ComX Computers
Product Specification Sheet

PRIMEZ890-PWIFI

Asus Prime Z890-P Z890 Chipset LGA 1851 ATX Motherboard with WiFi

Product Overview

Asus Prime Z890-P WiFi Z890 Chipset LGA 1851 ATX Motherboard, 4 x DIMM slots, max. 256GB, DDR5, Support up to 8666+MT/s (OC),Non-ECC, Un-buffered ,Clocked Unbuffered DIMM (CUDIMM), 1 x Thunderbolt™ 4 USB Type-C® port, 1 x USB 10Gbps port (1 x Type-A), 2 x USB 5Gbps ports (2 x Type-A), 4 x USB 2.0 ports (4 x Type-A), 1 x DisplayPort, 1 x HDMI port, 1 x Wi-Fi module, 1 x Realtek 2.5Gb Ethernet port, 3 x Audio jacks, 1 x BIOS FlashBack button, 1 x 4-pin CPU Fan header, 1 x 4-pin CPU OPT Fan header, 1 x 4-pin AIO Pump header, 4 x 4-pin Chassis Fan headers, 1 x 24-pin Main Power connector, 2 x 8-pin +12V CPU Power connector, 4 x M.2 slots (Key M), 4 x SATA 6Gb/s ports, 1 x USB 10Gbps connector (supports USB Type-C), 2 x USB 5Gbps headers support 4 additional USB 5Gbps ports, 2 x USB 2.0 headers support 4 additional USB 2.0 ports, 3 x Addressable Gen2 headers, 1 x Aura RGB header, 1 x Clear CMOS header, 1 x COM Port header, 1 x Front Panel Audio header (F_AUDIO), 1 x S/PDIF Out header, 1 x SPI TPM header (14-1pin), 1 x 10-1 pin Front Panel System header, 1 x Thunderbolt (USB4) header, ATX Form Factor, 30.5 cm x 24.4 cm



Specifications

Overview:

ASUS PRIME series motherboards are expertly engineered to unleash the full potential of the latest Intel® Core™ Ultra Processors (Series 2). Boasting a robust power design, comprehensive cooling solutions and intelligent tuning options, the PRIME Z890-P WIFI motherboard provides users and PC DIY builders with a range of performance optimizations via intuitive software and firmware features. It's designed to be Advanced AI PC-ready, offering the power and connectivity needed for demanding AI applications.

Features:

AI Solutions
ASUS AI Solutions include AI Advisor as your technical expert with expertise in PC performance, AI Networking II for real-time bandwidth optimization and AI Cooling II for automated temperature control.

AI Advisor
ASUS AI Advisor is an ASUS technical expert that's always available to answer your questions. Owners of compatible ASUS motherboards can interact with this AI-powered technology using natural language to learn more about their hardware. For DIY beginners, it can provide easy-to-understand explanations of one-click optimization features like fan speed tuning, and for seasoned PC-building veterans, it can offer guidance and instructions on the latest features offered by ASUS.

AI Networking II
AI Networking II combines intelligent technologies to continuously optimize network performance, provide trustworthy and seamless connectivity and unleash the full speed of WiFi 7.

Traffic Monitor
Armoury Crate's Traffic Monitor tracks your current WiFi channel usage. Move to a less congested channel by clicking the "Channel Switch" button.

Fast Check
Armoury Crate's Fast Check empowers users to rapidly detect WiFi signal strength.

Direction Finder
Armoury Crate's Direction Finder helps users detect the optimal antenna orientation for achieving the best WiFi signal strength.

AI Cooling II
AI Cooling II balances the thermals and acoustics of any build with a single click. An exclusive ASUS algorithm slashes unnecessary noise while running a quick stress test, and then it monitors CPU temperatures to dynamically adjust fans to optimal speeds.

NPU Boost
The integrated NPU in Intel® Core™ Ultra Processors (Series 2) efficiently accelerates AI workflows - and NPU Boost lets you do more with it. This BIOS feature overclocks the NPU with just one click, increasing performance by up to 24%.

Robust power design
Stable power is crucial for maximizing the performance of Intel® Core™ Ultra Processors (Series 2). The PRIME Z890-P WIFI is designed to meet the needs of high-core-count CPUs. It features 14(80A) + 1(80A) + 2(80A) + 1(80A) power stages that integrate high-side and low-side MOSFETs and drivers into packages rated for up to 80 amperes each. This configuration ensures optimal power delivery, efficiency, stability and performance for both current and future Intel® processors.

