Protectli Appliance

Protectli Vault Pro VP4630
6 Port 2.5G - Intel® i3-10110U

January 6th, 2025

Overview

The VP4630 features the Intel® Core™ i3-10110U CPU. The Vault Pro series is characterized by implementation of newer technologies than the original FW series. The VP4600 family includes 10th Generation Intel CPUs, dual bank DDR4-2666 memory, Intel I226-V 2.5G Ethernet NICs, M.2 NVMe/SATA Storage, HDMI, Display Port, USB C with Display Port, Micro USB console port, and support for M.2 PCIe WiFI and LTE modules.

Protectli Vaults utilize Intel® components ensuring persistent compatibility with a wide range of operating systems (OS) and applications. The VP4600 series features a fanless, all-aluminum chassis design, allowing for efficient heat dissipation from the CPU and other components without any moving parts or additional power requirement.

Technical Specifications

Model	VP4630
Description	6x 2.5G Network Port Fanless Appliance
Processor	Intel® Core™ i3-10110U (64 bit, 2.1 GHz Base, 4.1 GHz Turbo, 4MB Smart Cache)
Processor Cores	2
Processor Threads	4
Intel® AES-NI	Supported
Virtualization	Intel® Vt-x, Vt-d
Network	6x Intel® I226-V 2.5G Ethernet, RJ-45
Video / Graphics	Intel® UHD Graphics for 10th Gen, 1x HDMI 1.4, 1x DP 1.4
Audio	Audio over HDMI, 1x 3.5mm Audio Jack
Memory	2x SO-DIMM DDR4-2666 1.2v, Dual Channel , Max 64GB
Storage	1x M.2 2280 SATA or NVMe, 1x 16G eMMC on board
Optional Storage	1x Internal 2.5” SATA 3.0 SSD
External I/O	6x RJ-45 Ethernet
	2x USB 3.2 Gen 2 Type A, 2x USB 2.0 Type A
	1x USB Micro 2.0 (Console)
	1x USB 3.2 Gen 2 Type C with DisplayPort
	1x HDMI
	1x DisplayPort
	1x 3.5mm Audio Jack (Realtek ALC897)

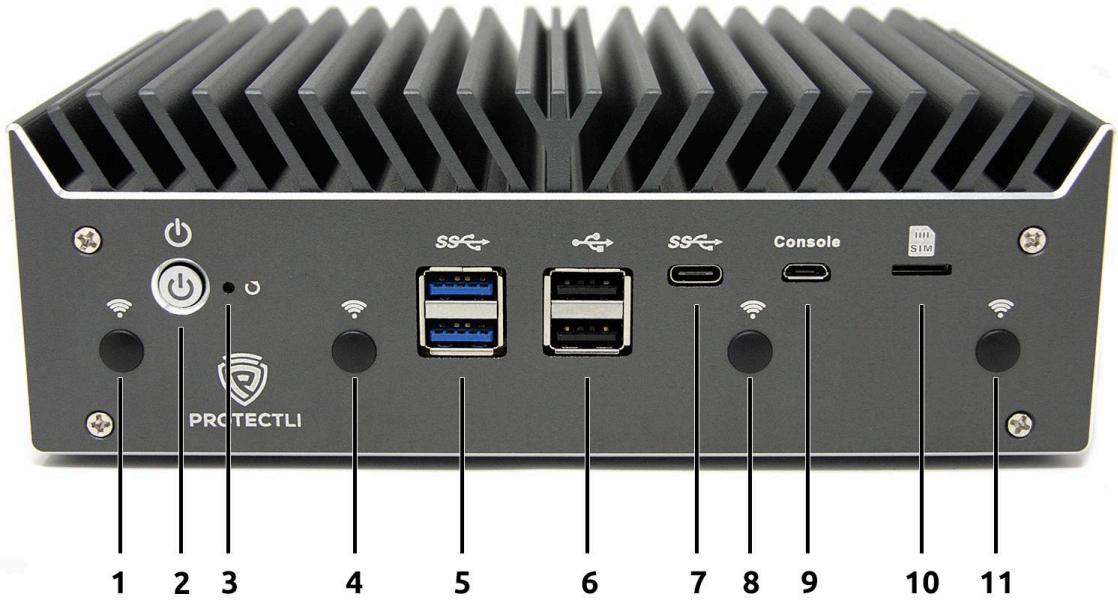
	1x Nano (4FF) SIM Holder
	6x WiFi/LTE Antenna Mounting Holes
	1x 12V DC Power Jack, Threaded
Internal I/O	1x M.2 2280 M-Key PCIe 3.0 x4 (NVMe/SATA)
	1x SATA Header, 1x SATA Power
	1x M.2 2230 E-Key PCIe 3.0 x1 for WiFi
	1x M.2 3052 (LTE)
	1x USB 2.0 Header
	1x Trusted Platform Module Header (9 pin)
	1x PoE Module Header (9 pin)
	1x CMOS Reset (2 pin)
	1x NTP Header
	1x Front Panel Header (9 pin)
Super I/O Chip	TBD
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, Threaded connector
Power Usage	Idle: 12W: Max: 50W
Chassis	Fanless, Aluminum, Black
Chassis Dimensions	7.5 x 5 x 2.7 in, 191 x 127 x 69 mm
Mounting Options	Desktop, VESA Bracket, Optional 1RU Rack Mount
Weight	3 lbs, 1.36 Kg
Shipping Weight	5 lbs 2 oz, 2.32 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, RoHS
Country of Origin	Made in China, Assembled in USA, Canada, or Germany
Optional WiFi	1x M.2 2230 E-Key PCIe 802.11ac/a/b/g/n (PCIe)
Optional LTE Cellular	1x M.2 3052 B-Key USB 3.2 Gen 2 (LTE), with Nano (4FF) SIM holder
Optional Storage	1x Internal 2.5” SATA 3.0 SSD
Optional TPM	1x Trusted Platform Module, TPM 2.0

