

Protectli Appliance

Protectli Vault Pro VP2410
4 Port 1GbE - Intel® J4125

January 27st, 2025

Overview

The Protectli Vault Pro series is characterized by the implementation of newer, more robust technologies than its predecessors. The VP2410 utilizes an Intel® Celeron® J series CPU (J4125), up to 16GB single-bank DDR4 memory, and 4x 1GbE Intel NICs, with NIC model variants i210 or i211, depending on manufacturing date (see: External Interfaces). It includes connectors for both M.2 SATA and internally mounted 2.5" SATA drive memories, and keyed M.2 connectors for WiFi and LTE modules. Similar to most Protectli Vaults, the VP2410 includes multiple options for interfacing with the device, including HDMI and Display output ports with audio, a Type-C port with both input and display/audio output capabilities, USB Micro-B console port, and two USB Type-A ports.

Protectli Vaults utilize Intel components ensuring persistent compatibility with a wide range of operating systems (OS) and applications. The VP2420 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 requirements.

Technical Specifications

Model	VP2410
Description	4X 1G Network Port Fanless Appliance
Processor	Intel® Celeron® J4125 (64 Bit, 2.0 GHz Base, 2.7 GHz Burst, 4M Smart Cache)
Processor Cores	4
Processor Threads	4
Intel® AES-NI	Supported
Virtualization	Intel® Vt-x, Vt-d
Network	4x Intel® 1G Ethernet, RJ-45
Video / Graphics	Intel® UHD Graphics 600, 1x HDMI 1.4, 1x DP 1.4
Audio	Audio over HDMI
Memory	1x SO-DIMM DDR4-2400, Max 16G
Onboard Storage	1x M.2 SATA, 1x 8G eMMC on board
Optional Additional Storage	1x Internal 2.5" SATA 3.0 SSD
External I/O	4x RJ-45 Ethernet ports 2x USB 3.2 Gen 1 Type A 1x USB 3.2 Gen 1 Type-C with DisplayPort 1x USB Micro 2.0 (Console) 1x HDMI

	1x DisplayPort 1.4
	1x Nano (4FF) SIM Holder
	6x WiFi Antenna Mounting Holes
	1x 12V DC Power Jack
Internal I/O	1x M.2 2280-M for SATA
	1x SATA Header, 1x SATA Power
	1x M.2 2230 E-Key PCIe 3.0 x1 for WiFi
	1x Trusted Platform Module Header (9 pin)
	1x CMOS Reset (2 pin)
	1x CPU Fan Header (4 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 24W
Chassis	Fanless, Aluminum, Gray
Chassis Dimensions	5.75 x 5 x 2 in, 146 x 127 x 50 mm
Mounting Options	Desktop, VESA Bracket, Optional 1RU Rack Mount
Weight	1 lb 10 oz, .75 Kg
Shipping Weight	3 lbs 4 oz, 1.47 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 Key E PCIe 802.11ac/a/b/g/n (PCIe)
Optional TPM	1x Trusted Platform Module, TPM 2.0

