signals, pressing the power button initiates a shutdown.</i>  <i>Pressing and holding the Power Button for 5 seconds will force the unit to power off.</i>
2	Reset Button (Recessed)	An ACPI reset button.
3	Ethernet Port 1	100/1000/2500 Mbps Intel® i226-V 2.5G ethernet port.
4	Ethernet Port 2	100/1000/2500 Mbps Intel® i226-V 2.5G ethernet port.
5	RJ-45 COM Port	RS-232 serial communications via FTDI FT232RQ UART, exposed through RJ-45 type connector.

		Default port settings: <ul style="list-style-type: none"> <li>● 115200 baud</li> <li>● No parity</li> <li>● 8 databits</li> <li>● 1 stopbit</li> </ul>
6	USB Type-A Connectors	Two USB 3.2 Gen 1 Type-A connectors.
7	DisplayPort Connector	Video and audio output via DisplayPort 1.4.
8	HDMI Connector	Video and audio output via HDMI 2.0.
9	USB Type-C Connectors with DisplayPort	Two USB 3.2 Gen 1 Type-C connectors with DisplayPort. Ports can be used in tandem.
10	Type-C COM Port	RS-232 serial communications via FTDI FT232RQ UART, exposed through USB 2.0 Type-C connector. Default port settings: <ul style="list-style-type: none"> <li>● 115200 baud</li> <li>● No parity</li> <li>● 8 databits</li> <li>● 1 stopbit</li> </ul>
11	Antenna Ports	Two antenna ports for adding radio antennas (WiFi, LTE, etc.). The ports are covered by plugs while not in use.

## Rear Features



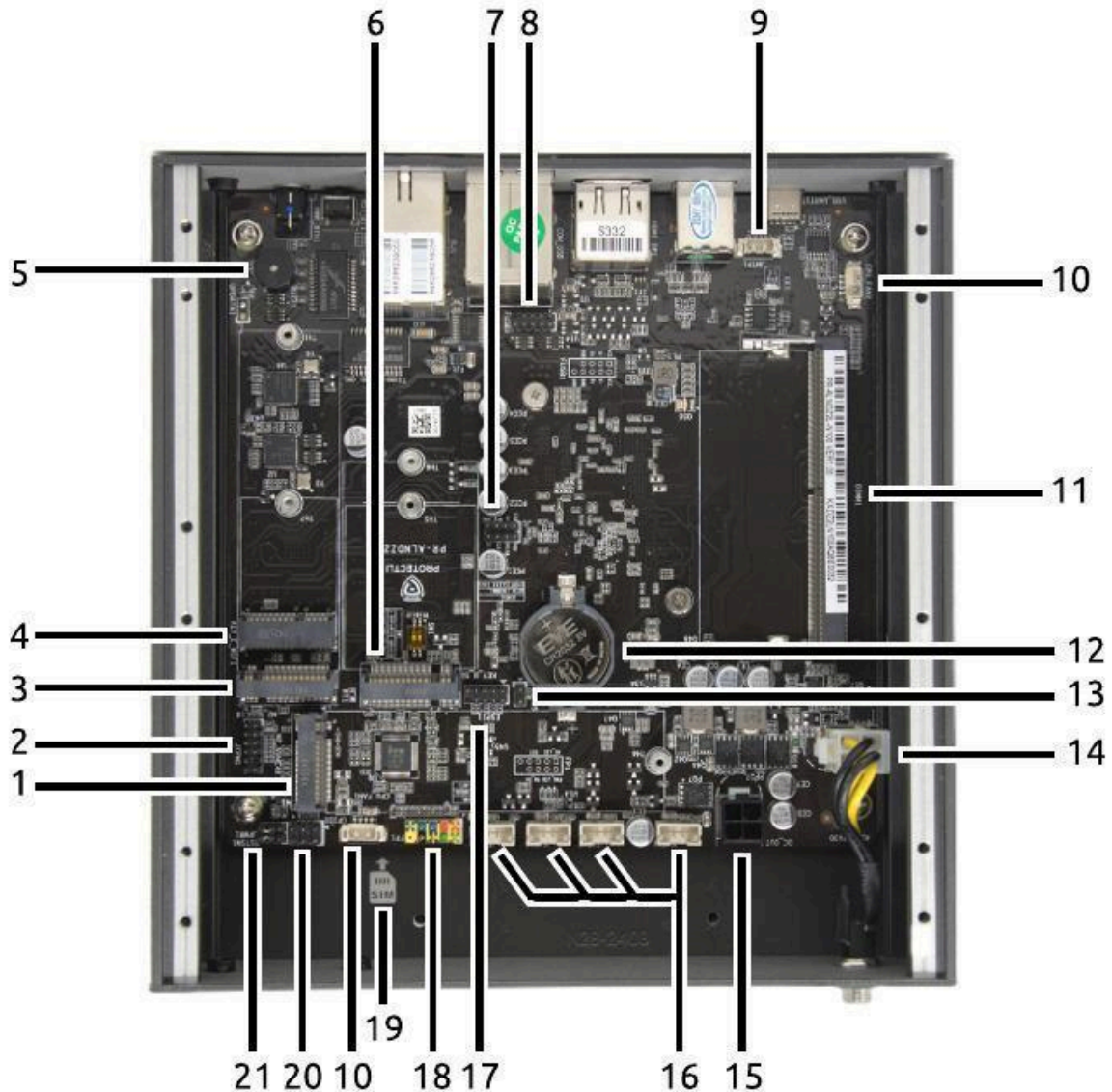
Item #	Object	Description
1	Power Supply Connector	12V at 7.5A DC threaded barrel connector for a 90W external power supply. Positive rail is the tip, negative is sleeve. Barrel dimensions: 5.5mm x 2.5mm
2	Antenna Ports	Two antenna ports for adding radio antennas (WiFi, LTE, etc.). The ports are covered by plugs while not in use.

