



# BIG LEAP OVERDRIVE POWER

PHANTOM GAMING Z790 & B760 MOTHERBOARDS

Phantom Gaming Motherboards Sales Kit [Internal Only]



# CES 2024 AWARD WINNER – B760I Lightning WiFi



The B760I Lightning WiFi motherboard stood out at CES 2024, earning the title of "Best Motherboard" from Tom's Hardware due to its robust performance, excellent memory support, and advanced thermal solution, making it a top choice for gamers and PC enthusiasts seeking excellence in their mini-ITX builds.



DDR5

WiFi 6E





# NEW PHANTOM GAMING MINI-ITX MOTHERBOARDS



## Z790I Lightning WiFi

- **Robust Performance**
- 14+1+1 Phase, 110A SPS for VCore+GT
- Supports DDR5 8600+ (OC)
- Server-Grade Low-loss 8L2oz PCB
- Long Lasting 20K Black Caps
- Phantom Gaming 2.5Gbps LAN
- Intel 802.11axE WiFi 6E



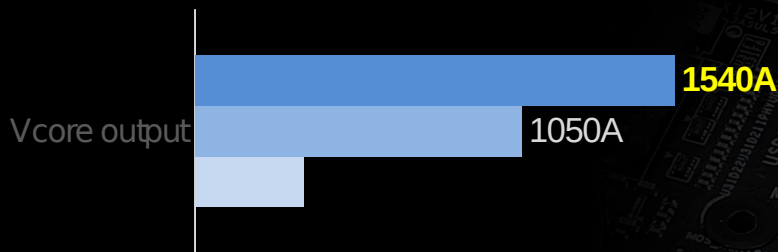
## B760I Lightning WiFi

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- Supports DDR5 8600+ (OC)
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- Phantom Gaming 2.5Gbps LAN
- Intel 802.11axE WiFi 6E
- **CES 2024 Award Winner**



# OPTIMIZED POWER AND DURABILITY

VCore with **SPS design** delivers smoother and neater power to the CPU, enhanced by **20K black capacitors** that ensure a lifespan of at least 20,000 hours for extended component durability. This optimized power delivery offers perfect support for the latest **Intel 14<sup>th</sup> Gen CPUs**.



- B760I Lightning WiFi / Z790I Lightning WiFi
- Z790 PG-ITX/TB4
- Z790M-ITX WiFi



Model	Z790I Lightning WiFi	B760I Lightning WiFi
Power Phase	14+1+1, 110A SPS	14+1+1, 110A SPS
Caps	20K Black Caps	Dura Caps

