MAG Z890 TOMAHAWK WIFI

MSI MAG Z890 TOMAHAWK WIFI Intel Core Ultra Socket LGA 1851 ATX Motherboard

Product Overview

MSI MAG Z890 TOMAHAWK WIFI Intel Core Ultra Socket LGA 1851 ATX Motherboard, Intel Z890 Chipset, 4x DDR5 DIMM Memory slots, 1x HDMI, 2x Type-C DisplayPort, 3x PCI-e x16 slot, PCI_E1 Gen PCI-e 5.0 supports up to x16, PCI_E2 Gen PCI-e 4.0 supports up to x4, PCI_E3 Gen PCI-e 4.0 supports up to x4, 7.1-channel High Definition audio, 4x M.2 supports up to PCI-e 5.0 x4 / PCI-e 4.0 x4, 4x SATA 6G, 2x Thunderbolt4 Ports supports up to 8K Display, USB 5Gbps Type, USB 10Gbps Type-A, USB 10Gbps Type-C, USB 20Gbps Type-C, USB 20Gbps Type-C support USB PD 27W fast charging, Intel Killer E5000 5Gbps LAN, Intel Killer BE1750X Wi-Fi 7, Bluetooth











Specifications

Overview:

MAG Z890 TOMAHAWK WIFI

- Support Intel Core Ultra Processors (Series 2) for LGA 1851 socket
- Supports DDR5 Memory, Dual Channel DDR5 9200+ MT/s (OC)
- Ultra Performance: 16+1+1+1 Duet Rail Power System 90A SPS, dual 8-pin CPU power connectors, Core Boost, Memory Boost, 6-layer PCB made by 2oz thickened copper and server-grade level material
- Frozr Guard: Extended Heatsink, MOSFET thermal pads rated for 7W/mK, additional choke thermal pads and EZ M.2 Shield Frozr II are built for high performance system and non-stop experience
- EZ DIY: EZ PCIe Release, EZ M.2 Shield Frozr II, EZ M.2 Clip II and EZ Antenna
- Lightning Fast Game experience: PCIe 5.0 slot, Lightning Gen 5 x4 M.2
- Ultra Connect: Thunderbolt 4 port, Intel Killer 5G LAN & Intel Killer Wi-Fi 7 Solution - the latest solution for professional and multimedia use, delivering secure, stable, and high-speed networking and data transmission
- Audio Boost 4: Reward your ears with studio grade sound quality for the most immersive gaming experience

Features:

MAG Z890 TOMAHAWK WIFI is designed for gamers with a stable, durable and DIY friendly foundation for their PC builds. Coming up with Killer Wi-Fi 7 solution and 5G LAN, Thunderbolt 4, PCIe 5.0 solutions, Supplemental PCIe Power and exclusive EZ DIY features, it's ready for the battlefield of Intel Core Ultra processors.

Optimized UI / UX design

The MSI ARSENAL GAMING (MAG) series is engineered to give gamers the edge they need to dominate on the virtual battlefield. Inspired by the rugged durability and unwavering reliability of military-grade equipment, the MAG series is built to provide an unwavering defense in every gaming scenario.

However, MAG isn't just about performance; it's a design language that conveys ruggedness and toughness, embodying the very essence of the MAG style. For gamers who are determined to dominate their digital battlegrounds, the MAG series is here to stand with you, establishing the ultimate defense.

EZ M.2 CLIP II REMOVER

MSI's exclusive EZ M.2 Shield Frozr II and EZ M.2 CLIP II make M.2 installation seamless. Insert the SSD card into the slot and press it down to lock it in place with the clip. As fasten the SSD, flick the clip outwards and then the SSD is removed. The process is smooth, and you don't need to use your tools like before. One finger can give you perfect DIY experience.

Introducing MSI's EZ M.2 CLIP II Remover, a handy tool designed to simply switching or repositioning the EZ M.2 CLIP II on your motherboard. This tool allows users to effortlessly detach the EZ M.2 CLIP II from the motherboard and reattach it to any desired M.2 slot. It is included in the accessory kit that comes with MSI motherboards.

EZ PCIe Release

An easy-to-access physical button release mechanism that can help remove any PCIe card with a single tap, making it much easier to upgrade to a new GPU or other compatible device, streamlining the entire process and enhancing user experience.

EZ Conn header (JAF_2)

MSI's EZ Conn header(JAF_2) allows users to easily connect MSI EZ series fans (7 pin) or MSI liquid cooling (11 pin). If you don't have the above products, we also provide a 1 to 3 EZ Conn-Cable, enabling you to connect ARGB light, system fan and USB device.

MSI EZ SERIES FAN

This cable takes care of the tedious part of the build process, makes motherboard front panel connections quickly and accurately.

