ASRock

PHANTOM GAMING
Z890M RIPTIDE WiFi

intel CORE ULTRA — Supports Intel® Core™ Ultra processors (Series 2)
intel CHIPSET Z890
WiFi 6E
THUNDERBOLT™

PRODUCT BRIEF :

- Supports Intel® Core™ Ultra Processors (Series 2) (LGA1851)
- 16+1+1+1+1 Power Phase, 80A Dr.MOS for VCore+GT+SA
- 4 x DDR5 DIMMs
  Supports Dual Channel, up to 9066+ (OC)
- 1 PCIe 5.0 x16
- Graphics Output Options: 1 HDMI, 1 DisplayPort,
  2 Thunderbolt™ 4 Type-C
- Realtek ALC1220 7.1 CH HD Audio Codec, Nahimic Audio

- 4 SATA3
  1 Blazing M.2 (PCIe Gen5 x4)
  1 Hyper M.2 (PCIe Gen4 x4)
  1 Hyper M.2 (PCIe Gen4 x4 & SATA3)
- 2 Thunderbolt™ 4 Type-C (Rear)
  1 USB 3.2 Gen2x2 Type-C (Front),
  2 USB 3.2 Gen2 Type-A (Rear),
  6 USB 3.2 Gen1 (4 Rear, 2 Front),
  6 USB 2.0 (2 Rear, 4 Front)

- Killer 2.5G LAN
- 802.11axe Wi-Fi 6E + Bluetooth
- Supports BIOS Flashback, Memory OC Shield,
  20K Caps with 1000uF Capacitance

I/O OVERVIEW

16+1+1+1+1 Power Phase

Vcore with Dr.MOS design, delivering smoother and neater power to the CPU.

16 80A DR.MOS VCORE **1** 80A DR.MOS VCCGT **1** VCCSA

Exclusive 20K Cap with 1000uF Capacitance

Featuring ASRock's exclusive 1000uF capacitor with 20,000 hrs lifespan, ensuring stable and ultimate performance.

★ ASRock ★ Exclusive Feature

Dual Thunderbolt™ 4 Type-C

It enables lightning-fast data transfer up to 40Gbps and connects versatile devices with a single Thunderbolt™ 4 cable.

THUNDERBOLT™

802.11axe
6E

Killer 2.5G LAN
2.5G

Blazing M.2 (PCIe Gen5 x4)

Supports up to 3*NVMe M.2 SSDs and one of which is able to accommodates the latest PCI Express 5.0 standard.

Gen5 x4 BLAZING M.2 128Gb/s

Memory OC Shield (Patent Pending)

ASRock's exclusive Memory OC Shield effectively absorbs EMI noise, enhancing memory overclocking performance and stability.

PATENT PENDING

*Patent applied number 113209060

Toolless Multi-Layer M.2 Heatsink

Including a quick-release mechanism heatsink for effortless and toolless M.2 SSD installation.

BIOS Flashback
BIOS Flashback

Realtek ALC1220 Audio Codec

DETAIL SPECIFICATION

Platform	- Micro ATX Form Factor: 9.6-in x 9.6-in, 24.4 cm x 24.4 cm - 2oz Copper PCB

Unique Feature	Superb Productivity
	   - PCIe Gen5 (Graphics, M.2)
	   - Dual Channel DDR5
	   - Thunderbolt™ 4 Type-C Ports (40 Gb/s)
	Rock-Solid Durability
	   - Server-Grade Low-Loss PCB
	   - 16+1+1+1+1 Power Phase, 80A Dr.MOS for VCore+GT+SA with Enlarged
	    Heatsink Armor
	   - Memory OC Shield
	   - Flexible Integrated I/O Shield
	   - 20K Long-lasting Black Caps (high quality and conductive polymer capacitors)
	Ultrafast Gaming
	   - Killer 2.5G LAN, 802.11axe Wi-Fi 6E Module
	   - Killer DoubleShot™ Pro
	EZ Update
	   - BIOS Flashback Button
	   - ASRock Auto Driver Installer
	EZ Troubleshooter
	   - ASRock Post Status Checker