## Side Features



Item #	Object	Description
1	Antenna Ports	Two antenna ports for adding radio antennas (WiFi, LTE, etc.). The ports are covered by plugs while not in use.
2	Antenna Ports	<i>(Unpictured on the reverse side.)</i> Two antenna ports for adding radio antennas (WiFi, LTE, etc.). The ports are covered by plugs while not in use.

## Motherboard Top View



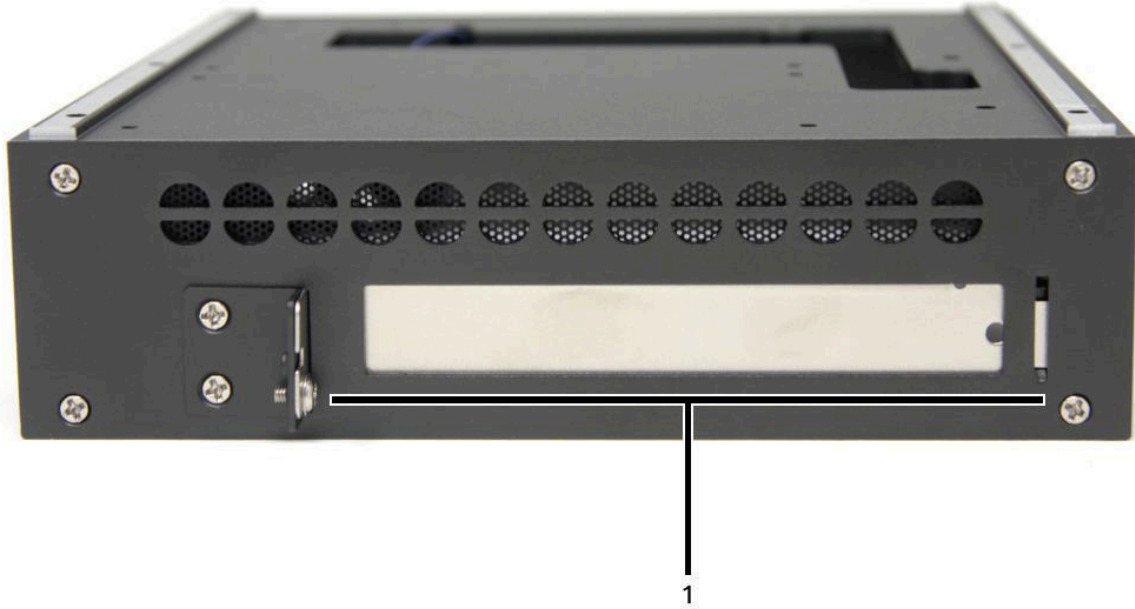
Item #	Object	Label	Description
1	M.2 NVMe x4 storage slot OR PCIe expansion slot	M2_NVME4x	Connector uses PCIe 3.0 x4 protocol over an M.2 M-Key socket. Designed for M.2 NVMe storage device, M.2 SATA adapter card or an expansion PCIe Gen3 x4 M.2 to PCIE x4 card header.



