

**B250 MINING EXPERT**



# Motherboard

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# 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.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

## Operation safety

- Before installing the motherboard and adding components, carefully read all the manuals that came with the package.
- Before using the product, ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may be exposed to moisture.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

## About this guide

This user guide contains the information you need when installing and configuring the motherboard.

## How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**  
This chapter describes the features of the motherboard and the new technology it supports. It includes descriptions of the switches, jumpers, and connectors on the motherboard.
- **Chapter 2: BIOS information**  
This chapter discusses changing system settings through the BIOS Setup menus.

## Where to find more information

Refer to the following sources for additional information and for product and software updates.

### 1. ASUS websites

The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

### 2. Optional documentation

Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

## Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.



**DANGER/WARNING:** Information to prevent injury to yourself when completing a task.



**CAUTION:** Information to prevent damage to the components when completing a task.



**IMPORTANT:** Instructions that you **MUST** follow to complete a task.



**NOTE:** Tips and additional information to help you complete a task.

## Typography

**Bold text**

Indicates a menu or an item to select.

*Italics*

Used to emphasize a word or a phrase.

<Key>

Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.

Example: <Enter> means that you must press the Enter or Return key.

<Key1> + <Key2> + <Key3>

If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).

## Package contents

Check your motherboard package for the following items.

<b>Motherboard</b>	ASUS B250 MINING EXPERT motherboard
<b>Cables</b>	2 x Serial ATA 6.0 Gb/s cables
<b>Accessories</b>	1 x I/O Shield
<b>Application DVD</b>	1 x Support DVD
<b>Documentation</b>	User Guide



If any of the above items is damaged or missing, contact your retailer.

## B250 MINING EXPERT specifications summary

<b>CPU</b>	LGA1151 socket for Intel® 7th/6th Generation Core™ i7 / i5 / i3, Pentium®, and Celeron® processors Supports Intel® 14nm CPU Supports Intel® Turbo Boost Technology 2.0* * The Intel® Turbo Boost Technology 2.0 support depends on the CPU types. ** Refer to <a href="http://www.asus.com">www.asus.com</a> for Intel® CPU support list.
<b>Chipset</b>	Intel® B250 Chipset
<b>Memory</b>	2 x DIMMs, maximum 32GB, DDR4 2400*/2133**MHz, non-ECC, un-buffered memory*** Dual-channel memory architecture Supports Intel® Extreme Memory Profile (XMP) * Due to Intel® chipset limitation, DDR4 2400MHz memory frequency is only supported by 7th Generation Intel® processors. Higher memory modules will run at the maximum transfer rate of DDR4 2400MHz. ** Due to Intel® chipset limitation, DDR4 2133MHz and higher memory modules on 6th Generation Intel® processors will run at the maximum transfer rate of DDR4 2133MHz. *** Refer to <a href="http://www.asus.com">www.asus.com</a> for the Memory QVL(Qualified Vendors List)
<b>Expansion slots</b>	1 x PCI Express x16 slot (at x16 mode) 18 x PCI Express x1 slots
<b>Graphics</b>	Integrated graphics processor - Intel® HD Graphics support - Supports HDMI with maximum resolution of 4096 x 2160 @ 24Hz / 2560 x 1600 @ 60Hz Maximum shared memory of 1024 MB
<b>Storage</b>	Intel® B250 Chipset: - 4 x SATA 6.0 Gb/s ports (gray)
<b>LAN</b>	Intel® I219V Gigabit LAN
<b>USB</b>	<b>Intel® B250 Chipset</b> - 6 x USB 3.1 Gen 1 ports (2 ports at mid-board; 4 ports at back panel, blue, Type A) - 4 x USB 2.0/1.1 ports (2 ports at mid-board; 2 ports at back panel)

(continued on the next page)

