ASUS TUF GAMING B650M-PLUS WIFI

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ASUS TUF GAMING B650M-PLUS WIFI takes all the essential elements of the latest AMD Ryzen 7000-series processors and combines them with game-ready features and proven durability. Engineered with military-grade components, an upgraded power solution and a comprehensive cooling system, this motherboard goes beyond expectations with rock-solid and stable performance for marathon gaming. TUF GAMING motherboards also undergo rigorous endurance testing to ensure that they can handle conditions where others may fail. Aesthetically, this model incorporates rugged off-black and geometric design elements to reflect the dependability and stability that defines the TUF GAMING series.

INTELLIGENT CONTROL
Comprehensive controls form the foundation of the ASUS TUF GAMING series. The TUF GAMING B650 motherboard packs flexible tools to tune every aspect of your system, enabling performance tweaks to perfectly match the way you work to maximize productivity.

CPU Performance Boost
AMD Precision Boost Overdrive(PBO) pushes the CPU current and voltage budget to opportunistically increase performance. By aggressively tuning the PBO parameters, AMD's algorithm can leverage the motherboard's robust power solution to ramp up performance even higher.

All-Around Energy Efficiency
The Power Saving function contains several settings can 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.

UEFI BIOS
The renowned ASUS UEFI BIOS provides everything you need to configure, tweak and tune your system. It offers intelligently simplified options for PC DIY beginners and comprehensive features for seasoned veterans.

Armoury Crate
The ASUS-exclusive Armoury Crate centralizes easy control of supported gaming products. A single intuitive interface lets you customize RGB lighting for all compatible devices and link them to Aura Sync for uni?ed illumination. It also offers information and control for a select and growing hardware ecosystem, with input device settings, Fan Xpert 2+ and Two-Way AI Noise Cancelation. Armoury Crate even features product registration, and a news section to stay in touch with the gaming community.

Rock-Solid Performance
With upgraded power delivery and comprehensive cooling options to fuel AMD's latest CPUs, plus support for faster memory and storage, TUF GAMING B650 motherboards are the perfect foundation for your next high-core-count AMD battle rig.

Power Design

Teamed Power Stages
12+2 power stages are each rated to handle 60 amperes, combining high-side and low-side MOSFETS and drivers into a single package to deliver power, efficiency and stable performance for all compatible AMD processors.

8+4 PIN ProCool Power Connectors
Compared to traditional power inputs, ASUS ProCool connectors are built to tight specifications to ensure full contact with PSU power cables. The resulting lower impedance helps prevent hotspots and connector failure.

TUF Components

TUF Chokes
Certified military-grade TUF chokes deliver rock-solid power to the CPU, improving system stability.

TUF Capacitors
The TUF 5K black metallic capacitors provide 52% wider temperature tolerance and a 2.5X-longer lifespan than standard motherboard capacitors.

Digi+ VRM
The integrated Digi+ voltage-regulator module (VRM) is one of the finest in the industry, optimized for ultra-smooth and ultra-clean power delivery to the CPU at all times.

Memory & Storage

DRAM Overclocking Performance
DDR5 OC 6400
Comprehensive memory tuning options are the cornerstone of TUF GAMING motherboards. With TUF GAMING B650 motherboards, you can extract all of the potential out of your DDR5 modules, whether they're from an extreme-speed kit or an entry-level set that would otherwise be locked.

DDR5 DOMINANCE
For those who want to fly past stock DDR5 speeds, TUF GAMING B650 motherboards are primed and ready for enthusiast-grade kits courtesy of vast AMD Extended Profiles for Overclocking (EXPO™) support. Seasoned veterans can further tweak performance via the extensive array of settings in the UEFI.

PCIe 5.0 Support
TUF GAMING B650 motherboards also feature one PCIe 5.0 M.2 slot to enjoy the fastest data transfers of up to 128 Gbps*, and all M.2 slots support for NVMe RAID configurations to take advantage of the latest available speeds.

Cooling

Cooler By Design
1. Enlarged VRM Heatsink
The extensive surface area of this heatsink covers the VRMs and chokes to improve heat dissipation.

2. Optimized M.2 Heatsink Design
All M.2 slots have dedicated heatsinks, keeping M.2 SSDs at optimal operating temperatures to ensure consistent performance and reliability.

