![PROTECTLI — TAKE BACK YOUR NETWORK]

Protectli Appliance

Protectli Vault FW4B
4 Port 1GbE - Intel® J3160

January 28th, 2025

Overview

The Protectli Vault FW4C is the 1GbE variant of the FW4 series, with four 1GB Intel® I211 ethernet ports. This vault features an Intel® Celeron® J3160U processor, with support for 8GB DDR3L RAM and connectors for both mSATA and 2.5" SSD storage. Internally, this unit includes a connector for an optional Wi-Fi or LTE card and can support an external LTE modem.

Protectli Vaults utilize Intel components ensuring persistent compatibility with a wide range of operating systems (OS) and applications. The "FW" 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

Model	FW4B
Description	4X 1G Network Port Fanless Appliance
Processor	Intel® Celeron® J3160 (64 Bit, 1.6 GHz, Turbo 2.24 GHz, 2MB L2 Cache)
Processor Cores	4
Processor Threads	4
Intel® AES-NI	Supported
Virtualization	Intel® Vt-x
Network	4x Intel® 1G Ethernet, RJ-45
Video / Graphics	Intel® Clear Video HD, 2x HDMI 1.4
Audio	Audio over HDMI, 1x 3.5mm Audio Jack
Memory	1x SO-DIMM DDR3L-1600, 1.35v, Max 8GB
Storage	1x mSATA
Optional Storage	1x Internal 2.5" SATA 3.0 SSD
External I/O	4x RJ-45 Ethernet
	2x USB 3.2 Gen 1 Type-A ports
	2x HDMI
	1x 3.5mm Audio Jack (Realtek ALC897)
	1x RJ-45 COM
	2x WiFi/LTE Antenna Mounting Holes
	1x 12V DC Power Jack
Internal I/O	1x Mini PCIe for mSATA
	1x SATA Header, 1x SATA Power

https://protectli.com/product/fw4b/

1x Full Height mPCIe (USB) for WiFi or LTE

1x USB 2.0 Header

1x CMOS Reset (2 pin)

1x Front Panel Header (9 pin)

Super I/O Chip	IT8613E
BIOS	AMI® or coreboot
Indicators	1x LED Power Button (Blue), 1x LED Power Indicator (Green), 1x LED Disk Activity Indicator (Red), 1x LED Disk Activity Indicator (Yellow)
Power	Input 12V DC, 1x DC Power Jack
Power Usage	Max 20W
Chassis	Fanless, Aluminum, Black
Chassis Dimensions	4.5 x 4.3 x 1.5 in, 115 x 107.5 x 39 mm
Mounting Options	Desktop, VESA Bracket, Optional 1RU Rack Mount
Weight	1 lb 2 oz, 0.50 kg
Shipping Weight	2 lbs 13 oz, 1.2 kg
Operating Temperature	+14° - +122° F, -10° - +50° C
Operating Humidity	0 – 95% relative humidity, non-condensing
Approvals	UL (Power Supply), FCC Part 15 Class B, CE, RCM, RoHS
Country of Origin	Made in China, Assembled in USA, Canada, or Germany
Optional WiFi	1x mPCIe 802.11b/g/n (USB)
Optional LTE Cellular	1x mPCIe 4G LTE (USB)

