



# BARGAIN BUILD 12/21

**December 15, 2021  
Brian DeLacey  
BLU.org - via Jitsi**

## THE GOAL

What can you build for  
around \$500 that runs  
Linux well?



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## HP 15-ef1082nr 15.6" Laptop

Thin micro-edge  
bezel design



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AMD Ryzen™ 3 3250U 2.6GHz Processor  
Microsoft Windows® 11  
8GB DDR4 / 256GB SSD

SAVE \$110  
**\$349.99**

~~\$459.99~~ / 330506

**SHOP NOW**

# **BLU Bargain Build**

**August 2020**  
**Brian DeLacey**

# KEY PARTS, PRICES (AUGUST 2020)

Your store » Micro Center Cambridge  
730 Memorial Drive  
Cambridge , MA 02139  
General Manager Arsen Askaryan  
Text (617) 234-6400  
[www.microcenter.com](http://www.microcenter.com)

## Your Sale Information

SKU	Description	Quantity	Price Per	Total Price
673996	COOLMAST N200 MATX MINI-TOWER CASE	1	49.99	49.99
951897	AMD AMD RYZEN 3 3200G WRAITHS S/N: 9HH2988N00002	1	79.99	79.99
402404	IPSG 650W 80+ SEMI ATX PSU S/N: 1939080003591650BR21F09016337	1	69.99	69.99
410936	IPSG 120GB I PRO SSD DRIVE	1	19.99	19.99
348201	G.SKILL 16GB 2X8GB DDR4 3200 KIT	1	69.99	69.99
862318	SEAGATE 2TB BARRACUDA 3.5" HD S/N: 763649123065	1	51.99	51.99
802538	ASUS PRIME B450M-A/CSM MATX S/N: K6M0KS033121LUK	1	74.99	74.99

**Subtotal »** \$416.93

**Tax »** \$26.06

**Sale TOTAL »** **\$442.99**

# KEY PARTS, PRICES (DECEMBER 2021)

Budget BLU Build, December 15 , 2021 meeting

	SKU	Description	Cost	Build 1	Build 2	Build 3	Build 4
CPU	301259	AMD AMD RYZEN 5 5600G WRAITHS	\$199.99	\$199.99	\$199.99	\$199.99	\$199.99
MOBO	223594	ASUS PRIME B550M-A AC PS (Sticker: \$129.00 - \$20 off board with Ryzen 5)	\$109.99	\$109.99	\$109.99	\$109.99	\$109.99
CASE	785485	THERMALTA V100 BLACK MT ATX CASE	\$49.99	\$49.99	\$49.99	\$49.99	\$49.99
POWER	025965	THERMALTA BX1 550W 80+B ATX PSU	\$59.99	\$59.99	\$59.99	\$59.99	\$59.99
KEYS	398453	IPSG IK100 USB 107 KEYBOARD	\$3.99	\$3.99	\$3.99	\$3.99	\$3.99
MOUSE	087700	IPSG - Inland M-54 RGBBlack Mouse	\$6.99	\$6.99	\$6.99	\$6.99	\$6.99
DISK	874073	Samsung E 500 gb 970 EVO + NVMe	\$74.99	not inc.	\$74.99	\$74.99	not inc.
DISK	108225	CRUCIAL 500GB P2 NVME M.2 SSD	\$59.99	\$59.99	not inc.	not inc.	not inc.
DISK	852318	Seagate BarraCuda 2TB 7200RPM SATA III 6Gb/s 3.5" Internal Hard Drive 256 MB CACHE	\$49.99	\$49.99	not inc.	\$49.99	not inc.
DISK	Amazon	Seagate 4TB Barracude 3.5" HD (Amazon Seagate BarraCuda 4TB Internal Hard Drive HDD – 3.5 Inch Sata 6 Gb/s 5400 RPM 256MB Cache)	\$74.99	not inc.	not inc.	not inc.	not inc.
DISK	410936	Inland Professional 120GB SSD SATA 3.0 6 GBps 2.5 Inch 7mm TLC 3D NAND Internal Solid State Drive	\$19.99	\$19.99	\$19.99	\$19.99	\$19.99
DISK-ACC	840157	Kingwin HDM-225 Internal 2.5 to 3.5 HDD Metal Mounting Kit Black - LOCATED IN AISLE 34	\$7.99	\$7.99	\$7.99	\$7.99	\$7.99
NO TY	805465	Microsoft Windows 10 Pro 64-bit - 1pk DSP OEM DVD	\$149.99	not inc.	not inc.	not inc.	not inc.
NICE	417881	IPSG 1.4 HDMI Camble-3PK 6 FT (One pack of 3 is \$35.98)	\$11.99	\$11.99	\$11.99	\$11.99	\$11.99
RAM	348201	G SKILL; 16 GB 2x8GB DDR4 3200 KIT	\$69.99	\$69.99	\$69.99	\$69.99	\$69.99
DISK-ACC	817379	Kingwin Internal Dual 2.5" HDD/SSD to 3.5" Plastic Mounting Kit	\$5.99	not inc.	not inc.	not inc.	not inc.
DISK-ACC	318147	PPA SATA III 90-Degree w/ Locking Latch Internal Cable 18 in (2 Pack)	\$4.99	not inc.	not inc.	not inc.	not inc.
DISK-ACC	318162	PPA SATA III w/ Locking Latch Internal Cable 18 in (2 Pack)	\$4.99	not inc.	not inc.	not inc.	not inc.
			=====	=====	=====	=====	=====
			<b>\$966.82</b>	<b>\$650.88</b>	<b>\$615.89</b>	<b>\$665.88</b>	<b>\$540.90</b>

