

ASUS PRIME B650M-R AMD B650 Socket AM5 micro ATX

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Model: PRIMEB650M-R

Manufacturer: ASUS

EAN: 4711387429761

Product Code: 407157

R2,778

ASUS Prime series motherboards are expertly engineered to unleash the full potential of AMD Ryzen 7000-series processors. Boasting a robust power design, comprehensive cooling solutions and intelligent tuning options, PRIME B650M-R provides users and PC DIY builders with a range of performance optimizations via intuitive software and firmware features.

FLEXIBILITY

Comprehensive controls form the foundation of the ASUS PRIME series. The PRIME 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.

Intelligent Control

CPU Performance Boost

AMD Precision Boost Overdrive(PBO) pushes the CPU current and voltage budget to opportunistically

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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.

Flexible Cooling Controls

ASUS Fan Xpert 2+ software provides comprehensive control over fans. An Auto-Tuning mode intelligently configures all parameters with a single click. There's also an Extreme Quiet mode that reduces chassis fan speeds to below the default minimum to keep your system whisper-quiet when performing light tasks. Fans can also be controlled via the UEFI BIOS.

Precise Digital Power Control

The Digi+ voltage-regulator module (VRM) delivers real-time control over voltage droop, automatically switching frequency and power-efficiency settings. It also allows you to fine-tune your CPU for ultimate stability and performance.

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, as well as comprehensive features for seasoned veterans.

Advanced Tuning for Serious Tweakers

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.

Quick and Simple Setup

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.

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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.

COOLING

Prime B650 series are engineered with multiple onboard heatsinks and an array of hybrid fan headers to ensure your rig stays cool and stable under intense workloads.

VRM Heatsink and Thermal Pad

VRM heatsink and thermal pads improve heat transfer from the MOSFETs and chokes for better cooling performance.

Cooler by Design

Prime B650 series feature comprehensive cooling controls that are configurable via Fan Xpert 2+ software or via the UEFI BIOS.

Stack Cool 3+

2oz copper PCB design can draw heat away from critical components to keep the optimal operating temperatures.

PERFORMANCE

The PRIME B650 series is built to handle the high core counts and bandwidth demands of AMD processors. ASUS B650 motherboard provides all the fundamentals to boost daily productivity, so your system will be ready for action with stable power, intuitive cooling and flexible data transfer options.

Memory

DDR5 Performance Enhancement

Comprehensive memory tuning options are the cornerstone of PRIME motherboards. With the PRIME B650M-R, 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.

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For entry-level modules without EXPO™ memory support, we've got you covered. [Click here to learn more about AEMP.](#) .

For those who want to fly past stock DDR5 speeds, the PRIME B650M-R is 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.

Storage

PCIe 4.0 M.2 Support

PRIME B650M-R offers two M.2 slots that supports data-transfer speeds of up to 64 Gbps via PCIe 4.0, enabling quicker boot-up and app load times with OS or application drives.

*Actual transmission speeds will be lower than the theoretical maximum speed.

Connectivity

PCIe 4.0 Slot

Prime B650 motherboards offer PCIe 4.0 Slot connectivity for the latest GPUs. The wide bandwidth and superfast transmission speeds allow you to create feature-rich builds that can handle high loads effortlessly.

Front USB Type-C®

A full complement of USB ports support high-end rigs loaded with peripherals, including a front-panel USB 5Gbps Type-C® connector that provides data transfer speeds of up to 5Gbps.

Realtek 2.5 Gb Ethernet

Realtek 2.5 Gb Ethernet reduces CPU overhead and offers exceptionally high TCP and UDP throughput for faster, smoother data transfers.

LANGuard

ASUS LANGuard is a hardware-level network protection feature that integrates advanced signal-coupling technology and premium anti-EMI surface-mounted capacitors to improve throughput and ensure a more reliable connection.

Combined onboard features deliver elevated audio

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Intelligent design and premium hardware create audio quality unlike anything you've ever experienced.

Audio Shielding

Audio shielding ensures precision analog/digital separation and greatly reduced multi-lateral interference.

Dedicated Audio PCB Layers

Separate layers for left and right tracks ensures both channels deliver consistent, equal quality.

Premium Audio Capacitors

Provides warm, natural, and immersive sound with exceptional clarity and fidelity.

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 Gen 2 Headers

Two addressable Gen 2 headers are capable of detecting the number of LEDs on second-gen addressable RGB devices, allowing the software to automatically tailor lighting effects to specific devices. The new headers also offer backward-compatibility with existing Aura RGB gear.

TWO-WAY AI NOISE CANCELATION

This utility leverages a massive deep-learning database to reduce background noise from the microphone and incoming audio, while preserving vocals at the same time. This removes distracting keyboard clatter, mouse clicks and other ambient noises so you can hear and be heard with crystal clarity while gaming or in calls.

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,

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including keyboard and mouse preferences. Armoury Crate also integrates product registration and a news feed so that you never miss updates of interest to the ASUS community.

Q-LED Core

The Q-LED Core display produces light patterns by power LED during the Power-On Self-Test (POST) that can help users troubleshoot potential issues.

THIS CHANGES EVERYTHING.

FROM THIS NEW PLATFORM, YOU CAN SEE THE FUTURE

Build your next rig with an AMD Ryzen™ 7000 Series processor and PRIME B650M-R to experience advanced performance. With up to 16 “Zen 4” cores and 32 threads, boost clocks of up to 5.7GHz, and 80MB cache, the AMD Ryzen™ 7000 Series keeps you ahead of the game.¹

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.²

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