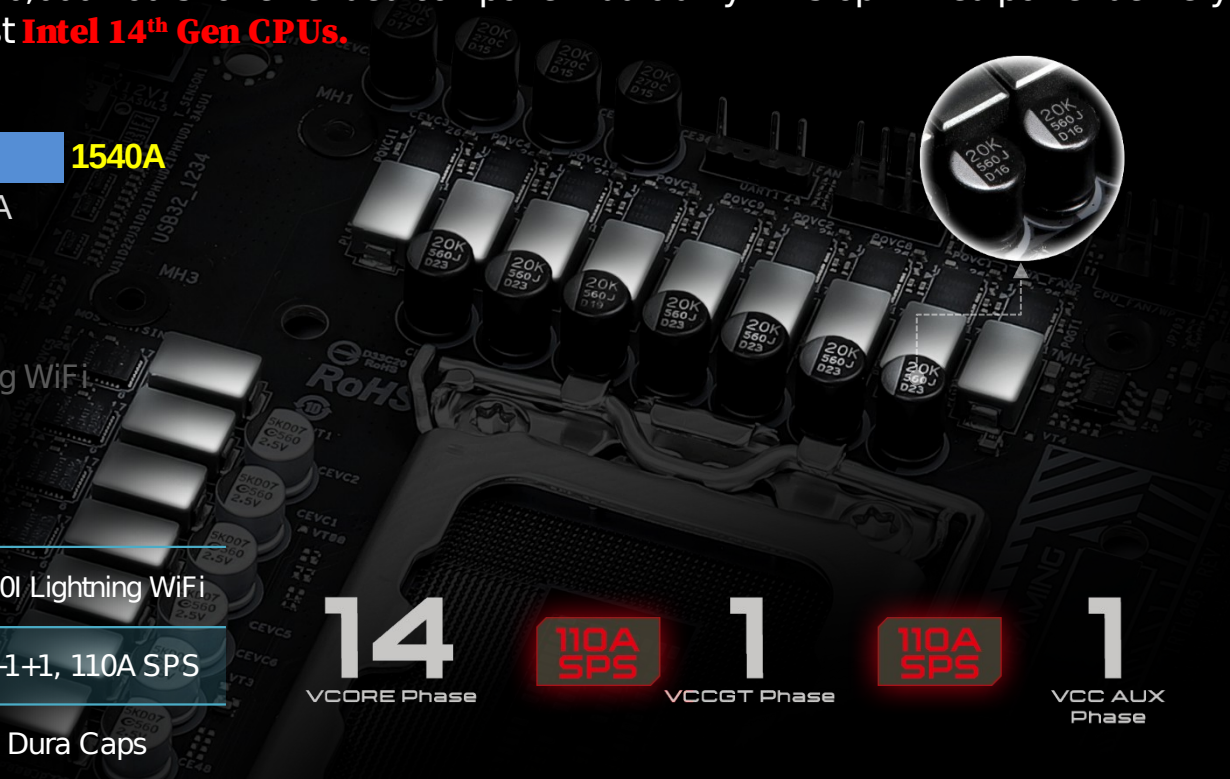
**14**  
V CORE Phase

**110A SPS**

**1**  
VCC6T Phase

**110A SPS**

**1**  
VCC AUX Phase





# V-CORE OUTPUT COMPARISON



Z790I Lightning WiFi



## Z790I Lightning WiFi

- Z790I AORUS ULTRA
- MPG Z790I EDGE WIFI
- ROG STRIX Z790-I GAMING WIFI

14+1+1, 110A SPS	1540W
10+1+2, 105A SPS	1050A
10+1+1, 105A SPS	1050A
10+1+1, 105A SPS	



B760I Lightning WiFi

## B760I Lightning WiFi

- B760I AORUS PRO
- MPG B760I EDGE WIFI
- ROG STRIX B760-I GAMING WIFI

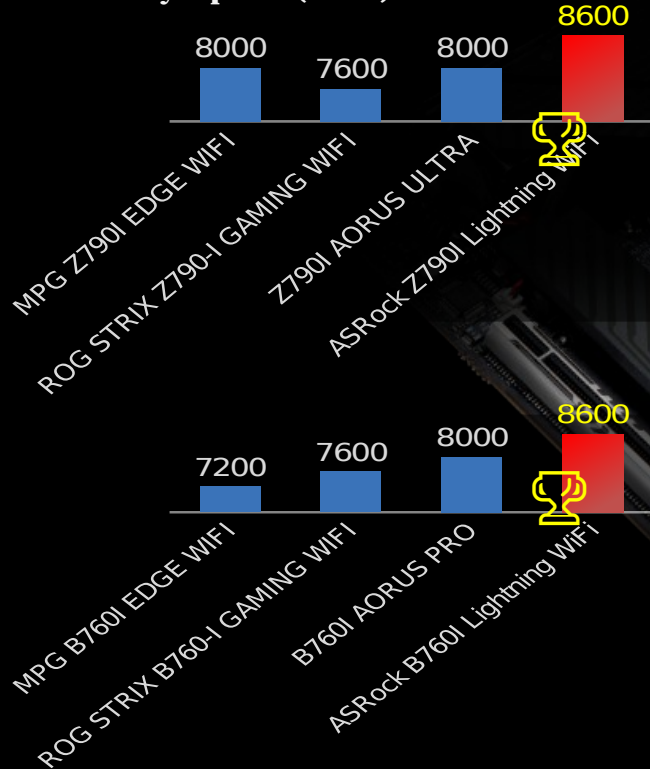
14+1+1, 110A SPS	1540W
8+1+1, 90A SPS	720A
8+1+1, 90A SPS	
8+1+2, 80A	