## B250 MINING EXPERT specifications summary

<b>Audio</b>	Realtek® ALC887 8-channel* High Definition Audio CODEC * Use a chassis with HD audio module in the front panel to support an 8-channel audio output.
<b>ASUS special features</b>	<b>ASUS 5X PROTECTION III</b> - 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 - ASUS Stainless Steel Back I/O: 3X corrosion-resistance for greater durability - ASUS DIGI+ VRM: 6 Phase digital power design
<b>Rear panel I/O ports</b>	1 x PS/2 keyboard port 1 x PS/2 mouse port 1 x HDMI port 1 x LAN (RJ-45) port 4 x USB 3.1 Gen 1 ports 2 x USB 2.0/1.1 ports 3 x Audio jacks support 8-channel audio output * Use a chassis with HD audio module in the front panel to support an 8-channel audio output.
<b>Internal connectors</b>	1 x USB 3.1 Gen 1 connector supports additional 2 USB 3.1 Gen 1 ports (19-pin) 1 x USB 2.0/1.1 connector supports additional 2 USB 2.0/1.1 ports 4 x SATA 6.0Gb/s connectors 1 x CPU Fan connector 1 x Chassis Fan connector 1 x Front panel audio connector(AAFP) 1 x System panel connector 1 x S/PDIF out header 3 x 24-pin EATX power connectors 3 x 4-pin AUXPWR connectors 1 x 8-pin EATX 12V power connector 1 x COM header 1 x Clear CMOS header
<b>BIOS</b>	64 Mb Flash ROM, UEFI AMI BIOS, PnP, DMI3.0, WfM2.0, SM BIOS 3.0, ACPI 6.0, ASUS EZ Flash 3, F6 Qfan Control, F3 My Favorites, Last Modified log, F12 PrintScreen, and ASUS DRAM SPD (Serial Presence Detect) memory information
<b>Manageability</b>	WfM 2.0, DMI 3.0, WOL by PME, PXE
<b>OS Support</b>	Windows® 10 (64-bit) Windows® 7 (64-bit)* * Windows® 7 64-bit is only supported when using 6th Generation Intel® processors.
<b>Form Factor</b>	ATX form factor: 12.0 in x 9.1 in (30.5 cm x 23.1 cm)



Specifications are subject to change without notice.

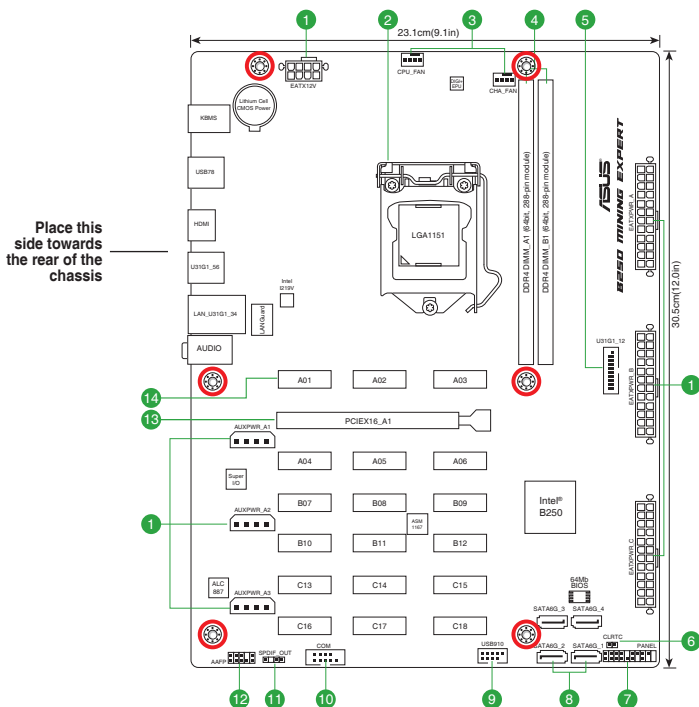
# Product introduction

# 1

## Motherboard overview



- Unplug the power cord from the wall socket before touching any component.
- Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.
- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.
- Unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage to motherboard components.



Scan the QR code to get the detailed pin definitions.





## 1 ATX power connectors (24-pin EATXPWR\_A/B/C, 8-pin EATX12V, 4-pin AUXPWR\_A1/A2/A3)

Correctly orient the ATX power supply plugs into these connectors and push down firmly until the connectors completely fit.



- In order to fully support 19 graphic cards mining, we recommend that you use 3 power supply units (PSU) that are designed for mining with sufficient 12V power plugs and provide a minimum power of 3750W in total (2\*1250W + 1\*1350W are recommended).
- AUXPWR\_A1/A2/A3 must be connected to the same power supply plugged in the 24-pin EATXPWR\_A connector.



- 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.

## 2 Intel® LGA1151 CPU socket

Install Intel® LGA1151 CPU into this surface mount LGA1151 socket, which is designed for 7th/6th Generation Intel® Core™ i7 / i5 / i3, Pentium®, and Celeron® processors.



For more details, refer to **Central Processing Unit (CPU)**.

## 3 CPU and chassis fan connectors (4-pin CPU\_FAN, 4-pin CHA\_FAN)

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.

## 4 DDR4 DIMM slots

Install 2 GB, 4 GB, 8 GB, and 16 GB unbuffered non-ECC DDR4 DIMMs into these DIMM sockets.



- To make your build more stable, when using 8 or more cards for mining, we recommend that you install 4GB memory modules and change the size of the virtual memory paging file to 30GB.
- For more details, refer to **System memory**.

