STEEL LEGEND

Z890 STEEL LEGEND WiFi

MOTHERBOARD

intel CORE ULTRA — Supports Intel® Core™ Ultra processors (Series 2) · intel CHIPSET Z890 · WiFi 7 · THUNDERBOLT™

PRODUCT BRIEF :

- Supports Intel® Core™ Ultra Processors (Series 2) (LGA1851)
- 18+1+1+1+1 Power Phase, 80A SPS for VCore+GT+SA
- 4 x DDR5 DIMMs
  Supports Dual Channel, up to 9066+ (OC)
- 1 PCIe 5.0 x16, 1 PCIe 4.0 x16, 1 PCIe 4.0 x4
- Graphics Output Options: 1 HDMI
  2 Thunderbolt™ 4 Type-C
- Realtek ALC1220 7.1 CH HD Audio Codec
  Nahimic Audio

- 4 SATA3
  1 Blazing M.2 (PCIe Gen5 x4)
  2 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)
  8 USB 3.2 Gen1 (4 Rear, 4 Front)
  6 USB 2.0 (2 Rear, 4 Front)

- Realtek 2.5G LAN
- Intel 802.11be Wi-Fi 7 + Bluetooth
- Supports BIOS Flashback, Memory OC Shield
  20K Caps with 1000uF Capacitance

I/O OVERVIEW

18+1+1+1+1 Power Phase Design

VCore with SPS design, delivering smother and neater power to the CPU.

Exclusive 20K Cap with 1000uF Capacitance

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

Dual Thunderbolt™ 4 Type-C

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

802.11be 7

REALTEK 2.5G LAN 2.5G

Memory OC Shield (Patent Pending)

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

*Patent applied number 113209060

Blazing M.2 (PCIe Gen5 x4)

Supports up to 4*NVMe M.2 SSDs and one of which is able to accommodates the latest PCI Express 5.0 standard.

M.2 Bottom Heatsink

Dissipate heat efficiently through the motherboard PCB, maximize performance while maintaining system stability.

ASROCK AUTO DRIVER INSTALLER ADI

BIOS FLASHBACK

Detail Specification

Platform	- ATX Form Factor: 12.0-in x 9.6-in, 30.5 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
	  - 18+1+1+1+1 Power Phase, 80A SPS 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 Connectivity
	  - 2.5G LAN, 802.11be Wi-Fi 7 Module
	  - ASRock Lightning Gaming Ports
	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 PCIe 4.0 x16 Slot (PCIE2), supports x4 mode* - 1 x PCIe 4.0 x4 Slot (PCIE3), supports x4 mode* - 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
	- 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 with Content Protection (Realtek ALC1220 Audio Codec) - Impedance Sensing on Rear Out port - Individual PCB Layers for R/L Audio Channel - Nahimic Audio

LAN	- 2.5 Gigabit LAN 10/100/1000/2500 Mb/s
	- Dragon RTL8125BG
	- Supports Dragon 2.5G LAN Software
	  - Smart Auto Adjust Bandwidth Control
	  - Visual User Friendly UI
	  - Visual Network Usage Statistics
	  - Optimized Default Setting for Game, Browser, and Streaming Modes
	  - User Customized Priority Control

Wireless LAN	- 802.11be 2x2 Wi-Fi 7 Module
	- Supports IEEE 802.11a/b/g/n/ac/ax/axe/be
	- Supports 2.4GHz/5GHz/6GHz* frequency band
	- Supports 320MHz channel bandwidth with 6GHz* frequency band
	* Wi-Fi 7 (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.
	- 1 antenna to support 2 (Transmit) x 2 (Receive) diversity technology
	- Supports Bluetooth 5.4
	- Supports MU-MIMO

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) - 8 x USB 3.2 Gen1 (4 Rear, 4 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 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 ** USB32_34 are Lightning Gaming Ports. USB32_56 support Ultra USB Power.

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*
	- 1 x Hyper M.2 Socket (M2_4, Key M), supports type 2230/2242/2260/2280 PCIe Gen4x4
	  (64 Gb/s) mode*
	- 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
Connector	- 1 x Thermistor Cable Header - 1 x SPI TPM Header - 1 x Power LED and Speaker Header - 1 x RGB LED Header* - 3 x Addressable LED Headers** - 2 x CPU Fan Connectors (4-pin) (Smart Fan Speed Control)*** - 5 x Chassis Fan Connectors (4-pin) (Smart Fan Speed Control)*** - 1 x AIO 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) - 2 x USB 3.2 Gen1 Headers (Support 4 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_FAN1~5 and AIO_PUMP support the fan power up to 3A (36W). *** CPU_FAN2, CHA_FAN1~5 and AIO_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 (A-Tuning) - ASRock Dragon 2.5G LAN Software - 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 Thermistor Cable