2	Trusted Platform Module Header	JTPM1	Trusted Platform Module header (2x6 pin) for a TPM2.0 hardware device.										
3	M.2 NVMe x1 storage slot	M2_NVME1x	Connector uses PCIe 3.0 x1 protocol over an M.2 M-Key socket. It is designed for an NVMe storage device, but is otherwise a functional PCIe port.										
4	WiFi Expansion Slot	KEY_E_WIFI	Connector uses PCIe 3.0 x1 protocol over an M.2 E-Key socket. Designed for Protectli WiFi modules, but is not limited in its capabilities.										
5	Internal Buzzer	BUZZ1	PC buzzer.										
6	LTE Expansion Slot	KEY_B_5G	Connector uses USB 3.2 Gen 1 protocol over M.2 3052 B-Key connector designed for Protectli LTE modules, but is not limited in its capabilities.										
7	BIOS programming headers	J1 / J2	BIOS chip jumpers for direct-to-board programming. Pins as follows, oriented to the above image: <table border="1" data-bbox="743 932 1414 1052"> <tr> <td>GND</td> <td>WP#</td> <td>SO</td> <td>CS#</td> <td>J1</td> </tr> <tr> <td>SI</td> <td>CLK</td> <td>HOLD#</td> <td>VDD</td> <td>J2</td> </tr> </table>	GND	WP#	SO	CS#	J1	SI	CLK	HOLD#	VDD	J2
GND	WP#	SO	CS#	J1									
SI	CLK	HOLD#	VDD	J2									
8	USB 2.0 Header	FUSB1	Internal header for additional USB 2.0 connections.										
9	NTP Header	JNTP1	Header for use with an external I <sup>2</sup> C time device, such as a GPS receiver or other RTC chip. <ol style="list-style-type: none"> <li>1. Serial data (3.3v)</li> <li>2. Serial clock (3.3v)</li> <li>3. +3.3 VDC</li> <li>4. GND</li> </ol>										
10	PWM Fan Headers	CPU_FAN1/2	2 four-pin Molex PicoBlde compatible (12V, 1.25mm pitch) headers for optional PWM fans.										
11	RAM Slot	DIMM1	One RAM slot available for SODIMM DDR5 type RAM only, DDR5 ECC not supported.										
12	CMOS Battery	BAT1	Slot holds a CR2032 3V battery.										