Six-layer PCB design
The multi-layered printed circuit board design quickly dissipates heat around the voltage regulators to improve overall system stability and provide the CPU with more overclocking headroom.

ProCool connectors
Proprietary connectors augment the motherboard's link to the power supply with 8 + 8 pin connectors that pass 12 volts of power directly to the processor. Each connector features solid pins that can handle more current than hollow-pin connectors.

Power Saving
The Power Saving function contains several settings to easily optimize power consumption and maximize energy savings. You can enable a CPU power limit, darken Aura lighting and set the fan profile to a Power Saving mode. You can also toggle the Power Saver plan that is built into Microsoft Windows.

Digi+ VRM control
The Digi+ voltage-regulator module (VRM) delivers real-time control over voltage droop, automatically switching frequency and power-efficiency settings.

AEMP III for Ultimate DDR5 Performance
ASUS Enhanced Memory Profile III (AEMP III) is an advanced firmware feature that empowers users to achieve unparalleled memory performance with cutting-edge CUDIMM memory. Through a two-phase comprehensive tuning process, AEMP III first optimizes the clock driver and then the memory frequency. This results in the best balance between performance and stability, even at cutting-edge speeds of DDR5-7600 or higher.

DIMM Fit
DIMM Fit is an ASUS-exclusive BIOS feature that precisely analyzes individual memory modules to optimize performance and pinpoint potential issues. This offers peak efficiency, compatibility, and system stability. Whether you are an overclocker seeking ultimate performance, a competitor pursuing the most responsive gameplay, or a content creator prioritizing rock-solid stability, DIMM Fit provides optimizations tailored to your needs and your hardware configuration.

Four M.2 slots (up to 128Gbps)
The PRIME Z890-P WIFI offers a total of four M.2 slots, including one that supports data-transfer speeds of up to 128Gbps via PCIe 5.0, three that support 64Gbps via PCIe 4.0. This enables quicker boot-up and app load times with OS or application drives.

Cooler by design
The PRIME Z890-P WIFI motherboard is engineered with multiple onboard heatsinks and an array of hybrid fan headers to help ensure your rig stays cool and stable under intense workloads.

ASUS Fan Xpert 4
ASUS Fan Xpert 4 software offers comprehensive control over fans and AIO coolers. Auto-Tuning mode configures settings with one click, while Extreme Quiet mode reduces fan speeds for silent operation during light tasks. Controls are also available via the UEFI BIOS.

Cooler compatibility
ASUS AIO coolers offer robust performance, high overclocking potential, bold aesthetics and customizable functionality for new motherboards, empowering you to build your dream gaming rig.

Empowering connections
The PRIME Z890-P WIFI motherboard offers a versatile range of connectivity, including support for WiFi 7, the latest version of PCI Express, while an arsenal of USB ports includes Type-C connections, and Thunderbolt™ 4 which expands compatibility and bandwidth even further.

WiFi 7
The next-gen WiFi 78 supports 160 MHz bandwidth in the 6 GHz band and 4096 QAM. Multi-Link Operation (MLO) ensures stable connections and low latency, supporting 2.4, 5, and 6 GHz bands for enhanced coverage and throughput.

Thunderbolt™ 4 Type-C® ports
Thunderbolt™ 4 Type-C® port delivers up to 40Gbps of bidirectional bandwidth for the latest super-speed devices and drives. The port can be employed for up to one external 8K display, and PCIe bandwidth extends to up to 32Gbps.

PCIe 5.0 slot
The latest processors introduce PCIe 5.0 support, doubling data transfer speeds compared to PCIe 4.0, enhancing signal integrity, and providing backward-compatible CEM connectors and support for previous PCIe versions.

Personalization
The PRIME Z890-P WIFI enhances the user experience across the board, from simplifying BIOS setting adjustments to offering customizable RGB lighting controls for a uniquely personal system aesthetic.

UEFI BIOS
The UEFI interface delivers easy-to-use configuration options for PC beginners, and advanced features for veterans.

BIOS Q-Dashboard
Simplify your motherboard configuration with BIOS Q-Dashboard. Its intuitive visual representation of hardware connections and corresponding BIOS settings takes the complexity out of setting up your system. Upgrade now, and discover the power of BIOS Q-Dashboard to easily and efficiently enhance your computing setup.