# AMD RYZEN™ 3 3200G WITH RADEON™ VEGA 8 GRAPHICS

## AMD Ryzen™ 3 3200G with Radeon™ Vega 8 Graphics

**Platform:** Boxed Processor

**Product Family:** AMD Ryzen™ Processors

**Product Line:** AMD Ryzen™ 3 Desktop Processors with Radeon™ Vega Graphics

**# of CPU Cores:** 4

**# of Threads:** 4

**Max. Boost Clock:** Up to 4.0GHz

**Base Clock:** 3.6GHz

**Total L1 Cache:** 384KB

**Total L2 Cache:** 2MB

**Total L3 Cache:** 4MB

**Default TDP:** 65W

**AMD Configurable TDP (cTDP):** 45-65W

**Processor Technology for CPU Cores:** 12nm FinFET

**Unlocked for Overclocking** ⓘ: Yes

**CPU Socket:** AM4

**Thermal Solution (PIB):** Wraith Stealth

**Thermal Solution (MPK):** Wraith Stealth

**Max. Operating Temperature (Tjmax):** 95°C

**Launch Date:** 7/7/2019

**\*OS Support:**

Windows 11 - 64-Bit Edition

Windows 10 - 64-Bit Edition

RHEL x86 64-Bit

Ubuntu x86 64-Bit

\*Operating System (OS) support will vary by manufacturer.

<https://www.amd.com/en/products/apu/amd-ryzen-3-3200g>



# AMD AMD RYZEN 5 5600G WRAITHS



\$259.00



\$229.00



\$229.99



\$355.95


## AMD Ryzen™ 5 5600G

**Platform:** Boxed Processor

**# of CPU Cores:** 6

**Base Clock:** 3.9GHz

**Default TDP:** 65W

**Unlocked for Overclocking** : Yes

**Max. Operating Temperature (Tjmax):** 95°C

**Product Family:** AMD Ryzen™ Processors

**# of Threads:** 12

**Total L2 Cache:** 3MB

**AMD Configurable TDP (cTDP):** 45-65W

**CPU Socket:** AM4

**Launch Date:** 4/13/2021

**Product Line:** AMD Ryzen™ 5 5000 G-Series Desktop Processors with Radeon™ Graphics

**Max. Boost Clock:** Up to 4.4GHz

**Total L3 Cache:** 16MB

**Processor Technology for CPU Cores:** TSMC 7nm FinFET

**Thermal Solution (PIB):** Wraith Stealth

**\*OS Support:**

Windows 11 - 64-Bit Edition

Windows 10 - 64-Bit Edition

RHEL x86 64-Bit

Ubuntu x86 64-Bit

\*Operating System (OS) support will vary by manufacturer.