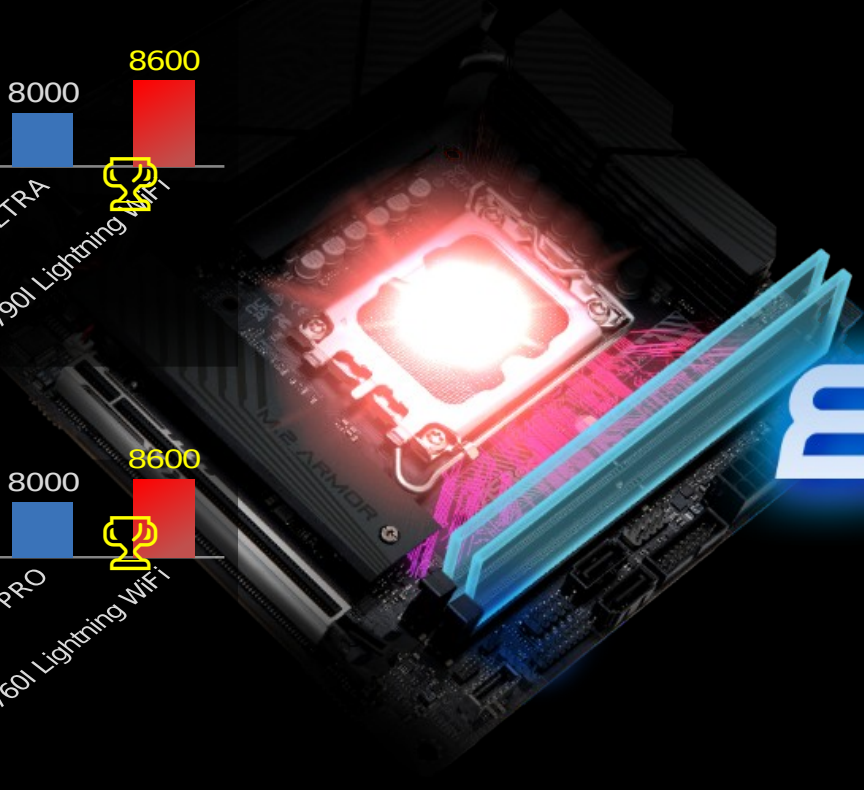
# TOP DDR5 OVERCLOCKING

Featuring **SMT** technology slots and optimized layout design, this provides more stable memory signal. It supports DDR5 modules with speeds of up to **8600+ MHz**, leading in its mini-ITX class.

Memory Speed (MHz)



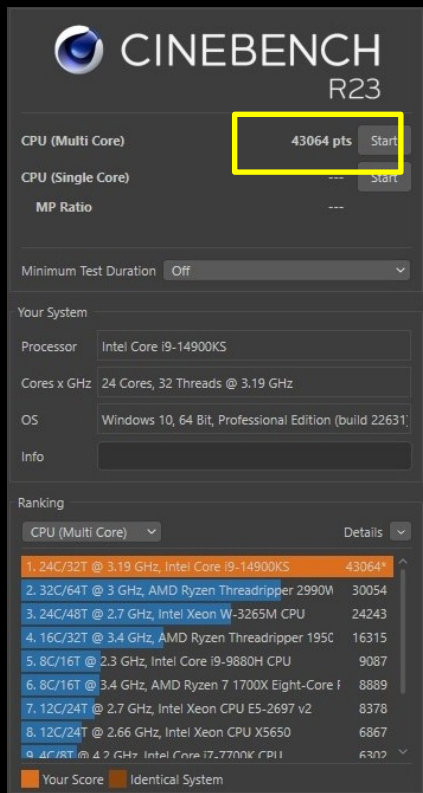
Up to DDR5  
**8600**  
MHZ



# OVERDRIVE OC PERFORMANCE

Z790I Lightning WiFi supports the newly released **Intel® Core™ i9-14900KS** processor. Benchmarked with CINEBENCH R23, it achieves an impressive score of **43,064 pts**, capable of fully unleashing powerful performance of 14900KS for enhanced gaming and productivity.

It also supports the high-speed memory module, up to **DDR5 8600+**, to offer superior overclocking performance.