Included Accessories and Components

60W Power Supply with barrel connector
US/CA Power Cable *(Other regional power cables available)*
Micro USB to USB-A Serial Console Cable
4x SSD mounting screws
1x SATA power cables
1x SATA data cables
Heat sink with thermal pad and mounting hardware
4x M2 screws
VESA Bracket mount with hardware
Quick Start Guide

External Interfaces

Front Panel Configuration

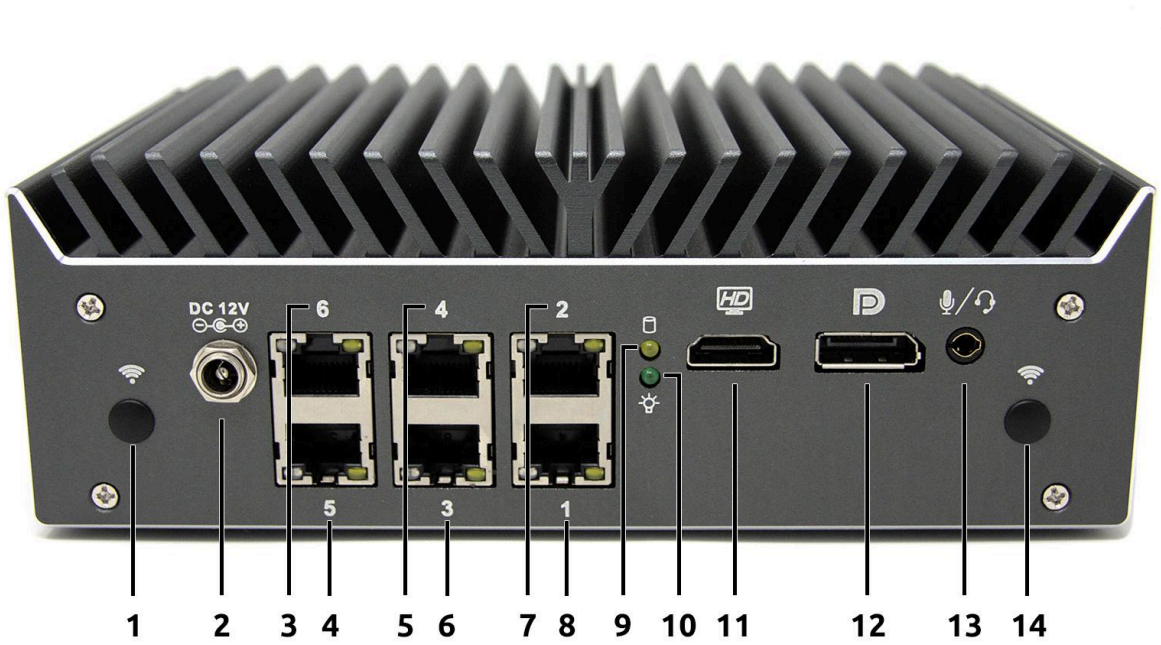


Item #	Object	Label	Description
1, 4, 8, 10	Antenna Ports		Four antenna ports for adding radio antennas (WiFi, LTE, etc.). The ports are covered by plugs while not in use.
2	Power Button		Pressing the Power Button will power the unit on and illuminate with a blue LED. *In OSes configured to handle ACPI signals, pressing the power button initiates a shutdown.* *Pressing and holding the Power Button for 5 seconds will force the unit to power off.*
3	Reset Button (Recessed)		A momentary switch exposed via GPIO. This is not an ACPI reset button, but a general purpose button that may be programmed in the guest OS.

5	Two USB3 Connectors	SS	USB 3.2 Gen 2† Type-A connectors. (Theoretical maximum throughput of 10Gbps [~1.2GBps])
6	Two USB2 Connectors		USB 2.0 Type-A connectors.
7	USB-C Connector	SS	USB 3.2 Gen 2† Type-C connector with Display port. (Theoretical maximum throughput of 10Gbps [~1.2GBps])
9	Serial Console Port	**Console**	RS-232 serial communications via UART exposed through USB 2.0 Type B Micro connector. Default port settings: • 115200 baud • No parity • 8 databits • 1 stopbit
10	SIM Slot	SIM	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 2" is the equivalent and current name for "USB 3.1 Gen 2" offering a theoretical maximum speed of 10 Gigabits (~1.2GB) 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