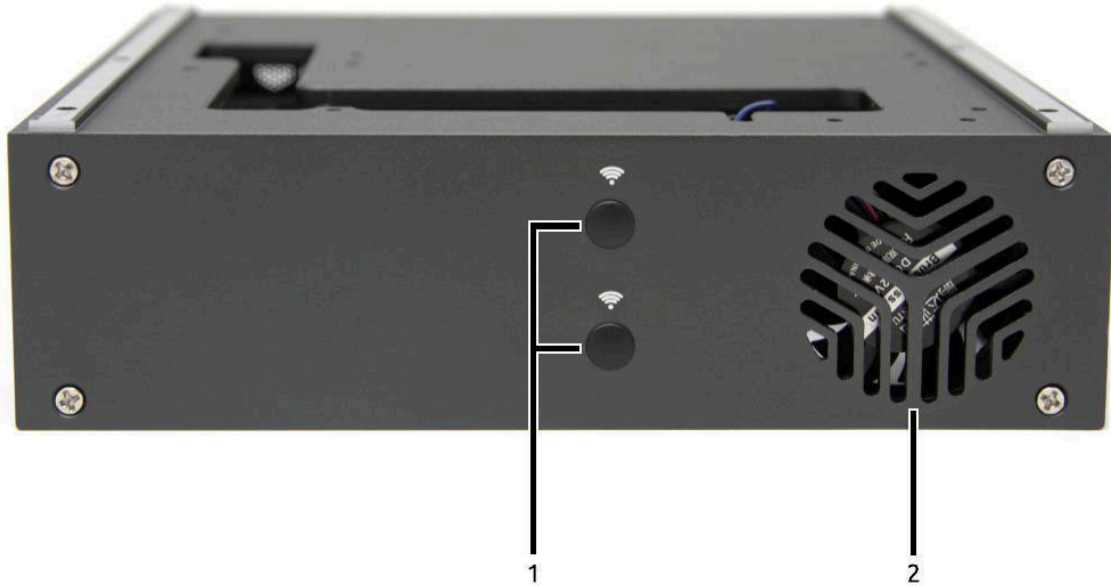
13	CMOS Reset	JCMOS	<p>Shorting the jumper pins GND and CMOS while the CMOS battery is connected will reset the BIOS NVRAM.</p> <ul style="list-style-type: none"> <li>• Pin 1 - GND: Ground</li> <li>• Pin 2 - CMOS: CMOS reset when grounded</li> </ul> <p>Pin number is as follows, oriented to the above image of the motherboard:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">GND</td> </tr> <tr> <td style="text-align: center;">CMOS</td> </tr> </table>	GND	CMOS								
GND													
CMOS													
14	DC Input Header	DC_IN	2x2 Molex Mini-Fit Jr for +12V DC input power.										
15	DC Output Header	DC_OUT	2x2 Molex Mini-Fit Jr for +12V DC output power for PCIe expansion card.										
16	SATA Power Connectors	JSATA1/2/3/4	JST PH compatible SATA power connector(s) (1.0A at 5V, 2.0mm pitch) for powering up to an additional four 2.5" storage drives.										
17	eSPI Header	ESPI	eSPI header for direct communication between chip and peripherals. Can be used as an alternative for BIOS programming.										
18	Front Panel Header	FP1	<p>Internal header for adding external device controls and indicators featured through the front panel, such as power button, reset button, activity LEDs, etc.</p> <p>Pin layout is as follows, oriented to the above image of the motherboard:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">EMPTY</td> <td style="text-align: center;">RST</td> <td style="text-align: center;">RST-GND</td> <td style="text-align: center;">HDD-LED-</td> <td style="text-align: center;">HDD-LED+</td> </tr> <tr> <td style="text-align: center;">KEY</td> <td style="text-align: center;">PWON-GND</td> <td style="text-align: center;">PW-ON</td> <td style="text-align: center;">PWR-LED-</td> <td style="text-align: center;">PWR-LED+</td> </tr> </table>	EMPTY	RST	RST-GND	HDD-LED-	HDD-LED+	KEY	PWON-GND	PW-ON	PWR-LED-	PWR-LED+
EMPTY	RST	RST-GND	HDD-LED-	HDD-LED+									
KEY	PWON-GND	PW-ON	PWR-LED-	PWR-LED+									
19	Nano SIM Slot	SIM	On-board Nano (4FF) SIM Slot.										
20	GPIO Header	GPIO1	General Purpose I/O exposed header (2.54mm pitch) on SuperIO chip.										
21	Power Restore Jumper	JPWR1	Jumper setting determines system state after power loss. Closing the jumper will cause the unit to automatically power on when power is restored after an outage.										