CINEBENCH R23

CPU (Multi Core) **43064 pts** Start

CPU (Single Core) --- Start

MP Ratio ---

Minimum Test Duration Off

Your System

Processor Intel Core i9-14900KS

Cores x GHz 24 Cores, 32 Threads @ 3.19 GHz

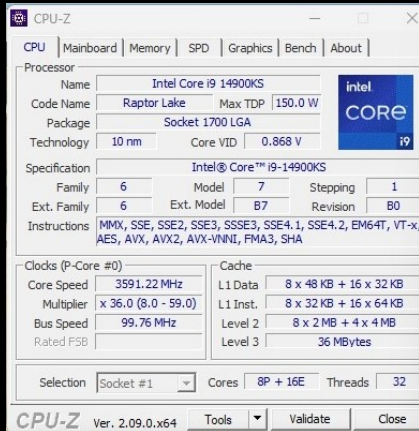
OS Windows 10, 64 Bit, Professional Edition (build 22H2)

Info

Ranking

Ranking	CPU (Multi Core)	Details
1.	24C/32T @ 3.19 GHz, Intel Core i9-14900KS	43064*
2.	32C/64T @ 3 GHz, AMD Ryzen Threadripper 2990W	30054
3.	24C/48T @ 2.7 GHz, Intel Xeon W-3265M CPU	24243
4.	16C/32T @ 3.4 GHz, AMD Ryzen Threadripper 1950	16315
5.	8C/16T @ 2.3 GHz, Intel Core i9-9880H CPU	9087
6.	8C/16T @ 3.4 GHz, AMD Ryzen 7 1700X Eight-Core F	8889
7.	12C/24T @ 2.7 GHz, Intel Xeon CPU E5-2697 v2	8378
8.	12C/24T @ 2.66 GHz, Intel Xeon CPU X5650	6867
9.	4C/8T @ 4.2 GHz, Intel Core i7-7700K CPU	6302

Your Score Identical System



CPU-Z Ver. 2.09.0.x64

CPU Mainboard | Memory | SPD | Graphics | Bench | About

Processor

Name	Intel Core i9-14900KS		
Code Name	Raptor Lake	Max TDP	150.0 W
Package	Socket 1700 LGA		
Technology	10 nm	Core VID	0.868 V

Specification

Intel® Core™ i9-14900KS			
Family	6	Model	7
Ext. Family	6	Ext. Model	B7
Stepping	1	Revision	B0

Instructions MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, EM64T, VT-x, AES, AVX, AVX2, AVX-VNNI, FMA3, SHA

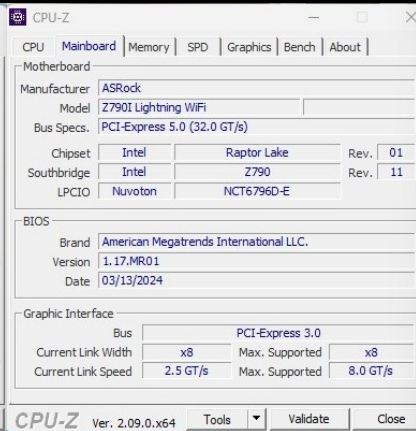
Clocks (P-Core #0)

Core Speed	3591.22 MHz
Multiplier	x 36.0 (8.0 - 59.0)
Bus Speed	99.76 MHz
Rated FSB	

Cache

L1 Data	8 x 48 KB + 16 x 32 KB
L1 Inst.	8 x 32 KB + 16 x 64 KB
Level 2	8 x 2 MB + 4 x 4 MB
Level 3	36 MBytes

Selection Socket #1 Cores 8P + 16E Threads 32



CPU-Z Ver. 2.09.0.x64

CPU Mainboard | Memory | SPD | Graphics | Bench | About

Motherboard

Manufacturer	ASRock
Model	Z790I Lightning WiFi
Bus Specs.	PCI-Express 5.0 (32.0 GT/s)