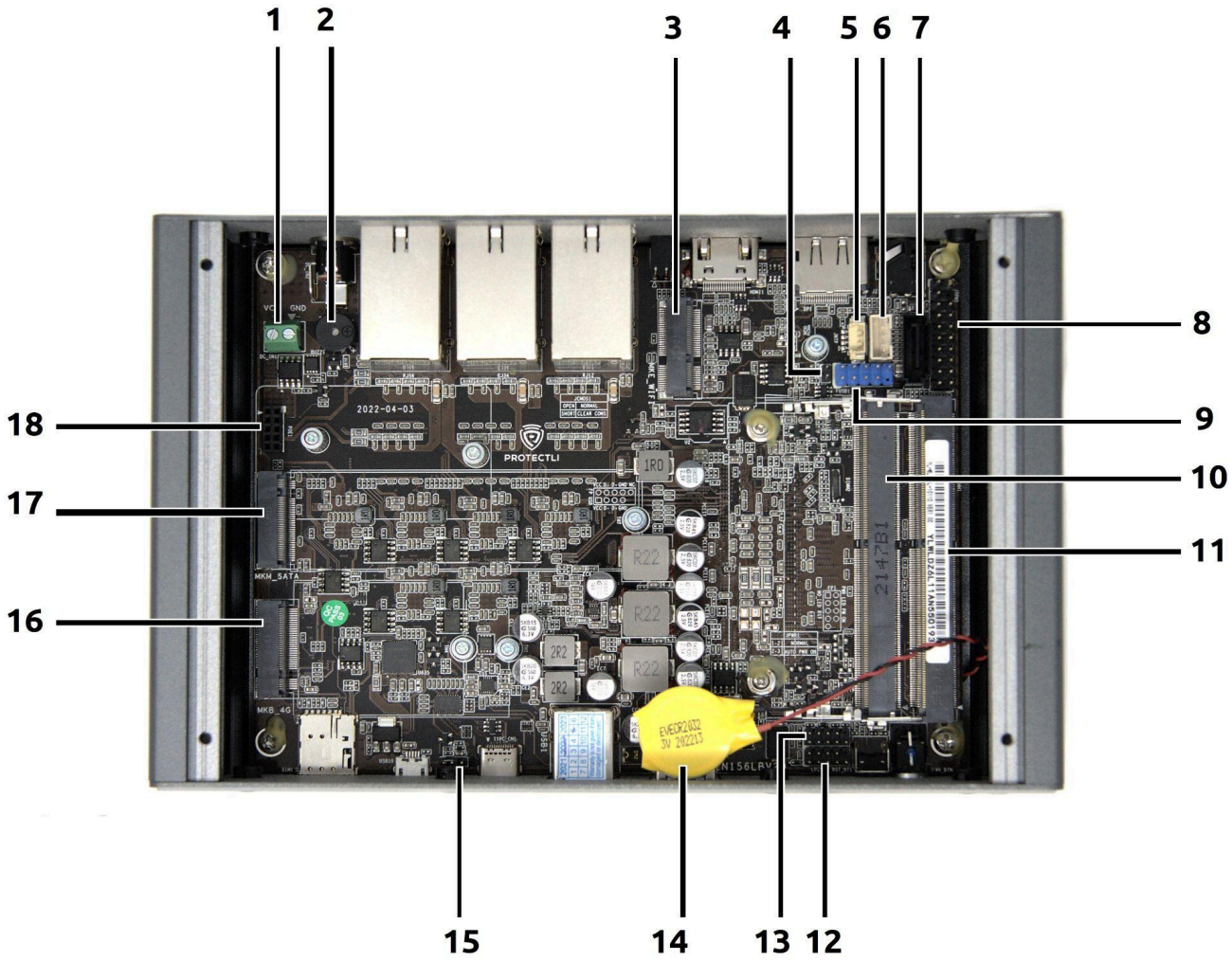


Item #	Object	Label	Description
1, 14	Antenna Ports		Two antenna ports for adding radio antennas (WiFi, LTE, etc.). The ports are covered by plugs while not in use.
2	Power Supply Connector	DC 12V	12V DC threaded barrel connector for the 60W external power supply. Positive rail is the tip, negative is sleeve.
3	Ethernet Port 6	6	The sixth 10/100/1000/2500 Mbps Intel® i225-V ethernet port. [Left LED will illuminate Orange at 2500Mbps, Green at 1000Mbps, and will be turned off when connected at 100/10Mbps]
4	Ethernet Port 5	5	The fifth 10/100/1000/2500 Mbps Intel® i225-V ethernet port. [Left LED will illuminate Orange at 2500Mbps, Green at 1000Mbps, and will be turned off when connected at

			100/10Mbps]
5	Ethernet Port 4	4	The fourth 10/100/1000/2500 Mbps Intel® i225-V ethernet port. [Left LED will illuminate Orange at 2500Mbps, Green at 1000Mbps, and will be turned off when connected at 100/10Mbps]
6	Ethernet Port 3	3	The third 10/100/1000/2500 Mbps Intel® i225-V ethernet port. [Left LED will illuminate Orange at 2500Mbps, Green at 1000Mbps, and will be turned off when connected at 100/10Mbps]
