

# Asus PRIME B250-PLUS Manual



1

2

Table Of Contents

3

4

5

6

7

8

9

10

11

12

13

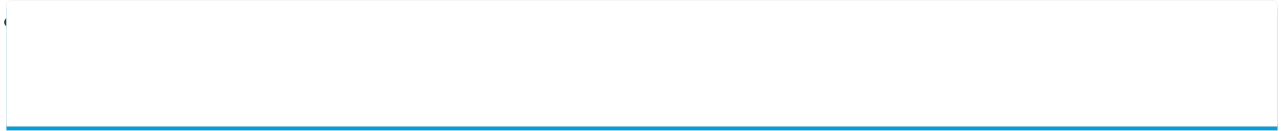
14

15

16

17

18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28



•

•

## Bookmarks

## Quick Links

[1 Prime B250-Plus Specifications Summary](#)

[2 Motherboard Overview](#)

[3 System Memory](#)

[4 Bios Setup Program](#)

[5 Advanced Mode](#)

[Download this manual](#)





PRIME B250-PLUS



## Table of Contents

[Next Page](#)

1  
2  
3  
4  
5

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(190 pages)

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(24 pages)

## Summary of Contents for Asus PRIME B250-PLUS

[Page 1](#) PRIME B250-PLUS...

[Page 2](#) Product warranty or service will not be extended if: (1) the product is repaired, modified or altered, unless such repair, modification or alteration is authorized in writing by ASUS; or (2) the serial number of the product is defaced or missing.

[Page 3: Table Of Contents](#)

Contents Safety information .....iv About this guide .....iv Package contents .....vi PRIME B250-PLUS specifications summary .....vi Chapter 1: Product introduction  
Motherboard overview .....1-1 Central Processing Unit (CPU) .....1-8 System memory

## [Page 4: Safety Information](#)

Safety information Electrical safety • To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system. • When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

[Page 5](#) Refer to the following sources for additional information and for product and software updates. ASUS websites The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information. Optional documentation Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer.

## [Page 6: Package Contents](#)

DDR4 2133MHz. ® \*\*\* Refer to [www.asus.com](http://www.asus.com) for the Memory QVL(Qualified Vendors List) 1 x PCI Express 3.0/2.0 x16 slot (gray, at x16 mode) 1 x PCI Express 3.0/2.0 x16 slot (black, max. at x4 mode, shares bandwidth with M.2\_1)\*...

[Page 7](#) - 6 x USB 2.0/1.1 ports (2 ports at mid-board; 4 ports at back panel) ASUS 5X PROTECTION III - ASUS SafeSlot Core: Fortified PCIe Slot prevents damage - ASUS LANGuard: Protects against LAN surges, lightning strikes and static- electricity discharges - ASUS Overvoltage Protection: World-class circuit-protecting power design...

[Page 8](#) 1 x Clear CMOS header 128Mb Flash ROM, UEFI AMI BIOS, PnP, DMI3.0, WfM2.0, SM BIOS 3.0, ACPI 6.0, Multi-language BIOS, ASUS EZ Flash 3, CrashFree BIOS 3, F6 Qfan BIOS Control, F3 My Favorites, Last Modified log, F12 PrintScreen, and ASUS...

[Page 9](#) PRIME B250-PLUS specifications summary Manageability WfM 2.0, DMI 3.0, WOL by PME, PXE Drivers ASUS Utilities Support DVD ASUS EZ Update Anti-virus software (OEM version) Windows 10 (64-bit only) ® Windows 8.1 (64-bit only)\* ® OS Support Windows 7 (64-bit/32-bit)\* ® ...

## [Page 10: Motherboard Overview](#)

PCIe SATA IRST Realtek 8111H PCIEX16\_1 PCIEX1\_2 1083 Intel ® B250 PCI1 Super PCIEX16\_2 2280 2260 2242 BATTERY 128Mb PCIe SATA IRST BIOS SATA6G\_4 SATA6G\_3 PCI2 USB3\_12 SATA6G\_6 SATA6G\_5 PANEL SPDIF\_OUT USB1112 CLRTC AAFP 13 12 11 Scan the QR code to get the detailed pin definitions. ASUS PRIME B250-PLUS...