Chipset Intel Raptor Lake Rev. 01

Southbridge Intel Z790 Rev. 11

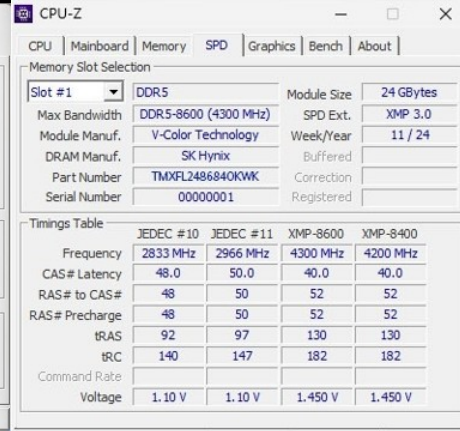
LPCIO Nuvoton NCT6796D-E

BIOS

Brand	American Megatrends International LLC.
Version	1.17.MR01
Date	03/13/2024

Graphic Interface

Bus	PCI-Express 3.0
Current Link Width	x8 Max. Supported x8
Current Link Speed	2.5 GT/s Max. Supported 8.0 GT/s



CPU-Z Ver. 2.09.0.x64

CPU Mainboard | Memory | SPD | Graphics | Bench | About

Memory Slot Selection

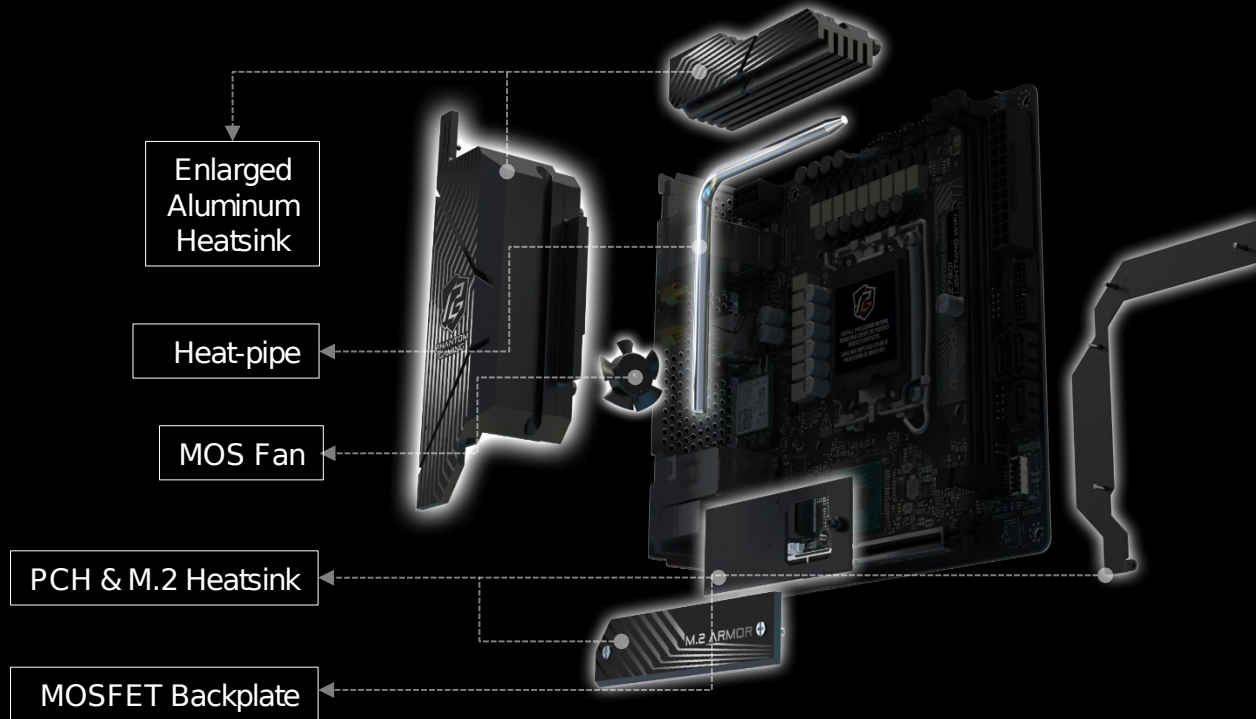
Slot #1	DDR5	Module Size	24 GBytes
Max Bandwidth	DDR5-8600 (4300 MHz)	SPD Ext.	XMP 3.0
Module Manuf.	V-Color Technology	Week/Year	11 / 24
DRAM Manuf.	SK Hynix	Buffered	
Part Number	TMXFL2486840KWK	Correction	
Serial Number	00000001	Registered	

Timings Table

Frequency	JEDEC #10	JEDEC #11	XMP-8600	XMP-8400
CAS# Latency	48.0	50.0	40.0	40.0
RAS# to CAS#	48	50	52	52
RAS# Precharge	48	50	52	52
tRAS	92	97	130	130
tRC	140	147	182	182
Command Rate				
Voltage	1.10 V	1.10 V	1.450 V	1.450 V

# COMPOSITE HEATSINK DESIGN

Equipped with a **Composite VRM Heatsink** combining a cooling fan, bigger aluminum sink and heat pipe for maximum heat dissipation.