5

**USB 3.1 Gen 1 connector (20-1 pin U31G1\_12)**

Connect a USB 3.1 Gen 1 module to this connector for additional USB 3.1 Gen 1 front or rear panel ports. This connector complies with USB 3.1 Gen 1 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.

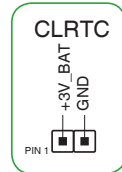
6

**Clear RTC RAM (2-pin 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:**

1. Turn OFF the computer and unplug the power cord.
2. Use a metal object such as a screwdriver to short the two pins.
3. Plug the power cord and turn ON the computer.
4. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.




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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.

---

7

**System panel connector (20-5 pin F\_PANEL)**

This connector supports several chassis-mounted functions.

8

**Intel® B250 Serial ATA 6.0Gb/s connectors (7-pin SATA6G\_1~4)**

These connectors connect to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.

9

**USB 2.0 connector (10-1 pin USB910)**

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.

10

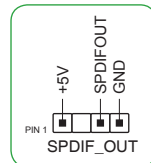
**Serial port connector (10-1 pin COM)**

Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.

11

**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.



## 12 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.
- If you want to connect a high-definition front panel audio module to this connector, set the Front Panel Type item in the BIOS setup to [HD Audio]. If you want to connect an AC'97 front panel audio module to this connector, set the item to [AC97]. By default, this connector is set to [HD Audio].

## 13 PCI Express x16 slot

This motherboard supports one PCI Express x16 graphic cards that comply with the PCI Express specifications.

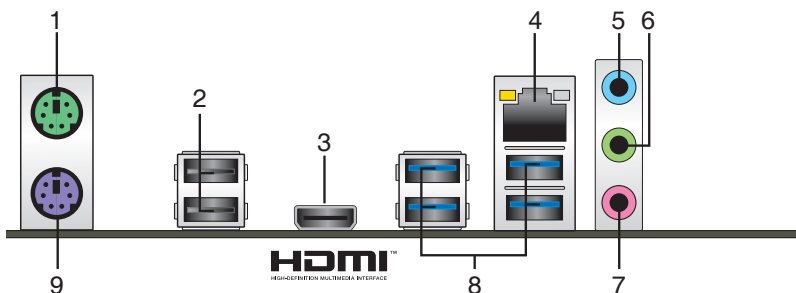
## 14 PCI Express x1 slots

This motherboard has eighteen PCI Express x1 slots that support PCI Express x1 network cards, SCSI cards, and other cards that comply with the PCI Express specifications.



For more details, refer to **Expansion slots**.

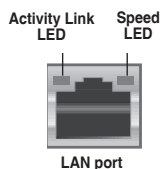
## 1.2.2 Rear panel connectors



1. **PS/2 Mouse port.** This port connects to a PS/2 mouse.
2. **USB 2.0 ports.** These 4-pin Universal Serial Bus (USB) ports are for USB 2.0/1.1 devices.
3. **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.
4. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.

## LAN port LED indications

Activity/Link LED		Speed LED	
Status	Description	Status	Description
Off	No link	OFF	10Mbps connection
Orange	Linked	ORANGE	100Mbps connection
Orange (Blinking)	Data activity	GREEN	1Gbps connection
Orange (Blinking then steady)	Ready to wake up from S5 mode	-	-



- Line In port (light blue).** This port connects to the tape, CD, DVD player, or other audio sources.
- Line Out port (lime).** This port connects to a headphone or a speaker. In the 4.1, 5.1 and 7.1-channel configurations, the function of this port becomes Front Speaker Out.
- Microphone port (pink).** This port connects to a microphone.



Refer to the audio configuration table for the function of the audio ports in 2.1, 4.1, 5.1, or 7.1-channel configuration.

## Audio 2.1, 4.1, 5.1 or 7.1-channel configuration

Port	Headset 2.1-channel	4.1-channel	5.1-channel	7.1-channel
Light Blue (Rear panel)	Line In	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Lime (Rear panel)	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink (Rear panel)	Mic In	Mic In	Bass/Center	Bass/Center
Lime (Front panel)	-	-	-	Side Speaker Out



### To configure a 7.1-channel audio output:

Use a chassis with HD audio module in the front panel to support a 7.1-channel audio output.

- USB 3.1 Gen 1 ports (blue, Type A).** These 9-pin Universal Serial Bus (USB) ports are for USB 3.1 Gen 1 devices.

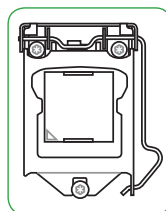


- USB 3.1 Gen 1 devices can only be used for data storage.
- We strongly recommend that you connect USB 3.1 Gen 1 devices to USB 3.1 Gen 1 ports for faster and better performance from your USB 3.1 Gen 1 devices.
- Due to the design of the Intel® 200 series chipset, all USB devices connected to the USB 2.0 and USB 3.1 Gen 1 ports are controlled by the xHCI controller. Some legacy USB devices must update their firmware for better compatibility.