7	Ethernet Port 2	2	The second 10/100/1000/2500 Mbps Intel® i225-V ethernet port. [Left LED will illuminate Orange at 2500Mbps, Green at 1000Mbps, and will be turned off when connected at 100/10Mbps]
8	Ethernet Port 1	1	The first 10/100/1000/2500 Mbps Intel® i225-V ethernet port. [Left LED will illuminate Orange at 2500Mbps, Green at 1000Mbps, and will be turned off when connected at 100/10Mbps]
9	HDD Activity LED		This amber LED will light up when data activity is detected on the SATA interfaces. NVMe SSD activity will not affect the behavior of this LED.
10	Power Indicator LED		This LED will stay solid green when the device is powered on.
11	HDMI Connector		Video and audio output via HDMI.
12	DisplayPort Connector		Video output via DisplayPort.
13	Speaker and Microphone Port		A 3.5mm TRRS plug can be used to output stereo sound and input mono microphone. (Realtek ALC897)

Internal Interfaces

Motherboard Layout and Pin Configuration



Item #	Object	Label	Description
1	DC IN	DC_IN1	Terminal block for hardwiring +12VDC power.
2	Buzzer	BUZZ1	PC speaker. Produces “beep” sounds that may be utilized by system firmware or certain operating systems.
3	WiFi Expansion Slot	MKE_WIFI	Connector uses PCIe 3.0 x1 protocol over an M.2 2230 E-Key connector. Designed for Protectli WiFi modules,