Included Accessories and Components

40W 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 cable

1x SATA data cable

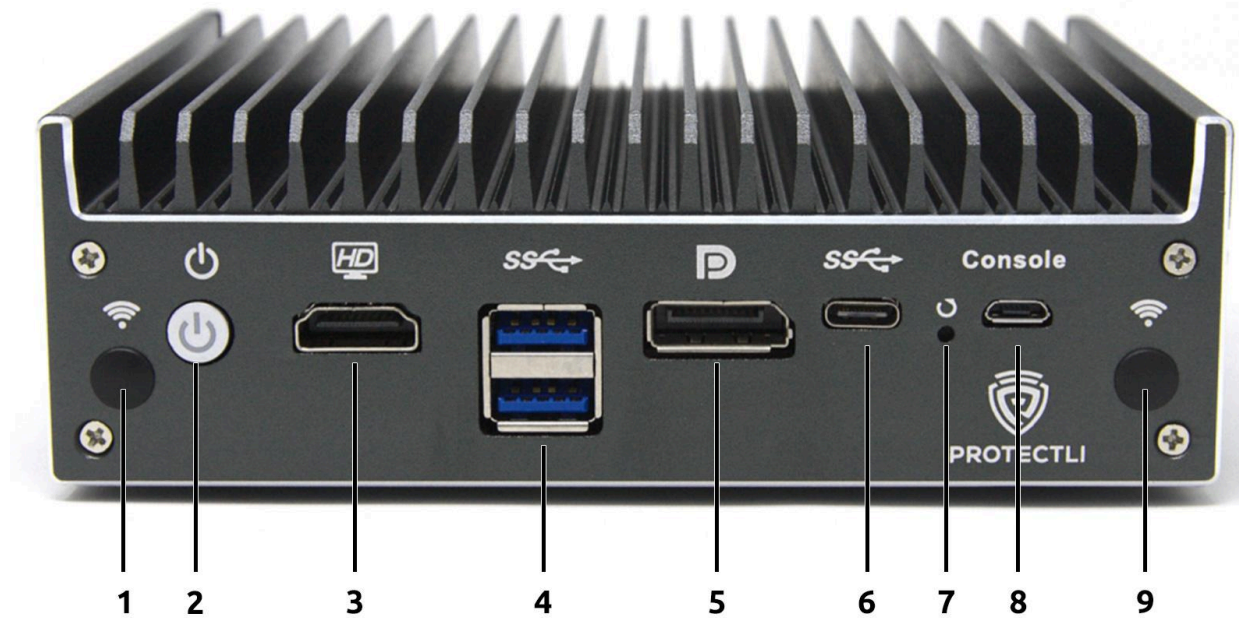
4x M2 screws




VESA Bracket mount with hardware





Quick Start Guide

External Interfaces

Front Panel Configuration



Item #	Object	Label	Description
1, 9	Antenna Ports		Two antenna ports for adding radio antennas (such as WiFi). 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. <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	HDMI Connector		Video and audio output via HDMI.

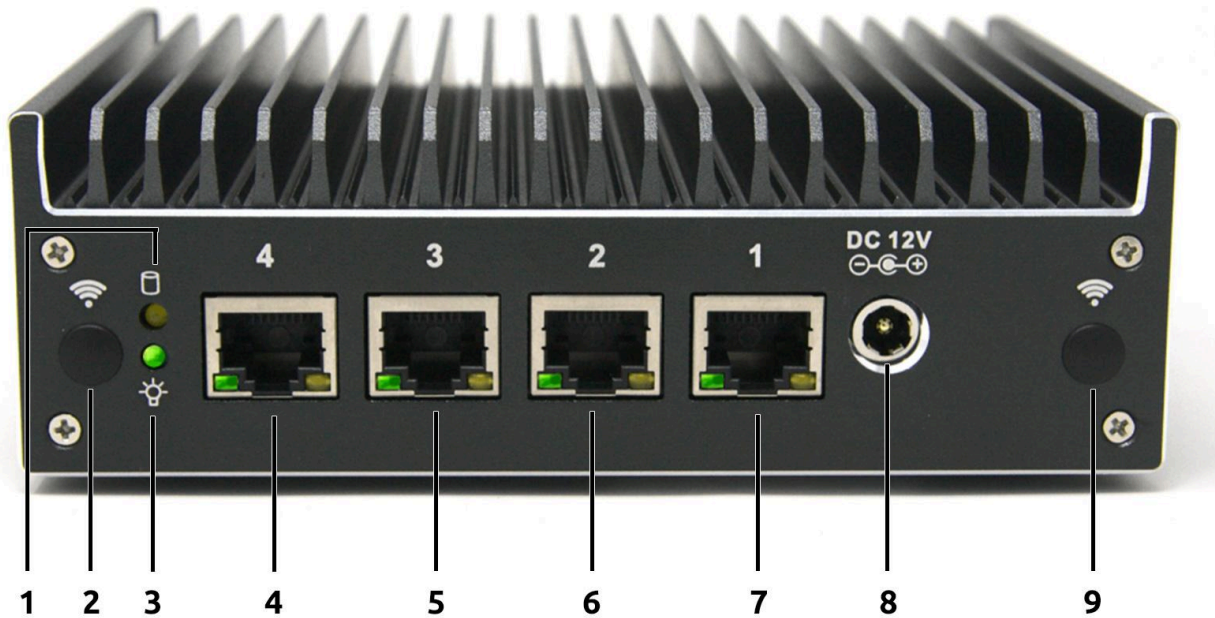
4	Two USB3 Connectors		USB 3.2 Gen 1 [†] Type-A connectors. (Theoretical maximum throughput of 5Gbps [~500MBps])
5	DisplayPort Connector		Video output via DisplayPort. Does not support audio output.
6	USB-C Connector		USB 3.2 Gen 1 [†] Type-C connector with Display Port. (Theoretical maximum throughput of 5Gbps [~500MBps]) Supports audio output when used as Display Port.
7	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.
8	Serial Console Port	Console	RS-232 serial communications via UART exposed through USB 2.0 Type B Micro connector. Default port settings: <ul style="list-style-type: none"> • 115200 baud • No parity • 8 databits • 1 stopbit Does not work with MacOS.