Included Accessories and Components

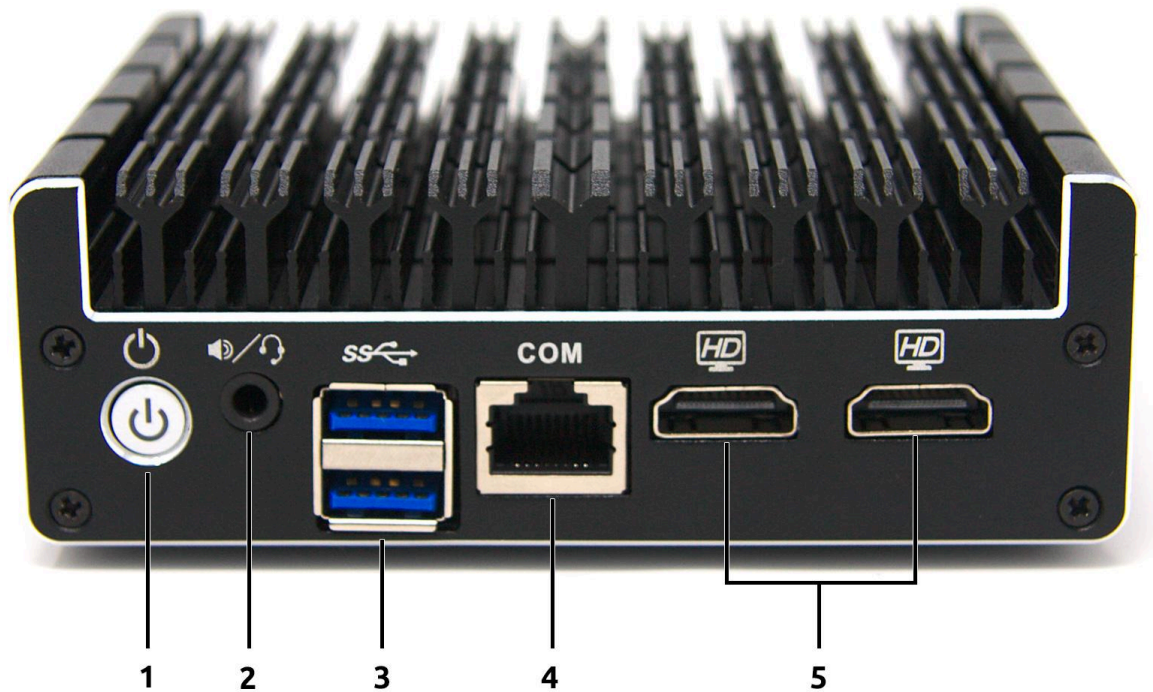| |
|---|
| 40W Power Supply with barrel connector |
| US/CA Power Cable *(Other regional power cables available)* |
| RJ45 to DB-9 Console Cable |
| VESA Bracket mount with hardware |
| 4x Component Screws |
| Quick Start Guide |

External Interfaces

Front Panel Configuration

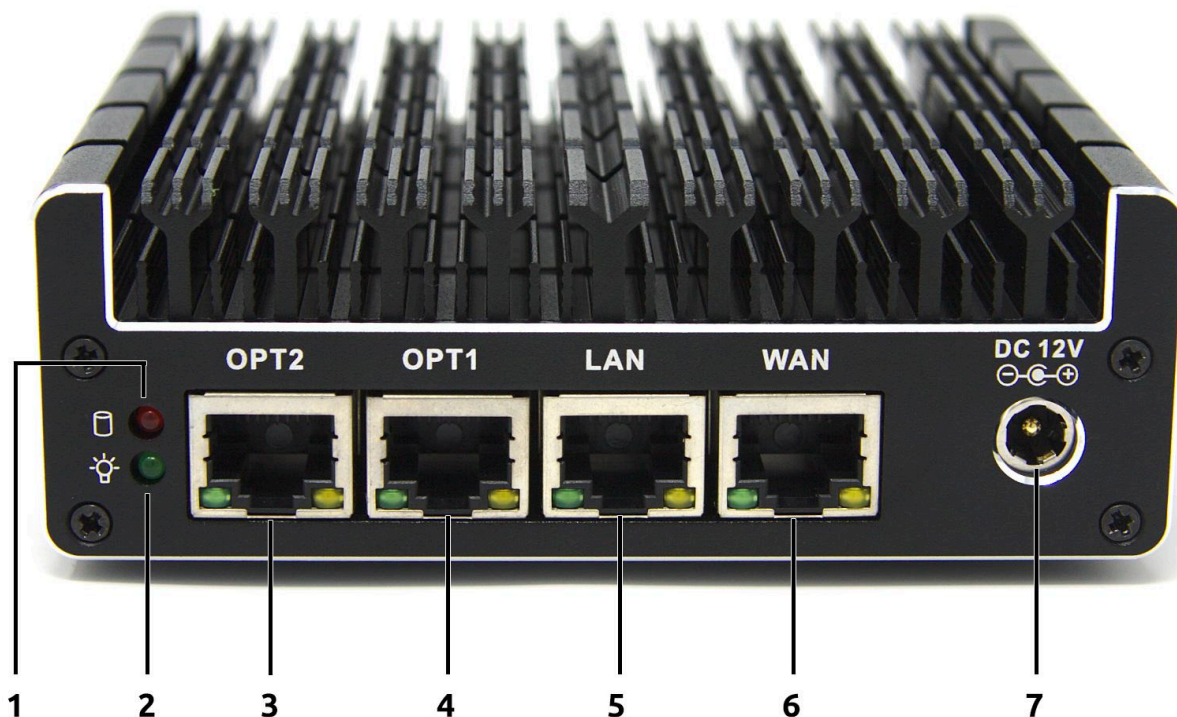| Item #	Object	Label	Description
1	Power Button	⏻	Pressing the Power Button will power the unit on and illuminate with a blue LED. *In OSes configured to handle ACPI signals, pressing the power button initiates a shutdown.* *Pressing and holding the Power Button for 5 seconds will force the unit to power off.*
2	Speaker and Microphone Port	🎤/🎧	A 3.5mm TRRS plug can be used to output stereo sound and input mono microphone. (Realtek ALC897)
3	Two USB3 Connectors	SS⟵	USB 3.2 Gen 1† Type-A connectors. (Maximum theoretical throughput of 5000Mbps [500MBps])