Comprehensive Fan Controls
TUF GAMING B650 motherboards feature comprehensive fan controls that can be configured via Fan Xpert 2+ utility in Armoury Crate or the award-winning ASUS UEFI BIOS.

Connectivity

Connectivity
TUF-GAMING B650 motherboards reach new heights of performance potential with the latest version of PCI Express, while an arsenal of USB ports includes three Type-C® connections, and Thunderbolt™ (USB4®) expands compatibility and bandwidth even further.

Easy PC DIY
The TUF GAMING line offers easy setup for all builders. The TUF GAMING Alliance ecosystem grants compatibility, while Armoury Crate has Fan Xpert 2+, hardware info, Two-Way AI Noise Cancelation, RGB options and peripheral settings. This platform has intuitive tools to build and optimize dream rigs.

TUF Gaming Alliance

Build With Confidence
TUF GAMING Alliance is a collaboration between ASUS and trusted PC component brands to ensure compatibility across a wide range of parts, such as PC cases, power supplies, CPU coolers, memory kits and more. With new partnerships and components being added regularly, the TUF GAMING Alliance will continue to grow even stronger.

TUF Protection

Safeslot Core+ & SafeDIMM
SafeSlot Core+ is a reinforced metal sheath added to a PCIe slot to keep a card firmly installed. Meanwhile, strong ASUS SafeDIMM sheathes support and protect memory modules on select ASUS motherboards, empowering you to insert your modules with speed, accuracy and confidence.

ESD Guards
ESD Guards prolong the life of components while preventing damage from electrostatic discharge, providing protection for up to +/- 10 kV of air discharge and +/- 6 kV of contact discharge — greatly surpassing the respective industry standards of +/- 6 kV and +/- 4 kV. Surface-mounted TVS diodes in a dual in-line package help protect your PC from voltage spikes.

USB Connectors
Additional on-circuit ESD transient-voltage-suppression

TUF LANGuard
TUF LANGuard is a military-grade innovation that integrates advanced signal-coupling technology and premium surface-mounted capacitors to improve throughput, protecting the motherboard from lightning strikes and static electricity.

Stainless Steel Back I/O Panel
TUF GAMING motherboards have a corrosion-resistant stainless steel back I/O panel bonded with chromium oxide to provide a lifespan that's three times longer than traditional panels. With this protective feature, TUF GAMING motherboards passed 72-hour salt fog testing, while other brands only passed 24-hour testing.

Easy Configuration

M.2 Q-Latch
The innovative Q-Latch makes it easy to install or remove an M.2 SSD without the need for specific tools. The design employs a simple locking mechanism to secure the M.2 SSD, neatly eliminating the need for screws.

Removable Captive Screws
Specialized M.2 slot screws reduce the risk of dropping or losing a screw somewhere in your case during M.2 heatsink removal.

Q-LED
The on-board Q-LED troubleshooting lights give PC builders a quick indicator to confirm that key components ? CPU, RAM, graphics card, storage devices ? are functioning normally during startup.

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Networking

WiFi 6
The WiFi 6 module is compatible with the 802.11ax standard and pushes theoretical peak bandwidth up to an incredible 1.2 Gbps. Perhaps more importantly for power users, it's optimized for more efficient operation on crowded networks with a lot of competing traffic. Pair your motherboard with ASUS WiFi 6 routers to fully experience the networking potential of WiFi 6.

2.5 Gb Ethernet
2.5 Gb on-board Ethernet kicks your LAN connection up a notch with a bandwidth improvement of up to 2.5X. Using your existing LAN cable, you can take advantage this networking upgrade to experience smoother, lag-free gaming, immediately stream high-resolution videos and enjoy faster file transfers.

AI Noise Cancelation

Two-Way AI Noise Cancelation
This powerful ASUS-exclusive utility leverages a massive deep-learning database to reduce background noise from the microphone* and incoming audio while preserving voices. Distracting keyboard clatter, mouse clicks and other ambient noises are removed so you can hear and be heard with perfect clarity while gaming or during calls.

*An audio splitter (3.5 mm audio jack Y-cable) is necessary when using a 3.5 mm headset.

Audio

Realtek 7.1 Surround Sound
The unique audio codec designed in close collaboration with Realtek for TUF GAMING B650 motherboards features an unprecedented 98 dB signal-to-noise ratio for the stereo line out, providing pristine audio quality.