[Page 11](#) ATX power connectors (24-pin EATXPWR, 8-pin EATX12V) Correctly orient the ATX power supply plugs into these connectors and push down firmly until the connectors completely fit. • For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 350 W. This PSU type has 24-pin and 8-pin power plugs. • We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices or when you intend to install additional devices. The system may become unstable or may not boot up if the power is inadequate. • If you are uncertain about the minimum power supply requirement for your system, refer to the Recommended Power Supply Wattage Calculator at <http://support.asus.com/PowerSupplyCalculator/PSCalculator.aspx?SLanguage=en-us> for details. CPU and chassis fan connectors (4-pin CPU\_FAN, 4-pin CHA\_FAN1~2) Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector. Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors! The CPU\_FAN connector supports a CPU fan of maximum 1A (12 W) fan power. Intel LGA1151 CPU socket ® Install Intel LGA1151 CPU into this surface mount LGA1151 socket, which is ®...

[Page 12](#) System panel connector (20-5 pin F\_PANEL) This connector supports several chassis-mounted functions. Clear RTC RAM (2-pin CLRRTC) CLRRTC This header allows you to clear the CMOS RTC RAM data of the system setup information such as date, time, and system passwords. To erase the RTC RAM: PIN 1 Turn OFF the computer and unplug the power cord. Use a metal object such as a screwdriver to short the two pins. Plug the power cord and turn ON the computer. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data. If the steps above do not help, remove the onboard battery and short the two pins

again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery. USB 3.0 connectors (20-1 pin USB3\_12) Connect a USB 3.0 module to any this connector for additional USB 3.0 front or rear panel ports. This connector complies with USB 3.0 specifications and provide faster data transfer speeds of up to 5 Gbps, faster charging time for USB-chargeable devices, optimized power efficiency, and backward compatibility with USB 2.0. ASUS PRIME B250-PLUS...

[Page 13](#) USB 2.0 connector (10-1 pin USB1112) Connect a USB module cable to this connector, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specifications and supports up to 480Mbps connection speed. Serial port connector (10-1 pin COM) Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis. Digital audio connector (4-1 pin SPDIF\_OUT) Connect the S/PDIF Out module cable to this connector, then install the module to a slot opening at the back of the system chassis. PIN 1 SPDIF\_OUT Front panel audio connector (10-1 pin AAFP) This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC'97 audio standard. Connect one end of the front panel audio I/O module cable to this connector. • We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

[Page 14](#) - shared - - - - - M.2\_1 shared - - - - - M.2\_2 shared - - - - - ASM1083 - - - - - shared - - - - - When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable. ASUS PRIME B250-PLUS...

[Page 15](#) 1.2.2 Rear panel connectors PS/2 Mouse/Keyboard combo port. This port connects to a PS/2 mouse or PS/2 keyboard. Video Graphics Adapter (VGA) port. This 15-pin port is for a VGA monitor or other VGA-compatible devices. LAN (RJ-45) port. This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. LAN port LED indications Speed Activity Link Activity/Link LED Speed LED Status Description Status Description No link 10Mbps connection Orange Linked ORANGE 100Mbps connection Orange Data activity GREEN...

[Page 16](#) USB 3.0 ports (blue, Type A). These 9-pin Universal Serial Bus (USB) ports are for USB 3.0 devices. • USB 3.0 devices can only be used for data storage. • We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance from your USB 3.0 devices. • Due to the design of the Intel 200 series chipset, all USB devices connected to the ® USB 2.0 and USB 3.0 ports are controlled by the xHCI controller. Some legacy USB devices must update their firmware for better compatibility. USB 2.0 ports. These 4-pin Universal Serial Bus (USB) ports are for USB 2.0/1.1 devices. HDMI port. This port is for a High-Definition Multimedia Interface (HDMI) connector, and is HDCP compliant allowing playback of HD DVD, Blu-ray, and other protected content. USB 5Gb/s Type C port. This 24-pin Universal Serial Bus (USB) port is for USB (Type C) devices. 11. DVI-D port. This port is for any DVI-D compatible device. DVI-D can not be converted to output from RGB Signal to CRT and is not compatible with DVI-I. ASUS PRIME B250-PLUS...

## [Page 17: Central Processing Unit \(Cpu\)](#)

Central Processing Unit (CPU) This motherboard comes with a surface mount LGA1151 socket designed for the 7th/6th Generation Intel Core™ i7 / Core™ i5 / Core™ i3, Pentium and Celeron processors. ® ® Unplug all power cables before installing the CPU. • Ensure that you install the correct CPU designed for the LGA1151 socket only. DO NOT install a CPU designed for LGA1150, LGA1155 and LGA1156 sockets on the LGA1151 socket. • Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. • Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA1151 socket. • The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap. Installing the CPU Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary. Chapter 1: Product introduction...