4

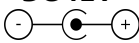| 4	Serial Console Port	**COM**	RS-232 serial communications via RJ-45. Default port settings: • 115200 baud • No parity • 8 databits • 1 stopbit
5	Two HDMI Connectors	HD	Dual video and audio output via HDMI.

†USB-IF naming standard for USB transfer rates: "USB 3.2 Gen 1" is the equivalent and current name for "USB 3.1 Gen 1" offering a theoretical maximum speed of 5 Gigabits (~500MBps) per second. 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_1_language_product_and_packaging_guidelines_final_0.pdf

Rear Panel Configuration

Item #	Object	Label	Description
1	HDD Activity LED	🗄	This red LED will light up when data activity is detected on either the mSATA or SATA interfaces.
2	Power Indicator LED	💡	This LED will stay solid green when the device is powered on.
3	Ethernet Port 4	**OPT2**	The fourth 10/100/1000 Mbps Intel® I211 ethernet port. This port is labeled "OPT2" for convenience, but is not limited in its capacity. Bottom left LED emits solid Green at 1000/100Mbps and is turned off at 10Mbps.
4	Ethernet Port 3	**OPT1**	The third 10/100/1000 Mbps Intel® I211 ethernet port. This port is labeled "OPT1" for convenience, but is not limited in its capacity. Bottom left LED emits solid Green at 1000/100Mbps and is turned off at 10Mbps.
5	Ethernet Port 2	**LAN**	The second 10/100/1000 Mbps Intel® I211 ethernet port. This port is labeled "LAN" for convenience, but is not limited in its capacity. Bottom left LED emits solid Green

|			
			at 1000/100Mbps and is turned off at 10Mbps.
6	Ethernet Port 1	**WAN**	The first 10/100/1000 Mbps Intel® I211 ethernet port. This port is labeled "WAN" for convenience, but is not limited in its capacity. Bottom left LED emits solid Green at 1000/100Mbps and is turned off at 10Mbps.
7	Power Supply Connector	**DC 12V**	12V DC barrel connector for the 40W external power supply. Positive rail is the tip, negative is sleeve.

Left 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.

Right Features

Item #	Object	Description
1	Security Slot	A security slot allows for a physical security cable lock or similar devices.