Advanced mode
An intuitive Advanced mode offered via the UEFI lets you take complete control. A built-in search feature makes it easy to find options, and various advanced functions let you intelligently make nuanced adjustments so you can dial in performance just the way you want.

ASUS MyHotkey
This feature is flexible to customize BIOS hotkey for various use scenarios, users can set F3 and F4 optional functions, and then during the Power-On Self-Test (POST) you can more efficiently toggle ASUS EZ Flash or boot from a specified device.

Search Function
Quickly and easily find the option or setting you need.

ASUS User Profile
Easily port configuration settings between different BIOS versions or share them with friends.

EZ mode
EZ mode displays vital settings and stats and also offers guided wizards, drag-and-drop functionality and one-click application of important settings - all to help you get your rig up and running in no time.

Intuitive Graphical Fan Control
Fine-tune individual fan settings simply by dragging a curve with the mouse.

Aura On/Off Mode (Stealth)
Easily enable or disable Aura RGB lighting or every onboard LED, for a subdued aesthetic touch.

TurboV Core
Accessed via ASUS DriverHub, TurboV Core delivers intuitive CPU tuning that can unleash performance for overclocking enthusiasts. No need to enter the BIOS - you can seamlessly modify settings directly from within Windows and apply them right away, without needing to reboot. TurboV Core is engineered to elevate system capabilities, with unprecedented simplicity.

ASUS GlideX
ASUS GlideX is a cross-device, cross-platform screen-sharing, screen-control and operation solution for enhanced productivity across PCs, tablets, and smartphones via wired or wireless connections. Features include screen mirroring, screen extension, unified control with one keyboard and mouse, easy file transfers, and using mobile cameras as PC webcams. It's compatible with Windows, macOS, Android, and iOS.

ASUS DriverHub
ASUS DriverHub streamlines the installation and management of ASUS drivers and utilities to keep your hardware up-to-date and performing optimally. This standalone application automatically detects current driver versions and presents available updates in a list view. By default, it supports ASUS motherboards, and users are invited to install ASUS DriverHub after OS installation. Additionally, ASUS DriverHub offers one-click installation and update checks, making it easier for users to keep their systems running smoothly and efficiently.

Armoury Crate
Within a single intuitive interface, Armoury Crate offers easily customized Aura Sync RGB settings for every compatible device in your arsenal, plus controls for an ever-growing family of ASUS products, including keyboard and mouse preferences. Armoury Crate also integrates product registration and a news feed so that the ASUS community always has access to interesting updates.

Aura Sync Outshine the competition
A well-tuned enthusiast system deserves a matching aesthetic. ASUS Aura offers full RGB lighting control with a variety of functional presets for the built-in RGB LEDs as well as strips and devices connected to the onboard RGB headers - and it can

all be synced with an ever-growing portfolio of Aura-capable hardware.

Addressable Gen2 RGB headers
Three Addressable Gen2 headers detect LED counts on compatible RGB devices, automatically adjusting lighting effects accordingly.

DIY friendly
The PRIME Z890-P WIFI motherboard features EZ PC DIY innovations that simplify and speed up the PC building process, making DIY easy and convenient.

Q-Antenna
With Q-Antenna, attaching a WiFi antenna to your PC is now easy and fast. Instead of slowly rotating two fasteners until they finally lock in, they just snap into place. Less hassle, and more consistent performance.

PCIe Slot Q-Release
A physical lever unlocks the first PCIe slot's security latch with one tap, greatly simplifying the process of detaching a PCIe card from the motherboard when it's time to upgrade to a new graphics card or other compatible device.

M.2 Q-Latch
The innovative ASUS Q-Latch makes it easy to install or remove an M.2 SSD without the need for specific tools or screws. This design employs a simple locking mechanism to secure the drive and neatly detach it with one tap.

Q-LED Core
The Q-LED Core display produces color-coded lights during the Power-On Self-Test (POST) that can help you troubleshoot potential issues.

Pre-mounted I/O shield
Our pre-installed I/O shield safeguards ports, simplifies the build process, increases functionality and enhances aesthetics for PC DIY enthusiasts.

BIOS FlashBack™
BIOS FlashBack™ simplifies BIOS updates. Just load the BIOS file onto a FAT32 USB stick, insert it into the BIOS FlashBack™ port, and press a button - no CPU or memory needed.

SafeSlot
PCIe 5.0 is twice as fast as PCIe 4.0. ASUS has adapted our SMT manufacturing for the faster SafeSlot, a reinforced metal sheath that ensures secure card installation and faster data speeds.