<https://www.amd.com/en/products/apu/amd-ryzen-5-5600g>

# PERFORMANCE - HARDINFO (RYZEN3 VS RYZEN5)

## FPU Raytracing

### FPU Raytracing

AMD Ryzen 5 5600G with Radeon Graphics 12x 3900.00 MHz 1.96

## FPU Raytracing

### FPU Raytracing

AMD Ryzen 3 3200G with Radeon Vega Graphics 4x 3600.00 MHz 2.53

## GPU Drawing

### GPU Drawing

AMD Ryzen 5 5600G with Radeon Graphics 12x 3900.00 MHz 10074.24

## GPU Drawing

### GPU Drawing

AMD Ryzen 3 3200G with Radeon Vega Graphics 4x 3600.00 MHz 6848.13

<https://help.ubuntu.com/community/HardInfo>

## BUDGET BUILD 8/2020

=====

go version go1.17.5 linux/amd64

go test -bench=.

goos: linux

goarch: amd64

pkg: perfTest

cpu: AMD Ryzen 3 3200G with Radeon Vega Graphics

BenchmarkPrimeNumbers-4            45517            39868 ns/op

BenchmarkFib1-4            555852052            2.128 ns/op

BenchmarkFib2-4            249614607            5.049 ns/op

BenchmarkFib3-4            162670478            7.708 ns/op

BenchmarkFib10-4            4346352            270.6 ns/op

BenchmarkFib20-4            33424            33982 ns/op

BenchmarkFib40-4            3            503602485 ns/op

BenchmarkFibComplete-4            4325066            264.6 ns/op

PASS

ok    perfTest    15.647s

## BUDGET BUILD 12/2021

=====

go version go1.17.3 linux/amd64

go test -bench=.

goos: linux

goarch: amd64

pkg: perfTest

cpu: AMD Ryzen 5 5600G with Radeon Graphics

BenchmarkPrimeNumbers-12	91220	18807 ns/op
BenchmarkFib1-12	689753481	1.640 ns/op
BenchmarkFib2-12	302585324	3.961 ns/op
BenchmarkFib3-12	195048900	6.272 ns/op
BenchmarkFib10-12	5689557	208.0 ns/op
BenchmarkFib20-12	44298	26771 ns/op
BenchmarkFib40-12	3	406439885 ns/op
BenchmarkFibComplete-12	5459072	213.3 ns/op

PASS

ok perfTest 13.322s

## Laptop

=====|

go version go1.17.3 linux/amd64

go test -bench=.

goos: linux

goarch: amd64

pkg: perfTest

cpu: Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz

BenchmarkPrimeNumbers-8	18850	60479 ns/op
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<u>BenchmarkFib1-8</u>	632842981	1.805 ns/op
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BenchmarkFib2-8	267310981	4.475 ns/op
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<u>BenchmarkFib3-8</u>	154981430	7.716 ns/op
------------------------	-----------	-------------

<u>BenchmarkFib10-8</u>	4306412	286.2 ns/op
-------------------------	---------	-------------

BenchmarkFib20-8	35004	34411 ns/op
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BenchmarkFib40-8	2	519569113 ns/op
------------------	---	-----------------

BenchmarkFibComplete-8	4327267	283.7 ns/op
------------------------	---------	-------------

PASS

ok perfTest 12.890s

## MAC Mini

=====

go version go1.17.3 darwin/amd64

brian@Brians-Mac-mini perfTest % go test -bench=.

