

# Protectli Appliance

Protectli Vault V1410

Intel® Celeron® Processor N5105

4x I226-V 2.5G Ports

January 23rd, 2025

# Overview

The Protectli Vault V1410, features the Intel® Celeron® Processor N5105 with 8GB soldered (Fixed) DDR4 memory and 32GB onboard eMMC. It also includes three additional M.2 slots for optional NVMe SSD storage, WiFi, and LTE modules. The V1410 is equipped with four Intel® I226-V RJ-45 Ethernet ports, supporting up to 2.5 Gigabit ethernet connectivity with backwards compatibility.

Protectli Vaults utilize Intel components ensuring persistent compatibility with a wide range of operating systems (OS) and applications. The "V" series Vaults feature a fanless, all-aluminum chassis design, allowing for efficient heat dissipation from the CPU and other components without any moving parts or additional power requirements.

## Technical Specifications

<b>Model</b>	V1410
<b>Description</b>	4x 2.5G Network Port Fanless Appliance
<b>Processor</b>	Intel® Celeron® Processor N5105 (64 Bit, 2.0GHz, Turbo 2.9GHz, 4M L3 Cache)
<b>Processor Cores</b>	4
<b>Processor Threads</b>	4
<b>Processor Capabilities</b>	AES-NI Intel® Vt-x, Vt-d
<b>Network</b>	4x Intel® I226-V 2.5G Ethernet, RJ-45
<b>Video / Graphics</b>	Intel® UHD Graphics, 1x HDMI 2.0
<b>Audio</b>	Audio over HDMI
<b>Memory</b>	1x 8GB LPDDR4-2933, Soldered
<b>Onboard Storage</b>	1x M.2 2280 NVMe, 1x 32G eMMC on board
<b>Optional Additional Storage</b>	Not Supported
<b>External I/O</b>	1x Reset Button (Recessed), ACPI 1x Power Button with LED (Blue) 4x USB 3.2 Gen 1 Type-A ports 1x HDMI 2.0 port 1x Nano (4FF) SIM Slot 1x 12V DC Power Jack, Threaded 4x RJ-45 Ethernet ports

	1x USB Type-C COM Port
	1x Power LED (Green)
	1x Data Activity LED (Red)
<b>Internal I/O</b>	1x M.2 3052 B-Key USB 3.2 Gen 1 (LTE)
	1x M.2 2280 M-Key PCIe 3.0 x1 (NVMe)
	1x Front Panel Header (2x5 pin, 2.54mm pitch)
	1x M.2 2230 Key E PCIe 3.0 x1 (WiFi)
	1x PWM CPU Fan Header (4 pin, 1.00mm pitch)
	1x SPI Header (2x3 pin, 2.54mm pitch, +3.3V)
	1x Buzzer
	1x CMOS Reset (3 pin, 2.54mm pitch)
	1x CMOS Battery (CR1220, 3V)
<b>BIOS</b>	AMI® or coreboot
<b>Indicators</b>	1x LED Power Button (Blue), 1x LED Power Indicator (Green), 1x LED Disk Activity Indicator (Red)
<b>Power</b>	1x Power brick with locking collar (12V DC Input)
<b>Power Usage</b>	Max 27W
<b>Chassis</b>	Fanless, Aluminum, Gray
<b>Chassis Dimensions</b>	w/ feet: 5.6 x 4.8 x 2.3in. (142.1 x 121.0 x 57.7mm) w/o feet: 5.6 x 4.8 x 2.1in. (142.1 x 121.0 x 55.1mm)
<b>Mounting Options</b>	Desktop, Optional VESA Bracket, Optional 1RU Rack Mount
<b>Weight</b>	2lb 3oz, 0.99kg
<b>Shipping Weight</b>	3lb 7.4oz, 1.57kg
<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, or Germany
<b>Optional Connectivity</b>	1x WiFi, 1x LTE