DTS Audio Processing
DTS® Audio Processing enhances gaming headset and speaker audio experiences by reducing distortion and by providing deeper bass, so games, movies and music sound better. It also allows you to customize audio settings.

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Addressable Gen 2 RGB Header
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You'll also gain access to new features for gamers with AMD Socket AM5, from the speed of DDR5 memory to the increased bandwidth of PCIe® 5.0. AMD Ryzen™ 7000 Series processors and AMD socket AM5 motherboards are unlocked for overclocking to personalize your experience. Gain even more performance when you overclock your DDR5 memory with AMD EXPO™ technology.

Zusammenfassung

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ASUS TUF GAMING B650M-PLUS WIFI, AMD, Socket AM5, DDR5-SDRAM, 128 GB, DIMM, Dual-channel

ASUS TUF GAMING B650M-PLUS WIFI. Processor manufacturer: AMD, Processor socket: Socket AM5. Supported memory types: DDR5-SDRAM, Maximum internal memory: 128 GB, Memory slots type: DIMM. Supported storage drive interfaces: M.2, SATA III, Supported storage drive types: HDD & SSD, RAID levels: 0, 1, 10. Ethernet interface type: 2.5 Gigabit Ethernet, Fast Ethernet, Gigabit Ethernet, Top Wi-Fi standard: Wi-Fi 6 (802.11ax), Wi-Fi standards: 802.11a, 802.11b, 802.11g, Wi-Fi 4 (802.11n), Wi-Fi 5 (802.11ac), Wi-Fi 6 (802.11ax). Component for: PC, Motherboard form factor: micro ATX, Motherboard chipset family: AMD

Merkmale

Graphics

On-board graphics card	No

BIOS

BIOS type	UEFI AMI
BIOS memory size	256 Mbit

Features

Motherboard chipset	AMD B650
Audio output channels	7.1 channels
Product colour	Black
Component for	PC
Motherboard form factor	micro ATX
Motherboard chipset family	AMD
Windows operating systems supported	Windows 10 x64, Windows 11 x64

Processor

Processor manufacturer	AMD
Processor socket	Socket AM5

Weight & dimensions

Width	244 mm
Depth	244 mm

Expansion slots

PCI Express x1 (Gen 4.x) slots	1
PCI Express x16 (Gen 4.x) slots	2
Number of M.2 (M) slots	2

Storage controllers

Supported storage drive types	HDD & SSD
Supported storage drive interfaces	M.2, SATA III
Number of storage drives supported	6
RAID support	Yes
RAID levels	0, 1, 10

Network

Ethernet LAN	Yes
Ethernet interface type	2.5 Gigabit Ethernet, Fast Ethernet, Gigabit Ethernet
Wi-Fi	Yes
Top Wi-Fi standard	Wi-Fi 6 (802.11ax)
Wi-Fi standards	802.11a, 802.11b, 802.11g, Wi-Fi 4 (802.11n), Wi-Fi 5 (802.11ac), Wi-Fi 6 (802.11ax)
Bluetooth	Yes
Bluetooth version	5.2

Memory

Supported memory types	DDR5-SDRAM
Number of memory slots	4
Memory slots type	DIMM
Memory channels	Dual-channel
ECC ?ompatibility	ECC & Non-ECC
Supported memory clock speeds	4800,5000,5200,5400,5600,5800,6000,6200,6400 MHz
Maximum internal memory	128 GB
Unbuffered memory	Yes

Rear panel I/O ports

USB 2.0 ports quantity	4
USB 3.2 Gen 1 (3.1 Gen 1) Type-A ports quantity	1
USB 3.2 Gen 2 (3.1 Gen 2) Type-A ports quantity	2
USB 3.2 Gen 2x2 Type-C ports quantity	1
Ethernet LAN (RJ-45) ports	1
HDMI ports quantity	1
DisplayPorts quantity	1
Line-in	Yes
Microphone in	Yes

Internal I/O

USB 2.0 connectors	2
USB 3.2 Gen 1 (3.1 Gen 1) connectors	2
Number of SATA III connectors	4
Front panel audio connector	Yes
ATX Power connector (24-pin)	Yes
CPU fan connector	Yes
Number of chassis fan connectors	3
EPS power connector (8-pin)	Yes
Number of COM connectors	1
Thunderbolt headers	1
RGB LED pin header	Yes