Mini PC
PB50 Series

User Manual

HIGH-DEFINITION MULTIMEDIA INTERFACE

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Contents

About this manual 5
Conventions used in this manual 6
Typography 6
Package contents 7

Getting to know your Mini PC

Features 10
Front view 10
Left view 12
Rear view 13

Using your Mini PC

Getting started 18
Mounting your device on the stand 18
Connect the AC power adapter to your Mini PC 19
Connect a display panel to your device 21
Connect the USB cable from keyboard or mouse 23
Turn on your Mini PC 24
Turning your Mini PC off 25
Putting your Mini PC to sleep 25
Entering the BIOS Setup 25
Load default BIOS settings 26

Upgrading your Mini PC

Removing the top cover 28
Replacing the top cover 29
Installing 2.5″ HDD or SSD 30
Installing the M.2 SSD 32
Installing top memory module 34
Installing the wireless card 36
Installing an external button 37

Appendix

Safety information 40
Setting up your system 40
Care during use 40
Regulatory notices 42

About this manual

This manual provides information about the hardware and software features of your Mini PC, organized through the following chapters:

Chapter 1: Getting to know your Mini PC

This chapter details the hardware components of your Mini PC.

Chapter 2: Using your Mini PC

This chapter provides you with information on using your Mini PC.

Chapter 3: Upgrading your Mini PC

This chapter provides you with information on how to upgrade the memory modules, wireless modules, and hard disk drive / solid state drive of your Mini PC.

Appendix

This section includes notices and safety statements your Mini PC.

Conventions used in this manual

To highlight key information in this manual, some text are presented as follows:

IMPORTANT! This message contains vital information that must be followed to complete a task.

NOTE: This message contains additional information and tips that can help complete tasks.

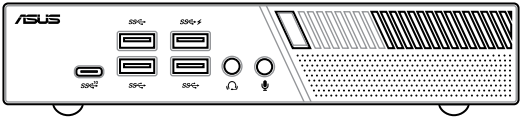
WARNING! This message contains important information that must be followed to keep you safe while performing certain tasks and prevent damage to your Mini PC's data and components.

Typography

Bold text	Indicates a menu or an item to select.
Italic	This indicates sections that you can refer to in this manual.

Package contents

Your Mini PC package contains the following items:



Mini PC

AC power adapter*

Power cord*

Technical documents

NOTE:

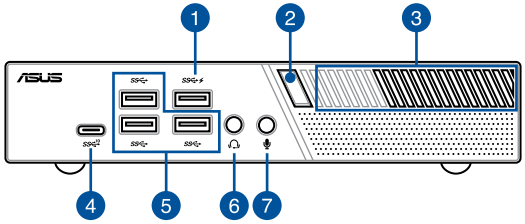
- *The bundled power adapter may vary by model and territories.
- Some bundled accessories may vary with different models. For details on these accessories, refer to their respective user manuals.
- The device illustration is for reference only. Actual product specifications may vary with models.
- If the device or its components fail or malfunction during normal and proper use within the warranty period, bring the warranty card to the ASUS Service Center for replacement of the defective components.

1

Getting to know your Mini PC

Features

Front view



1 USB 3.1 Gen 1 port

The USB 3.1 Gen 1 (Universal Serial Bus) port provides a transfer rate up to 5 Gbit/s. These ports also support the Battery Charging 1.2 technology that allows you to charge your USB devices.

NOTE: This port provides a maximum of 5V / 1.5A output.

2 Power button

The power button allows you to turn the Mini PC on or off. You can use the power button to put your Mini PC to sleep mode or press it for four (4) seconds to force shutdown your Mini PC.

3 **Air vents (intake vent)**

The air vents allow cooler air to enter your Mini PC chassis.

> **IMPORTANT:** For an optimum heat dissipation and air ventilation, ensure that the air vents are free from obstructions.

4

USB 3.1 Gen 2 Type-C™ port

This USB Type-C™ (Universal Serial Bus) port provides a transfer rate of up to 10 Gbit/s.

5

USB 3.1 Gen 1 port

The USB 3.1 Gen 1 (Universal Serial Bus) port provides a transfer rate up to 5 Gbit/s.

6

Headphone/Headset jack

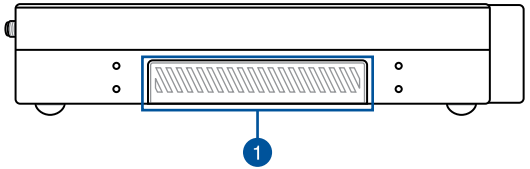
This port allows you to connect amplified speakers or headphones. You can also use this port to connect your headset or an external microphone.

7

Microphone jack

The microphone jack is designed to connect to a microphone used for video conferencing, voice narrations, or simple audio recordings.