<table>
<tr><td></td><td></td><td></td><td>but is not limited in its capabilities.</td></tr>
<tr><td>4</td><td>NVRAM Reset Jumper</td><td>JCMOS</td><td>Shorting this jumper while the CMOS battery is connected will reset the BIOS NVRAM.</td></tr>
<tr><td>5</td><td>JNTP Header</td><td>JNTP</td><td>Four-pin PicoBlade-compatible header for NTP/I2C (1x4, 1.25mm pitch). Pins are labeled on motherboard, but are outlined below in regards to the orientation in the Motherboard Top View image.
<table><tr><td>Pin 4: Ground</td></tr><tr><td>Pin 3: +5Vs</td></tr><tr><td>Pin 2: SMB_CLK_MAIN</td></tr><tr><td>Pin 1: SMB_DATA_MAIN</td></tr></table></td></tr>
<tr><td>6</td><td>SATA Power Connector</td><td></td><td>SATA III power connector for additional storage. (1x4, 2.0mm pitch, JST PH style connector)</td></tr>
<tr><td>7</td><td>SATA Data Connector</td><td>SATA1</td><td>SATA III data connector. Recommended for additional storage, such as a 2.5” SATA SSD. (Standard 7-PIN SATA III Plug)</td></tr>
<tr><td>8</td><td>TPM</td><td>JTPM1</td><td>Trusted Platform Module header for TPM2.0 hardware devices. (2x10 [Pin 4 clipped], 2.54mm pitch)
<table><tr><td>Pin 1: LCLK</td><td>Pin 2: GND</td></tr><tr><td>Pin 3: LFRAMEn</td><td>X</td></tr><tr><td>Pin 5: LRESETn</td><td>Pin 6: NC_3</td></tr><tr><td>Pin 7: LAD3</td><td>Pin 8: LAD2</td></tr><tr><td>Pin 9: VDD</td><td>Pin 10: LAD1</td></tr><tr><td>Pin 11: LAD0</td><td>Pin 12: GND</td></tr><tr><td>Pin 13: NC_1</td><td>Pin 14: NC_4</td></tr><tr><td>Pin 15: NC_2</td><td>Pin 16: SERIRQ</td></tr><tr><td>Pin 17: GND</td><td>Pin 18: CLKRUNin</td></tr><tr><td>Pin 19: LPCPDn</td><td>Pin 20: NC_5</td></tr></table></td></tr>
</table>

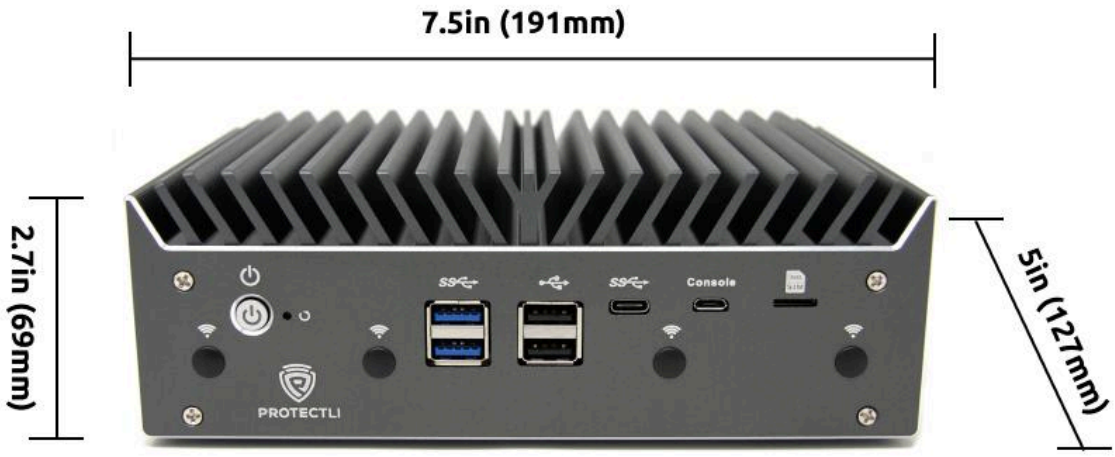
<table>
<tr><td>9</td><td>USB 2.0 Header</td><td>FUSB1</td><td>Internal header for additional USB 2.0 connections (2x5, [Pin 9 clipped] 2.54mm pitch).</td></tr>
<tr><td>10</td><td>Memory Slot</td><td>DIMM2</td><td>DDR4 SODIMM</td></tr>
<tr><td>11</td><td>Memory Slot</td><td>DIMM1</td><td>DDR4 SODIMM</td></tr>
<tr><td>12</td><td>Legacy Device Low Pin Count Connector</td><td>LPC1</td><td>9-pin ISA-compatible connector for legacy devices (e.g. PS2 keyboard, etc.) (2x5 [Pin 10 clipped] 2.00mm pitch)</td></tr>
<tr><td>13</td><td>Front Panel Header</td><td>FP1</td><td>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] 2.00mm pitch)
<table>
<tr><td>Pin 1: HDD_LED+ [+3.3V]</td><td>Pin 2: PWR_LED+ [+5V]</td></tr>
<tr><td>Pin 3: HDD_LED-</td><td>Pin 4: PWR_LED-</td></tr>
<tr><td>Pin 5: RST_GND</td><td>Pin 6: PW_ON</td></tr>
<tr><td>Pin 7: RST</td><td>Pin 8: PWON_GND</td></tr>
<tr><td>Pin 9: Empty</td><td>X</td></tr>
</table></td></tr>
<tr><td>14</td><td>CMOS Battery</td><td></td><td>3V CR2032 connected via 2-pin connector on the opposite side of the motherboard.</td></tr>
<tr><td>15</td><td>Power Restore Jumper</td><td>JPWR1</td><td>Jumper setting determines system state after power loss. Based on the orientation in the image above, the default location for the jumper is on the middle and left pins.