- PS/2 Keyboard port.** This port connects to a PS/2 keyboard.

## 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.

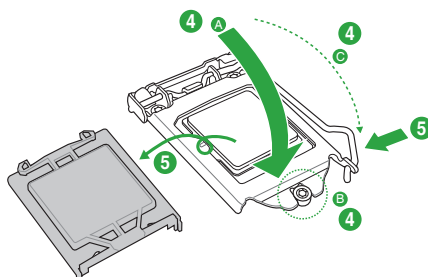
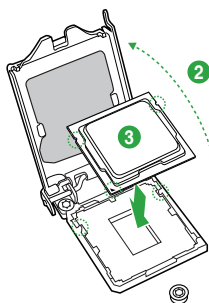
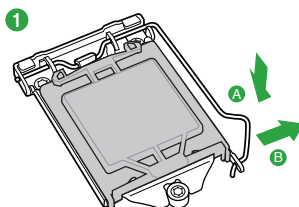
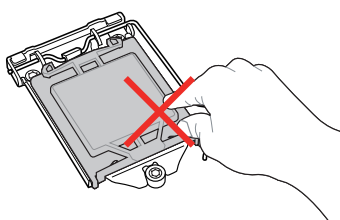


Unplug all power cables before installing the CPU.



- 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

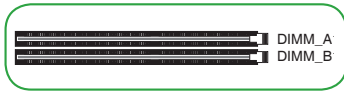


Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary.

# System memory

## Overview

This motherboard comes with two Double Data Rate 4 (DDR4) Dual Inline Memory Module (DIMM) sockets. A DDR4 module is notched differently from a DDR, DDR2, or DDR3 module. DO NOT install a DDR, DDR2, or DDR3 memory module to the DDR4 slot.



Channel	Sockets
Channel A	DIMM_A1
Channel B	DIMM_B1

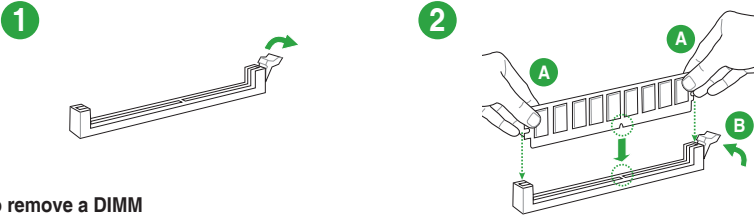


- You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.
- Always install DIMMs with the same CAS latency. For optimal compatibility, we recommend that you install memory modules of the same version or date code (D/C) from the same vendor. Check with the retailer to get the correct memory modules.
- According to Intel® CPU spec, DIMM voltage below 1.4V is recommended to protect the CPU.
- Due to Intel® chipset limitation, DDR4 2400MHz memory frequency is only supported by 7th Generation Intel® processors. Higher memory modules will run at the maximum transfer rate of DDR4 2400MHz.
- Due to Intel® chipset limitation, DDR4 2133MHz and higher memory modules on 6th Generation Intel® processors will run at the maximum transfer rate of DDR4 2133MHz.
- 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.

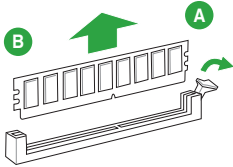


- To make your build more stable, when using 8 or more cards for mining, we recommend that you install 4GB memory modules and change the size of the virtual memory paging file to 30GB.
- The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way 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 (2 DIMMs).
- Refer to [www.asus.com](http://www.asus.com) for the latest Memory QVL (Qualified Vendors List)

# Installing a DIMM



## To remove a DIMM

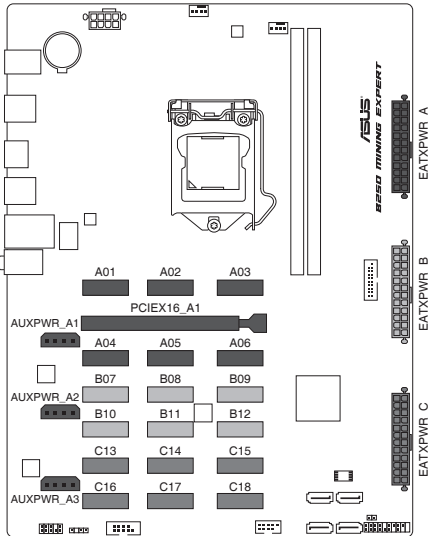


# Expansion slots

This motherboard comes with one PCIe x16 and eighteen (18) PCIe x1 expansion card slots that support graphics cards, network cards, and other cards that comply with PCIe specifications.