goos: darwin

goarch: amd64

pkg: perfTest

cpu: VirtualApple @ 2.50GHz

BenchmarkPrimeNumbers-8           127244           8747 ns/op

BenchmarkFib1-8                   561168867       2.100 ns/op

---

BenchmarkFib2-8                   243832910       4.900 ns/op

BenchmarkFib3-8                   163533494       7.330 ns/op

BenchmarkFib10-8                  4644907         257.7 ns/op

BenchmarkFib20-8                  37383           31973 ns/op

BenchmarkFib40-8                  3               483101958 ns/op

BenchmarkFibComplete-8           4635884         257.7 ns/op

PASS

ok   perfTest   13.867s



## PRIME B550M-A

Overview

Tech Specs

Review

Support

AMD B550 (Ryzen AM4) micro ATX motherboard with dual M.2, PCIe 4.0, 1 Gb Ethernet, HDMI/D-Sub/DVI, SATA 6 Gbps, USB 3.2 Gen 2 Type-A, and Aura Sync RGB headers support

- **AMD AM4 socket:** Ready for Ryzen™ 5000 Series/ 4000 G-Series/ 3000 Series Desktop Processors
- **Comprehensive cooling:** VRM heatsink, PCH heatsink, and Fan Xpert 2+
- **Ultrafast connectivity:** Dual M.2, PCIe 4.0, 1 Gb Ethernet, USB 3.2 Gen 2 Type-A
- **Aura Sync RGB:** Onboard addressable Gen 2 header for RGB LED strips, easily synced with Aura Sync-capable hardware



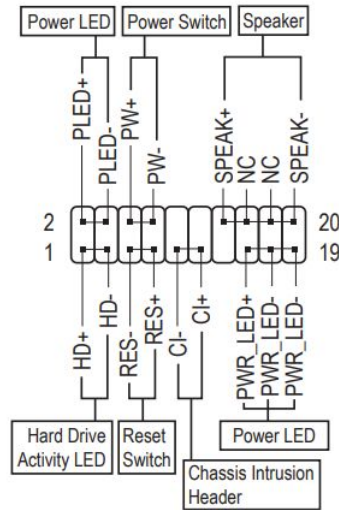
<https://www.asus.com/Motherboards-Components/Motherboards/PRIME/PRIME-B550M-A/>

<https://www.asus.com/Motherboards-Components/Motherboards/PRIME/PRIME-B550M-A/techspec/>



## 10) F\_PANEL (Front Panel Header)

Connect the power switch, reset switch, speaker, chassis intrusion switch/sensor and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.