[†]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.

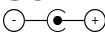
https://www.usb.org/sites/default/files/usb_3_2_language_product_and_packaging_guidelines_final.pdf,

https://www.usb.org/sites/default/files/usb_3_1_language_product_and_packaging_guidelines_final_0.pdf

Rear Panel Configuration Features



Item #	Object	Label	Description
1	HDD Activity LED		This amber LED will light up when data activity is detected on the SATA interfaces.
2, 9	Antenna Ports		Two antenna ports for adding radio antennas (such as WiFi). The ports are covered by plugs while not in use.
3	Power Indicator LED		This LED will stay solid green when the device is powered on.
4	Ethernet Port 4	4	The fourth 10/100/1000 Mbps Intel® i210/i211** ethernet port. [Left LED will illuminate solid Green at 1000/100Mbps and will be turned off at 10Mbps]
5	Ethernet Port 3	3	The fourth 10/100/1000 Mbps Intel® i210/i211** ethernet port. [Left LED will illuminate solid Green at 1000/100Mbps and will be turned off at 10Mbps]

6	Ethernet Port 2	2	The fourth 10/100/1000 Mbps Intel® i210/i211 ^{††} ethernet port. [Left LED will illuminate solid Green at 1000/100Mbps and will be turned off at 10Mbps]
7	Ethernet Port 1	1	The fourth 10/100/1000 Mbps Intel® i210/i211 ^{††} ethernet port. [Left LED will illuminate solid Green at 1000/100Mbps and will be turned off at 10Mbps]
8	Power Supply Connector	DC 12V 	12V DC barrel connector for the 40W external power supply. Positive rail is the tip, negative is sleeve.

^{††}The VP2410 will either contain 4x 1GbE Intel® i210 or i211 NICs depending on manufacturing date. VP2410 units manufactured after June of 2023 will contain i210 NICs. Units manufactured before this time frame will contain i211 NICs. Both of these NICs use the same igb driver within FreeBSD and should automatically be detected on Linux-based and Windows Operating Systems. Performance should be near identical between these NICs.