The added expansion slots and power connectors are uniquely designed to support up to 19 mining graphics cards for professional cryptocurrency mining. The following sections describe the location of the expansion slots and power connectors, and how to install the mining cards and connect the power supply unit.

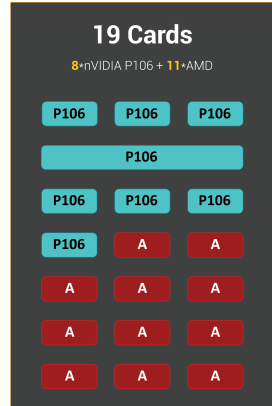
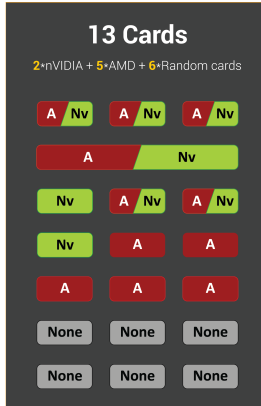
The expansion slots and power connectors are divided into three groups, located in three areas and labeled with A, B and C, as shown in the illustrations below.




## Installing mining cards




Unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.



 AMD or NVIDIA graphics cards

 AMD graphics cards

 NVIDIA P106 mining cards



To support more than 8 cards for mining, you need to install AMD Radeon Software Crimson ReLive Edition 17.10.2 driver. Please go to AMD website to download the driver and view more information.



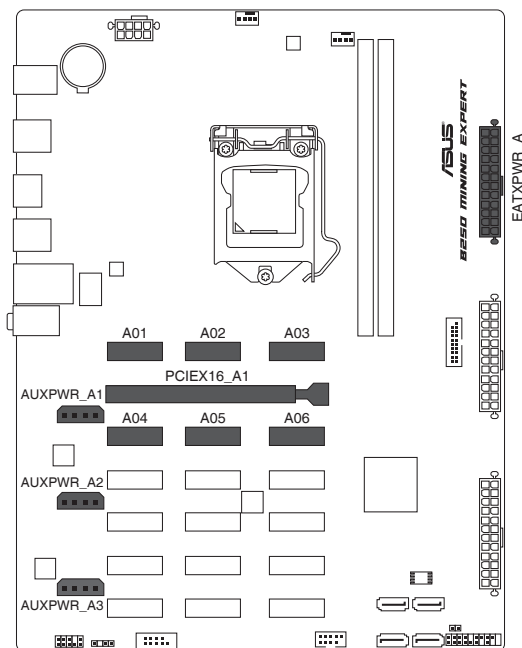
To install mining cards:

- **Seven (7) or less mining cards**

1. Install your mining cards into the PCIe x16 slot and the PCIe x1 slots labeled **Axx** in sequential order A01 ~ A06.
2. Connect your power supply unit (PSU) to the 24-pin EATX power connector labeled **EATXPWR\_A**.



AUXPWR\_A1/A2/A3 must be connected to the same power supply plugged in the 24-pin EATXPWR\_A connector.



## • 8 ~ 13 mining cards

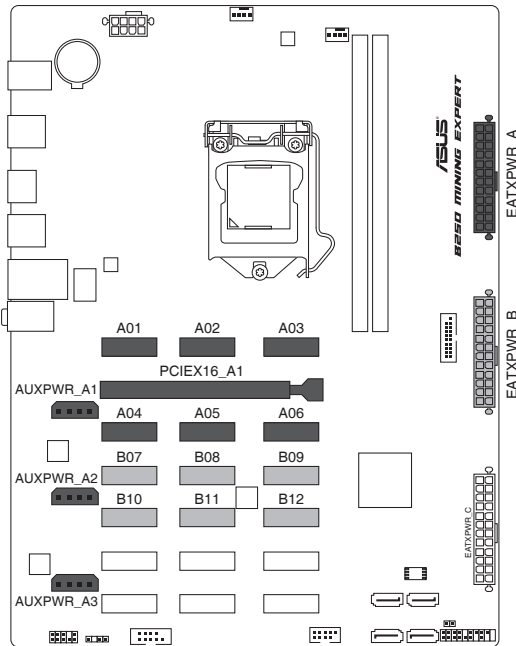


To make your build more stable, when using 8 or more cards for mining, we recommend that you install 4GB memory modules and change the size of the virtual memory paging file to 30GB.

1. Install your mining cards into the PCIe x16 slot and the PCIe x1 slots labeled **Axx** and **Bxx** in sequential order A01 ~ B12.
2. Connect your power supply unit (PSU) to the 24-pin EATX power connectors labeled **EATXPWR\_A** and **EATXPWR\_B**.