## Included Accessories and Components

48W Power Supply Wall Wart with interchangeable US/CA, UK, EU, and AU/NZ plugs

USB Type-A (with Type-C adapter) to USB Type-C Serial Console Cable

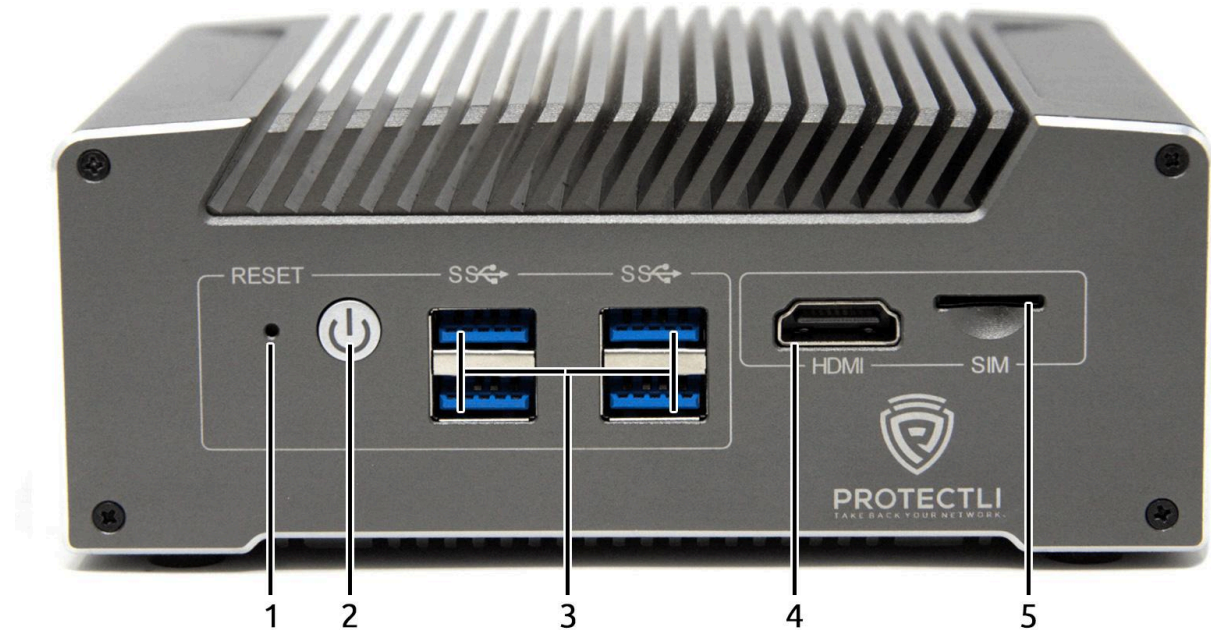
Bag of spare chassis screws



Set of thermal pad(s)