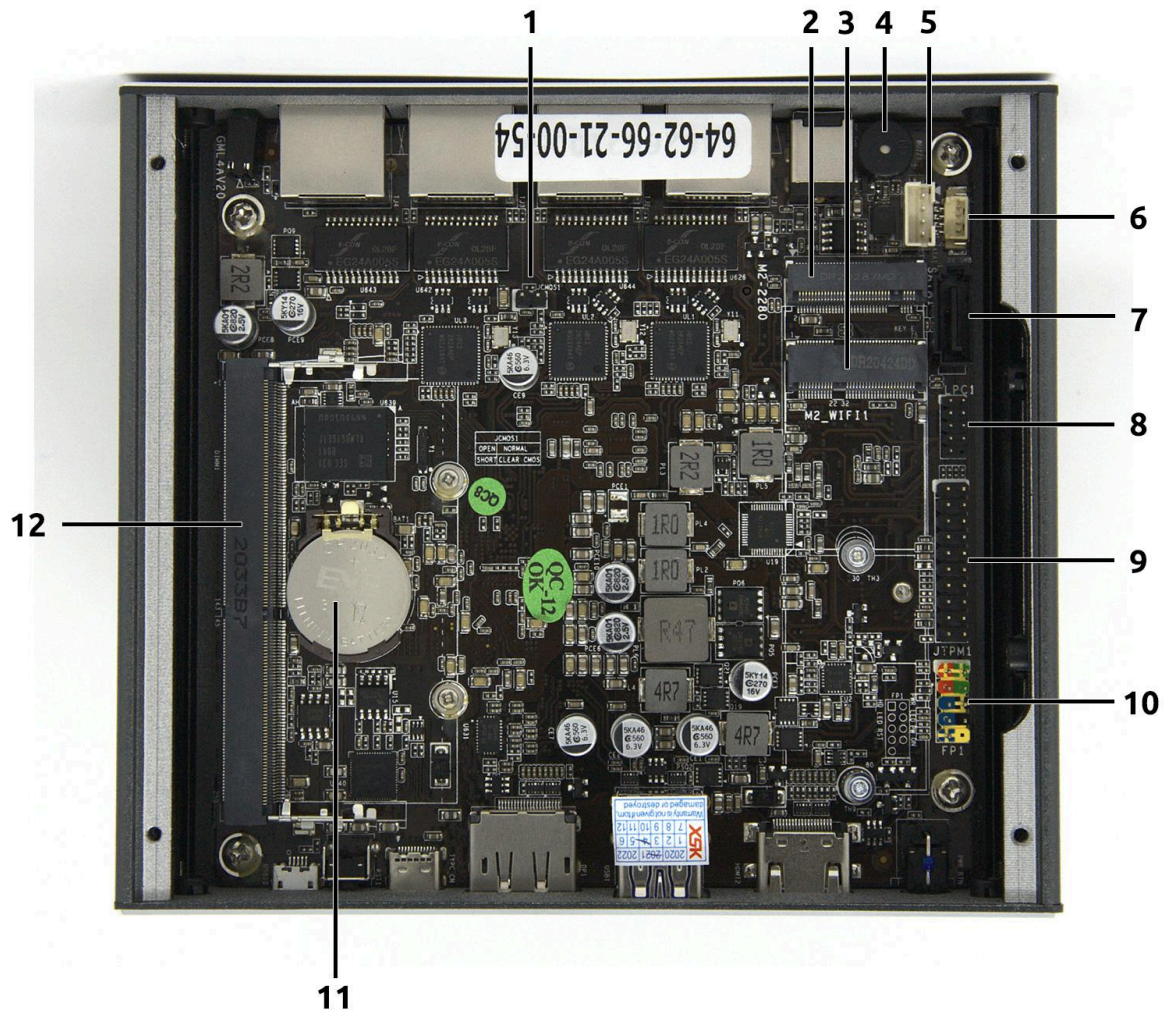
Right Side Panel Features



Item #	Object	Description
1	Antenna Ports	Two antenna ports for adding radio antennas (such as WiFi). The ports are covered by plugs while not in use.

Internal Interfaces

Motherboard Top View

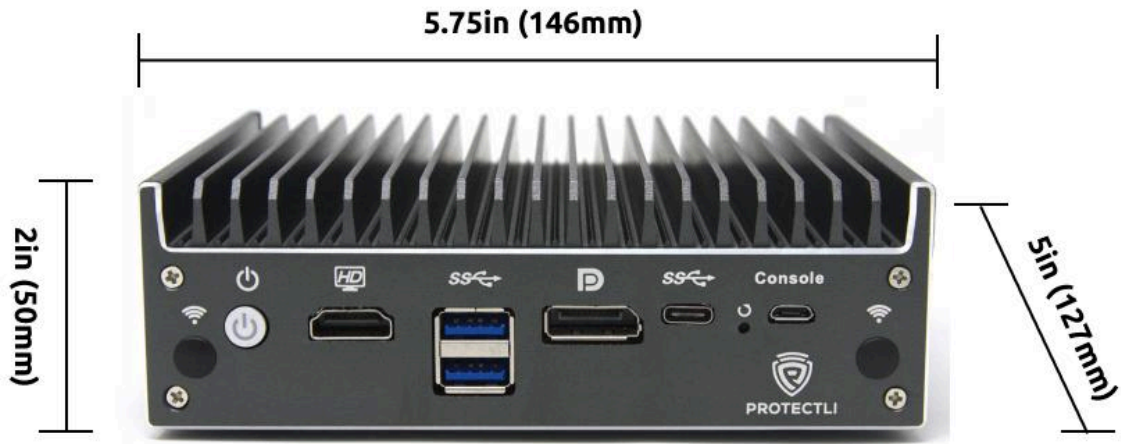


Item #	Object	Label	Description
1	NVRAM Reset Jumper	JCMOS1	Shorting this jumper while the CMOS battery is connected will reset the BIOS NVRAM.
2	M.2 Storage Connector	M2_2280	Connector for a 2280 M.2 M-keyed SATA 3.0 storage device, such as an M.2 SATA SSD. Not compatible with NVMe storage technology.