https://protectli.com/product/fw4b/

Internal Interfaces

Motherboard Layout and Pin Configuration
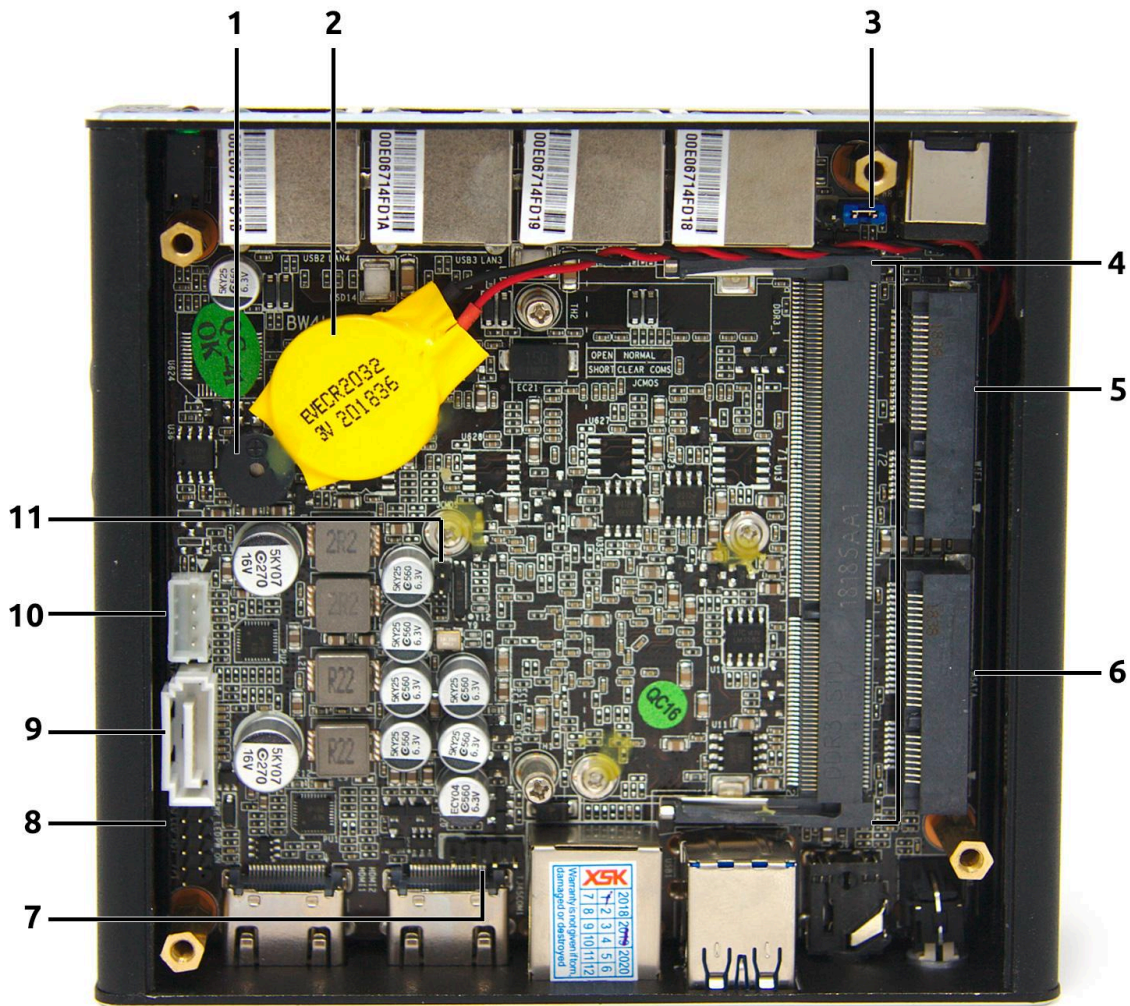
Item #	Object	Label	Description
1	Buzzer		PC speaker. Produces "beep" sounds that may be utilized by system firmware or certain operating systems.
2	CMOS Battery		3V CR2032 connected via 2-pin connector on the opposite side of the motherboard. (connects to a 2 pin, 1.25mm pitch connector)

3	Power Restore Jumper	JPWR	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.
4	Memory Slot	DDR3_1	DDR3 SODIMM.
5	WiFi Expansion Slot	WIFI	Connector uses USB protocol over an mPCI connector. Designed for Protectli WiFI and LTE modems, but is not limited in its capabilities.
6	mSATA Connector	MSATA	Connector for an mSATA storage device, such as an SSD.

7	USB 2.0 Header	FUSB2	Internal header for additional USB 2.0 connections. (1x4, 2.00mm pitch)

Pin 1: 5V	Pin 2: USB Port 3 Negative Data Line	Pin 3: USB Port 3 Positive Data Line	Pin 4: Ground

8	Front Panel Header		Internal header for adding external device controls and indicators featured through the front panel, such as power button, reset button, activity LEDs, etc. (2x5, pin 10 clipped, 2.0mm pitch)

Pin 1: +3.3V HDD LED+	Pin 2: +5V Power LED
Pin 3: SATA LED -	Pin 4: Ground
Pin 5: Ground	Pin 6: Panel Switch
Pin 7: Front Panel Reset	Pin 8: Ground
Pin 9: Ground	X

9	SATA Data Connector	SATADATA	SATA III data connector. Recommended for additional storage, such as a 2.5" SATA SSD. (Standard 7-PIN SATA III Plug)
10	SATA Power Connector	SATAPWR	SATA III power connector for additional storage. (1x4, 2.0mm pitch, JST PH style connector)
11	NVRAM Reset Jumper	JCMOS	Shorting this jumper while the CMOS battery is connected will reset the BIOS NVRAM.

Dimension View

Document History

2025-01-28
- Added note regarding NIC LED behavior based on speeds
- Changed USB3 Connectors to USB 3.2 Gen 1 to accurately reflect generation
- Added audio codec to Speaker and Microphone Port
- Added pitch and pin layout for FUSB2 header
- Added pitch and pin layout for FP1
- Added pitch and connector type for SATADATA and SATAPWR

2024-08-01
- Updated "RS232" to "RS-232"
- Updated linked spec sheet with ® and ™ as necessary for Intel and AMI

2024-06-28
- Clarified PCI and USB specifications such as speed, protocol, etc.

2024-05-17
- Clarified LTE and/or WiFi slot naming schemes.

2023-03-21
- Initial document

https://protectli.com/product/fw4b/