Quick Start Guide

# External Interfaces

## Front Panel Configuration

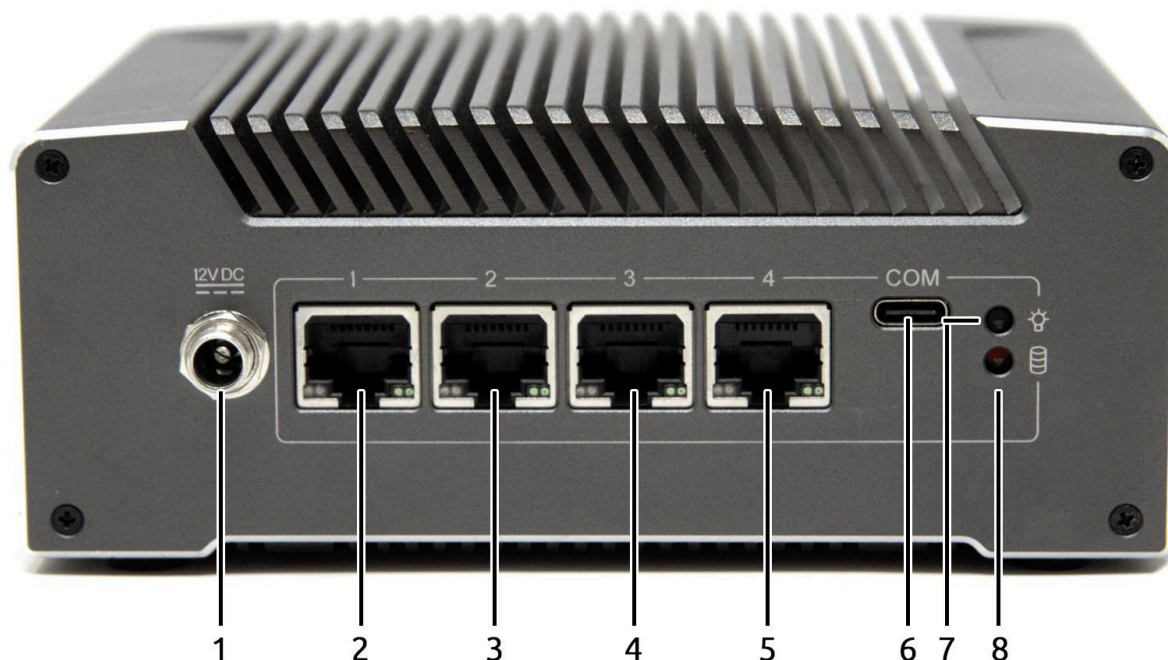


Item #	Object	Label	Description
1	Reset Button (Recessed)	RESET	An ACPI reset button.
2	Power Button		Pressing the Power Button will power the unit on and illuminate with a blue LED.  <i>In OSes configured to handle ACPI signals, pressing the power button initiates a shutdown.</i>  <i>Pressing and holding the Power Button for 5 seconds will force the unit to power off.</i>
3	USB Type-A Ports		Four USB 3.2 Gen 1 <sup>†</sup> Type-A ports. (Maximum theoretical throughput of 5000Mbps [~500MBps])
4	HDMI Port	HDMI	Video and audio output via HDMI 2.0.



Item #	Object	Label	Description
5	Onboard Nano (4FF) SIM Slot	SIM	Access to an onboard Nano (4FF) SIM slot for providing a SIM card to an optional internal cellular modem.

†USB-IF naming standard for USB transfer rates: “USB 3.2 Gen 1” is the equivalent and current name for “USB 3.2 Gen 1”, “USB 3.1 Gen 1”, and “USB 3.0”. Older kernels and operating systems may not report the most recent naming convention. For a full linguistic deep dive, please see 3.1 and 3.2 Specification Language Usage Guidelines from USB-IF. [https://www.usb.org/sites/default/files/usb\\_3\\_2\\_language\\_product\\_and\\_packaging\\_guidelines\\_final.pdf](https://www.usb.org/sites/default/files/usb_3_2_language_product_and_packaging_guidelines_final.pdf), [https://www.usb.org/sites/default/files/usb\\_3\\_1\\_language\\_product\\_and\\_packaging\\_guidelines\\_final\\_0.pdf](https://www.usb.org/sites/default/files/usb_3_1_language_product_and_packaging_guidelines_final_0.pdf)

## Rear Panel Configuration





Item #	Object	Label	Description
1	Power Supply Connector	<u>12V DC</u> ---	12V DC locking collar connector for the included 48W external power supply. Positive rail is the tip, negative is sleeve.  Barrel dimensions: 5.5mm x 2.5mm

Item #	Object	Label	Description
2	Ethernet Ports	1, 2, 3, 4	Four (4) 10/100/1000/2500 Mbps Intel® I226-V ethernet ports. The bottom right LED emits solid green when connected at any speed.
3	Type-C Serial Console Port	COM	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>
4	Power Indicator LED		LED emits solid green when the device is powered on.
5	Data Activity LED		LED emits red when data activity is detected over the NVMe interface.