To make the power consumption in balance, connect the 6-pin/8-pin power connectors of your mining cards in area A to the power supply unit (PSU) plugged in EATXPWR\_A, and mining cards in area B to the power supply unit (PSU) plugged in EATXPWR\_B.

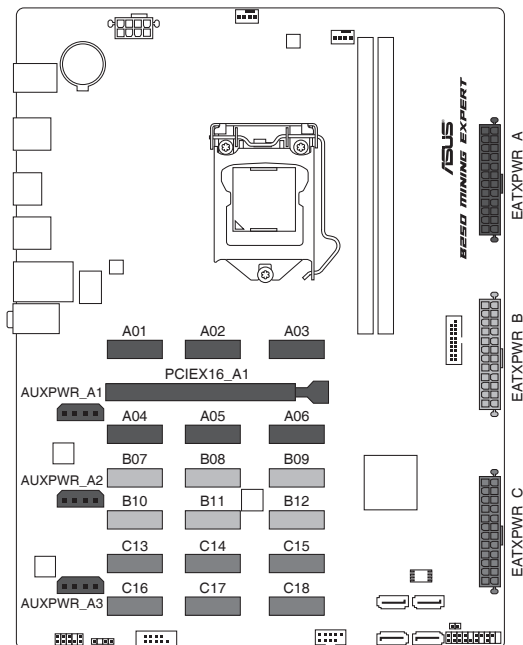


## • 14 ~ 19 mining cards

1. Install your mining cards into the PCIe x16 slot and the PCIe x1 slots labeled **Axx**, **Bxx** and **Cxx** in sequential order A01 ~ C18.
2. Connect your power supply unit (PSU) to 24-pin EATX power connectors labeled **EATXPWR\_A**, **EATXPWR\_B** and **EATXPWR\_C**.



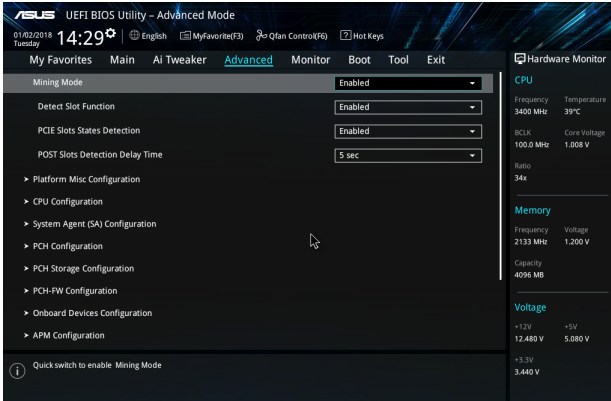
- To make the power consumption in balance, connect the 6-pin/8-pin power connectors of your mining cards in area A to the power supply unit (PSU) plugged in EATXPWR\_A, mining cards in area B to the power supply unit (PSU) plugged in EATXPWR\_B, and mining cards in area C to the power supply unit (PSU) plugged in EATXPWR\_C.
- To support more than 16 graphics cards, you need to install AMD Radeon Software Crimson ReLive Edition 17.10.2 driver. Please go to AMD website to download the driver and view more information.
- To ensure system stability, when you want to use the full complement of 19 mining cards to get the fastest mining speed, we recommend that you use a mix of 11 AMD mining cards and 8 NVIDIA P106 mining cards. Otherwise, the system may be unstable.



# Changing the mining mode in BIOS

To change the mining mode in BIOS:

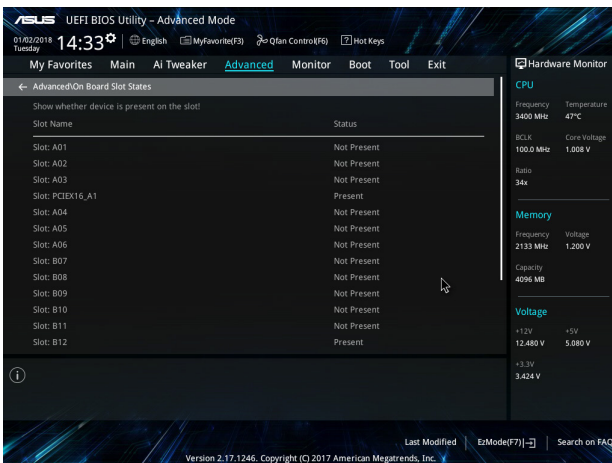
1. Press <Delete> or <F2> during POST to enter BIOS Setup.
2. Go to the **Advanced** menu > **Mining Mode**. This item is set to [Enabled] by default. You can change this item by yourself.