EZ DEBUG LED

Onboard LEDs will indicate the source of the problem so you know exactly where to look to get up and running again.

EZ DIGI-DEBUG LED

Displays the error code for troubleshooting. Also functions as temperature monitor!

HEADER WITH DIFFERENT COLOR

To better differentiate between pin headers for different purposes, mark the pump sys header and ARGB headers in white, PCIe 8-pin header in gray, and designate the pin headers for JAF_2 in white (for users who need to use JAF_1), enabling users to manage cables more efficiently.

16+1+1+1 Duet Rail Power System

Unleash and sustain maximum performance with an aggressive VRM design built with digital CPU power system. Combining 8 + 8-pin power connectors and exclusive Core Boost technology, MAG series motherboard is ready to sustain heavy gaming loadings.

OPTIMIZED PCB SOLUTION

The PCB design has been optimized for higher bandwidth and faster transfer speeds, which is also beneficial for reliable circuit transmission.

- 6 PCB layers
- NPG-170D Server-grade PCB material
- 2oz Thickened Copper

DDR5 MEMORY SUPPORT WITH HIGH PERFORMANCE

A huge step of DDR performance enhancement with the latest DDR5 memory. Combines with dedicated SMT welding process and MSI Memory Boost technology, MAG Z890 TOMAHAWK WIFI is ready to deliver the world-class memory performance.

Memory Extension Mode

Memory Extension Mode provides optimized memory parameters for enhanced capability at the same frequency, achieving lower latency and higher performance. Furthermore, Memory Extension Mode can combine XMP profiles to maximize memory frequency, enabling users to effortlessly discover the best configuration based on their requirements.

Performance Mode, Benchmark Mode, Memtest Mode and High Efficiency Mode provide users with the flexibility to swiftly identify the ideal configuration tailored to their requirements and memory overclocking capabilities.

- TVS
- SOLID PIN DESIGN
- STAINLESS STEEL IO
- OCP Protection
- GROUNDING STRUCTURE

Transient Voltage Suppressors (TVS)

Transient Voltage Suppressors (TVS) are safety devices used to protect against excessive voltage. All motherboard models of MSI are equipped with TVS. When the voltage abnormally rises, the TVS switches from a high-resistance state to a low-resistance state, diverting the excessive voltage to ground. This helps prevent circuit damage caused by high voltage.

solid pin design

The 4-pin, 8-pin, and 24-pin power connectors of MSI motherboards are all designed with solid pins. The solid pin design allows for a more stable transmission of 12V power to the CPU, even when handling high current loads.

Advantages of Solid Pin Power connector

- Improved stability : Larger contact area enhances stability during power delivery.
- Low impedance : Solid pins offer low impedance, enabling efficient power flow.
- Strong durability : The solid pin design ensures strong durability, capable of withstanding demanding conditions.
- Suitable for high-current applications.

Anti-corrosive Stainless Steel IO Shield

An extra layer of sponge materials along with corrosive resistance IO Shield to help improve static electricity and reduce electromagnetic radiation noise from the system as well as much more durable compare to traditional IO Shields.

Over Current Protection

MSI motherboards prioritize safety with the embedded Overcurrent Protection (OCP), ensuring crucial components such as the USB ports, DDR memory, PWM IC, and CPU are shielded from excessive current. This proactive defense mechanism curtails the risk of damage or malfunction due to power surges, promoting long-term system stability. This commitment to safeguarding your hardware underscores MSI's dedication to producing motherboards that prioritize durability and stability.

The Grounding Structure of Power Phases

The grounding structure of power phases is the MSI's exclusive design. This patented design enables to suppress the electromagnetic interference (EMI) generated by the power phases and helps to efficiently conduct heat to the copper plane with grounding properties.

Cooling Overview

1. Extended Heatsink Extended Heatsink enlarges the surface of heat dissipation and maintain the performance at heavy loads.
2. Double-sided M.2 Shield Frozr Strengthened M.2 thermal solution helps keep M.2 SSD safe and ensures incredible performance.
3. Heavy Plated VRM Heatsink The VRM heatsink covers the upper MOS and helps dissipate the heat.
4. 7W/mK Thermal Pad & Additional Choke Pad High-quality 7W/mK MOSFET thermal pads and additional choke thermal pads ensure stable performance when all cores are runnging at high speed.
5. Enlarged Chipset Heatsink The enlarged heatsink is designed to reduce dust and noise and capable of maintaining high efficiency of heat dissipation.

DIY 2.0 - INTEGRATING WITH THE SYSTEM ENVIRONMENT

Connect and synchronize with MSI coolers and cases with strategically positioned pin-header locations including a dedicated pump-fan header.