Left view



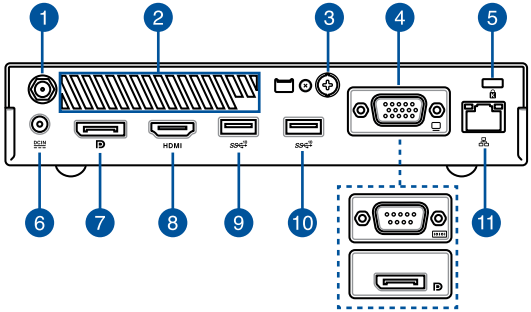
1

Graphics module port

This port allows you to connect the Graphics module with your Mini PC. If the port cover is attached, remove the cover before installing the Graphics module to your Mini PC.

NOTE: The availability of the Graphic module may vary between models and territories.

Rear view



1 **Wireless antenna jack**

The jack is used to connect the supplied wireless antenna to enhance wireless signal reception.

2 **Air vents (exhaust vent)**

The air vents allow your Mini PC chassis to expel hot air out.

IMPORTANT! For optimum heat dissipation and air ventilation, ensure that the air vents are free from obstructions.

CAUTION! Be careful of the hot air expelled at the air vents as it may cause discomfort or injuries.

3 **Punch-out port**

Removing the metal cover allows you to install an external power button or CLRTC button.

4

Configurable port

This port varies between models and consists of the following port options:

	VGA port This port allows you to connect your Mini PC to an external display.
	Serial (COM) connector The 9-pin serial (COM) connector allows you to connect devices that have serial ports such as mouse, modem, or printers.
	DisplayPort This port allows you to connect your Mini PC to an external display.

5

Kensington® security slot

The Kensington® security slot allows you to secure your PC using Kensington® compatible security products.

6

Power input

The supplied power adapter converts AC power to DC power for use with this jack. Power supplied through this jack supplies power to the Mini PC. To prevent damage to the Mini PC, always use the supplied power adapter.

WARNING! The power adapter may become warm to hot when in use. Do not cover the adapter and keep it away from your body.

7 **DisplayPort**

This port allows you to connect your Mini PC to an external display.

8 HDMI **HDMI port**

The HDMI (High Definition Multimedia Interface) port supports a Full-HD device such as an LCD TV or monitor to allow viewing on a larger external display.

9 **USB 3.1 Gen 2 port**

The USB 3.1 Gen 2 (Universal Serial Bus) port provides a transfer rate up to 10 Gbit/s.

10 **USB 3.1 Gen 2 port (on selected models)**

The USB 3.1 Gen 2 (Universal Serial Bus) port provides a transfer rate up to 10 Gbit/s.

11 **LAN port**

The 8-pin RJ-45 LAN port supports a standard Ethernet cable for connection to a local network.

NOTE: This port supports 10M/bps, 100M/bps, and 1000M/bps connection speed.

2

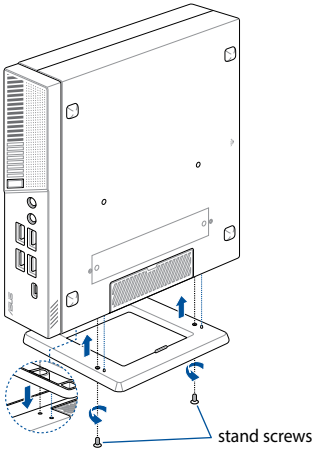
Using your Mini PC

Getting started

Mounting your device on the stand

To mount your Mini PC on the stand:

1. Locate the mounting holes at the bottom of your Mini PC.
2. Align the stand's mounting hole with the mounting hole on your Mini PC, then secure it in place with the stand screws.



Connect the AC power adapter to your Mini PC

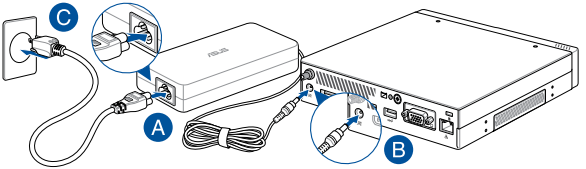
To connect the AC power adapter to your Mini PC:

A. Connect the power cord to the AC power adapter.

B. Connect the DC power connector into your Mini PC's power (DC) input.

C. Plug the AC power adapter into a 100V~240V power source.

NOTE: The power adapter may vary in appearance, depending on models and your region.



NOTE:

The power adapter may vary between models and territories, please refer to the following for more information on the different adapters:

65W Power adapter

- Input voltage: 100-240 Vac
- Input frequency: 50-60 Hz
- Rating output current: 3.42 A (65 W)
- Rating output voltage: 19 V

90W Power adapter

- Input voltage: 100-240 Vac
- Input frequency: 50-60 Hz
- Rating output current: 4.74 A (90W)
- Rating output voltage: 19 V

Connect a display panel to your device

You can connect a display panel or projector to your device that has the following connectors:

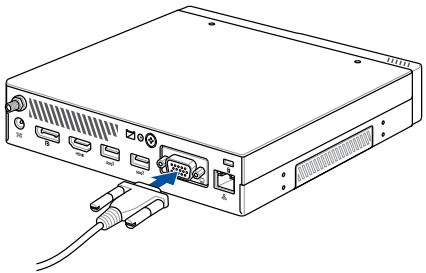
- VGA connector
- DisplayPort
- HDMI connector

NOTE: These ports may vary per model.