Even without any airflow over the VRM area, B760I Lightning WiFi is capable of handling the high-end i9-14900K CPU.

## Thermal Test

PL1 = PL2 = 280W	B760I Lightning WiFi
MOS Temp.	<b>84.6°C</b>
Choke Temp.	<b>86.8°C</b>
PCB Temp.	<b>86.4°C</b>

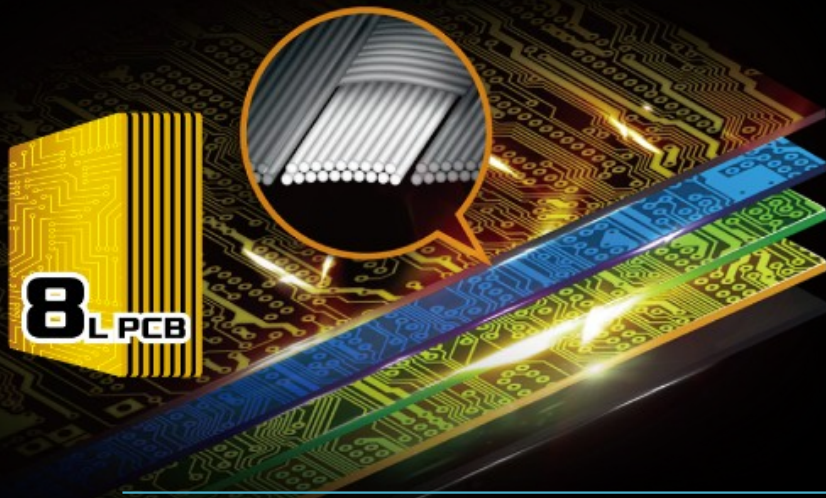
[Test Configuration]

Intel Core i9-14900K, 360mm AIO Water Cooler, DDR5-6000 32GB\*2, 850W PSU, Prime95 Small FFTs 30mins



# SERVER GRADE LOW LOSS 8L PCB

Built with server grade low loss 8-layer PCB design that provides better signal and thermal performance to optimize the processors, enhances DRAM OC.