- **PLED/PWR\_LED (Power LED):**

System Status	LED
S0	On
S3/S4/S5	Off

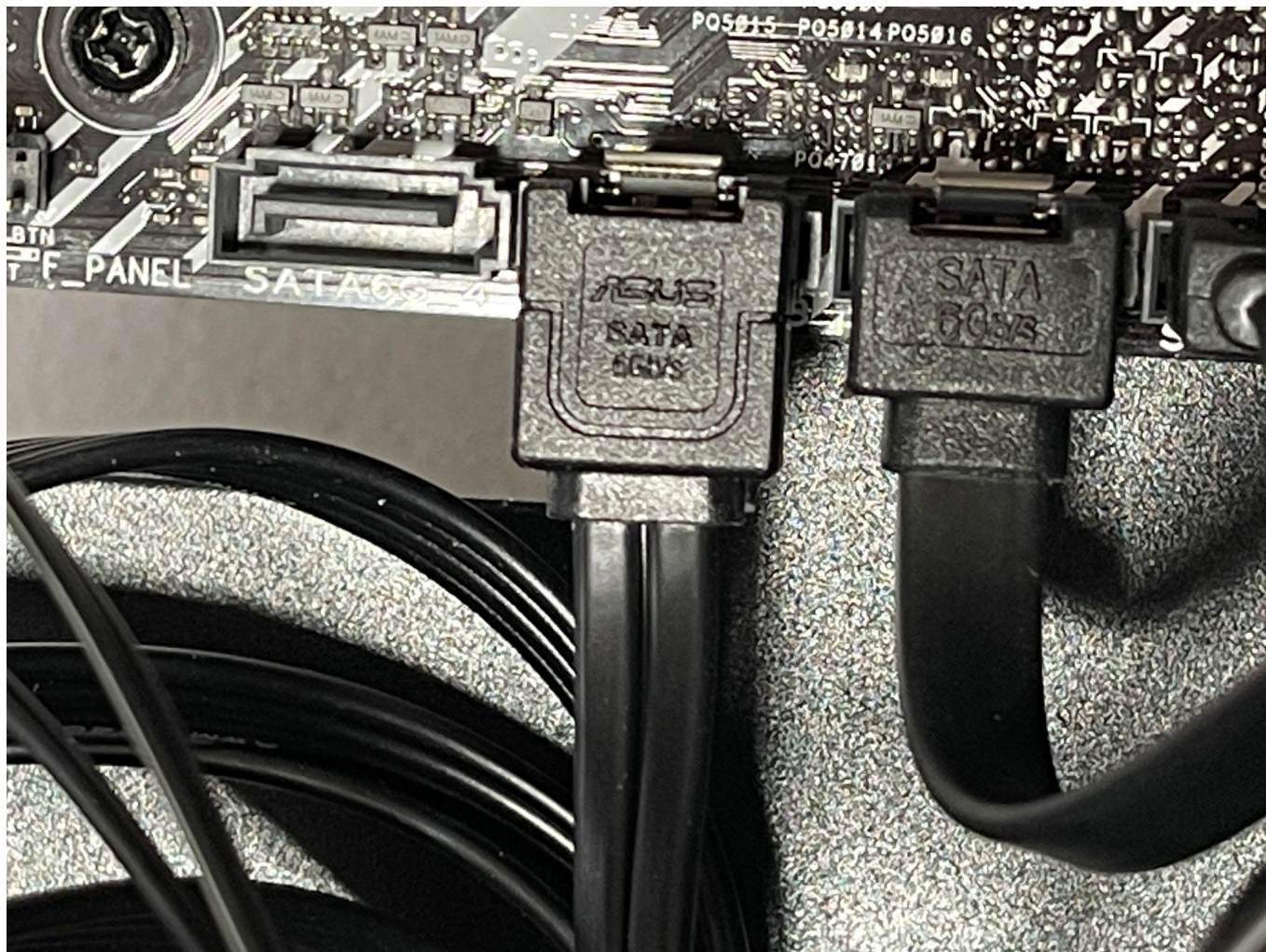
Connects to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

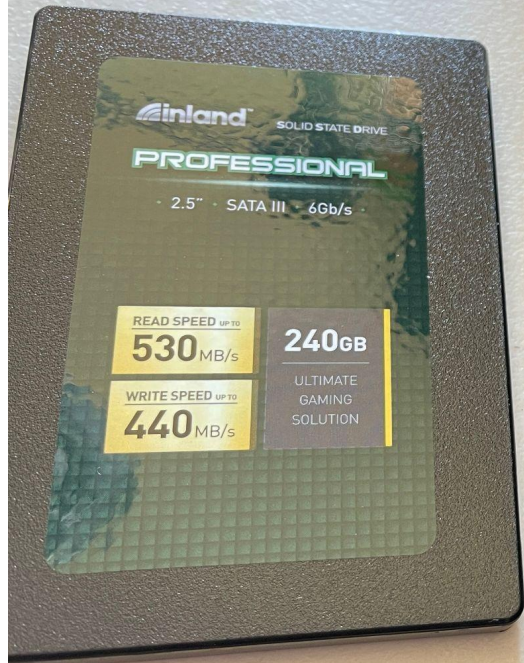
- **PW (Power Switch):**

Connects to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch (refer to Chapter 2, "BIOS Setup," "Settings\Platform Power," for more information).

- **SPEAK (Speaker):**

Connects to the speaker on the chassis front panel. The system reports system startup status by issuing a beep code. One single short beep will be heard if no problem is detected at system startup.