Specifications:

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Specifications	
Product Code	PRIMEZ890-PWIFI
Model	PRIME Z890-P WIFI
CPU	Supports Intel Core Ultra Processors (Series 2), LGA1851
	Supports Intel Turbo Boost Technology 2.0 and Intel Turbo Boost Max Technology 3.0
	** Intel Turbo Boost Max Technology 3.0 support depends on the CPU types.

Chipset	Intel Z890 Chipset
Memory	4 x DIMM slots, max. 256GB, DDR5
	Support up to 8666+MT/s (OC), Non-ECC, Un-buffered, Clocked Unbuffered DIMM (CUDIMM)
	Dual channel memory architecture
	DIMM Fit
	Supports Intel Extreme Memory Profile (XMP) memory module
	ASUS Enhanced Memory Profile III(AEMPIII)
	* Supported memory types, data rate (speed), and number of DRAM modules vary depending on the CPU and memory configuration. Adjustments will be made based on the specifications of mass-produced memory products available on the market.
	** Non-ECC, un-buffered DDR5 memory supports On-Die ECC function.
Graphics	1 x DisplayPort
	1 x HDMI port
	1 x Intel Thunderbolt 4 port (USB Type-C) supports DisplayPort and Thunderbolt video outputs
	** Supports max. 4K@60Hz as specified in DisplayPort 1.4.
	* Supports 4K@60Hz as specified in HDMI 2.1.
	** In Thunderbolt4 mode, supports up to 8K@60Hz x1 with DSC, maximum total bandwidth up to 23.8Gbps, for resolution support please check DisplayPort 2.1 specs.
	** In DP alt mode, supports up to UHBR20.
	*** VGA resolution support depends on processors' or graphic cards' resolution.
	** While installing the operating system, please ensure that your monitor is connected to the HDMI port on the back I/O panel or to a discrete graphics card.
Expansion Slots	Intel Core Ultra Processors (Series 2)
	1 x PCIe 5.0 x16 slot
	Intel Z890 Chipset
	2 x PCIe 4.0 x16 slots (support x4 mode)
	1 x PCIe 4.0 x16 slot (supports x1 mode)
Storage	Total supports 4 x M.2 slots and 4 x SATA 6Gb/s ports
	Intel Core Ultra Processors (Series 2)
	M.2_1 slot (Key M), type 2280/22110 (supports PCIe 5.0 x4 mode)
	M.2_2 slot (Key M), type 2280 (supports PCIe 4.0 x4 mode)
	IntelZ890 Chipset
	M.2_3 slot (Key M), type 2280/22110 (supports PCIe 4.0 x4 mode)
	M.2_4 slot (Key M), type 2242/2260/2280 (supports PCIe 4.0 x4 & SATA modes)
	4 x SATA 6Gb/s ports
	* Intel Rapid Storage Technology supports PCIe RAID 0/1/5/10, SATA RAID 0/1/5/10, M.2 slot from CPU only supports RAID 0/1/5.

Ethernet	1 x Realtek 2.5Gb Ethernet
	ASUS LANGuard
Wireless & Bluetooth	Wi-Fi 7
	2x2 Wi-Fi 7 (802.11be)
	Supports 2.4/5/6GHz frequency band
	Supports Wi-Fi 7 160MHz bandwidth, up to 2.9Gbps transfer rate.
	Bluetooth v5.4
	*Wi-Fi features may vary depending on the operating system
	For Windows 11, Wi-Fi 7 will require 24H2 or later version for full functions, Windows 11 21H2/22H2/23H2 only support Wi-Fi 6E.
	For Windows 10, please note that no driver is available, please refer to the Wi-Fi chipset vendor's website for details.
	** Wi-Fi 6GHz frequency band and bandwidth regulatory may vary between countries.
	* The Bluetooth version may vary, please refer to the Wi-Fi module manufacturer's website for the latest specifications.
USB	Rear USB (Total 8 ports)
	1 x Thunderbolt 4 port (1 x USB Type-C)
	1 x USB 10Gbps port (1 x Type-A)
	2 x USB 5Gbps ports (2 x Type-A)
	4 x USB 2.0 ports (4 x Type-A)
	Front USB (Total 9 ports)
	1 x USB 10Gbps connector (supports USB Type-C)
	2 x USB 5Gbps headers support 4 additional USB 5Gbps ports
	2 x USB 2.0 headers support 4 additional USB 2.0 ports
	* USB Type-C power delivery output: max. 5V/3A
	** USB_E1 port, USB_E2 port, USB_E3 port and USB_E 4 port share the bandwidth.
	** USB_E5 port, USB_E6 port and USB_E7 port share the bandwidth.
Audio	Realtek 7.1 Surround Sound High Definition Audio CODEC
	- Supports: Jack-detection
	Multi-streaming, Front Panel Jack-retasking
	- Supports up to 24-Bit/192 kHz playback
	Audio Features
	- Audio Shielding
	- Premium audio capacitors
	- Dedicated audio PCB layers
	* A chassis with an HD audio module in the front panel is required to support 7.1 Surround Sound audio output.