Combo Fan Header

The MSI Combo Fan Header is a versatile component, functioning as both a pump and or fan header. The header will automatically detects whether it is either pump or PWM/DC fan, with it's distinctive gray color ensuring easy identification

Cooling Wizard serves as a comprehensive solution for managing fan settings across all MSI products. It ensures superior cooling performance and noise reduction for your gaming PC, offering compatibility with PWM/DC fans and pumps, customizable options, and intuitive temperature monitoring for optimal operation with one click.

Smart Fan & Manual Fan

- Smart FanAllow users to change the temperature curve with the 4 dots provided
- Manual FanAllow users to manual change the temperature at a set percentage

HIGH-BANDWIDTH AND LOW-LATENCY NETWORK

MSI's premium network solution provides incredible data transfer speed for demanding users.

- 5G LAN
- Wi-Fi 7
- EZ Antenna with Magnetic Stand

THE NEXT GEN WI-FI SOLUTION - WI-FI 7

Wi-Fi 7 is the latest wireless solution that takes a huge leap forward with multiple improvements to meet the traffic demand brought and the growing number of wireless devices.

Intel KiLLER Performance Suite

Equipped with Intel Killer LAN / Killer Wi-Fi, you can use the Intel Killer Performance Suite. It not only prioritizes frequently used applications but also provides recommendations to optimize network quality.

FAST AND FUTURE-READY STORAGE

MSI MAG series motherboards support all the latest storage standards, which allows users to connect any ultra-fast storage device. Start games faster, load levels faster and have a real advantage over your enemies.

- LIGHTNING GEN 5 PCI-E
- PCIe SUPPLEMENTAL POWER
- TBT4 SUPPORT
- TBT5 READY
- SUPER CHARGER +

LIGHTNING GEN 5 PCI-E

Doubling over the previous generation, the bandwidth of a x16 interface can reach 128GB/s.

SMT PCIE 5.0 SLOT

The advanced SMT(Surface Mount Technology) PCIE slot diminish interference and electrical noise, fully support the PCI-E 5.0 signal.

Steel Armor II

Compared to the previous generation, Steel Armor II's weight endurance has increased by 21%, ensuring excellent signal transmission quality.

Ready for the Future - Thunderbolt 5 Ready

Delivers up to 160 Gbps of total bandwidth transmission for the latest super-speed devices and drives. The ports can be employed for up to multiple external 8K displays, and support up to 27W of rapid power delivery charging.

Super Charger + makes fast charging (PD 27W) available on the dedicated front USB port for your PD-compatible devices. Besides charging efficiency optimization, it monitors USB output power, voltage and current in real-time.

audio boost 4

- HIGH PERFORMANCE ALC1220P AUDIO PROCESSOR
- HIGH QUALITY AUDIO CAPACITORS
- HIGH QUALITY AUDIO JACKS WITH S/PDIF
- DEDICATED HEADPHONE AMPLIFIER
- ISOLATED AUDIO SIGNAL
- DE-POP PROTECTION

The Isolated Analogy Structure for Audio Connectors

To provide clear voice, MSI develops a unique structure - Isolated Analogy Structure. The external metal framework of the audio connectors is separated from the internal layout, which ensures the sound quality crisp.

GLOW YOUR PC

Splash on some color and vibrant RGB lighting effects using Mystic Light utility of MSI Center, which has million colors and fancy LED effects. Enjoy the full control and creativity of your PC's lighting with one software.

- Wave
- Steady
- Flame
- Breathing
- CPU Temperature

- Color Ring
- Lightning
- Receration
- Meteor
- Default

EXTEND YOUR RGB EXPERIENCE WITH EASE

Add more color if you want! Mystic Light Extension pin header provides an intuitive way to control additional RGB strips and other RGB peripherals added to a system, without needing a separate RGB controller.

Exclusive UI of AIDA64 Extreme

MSI motherboards provide 60 days free trial of AIDA64 Extreme - MSI edition. AIDA64 Extreme is an almighty application for system information, diagnostics and benchmarks. With the application, you can monitor the detailed hardware and software information on PC and save it to file in multiple formats such as CSV and HTML.

Specifications:

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Specifications	
Product Code	MAG Z890 TOMAHAWK WIFI
Chipset	INTEL Z890
CPU	Supports Intel Core Ultra Processors (Series 2)
	LGA 1851
Memory	4x DDR5 UDIMM, Maximum Memory Capacity 256GB
	Memory Support 9200 - 6400 (OC) MT/s / 6400 - 4800 (JEDEC) MT/s
	Max. overclocking frequency:
	1DPC 1R Max speed up to 9200+ MT/s
	1DPC 2R Max speed up to 7200+ MT/s
	2DPC 1R Max speed up to 4800+ MT/s
	2DPC 2R Max speed up to 4800+ MT/s
	Supports Intel POR Speed and JEDEC Speed
	Supports Memory Overclocking and Intel XMP 3.0
	Supports Dual-Controller Dual-Channel mode
	Supports Non-ECC, Un-buffered memory
	Supports CUDIMM
	The DIMM slots on this motherboard only have single-sided latches.