**On Sale**  
Intel Professional Group SSD 200 2.5" SATA  
Intel SSD 200 2.5" SATA 128GB  
Intel SSD 200 2.5" SATA 256GB  
Intel SSD 200 2.5" SATA 512GB  
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<b>\$20.99</b>	<b>Save \$20</b>
After instant savings	MSRP \$40.99
Intel SSD 200 2.5" SATA 128GB	MSRP \$40.99
Intel SSD 200 2.5" SATA 256GB	MSRP \$40.99
Intel SSD 200 2.5" SATA 512GB	MSRP \$40.99
Intel SSD 200 2.5" SATA 1TB	MSRP \$40.99

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After instant savings	MSRP \$29.99
WD Blue HDD 1TB	MSRP \$29.99
WD Blue HDD 2TB	MSRP \$29.99
WD Blue HDD 3TB	MSRP \$29.99





**On Sale**

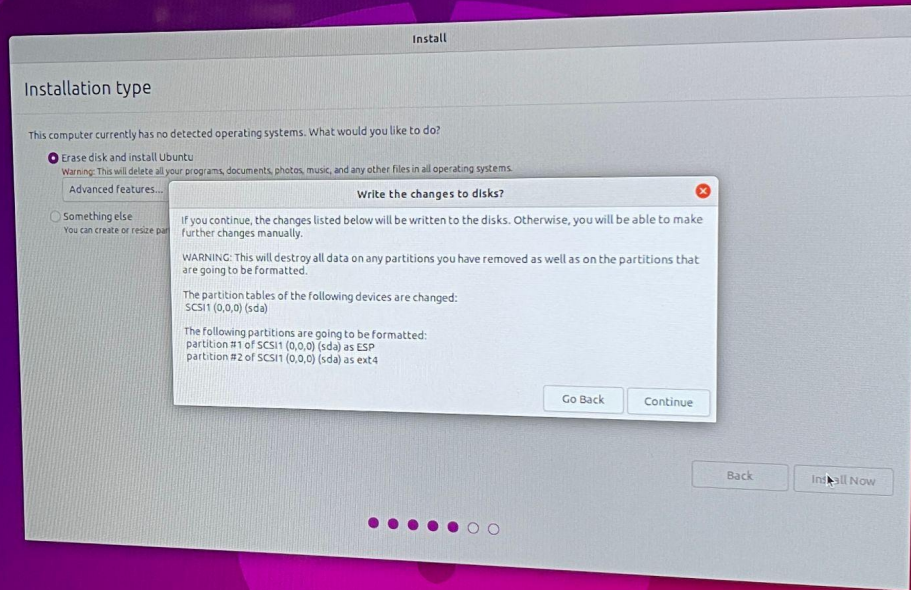
Inland Professional 240GB SSD  
SATA 3.0 6 GBps 2.5 Inch 7mm TLC  
3D NAND Internal Solid Stat

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After Instant Savings	Reg. \$49.99
11/01/21-12/05/21	3Y Repl for \$8.99
411421 MFCE BYOPC A DK 830 INV	2Y Repl for \$4.99
	618899233127









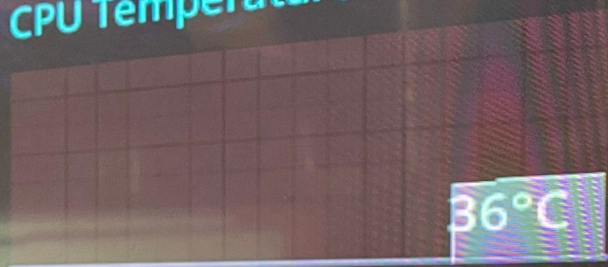


English

Search(F9)

AURA(F4)