AMI firmware settings allow for the ability to change the behavior of this jumper. Within AMI settings, navigate to Advanced>System Power Management to change the value of Restore On AC Power Loss between Power On and Power Off. When set to Power On, the location of the jumper on the pins will not affect anything and the unit will always power on after power loss. When set to Power Off, and the jumper is in the default position, the unit will not power on automatically after power loss. Alternatively, if the jumper is on the middle and right pins when set to Power Off, the AMI setting will be overridden and the unit will power on after power loss.

coreboot firmware (as of Version 1.2.0) is not affected by the jumper’s location. The unit will always default to</td></tr>
</table>

			power on after power loss.
16	LTE Expansion Slot	MKB_4G	Connector uses USB 3.2 Gen 2 protocol over an M.2 3052 B-Key. Designed for Protectli cellular modems, but is not limited in its capabilities.
17	M.2 NVMe Connector	MKM_SATA	Connector uses PCIe 3.0 x4 protocol over an M.2 M-Key socket. It is designed for an NVMe or M.2 SATA storage device, but is otherwise a functional PCIe port.
18	PoE Header	POE1	Power-over-Ethernet header for an addon card. This feature is experimental and is not officially supported.

Dimensions View



Document History

2025-01-06

- Added “Overview” section
- Added “included accessories” section
- Replaced Motherboard Top View with a clearer image
- Added LED behavior for Ethernet Interfaces (NICs)
- Added note regarding NVMe SSD relation to HDD activity LED
- Added USB speed notes
- Added audio codec to the Speaker and Microphone Port description
- Removed mention of "Designed for Protectli WiFi cards" for the MKB_4G description
- Changed Fan Header to JNTP Header, added correct information
- Changed SATA power connector description
- Changed SATA Data connector description
- Added pitch to FUSB1
- Removed "LP" from Memory slot description as this unit utilizes DDR4 SODIMM and not the low powered variant
- Added Pitch to LPC1
- Added Pitch to FP1, Added pin layout
- Edited description for MKB_4G
- Added additional information to BUZZ1
- Added additional info to JPWR1

2024-08-01

- Changed “PC Speaker” to “PC speaker”
- Changed “RS232” to “RS-232”
- Removed “TPM1.2” from section “Motherboard Top View”
- 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

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

2024-05-17

- Clarified LTE and/or WiFi slot naming schemes
- Clarified threading on barrel connector

2024-01-02

- Fix typo in document title: “4 Port” corrected to “6 Port”.
- Updated PoE documentation to describe operation as “experimental.”

2023-08-31

- Clarify details about the i225-V network interfaces.

2023-08-04

- Fix optional LTE Cellular slot specification.
- Clarify details about internal SATA header.

2023-03-21

- Initial document