# Viewing the mining card status

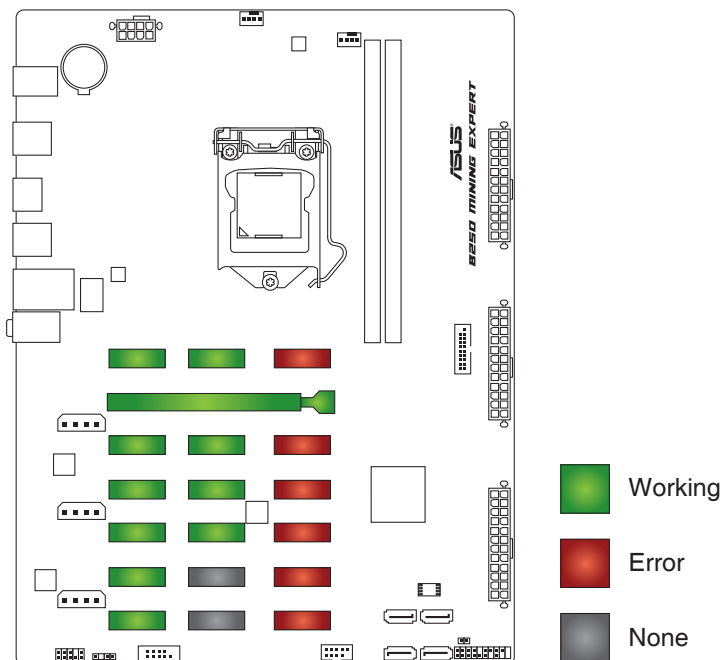
To view the mining card status in BIOS:

1. Press <Delete> or <F2> during POST to enter BIOS Setup.
2. Go to the **Advanced** menu > **On Board Slot States**, then press <Enter> to display the status of the expansion cards.



To view the mining card status during POST:

An image appears during POST to display the status of the mining cards.



- Green slot: The mining card works normally.
- Red slot: There is an error with the mining card.
- Gray slot: Your system failed to detect the mining card.



To make your build more stable, when using 8 or more cards for mining, we recommend that you install 4GB memory modules and change the size of the virtual memory paging file to 30GB.

# BIOS information

# 2



Scan the QR code to view the BIOS update guide.



## BIOS setup program

Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program.

### Entering BIOS Setup at startup

#### To enter BIOS Setup at startup:

Press <Delete> or <F2> during the Power-On Self Test (POST). If you do not press <Delete> or <F2>, POST continues with its routines.

### 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.

# 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>.

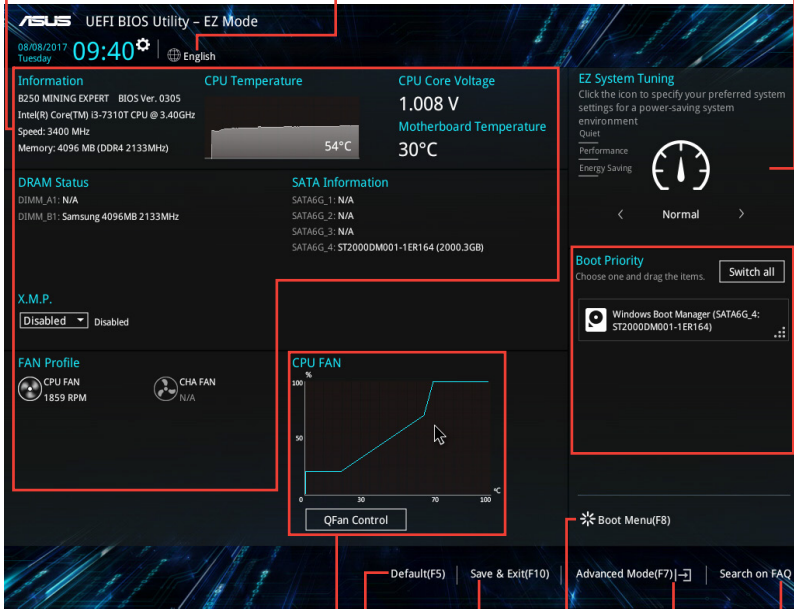


The default screen for entering the BIOS setup program can be changed. Refer to the **Setup Mode** item under the **Boot** menu for details.

Displays the CPU/motherboard temperature, CPU voltage output, CPU/chassis fan speed, and SATA information

Selects the display language of the BIOS setup program

Displays the system properties of the selected mode. Click <Enter> to switch EZ System Tuning modes



Displays the CPU Fan's speed. Click the button to manually tune the fans

Loads optimized default settings

Saves the changes and resets the system

Shows the bootable devices

Displays the Advanced mode menus  
Search on FAQs

Selects the boot device priority



The boot device options vary depending on the devices you installed to the system.