## [Page 18: System Memory](#)

® • Due to the memory address limitation on 32-bit Windows OS, when you install 4GB ® or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you do any of the following: Use a maximum of 3GB system memory if you are using a 32-bit Windows OS. ® I nstall a 64-bit Windows OS if you want to install 4GB or more on the ® motherboard. F or more details, refer

to the Microsoft support site at <http://support.microsoft.com/kb/929605/en-us>. • Memory modules with memory frequency higher than 2133/2400 MHz and its corresponding timing or the loaded X.M.P. Profile is not the JEDEC memory standard. The stability and compatibility of these memory modules depend on the CPU's capabilities and other installed devices. • The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value. • For system stability, use a more efficient memory cooling system to support a full memory load (4 DIMMs). • Refer to [www.asus.com](http://www.asus.com) for the latest Memory QVL (Qualified Vendors List) ASUS PRIME B250-PLUS...

[Page 19](#) Installing a DIMM To remove a DIMM Chapter 1: Product introduction 1-10...

## [Page 20: Chapter 2: Bios Information](#)

Entering BIOS Setup after POST To enter BIOS Setup after POST: Press <Ctrl>+<Alt>+<Del> simultaneously. Press the reset button on the system chassis. Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options. Using the power button, reset button, or the <Ctrl>+<Alt>+<Del> keys to force reset from a running operating system can cause damage to your data or system. We recommend you always shut down the system properly from the operating system. • The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen. • Visit the ASUS website at [www.asus.com](http://www.asus.com) to download the latest BIOS file for this motherboard. • If the system becomes unstable after changing any BIOS setting, load the default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu or press hotkey F5. • If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. See section Motherboard overview for information on how to erase the RTC RAM. BIOS menu screen The BIOS setup program can be used under two modes: EZ Mode and Advanced Mode. Press <F7> to change between the two modes. ASUS PRIME B250-PLUS...

## [Page 21: Ez Mode](#)

EZ Mode By default, the EZ Mode screen appears when you enter the BIOS setup program. The EZ Mode provides you an overview of the basic system information, and allows you to select the display language, system performance mode, fan profile and boot device priority. To access the Advanced Mode, click Advanced Mode(F7) or press <F7>. The default screen for entering the BIOS setup program can be changed. Refer to the Setup Mode item under the Boot menu for details. Displays the system properties of the selected mode. Click Displays the CPU/motherboard <Enter> to switch EZ System temperature, CPU voltage output, Selects the display Tuning modes CPU/chassis fan speed, and SATA language of the BIOS information setup program...

## [Page 22: Advanced Mode](#)

Q-Fan control Menu bar MyFavorite Hot Keys Language Last modified Pop-up window Searches Sub-menu item General help Scroll bar settings Menu items Configuration Goes back to EZ Mode fields Displays the CPU temperature, CPU and memory voltage output ASUS PRIME B250-PLUS...

## [Page 23: Exit Menu](#)

Search on FAQ Move your mouse over this button to show a QR code. Scan this QR code with your mobile device to connect to the ASUS BIOS FAQ web page. You can also scan the QR code below. Exit menu The Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items. Load Optimized Defaults This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select OK to load the default values. Save Changes & Reset Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select OK to save changes and exit. Discard Changes & Exit This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select OK to discard changes and exit. Launch EFI Shell from USB drives This option allows you to attempt to launch the EFI Shell application (shellx64.efi) from one of the available USB devices. Chapter 2: Getting started...

## [Page 24: Appendix](#)

Cet appareil est conforme aux normes CNR exemptes de licence d'Industrie Canada. Le

fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil. ASUS PRIME B250-PLUS...

[Page 25](#) ASUS Recycling/Takeback Services ASUS recycling and takeback programs come from our commitment to the highest standards for protecting our environment. We believe in providing solutions for you to be able to responsibly recycle our products, batteries, other components as well as the packaging materials.

[Page 26](#) Slovensky Spoločnosť ASUSTeK Computer Inc. týmto vyhlasuje, že toto Cijeli tekst EU izjave o skladnosti dostupán je na: [www.asus.com/support](http://www.asus.com/support) zariadenie vyhovuje základným požiadavkám a ostatým príslušným ustanoveniam príslušných smerníc. Celý text vyhlásenia o zhode pre štáty EÚ...

### [Page 27: Asus Contact Information](#)

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[Page 28](#) 800 Corporate Way, Fremont Phone/Fax No: (510)739-3777/(510)608-4555 hereby declares that the product Product Name : Motherboard Model Number : PRIME B250-PLUS Conforms to the following specifications: FCC Part 15, Subpart B, Unintentional Radiators Supplementary Information: This device complies with part 15 of the FCC Rules. Operation is subject to the...