## CPU Temperature



VDDCR CPU V

1.456 V

Motherboard

23°C

## Storage Information

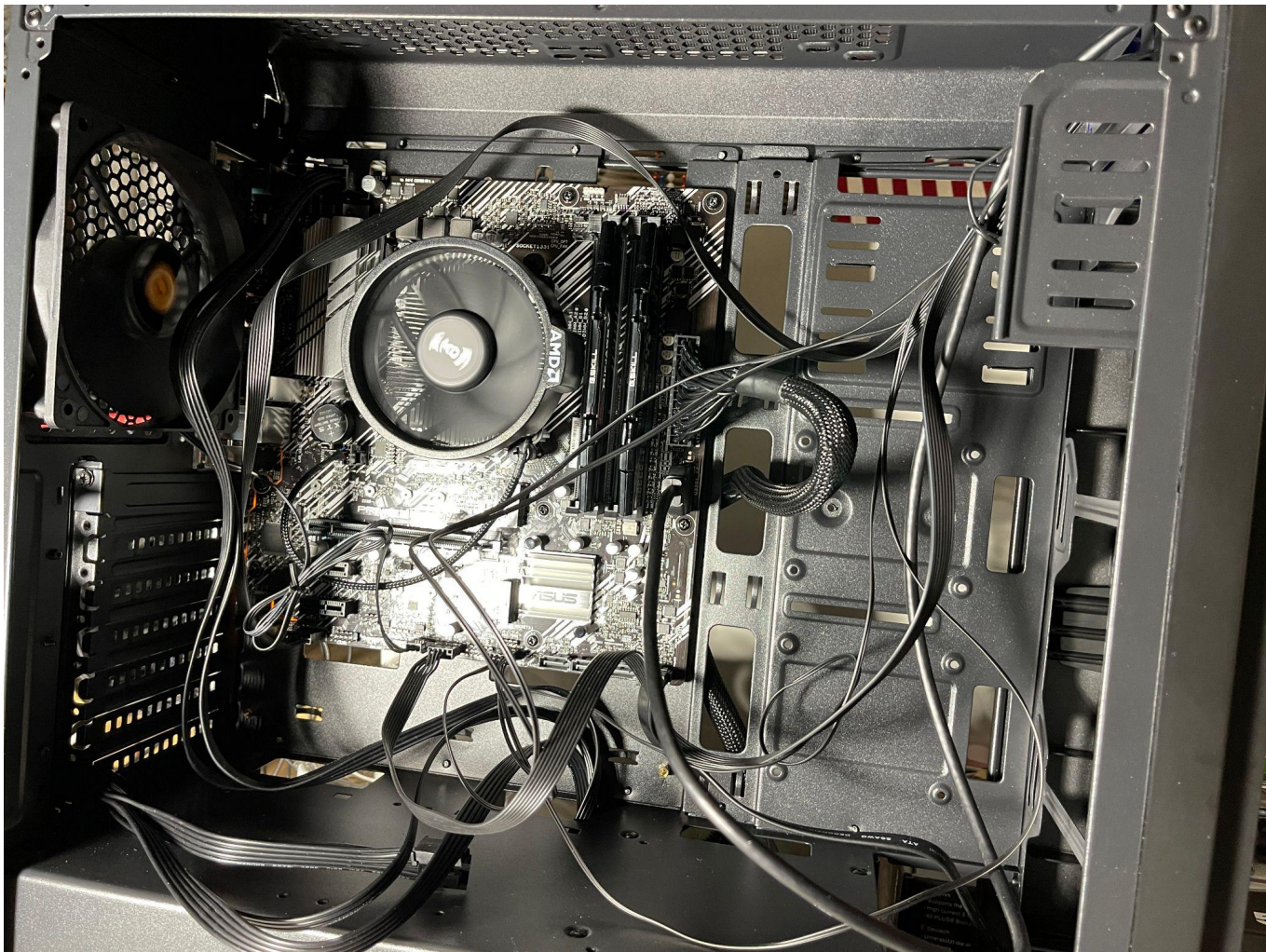
AHCI:

SATA6G\_1: SATA SSD (120.0GB)

SATA6G\_2: ST2000DM008-2FR102 (2000.3GB)

NVME:

M.2\_1: CT500P2SSD8 (500.1GB)





# M.2 AND NVME

**M.2**, formerly known as the **Next Generation Form Factor (NGFF)**, is a specification for internally mounted computer [expansion cards](#) and associated connectors.