## Side Panel Features

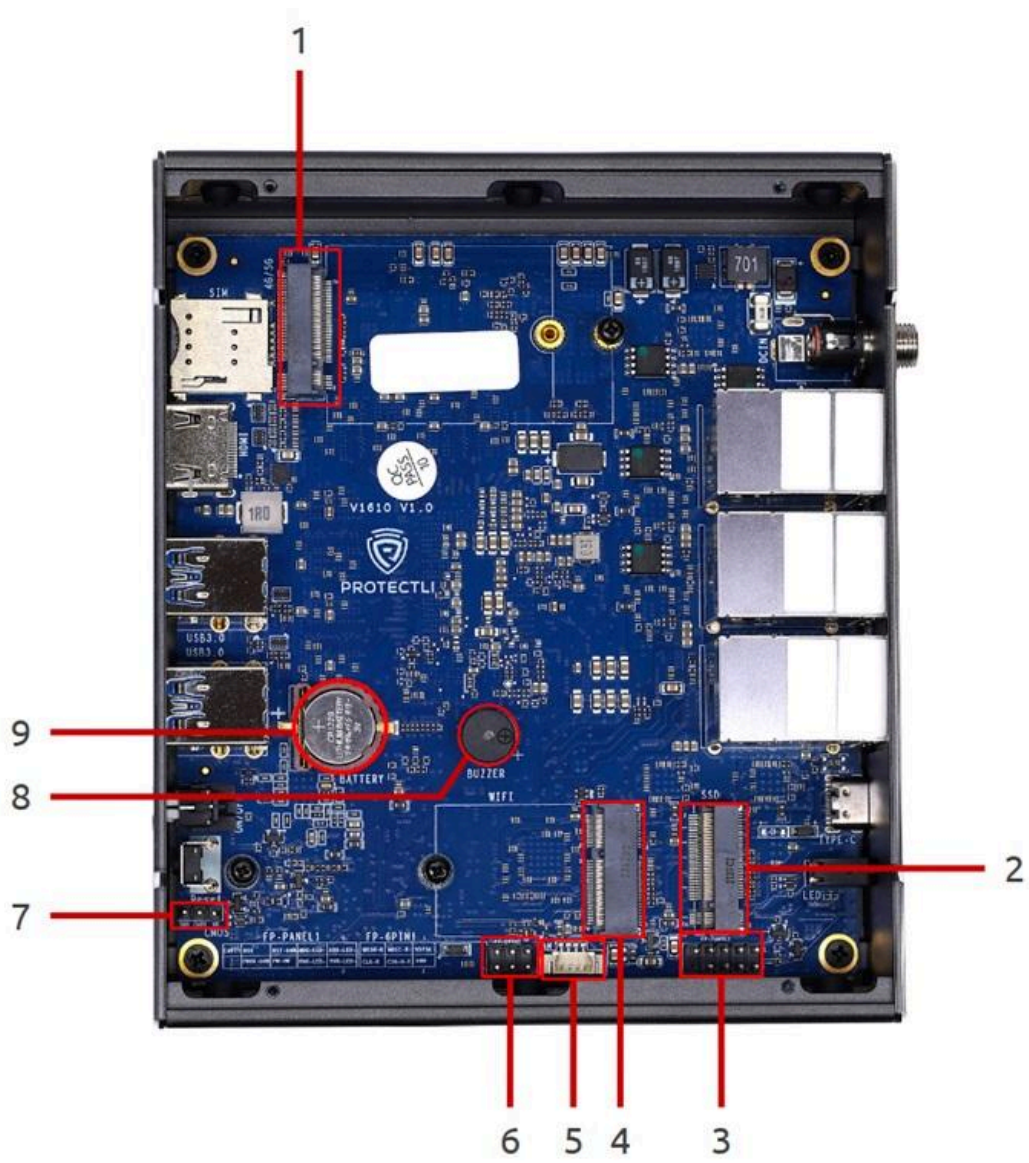


Item #	Object	Label	Description
1	Antenna Ports		Six antenna ports, three on the left and three on the right of the unit, for mounting radio antennas (e.g. WiFi, LTE). The ports are covered by plugs while not in use.
2	Kensington Security Slot		A standard anti-theft locking slot, Kensington Security Lock compatible.