## Expansion Front Features



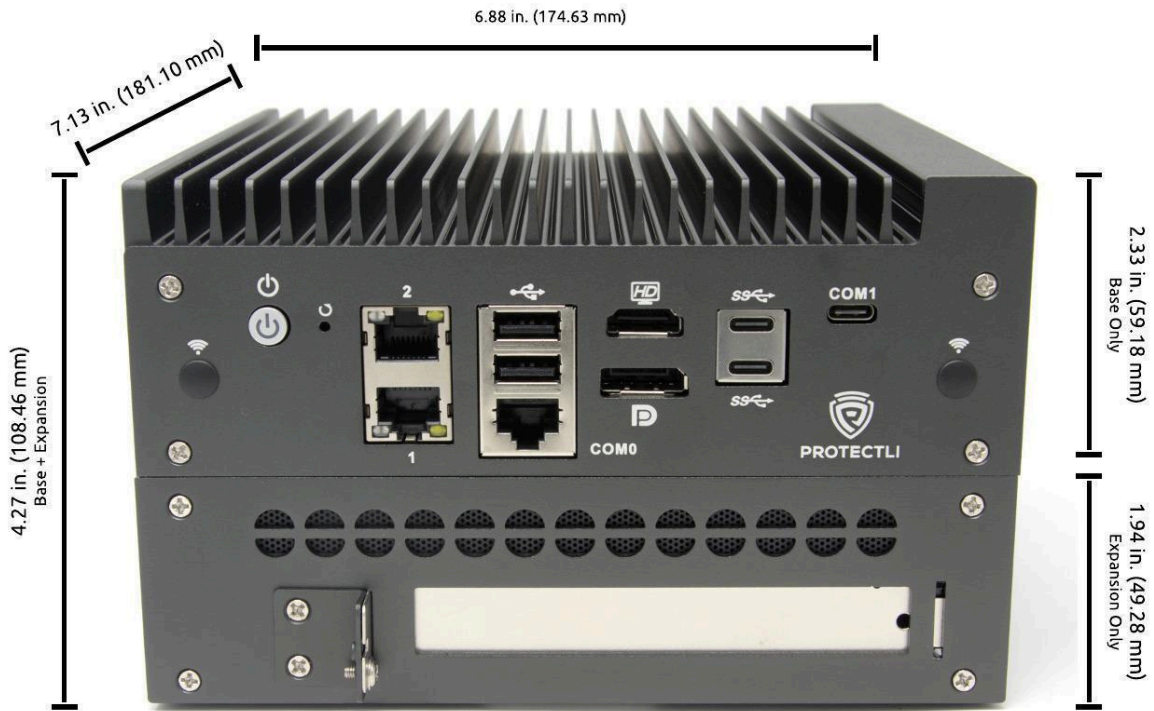
Item #	Object	Description
1	I/O shield	I/O shield slot for one Full Height/Half Length (FHHL) PCIe card.

## Expansion Rear Features



Item #	Object	Description
1	Antenna Ports	Two antenna ports for adding radio antennas (WiFi, LTE, etc.). The ports are covered by plugs while not in use.
2	PWM Fan	PWM Fan (40mm x 40mm), 12V wire to 4-pin Molex PicoBlde compatible (1.25mm pitch) connector.

## Measurement View



# Document History

2024-10-22

- Added motherboard header manufacturers and pitch for some motherboard headers
- Corrected USB version and generation for all ports

2024-10-15

- Corrected voltage for NTP Header from +5 VDC to +3.3 VDC

2024-10-08

- Initial document