3	M.2 WiFi Expansion Slot	M2_WIFI1	Connector provides PCIe 3.0 x1 over a 2230 M.2 E-keyed slot. Designed for Protectli WiFi cards, but is not limited in its capabilities.										
4	Buzzer	BUZZ1	PC speaker. Produces “beep” sounds that may be utilized by system firmware or certain operating systems.										
5	SATA Power Connector	JSATA1	SATA III power connector for additional storage. (1x4, 2.0mm pitch, JST PH style connector)										
6	SMB PWM Fan Connector	5V_SMB	<p>Four-pin PicoBlade-compatible header available for an optional PWM fan. Based on the image layout above, pin 1 is on the bottom. (1x4, 1.25mm pitch)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Pin 4: SMB_DATA_MAIN</td> </tr> <tr> <td>Pin 3: SMB_CLK_MAIN</td> </tr> <tr> <td>Pin 2: +5V</td> </tr> <tr> <td>Pin 1: Ground</td> </tr> </table>	Pin 4: SMB_DATA_MAIN	Pin 3: SMB_CLK_MAIN	Pin 2: +5V	Pin 1: Ground						
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7	SATA Data Connector	SATA1	SATA III data connector. Recommended for additional storage, such as a 2.5” SATA SSD. (Standard 7-PIN SATA III Plug)										
8	Legacy Device Low Pin Count Connector	LPC1	<p>9-pin ISA-compatible connector for legacy devices (e.g. PS2 keyboard, etc.). (2x5, pin 10 clipped, 2.00mm pitch)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Pin 1: +3.3V</td> <td>Pin 2: Platform Reset</td> </tr> <tr> <td>Pin 3: LPC Clock Signal</td> <td>Pin 4: LPC Address/Data line 0</td> </tr> <tr> <td>Pin 5: LPC Frame Signal</td> <td>Pin 6: LPC Address/Data line 1</td> </tr> <tr> <td>Pin 7: LPC Address/Data line 3</td> <td>Pin 8: LPC Address/Data line 2</td> </tr> <tr> <td>Pin 9: Ground</td> <td style="text-align: center;">X</td> </tr> </table>	Pin 1: +3.3V	Pin 2: Platform Reset	Pin 3: LPC Clock Signal	Pin 4: LPC Address/Data line 0	Pin 5: LPC Frame Signal	Pin 6: LPC Address/Data line 1	Pin 7: LPC Address/Data line 3	Pin 8: LPC Address/Data line 2	Pin 9: Ground	X
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9	TPM Header	JTPM1	<p>Trusted Platform Module header for TPM2.0 hardware devices. (2x10, pin 4 clipped, 2.54mm pitch)</p> <table border="1" data-bbox="721 394 1404 877"> <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>	Pin 1: LCLK	Pin 2: GND	Pin 3: LFRAMEn	X	Pin 5: LRESETn	Pin 6: NC_3	Pin 7: LAD3	Pin 8: LAD2	Pin 9: VDD	Pin 10: LAD1	Pin 11: LAD0	Pin 12: GND	Pin 13: NC_1	Pin 14: NC_4	Pin 15: NC_2	Pin 16: SERIRQ	Pin 17: GND	Pin 18: CLKRUNin	Pin 19: LPCPDn	Pin 20: NC_5
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10	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. (2x5, 2.54mm pitch) The pinout chart below has been colored to match the baseboard.</p> <table border="1" data-bbox="721 1096 1404 1360"> <tr> <td>Pin 1: HDD_LED+ [+3.3V]</td> <td>Pin 2: PWR_LED+ [+5V]</td> </tr> <tr> <td>Pin 3: :SSD_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: No connection</td> <td>X</td> </tr> </table>	Pin 1: HDD_LED+ [+3.3V]	Pin 2: PWR_LED+ [+5V]	Pin 3: :SSD_LED-	Pin 4: PWR_LED-	Pin 5: RST_GND	Pin 6: PW_ON	Pin 7: RST	Pin 8: PWON_GND	Pin 9: No connection	X										
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11	CMOS Battery	BAT1	3V CR2032.																				
12	Memory Slot	DIMM1	DDR4 SODIMM.																				

Dimensions View



Document History

2025-01-21

- Removed "USB 2.0" header from Technical Specifications
- Added "Included Accessories and Components" section
- Renamed "External Interfaces" section
- Added Labels to Rear and Front Panel Configuration Features
- Added note regarding LED behavior of NICs
- Added note regarding USB Speeds, changed from USB 3.2 Gen 2 to Gen 1
- Clarified PCIe 3.0 x 1 connection for M2_WIFI1
- Added more information to BUZZ1
- Added pitch and connector type for JSATA1
- Added connector type for SATA1
- Changed "Fan Connector" to "SMB PWM Fan Connector" and added pin layout and pitch
- Added pitch and pin layout for LPC1
- Removed "LP" from Memory Slot
- Added image for side view

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

2024-04-01

- Fix incorrectly stated chassis DC power connector (removed screw-in threading reference).

2023-08-31

- Fix incorrectly stated chassis color (black => gray).

2023-03-21

- Initial document