# Internal Interfaces

## Motherboard Layout and Pin Configuration



Item #	Object	Label	Description
1	LTE Expansion Connector	4G/5G	M.2 3052 B-Key connector for a LTE module uses USB 3.2 Gen 1 protocol. It is designed for Protectli LTE modules, but is not limited in its capabilities.

Item #	Object	Label	Description																				
2	M.2 NVMe SSD Connector	SSD	M.2 2280 M-Key connector for a M.2 NVMe SSD uses PCIe 3.0 x1 protocol. It is designed for an NVMe storage device, but is otherwise a functional one-lane PCIe port.																				
3	Front Panel Header	FP-PANEL1	<p>Front panel header (2x5, 2.54mm pitch) for adding external device controls and indicators featured through the front panel, such as power button, reset button, activity LEDs, etc.</p> <p>Pin numbering oriented to the motherboard image:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">9</td> <td style="text-align: center;">7</td> <td style="text-align: center;">5</td> <td style="text-align: center;">3</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">EMPTY</td> <td style="text-align: center;">RSR</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> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">8</td> <td style="text-align: center;">6</td> <td style="text-align: center;">4</td> <td style="text-align: center;">2</td> </tr> </table>	9	7	5	3	1	EMPTY	RSR	RST-GND	HDD-LED-	HDD-LED+	KEY	PWON-GND	PW-ON	PWR-LED-	PWR-LED+	10	8	6	4	2
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4	WiFi Expansion Connector	WIFI	M.2 2230 Key E connector for a WiFi module uses PCIe 3.0 x1 protocol. It is designed for Protectli WiFi modules, but is not limited in its capabilities.																				
5	CPU Fan Header	FAN	Four-pin (1x4, 1.25mm pitch) Molex PicoBlade-compatible header for an optional fan.																				
6	SPI Header	FP_6PIN1	<p>SPI header (2x3, 2.54mm pitch, +3.3V) for BIOS programming.</p> <p>Pin numbering oriented to the motherboard image:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">3</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">MISO-R</td> <td style="text-align: center;">MOSI-R</td> <td style="text-align: center;">V3P3A</td> </tr> <tr> <td style="text-align: center;">CLK-R</td> <td style="text-align: center;">CSO-N-R</td> <td style="text-align: center;">GND</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">4</td> <td style="text-align: center;">2</td> </tr> </table>	5	3	1	MISO-R	MOSI-R	V3P3A	CLK-R	CSO-N-R	GND	6	4	2								
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7	NVRAM Reset Jumper	RESET	<p>CMOS reset pins (1x3, 2.54mm pitch). Shorting the jumper pins GND and CMOS while the CMOS battery is connected will reset the BIOS NVRAM.</p> <p>Pin numbering oriented to the motherboard image:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">GND</td> <td style="text-align: center;">CMOS</td> <td style="text-align: center;">NC</td> </tr> </table>	3	2	1	GND	CMOS	NC														
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Item #	Object	Label	Description
8	Buzzer	BUZZER	A compact PC speaker designed for alerts. Alert types are dependent on the operating system.
9	CMOS Battery	BATTERY	Small lithium battery that provides backup power to the CMOS chip. Holds a CR1220 3V battery.

## Dimensions View



# Document History

2025-01-22

- Added further information regarding USB speeds
- Added LED behavior for NICs
- Changed pitch of CPU Fan Header to 1.25mm to accurately reflect the pitch

2024-11-08

- Complete redesign for layout consistency.
- Renamed sections for improved readability.
- Inclusion of 'Overview" section
- Updated specification table for clarity and specificity
- New callouts added to highlight key specifications and features
- Updated images

2024-10-24

- Unified spacing throughout document
- Updated linked spec sheet to include coreboot availability
- Clarified wording throughout "System Features" section
- Corrected USB versions from "USB 3.2 Gen 2" to "USB 3.2 Gen 1"

2024-08-01

- Changed "PC Speaker" to "PC speaker"
- Changed "RS232" to "RS-232"
- Updated linked spec sheet with ® and ™ as necessary for Intel and AMI
- Updated linked spec sheet from "4FF SIM" to "Nano (4FF) SIM"

2024-06-28

- Initial document