CPU	- Supports Intel® Core™ Ultra Processors (Series 2) (LGA1851RL-ILM) - Supports Intel® Hybrid Technology - Supports Intel® Turbo Boost Max 3.0 Technology - Supports Intel® Thermal Velocity Boost (TVB) - Supports Intel® Adaptive Boost Technology (ABT) - Integrated NPU for dedicated AI acceleration
Chipset	- Intel® Z890

Memory	- Dual Channel DDR5 Memory Technology
	- 4 x DDR5 DIMM Slots
	- Supports DDR5 non-ECC, un-buffered memory up to 9066+(OC)*
	  1DPC 1R Up to 9066+ MHz (OC), 5600 MHz Natively.
	  1DPC 2R Up to 6800+ MHz (OC), 5600 MHz Natively.
	  2DPC 1R Up to 6800+ MHz (OC), 4800 MHz Natively.
	  2DPC 2R Up to 5800+ MHz (OC), 4400 MHz Natively.
	- Max. capacity of system memory: 256GB
	- Supports Intel® Extreme Memory Profile (XMP) 3.0x
	* Please refer to Memory Support List on ASRock's website for more information.
	  (http://www.asrock.com/)

Expansion Slot	CPU: - 1 x PCIe 5.0 x16 Slot (PCIE1), supports x16 mode* Chipset: - 1 x M.2 Socket (Key E), supports type 2230 WiFi/BT PCIe WiFi module and Intel® CNVio/CNVio2 (Integrated WiFi/BT) * PCIE1 supports PCIe riser cards to extend one x16 slot to x8/x8 or x8/x4/x4 slots. * Supports NVMe SSD as boot disks

Graphics	* Intel® UHD Graphics Built-in Visuals and the VGA outputs can be supported only
	  with processors which are GPU integrated.
	- Intel® Xᵉ LPG Graphics Architecture
	- 1 x HDMI 2.1 TMDS/FRL 8G Compatible, supports HDR, HDCP 2.3 and max.
	  resolution up to 4K 120Hz
	- 1 x DisplayPort 1.4 with DSC (compressed), supports HDCP 2.3 and max. resolution
	  up to 8K 60Hz / 5K 120Hz
	- 2 x Intel® Thunderbolt™ 4, support HDCP 2.3 and max. resolution up to 8K 60Hz /
	  5K 120Hz*
	* Supports two 4K displays or one 8K display
	* Only the CPU's embedded graphics can be displayed through Thunderbolt ports.
	  If you want to display to a Thunderbolt monitor, please use CPU models with
	  embedded graphics.

Audio	- 7.1 CH HD Audio (Realtek ALC897 Audio Codec) - Nahimic Audio
LAN	- 2.5 Gigabit LAN 10/100/1000/2500 Mb/s - Killer® E3100G - Supports Killer LAN Software - Supports Killer DoubleShot™ Pro

Wireless LAN	- 802.11axe Wi-Fi 6E Module
	- Supports IEEE 802.11a/b/g/n/ac/ax/axe
	- Supports Dual-Band 2x2 160MHz with extended 6GHz band* support
	* Wi-Fi 6E (6GHz band) will be supported by Microsoft® Windows® 11. The
	  availability will depend on the different regulation status of each country and region.
	  It will be activated (for supported countries) through Windows Update and software
	  updates once available.
	* A 6GHz compatible router is required for 6E functionality.
	- 2 antennas to support 2 (Transmit) x 2 (Receive) diversity technology
	- Supports Bluetooth 5.3
	- Supports MU-MIMO
	- Supports Killer LAN Software
	- Supports Killer DoubleShot™ Pro