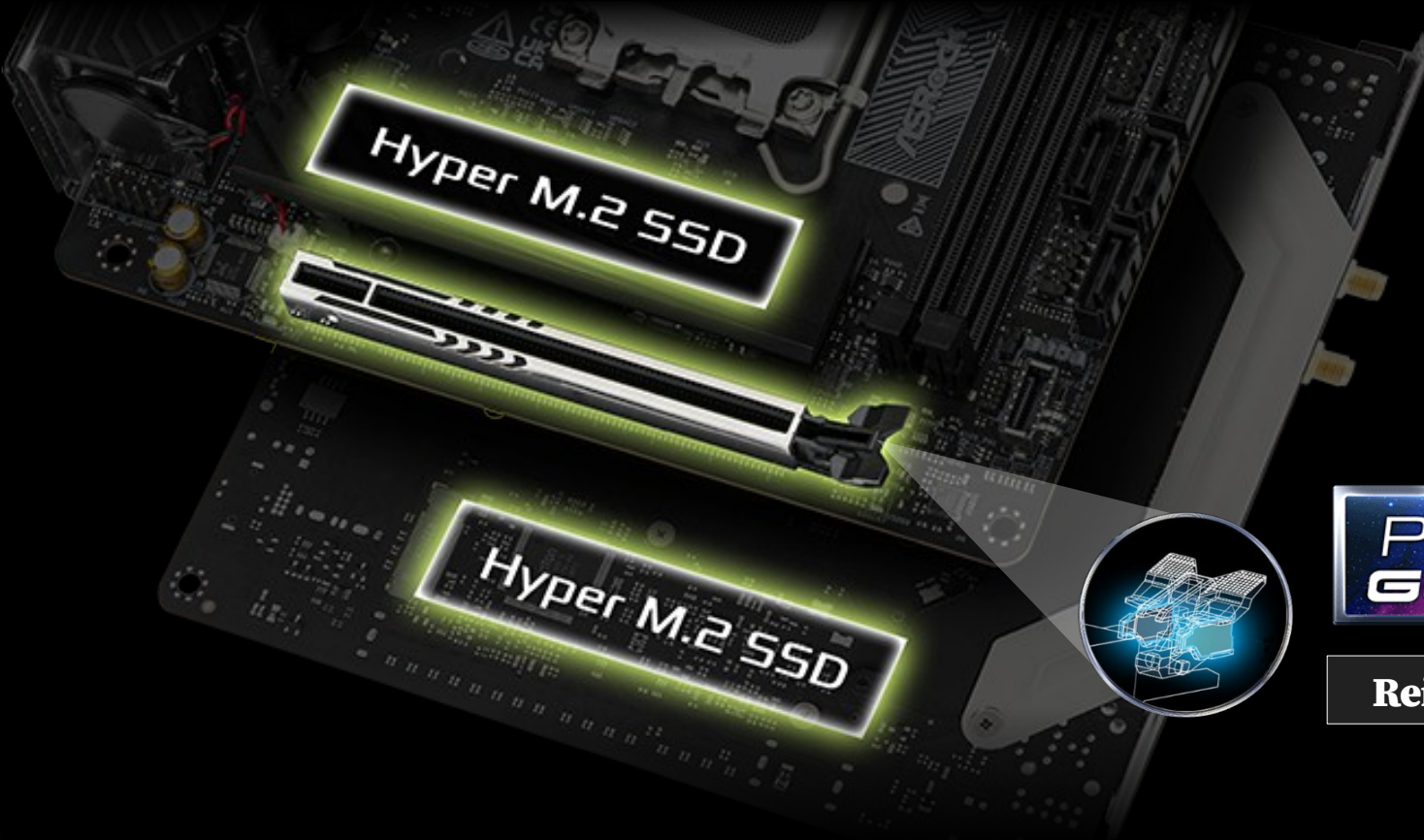


Model	8L PCB	Server Grade Low-Loss	20Z PCB
Z790I Lightning WiFi	✓	✓	✓
B760I Lightning WiFi	✓	✓	✓



# EXCELLENT HIGH-SPEED EXPANDABILITY

It's designed to maximize the speed of SSDs and GPUs for quick data transfers and excellent expandability.



PCIe  
GEN 5

Reinforced Steel Slot



# IMMERSIVE GAMING AUDIO EXPERIENCE

Whether you are using headphones, a headset, external or internal speakers, via USB, Wi-Fi, analog output or even HDMI, Nahimic Audio offers you the most engaging listening experience, vibrant and rich with details.

- Static Noise Suppression
- Echo Cancellation
- Lateral Sound Cancellation
- Voice Stabilizer

Model	Audio Codec	Nahimic Audio
Z790I Lightning WiFi	Realtek ALC897	✓
B760I Lightning WiFi	Realtek ALC897	✓