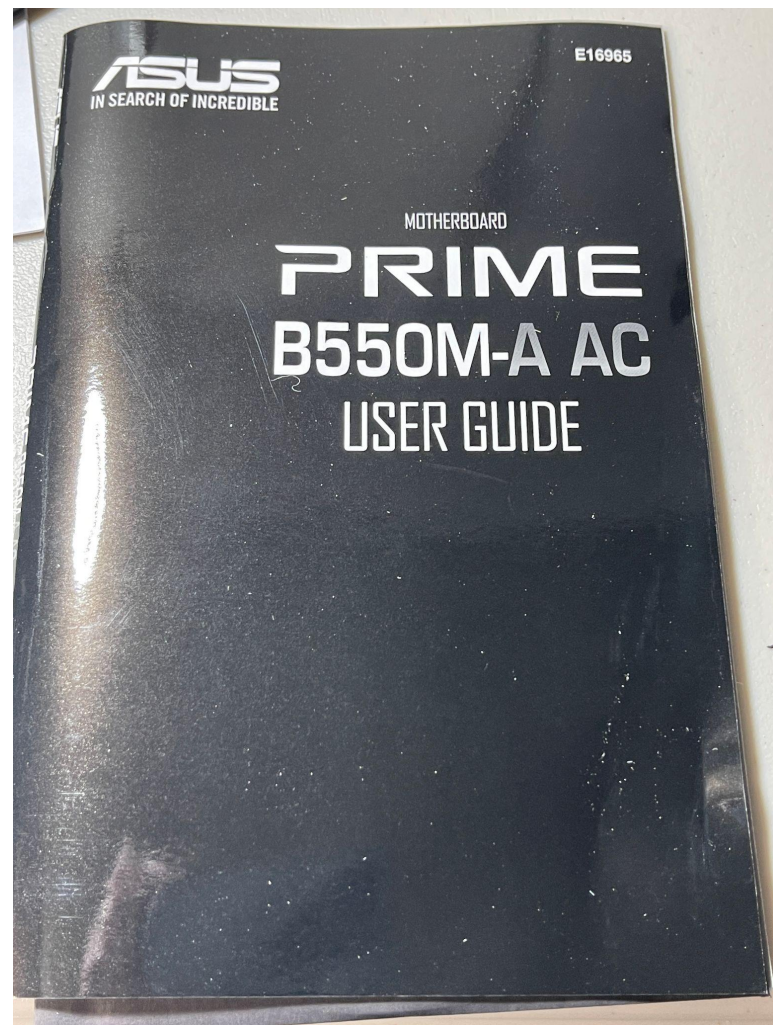
[Computer bus](#) interfaces provided through the M.2 connector are [PCI Express 4.0](#) (up to four [lanes](#)), [Serial ATA 3.0](#), and [USB 3.0](#) (a single logical port for each of the latter two). It is up to the manufacturer of the M.2 host or module to select which interfaces are to be supported, depending on the desired level of host support and the module type.

<https://en.wikipedia.org/wiki/M.2>

M.2 modules are rectangular, with an [edge connector](#) on one side and a semicircular mounting hole at the center of the opposite edge. The edge connector has 75 positions with up to 67 pins, employing a 0.5 mm [pitch](#) and offsetting the pins on opposing sides of the PCB from each other. Each pin on the connector is rated for up to 50 [V](#) and 0.5 [A](#)

ubuntu®

The image shows the Ubuntu logo, consisting of the word "ubuntu" in a lowercase, rounded font with a blue outline, followed by the Ubuntu icon (a white gear with a blue circle in the center). The logo is superimposed on a photograph of a car's windshield. The background is a blurred view of a road with a red curb and a dark structure, possibly a building or bridge, under a hazy sky. The windshield has some reflections and a dark wiper blade is visible at the top.











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