USB	CPU: - 2 x Thunderbolt™ 4 Type-C (Rear) Chipset: - 1 x USB 3.2 Gen2x2 Type-C (Front) - 2 x USB 3.2 Gen2 Type-A (Rear) - 6 x USB 3.2 Gen1 (4 Rear, 2 Front) - 6 x USB 2.0 (2 Rear, 4 Front) * All USB ports support ESD Protection
Rear Panel I/O	- 2 x Antenna Ports - 1 x HDMI Port - 1 x DisplayPort 1.4 - 1 x Optical SPDIF Out Port - 2 x Thunderbolt™ 4 Type-C Ports (40 Gb/s for USB4 protocol; 40Gb/s for Thunderbolt protocol)* - 2 x USB 3.2 Gen2 Type-A Ports (10 Gb/s) - 4 x USB 3.2 Gen1 Ports - 2 x USB 2.0 Ports - 1 x RJ-45 LAN Port - 1 x BIOS Flashback Button - 1 x Line Out Jack (Gold Audio Jack) - 1 x Microphone Input Jack (Gold Audio Jack) * Supports USB PD 3.0 up to 5V@3A (15W) charging

Storage	CPU:
	- 1 x Blazing M.2 Socket (M2_1, Key M), supports type 2280 PCIe Gen5x4 (128 Gb/s) mode*
	- 1 x Hyper M.2 Socket (M2_2, Key M), supports type 2280 PCIe Gen4x4 (64 Gb/s) mode*
	  Chipset:
	- 1 x Hyper M.2 Socket (M2_3, Key M), supports type 2280 SATA3 6.0 Gb/s & PCIe Gen4x4
	  (64 Gb/s) modes*
	- 4 x SATA3 6.0 Gb/s Connectors
	
	* Supports Intel® Volume Management Device (VMD)
	* Supports NVMe SSD as boot disks

RAID	- Supports RAID 0, RAID 1, RAID 5 and RAID 10 for SATA storage devices - Supports RAID 0, RAID 1, RAID 5 and RAID 10 for M.2 NVMe storage devices* * Requires additional M.2 NVMe expansion cards to support RAID 10

Connector	- 1 x Thermistor Cable Header
	- 1 x SPI TPM Header
	- 1 x Power LED and Speaker Header
	- 1 x RGB LED Header*
	- 2 x Addressable LED Headers**
	- 2 x CPU Fan Connectors (4-pin) (Smart Fan Speed Control)***
	- 3 x Chassis Fan Connectors (4-pin) (Smart Fan Speed Control)***
	- 1 x AIO Pump Fan Connector (4-pin) (Smart Fan Speed Control)***
	- 1 x Water Pump Fan Connector (4-pin) (Smart Fan Speed Control)***
	- 1 x 24 pin ATX Power Connector (Hi-Density Power Connector)
	- 2 x 8 pin 12V Power Connectors (Hi-Density Power Connector)
	- 1 x Front Panel Audio Connector (15μ Gold Audio Connector)
	- 2 x USB 2.0 Headers (Support 4 USB 2.0 ports)
	- 1 x USB 3.2 Gen1 Header (Supports 2 USB 3.2 Gen1 ports)
	- 1 x Front Panel Type C USB 3.2 Gen2x2 Header (20 Gb/s)
	* Supports in total up to 12V/3A, 36W LED Strip
	** Support in total up to 5V/3A, 15W LED Strip
	*** CPU_FAN1 supports the fan power up to 1A (12W).
	*** CPU_FAN2, CHA_FAN1~3, AIO_PUMP and W_PUMP support the fan power up to 3A
	   (36W).
	*** CPU_FAN2, CHA_FAN1~3, AIO_PUMP and W_PUMP can auto detect if 3-pin or 4-pin
	   fan is in use.

BIOS Feature	- 256Mb AMI UEFI Legal BIOS with GUI support
Software and UEFI	Software - ASRock Motherboard Utility (Phantom Gaming Tuning) - Killer Control Center - ASRock Polychrome SYNC * These utilities can be downloaded from ASRock Live Update & APP Shop. UEFI - ASRock EZ Mode - ASRock Full HD UEFI - ASRock My Favorites in UEFI - ASRock Auto Driver Installer - ASRock Instant Flash
OS	- Microsoft® Windows® 11 64-bit
Certifications	- FCC, CE - ErP/EuP ready (ErP/EuP ready power supply is required)
Accessories	- 2 x SATA Data Cables - 2 x ASRock WiFi 2.4/5/6 GHz Antennas - 1 x ARGB Splitter Cable - 1 x Thermistor Cable