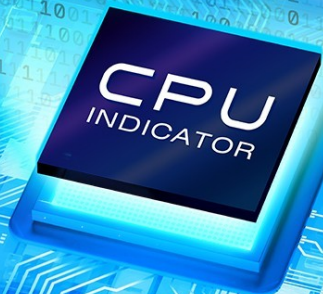


# CPU INDICATOR

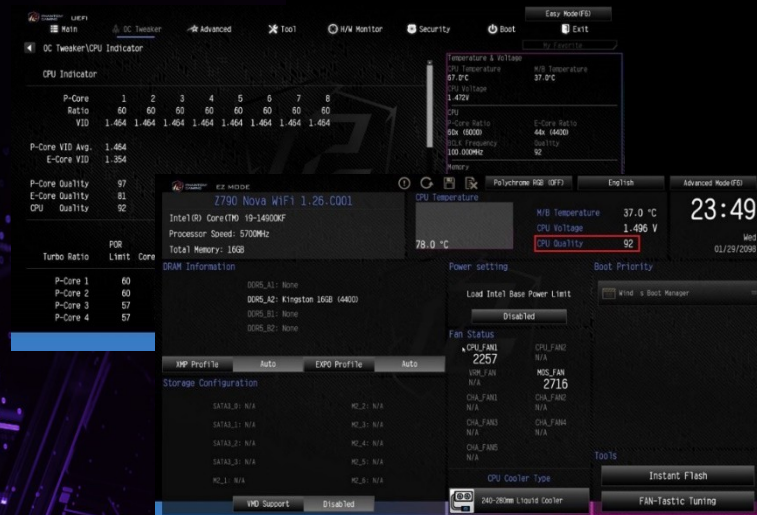
Tune your computer quickly with **ASRock CPU Indicator**. It rates your CPU by assigning points based on its performance and capabilities, helping users optimize overclocking settings for enhanced performance.

## CPU QUALITY

# 040



Model	CPU Indicator
Z790I Lightning WiFi	V
B760I Lightning WiFi	X



\*This feature is compatible with Intel 14<sup>th</sup>, 13<sup>th</sup> & 12<sup>th</sup> Gen K-SKUs CPU and ASRock Z790 chipset motherboards.



PHANTOM  
GAMING

# SPECIFICATION



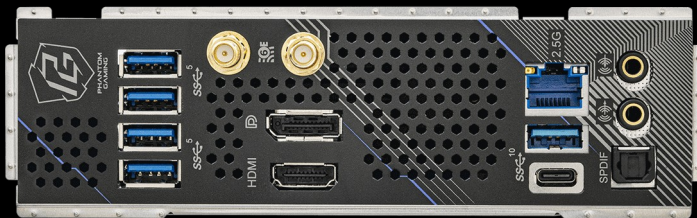
# Z790I Lightning WiFi



CPU Support	Supports 14 <sup>th</sup> , 13 <sup>th</sup> & 12 <sup>th</sup> Gen Intel® Core™ Processors
Socket	LGA1700
Chipset	Intel® Z790
Power	14+1+1 Power Phase, 110A SPS for Vcore+GT, 8L 2oz low-loss PCB, 20K Black Caps
Memory	2 x DDR5 DIMMs, supports up to 8600+ (OC)
Expansion Slots	1 PCIe 5.0 x16
Graphics	Intel® UHD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated.
Graphics Output	1 HDMI, 1 DisplayPort
Audio	7.1 CH HD Audio (Realtek ALC897 Audio Codec), Nahimic Audio
Storage	2 Hyper M.2 (PCIe Gen4 x4), 3 SATA3
USB	1 USB 3.2 Gen2 Type-C (Rear), 1 USB 3.2 Gen2 Type-A (Rear), 1 USB 3.2 Gen1 Type-C (Front), 6 USB 3.2 Gen1 Type-A (4 Rear, 2 Front), 2 USB 2.0 (Front)
LAN	Phantom Gaming 2.5G LAN
Wireless LAN	802.11ax WiFi 6E + Bluetooth
Form Factor	Mini-ITX



# B760I Lightning WiFi



CPU Support	Supports 14 <sup>th</sup> , 13 <sup>th</sup> & 12 <sup>th</sup> Gen Intel® Core™ Processors
Socket	LGA1700
Chipset	Intel® B760
Power	14+1+1 Power Phase, 110A SPS for Vcore+GT, 8L 2oz low-loss PCB
Memory	2 x DDR5 DIMMs, supports up to 8600+ (OC)
Expansion Slots	1 PCIe 5.0 x16
Graphics	Intel® UHD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated.
Graphics Output	1 HDMI, 1 DisplayPort
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Storage	2 Hyper M.2 (PCIe Gen4 x4), 3 SATA3
USB	1 USB 3.2 Gen2 Type-C (Rear), 1 USB 3.2 Gen2 Type-A (Rear), 1 USB 3.2 Gen1 Type-C (Front), 6 USB 3.2 Gen1 Type-A (4 Rear, 2 Front), 2 USB 2.0 (Front)
LAN	Phantom Gaming 2.5G LAN
Wireless LAN	802.11ax WiFi 6E + Bluetooth
Form Factor	Mini-ITX



PHANTOM  
GAMING

FAST / MYSTERIOUS / UNBEATABLE



THANK YOU

**ASRock**