# Advanced Mode

The Advanced Mode provides advanced options for experienced end-users to configure the BIOS settings. The figure below shows an example of the **Advanced Mode**. Refer to the following sections for the detailed configurations.



To access the EZ Mode, click **EzMode(F7)** or press <F7>.

The screenshot shows the ASUS UEFI BIOS Utility in Advanced Mode. The interface includes a menu bar at the top with options like My Favorites, Main, Ai Tweaker, Advanced, Monitor, Boot, Tool, and Exit. A sub-menu item 'Language' is highlighted. A 'General help' icon is visible. A 'Pop-up window' is open for 'CPU Core Ratio', showing a 'Scroll bar' and 'Last modified settings' (Auto, Enabled, Auto, Auto, Auto, Auto). A 'Searches FAQ' field is at the bottom right. A 'Hardware Monitor' panel on the right displays CPU and Memory status. A 'Sub-menu item' 'Internal CPU Power Management' is also visible. A 'Configuration fields' section contains a warning: 'Disable this item to prevent the CPU from communicating with the external voltage regulator. A setting of Disabled is recommended for overclocking.'

**Menu bar**  
Language  
MyFavorite  
Q-Fan control  
Hot Keys

**Menu items**  
My Favorites Main Ai Tweaker Advanced Monitor Boot Tool Exit

**Sub-menu item**  
CPU Core Ratio  
DRAM Odd Ratio Mode  
DRAM Frequency  
EPU and Performance Mode  
CPU SVID Support

**General help**  
Disable this item to prevent the CPU from communicating with the external voltage regulator. A setting of Disabled is recommended for overclocking.

**Pop-up window**  
Auto  
Enabled  
Auto  
Auto  
Auto  
Auto

**Scroll bar**  
Last Modified  
EzMode(F7)

**Last modified settings**  
Auto  
Enabled  
Auto  
Auto  
Auto  
Auto

**Searches FAQ**  
Search on FAQ

**Hardware Monitor**  
**CPU**  
Frequency 2300 MHz Temperature 43°C  
BCLK 100.0 MHz Core Voltage 0.912 V  
Ratio 23x  
**Memory**  
Frequency 2133 MHz Voltage 1.200 V  
Capacity 8192 MB  
**Voltage**  
+12V +5V  
12.096 V 5.160 V  
+3.3V  
3.376 V

**Configuration fields**  
Version 2.07.1246. Copyright (C) 2017 American Megatrends, Inc.

**Displays the CPU temperature, CPU and memory voltage output**



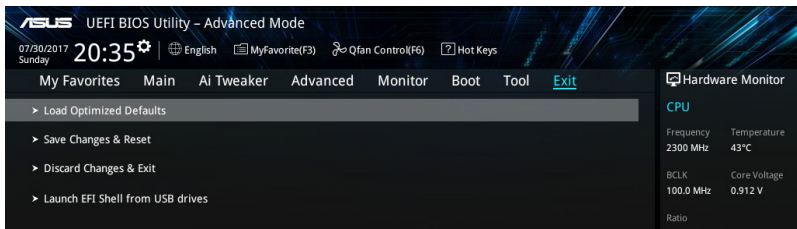
## Search on FAQ

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.

# Appendix

## Notices

### Federal Communications Commission Statement

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- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



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The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

---

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CAN ICES-3(B)/NMB-3(B)

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CAN ICES-3(B)/NMB-3(B)

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取扱説明書に従って正しい取り扱いをして下さい。

V C C I - B

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DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

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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. Please go to <http://csr.asus.com/english/Takeback.htm> for detailed recycling information in different regions.

## Regional notice for California



### WARNING

Cancer and Reproductive Harm -  
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## ASUS contact information

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Fax +49-2102-959931  
Web site <http://www.asus.com/de>  
Online contact <http://eu-rma.asus.com/sales>

#### **Technical Support**

Telephone +49-2102-5789555  
Support Fax +49-2102-959911  
Online support <http://qr.asus.com/techserv>

# DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)



**Responsible Party Name:** **Asus Computer International**

**Address:** **800 Corporate Way, Fremont, CA 94539.**

**Phone/Fax No:** **(510)739-3777/(510)608-4555**

hereby declares that the product

**Product Name : Motherboard**

**Model Number : B250 MINING EXPERT**

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 following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name : Steve Chang / President

A handwritten signature in blue ink that reads "Steve Chang". The signature is written in a cursive style and is placed over a light blue rectangular background.

Signature :

Date : Aug. 21, 2017

Ver. 170324