Back Panel I/O Ports	1 x Thunderbolt 4 USB Type-C port
	1 x USB 10Gbps port (1 x Type-A)
	2 x USB 5Gbps ports (2 x Type-A)
	4 x USB 2.0 ports (4 x Type-A)
	1 x DisplayPort
	1 x HDMI port
	1 x Wi-Fi module
	1 x Realtek 2.5Gb Ethernet port
	3 x Audio jacks
	1 x BIOS FlashBack button
Internal I/O Connectors	Fan and Cooling related
	1 x 4-pin CPU Fan header
	1 x 4-pin CPU OPT Fan header
	1 x 4-pin AIO Pump header
	4 x 4-pin Chassis Fan headers
	Power related
	1 x 24-pin Main Power connector
	2 x 8-pin +12V CPU Power connector
	Storage related
	4 x M.2 slots (Key M)
	4 x SATA 6Gb/s ports
	USB
	1 x USB 10Gbps connector (supports USB Type-C)
	2 x USB 5Gbps headers support 4 additional USB 5Gbps ports
	2 x USB 2.0 headers support 4 additional USB 2.0 ports
	Miscellaneous
	3 x Addressable Gen2 headers
	1 x Aura RGB header
	1 x Clear CMOS header
	1 x COM Port header
	1 x Front Panel Audio header (F_AUDIO)
	1 x S/PDIF Out header
	1 x SPI TPM header (14-1pin)
	1 x 10-1 pin Front Panel System header
	1 x Thunderbolt (USB4) header

Special Features	ASUS 5X PROTECTION III
	- DIGI+ VRM (- Digital power design with DrMOS)
	- LANGuard
	- Overvoltage Protection
	- SafeSlot
	- Stainless-Steel Back I/O
	ASUS Q-Design
	- M.2 Q-Latch
	- PCIe Slot Q-Release
	- Q-Antenna
	- Q-Dashboard
	- Q-DIMM
	- Q-LED Core
	- Q-Slot
	ASUS Thermal Solution
	- M.2 heatsink
	- VRM heatsink design
	ASUS EZ DIY
	- BIOS FlashBack button
	- BIOS FlashBack LED
	- ProCool
	- Pre-mounted I/O shield
	Aura Sync
	- Aura RGB header
	- Addressable Gen2 headers

Software Features	ASUS Exclusive Software
	Armoury Crate
	- Aura Creator
	- Aura Sync
	- Fan Xpert 4 (with AI Cooling II)
	- Power Saving
	ASUS AI Advisor
	ASUS DriverHub
	ASUS GlideX
	ASUS CPU-Z
	TurboV Core
	Norton 360 Deluxe (60 Days Free Trial)
	WinRAR (40 Days Free Trial)
	UEFI BIOS
	ASUS EZ DIY
	- ASUS CrashFree BIOS 3
	- ASUS EZ Flash
	- ASUS UEFI BIOS EZ Mode
	- ASUS MyHotkey
	NPU Boost (Intel K-series Processors only)
BIOS	256 (128+128) Mb Flash ROM, UEFI AMI BIOS
Manageability	WOL by PME, PXE
Accessories	Cables
	2 x SATA 6Gb/s cables
	Miscellaneous
	1 x ASUS WiFi Q-Antenna
	1 x M.2 rubber package
	2 x Screw packages for M.2 SSD
	Documentation
	1 x Quick start guide
Operating System	Windows 11 (22H2 & later)
Form Factor	ATX Form Factor
	12 inch x 9.6inch (30.5 cm x 24.4 cm)

Product Information Online

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

Product page:
https://www.comx.co.za/PRIMEZ890-PWIFI-Asus-Prime-Z890-P-Z890-Chipset-LGA-1851-ATX-Motherboard-with-WiFi-p-321429.php

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