Onboard Graphics	1x HDMI
	Support HDMI 2.1 with FRL, maximum resolution of 4K 120Hz
	2x Type-C DisplayPort
	Thunderbolt 4 ports, supporting DisplayPort 2.1 with UHBR20 over USB Type-C, with a maximum resolution of 4K@120Hz / 8K@60Hz
	*Available only on processors featuring integrated graphics. Graphics specifications may vary depending on the CPU installed.
Slot	3x PCI-E x16 slot
	PCI_E1 Gen PCIe 5.0 supports up to x16 (From CPU)
	PCI_E2 Gen PCIe 4.0 supports up to x4 (From Chipset)
	PCI_E3 Gen PCIe 4.0 supports up to x4 (From Chipset)
Audio	Realtek ALC1220P Codec
	7.1-Channel High Definition Audio
	Supports S/PDIF output
Storage	4x M.2
	M.2_1 Source (From CPU) supports up to PCIe 5.0 x4 , supports 2280/2260 devices
	M.2_2 Source (From CPU) supports up to PCIe 4.0 x4 , supports 22110/2280/2260 devices
	M.2_3 Source (From Chipset) supports up to PCIe 4.0 x4 , supports 2280/2260/2242 devices
	M.2_4 Source (From Chipset) supports up to PCIe 4.0 x4 / SATA mode, supports 2280/2260/2242 devices
	4x SATA 6G
	*Please refer to the manual for M.2 SSD heatsink restrictions.
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
Onboard Thunderbolt	2x Thunderbolt4 ports (Rear)
	Supports up to 40Gbps transfer rate with Thunderbolt devices
	Supports up to 20Gbps transfer rate with USB4 devices
	Supports up to 10Gbps transfer rate with USB 3.2 devices
	Supports up to 5V/3A,15W power charging
	Each port can daisy-chain up to three Thunderbolt 4 devices or five Thunderbolt 3 devices
	Supports up to 8K display
USB	4x USB 2.0 (Front)
	4x USB 5Gbps Type A (Rear)
	2x USB 5Gbps Type A (Front)
	3x USB 10Gbps Type A (Rear)
	1x USB 10Gbps Type C (Rear)
	1x USB 20Gbps Type C (Front)
	*USB 20Gbps Type-C (Front) support USB PD 27W fast charging for JUSBC1

LAN	Intel Killer E5000 5Gbps LAN
Internal IO	1x Thunderbolt5 card connector(JTBT5, support RTD3)
	1x Power Connector(ATX_PWR)
	2x Power Connector(CPU_PWR)
	1x Power Connector(PCIE_PWR 8pin)
	1x CPU Fan
	1x Combo Fan (Pump_Sys Fan)
	6x System Fan
	1x EZ Conn-header (JAF_2)
	2x Front Panel (JFP)
	1x Chassis Intrusion (JCI)
	1x Front Audio (JAUD)
	3x Addressable V2 RGB LED connector (JARGB_V2)
	1x RGB LED connector(JRGB)
	1x TPM pin header(Support TPM 2.0)
	4x USB 2.0 ports
	2x USB 5Gbps Type A ports
	1x USB 20Gbps Type C ports
WIRELESS LAN & BLUETOOTH	Intel Killer BE1750x Wi-Fi 7
	The Wireless module is pre-installed in the M.2 (Key-E) slot
	Supports MU-MIMO TX/RX, 2.4GHz / 5GHz / 6GHz* (320MHz) up to 5.8Gbps
	Supports 802.11 a/ b/ g/ n/ ac/ ax/ be
	Supports Bluetooth 5.4**, MLO, 4KQAM
	* 6GHz band support may depend on every country's regulations and Wi-Fi 7 will be ready in Windows 11 SV3.
	** The Bluetooth version may be updated, please refer to the Wi-Fi chipset vendor's website for details. Bluetooth 5.4 support schedule depends on MSFT Windows 11 plan.
LED FEATURE	4x EZ Debug LED
	1x EZ Digit Debug LED
OPERATING SYSTEM	Support for Windows 11 64-bit
PCB Info	ATX
	243.84mmx304.8mm

Product Information Online

For the latest product information, availability and purchasing details, please visit the product page:

Product page:
https://www.comx.co.za/MAG-Z890-TOMAHAWK-WIFI-MSI-MAG-Z890-TOMAHAWK-WIFI-Intel-Core-Ultra-Socket-LGA-1851-p-311064.php

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