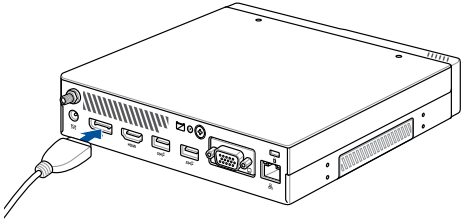
To connect a display panel to your Mini PC:

Connect one end of a VGA, DisplayPort, or HDMI cable to an external display, and the other end of the cable to your Mini PC's VGA port, DisplayPort, or an HDMI port.

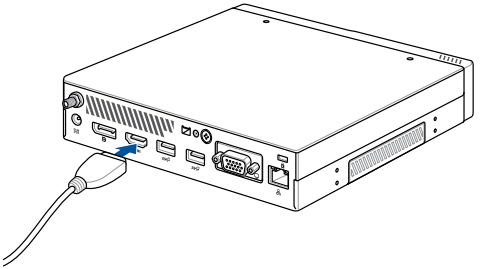
Connect display via VGA port



Connect display via DisplayPort



Connect display via HDMI port



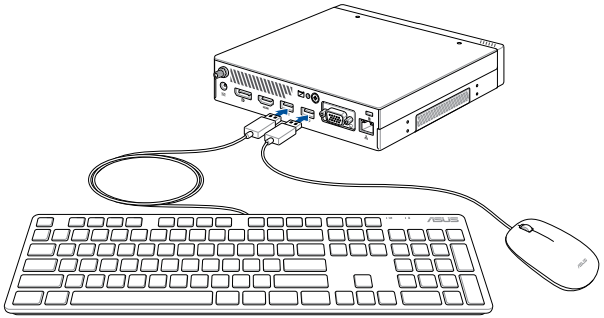
Connect the USB cable from keyboard or mouse

You can connect generally any USB keyboard and mouse to your Mini PC. You can also connect a USB dongle for a wireless keyboard and mouse set.

To connect a keyboard and mouse to your Mini PC:

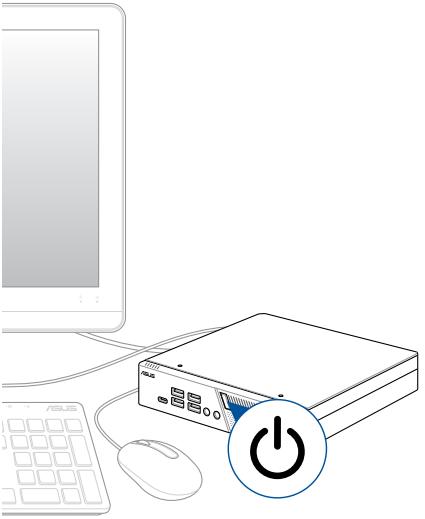
Connect the USB cable from your keyboard and mouse to any of the USB ports of your Mini PC.

NOTE: The keyboard varies with country or region.



Turn on your Mini PC

Press the power button to turn on your Mini PC.



Turning your Mini PC off

If your Mini PC is unresponsive, press and hold the power button for at least four (4) seconds until your Mini PC turns off.

Putting your Mini PC to sleep

To put your Mini PC on Sleep mode, press the Power button once.

Entering the BIOS Setup

BIOS (Basic Input and Output System) stores system hardware settings that are needed for system startup in the Mini PC.

In normal circumstances, the default BIOS settings apply to most conditions to ensure optimal performance. Do not change the default BIOS settings except in the following circumstances:

- An error message appears on the screen during the system bootup and requests you to run the BIOS Setup.
- You have installed a new system component that requires further BIOS settings or update.

WARNING! Inappropriate BIOS settings may result to instability or boot failure. We strongly recommend that you change the BIOS settings only with the help of a trained service personnel.

Load default BIOS settings

To load the default values for each of the parameters in your BIOS:

- Enter the BIOS by pressing <F2> or <DEL> on the POST screen.

  NOTE: POST (Power-On Self Test) is a series of software controlled diagnostic tests that run when you turn on your Mini PC.

- Navigate to the **Exit** menu.
- Select the **Load Optimized Defaults** option, or you may press <F5>.
- Select **OK** to load the default BIOS values.

3

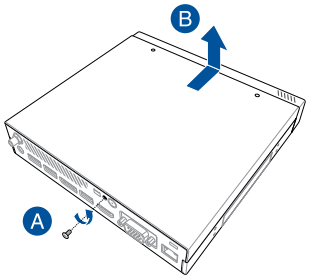
Upgrading your Mini PC

IMPORTANT! Ensure that your hands are dry before proceeding with the rest of the installation process. Before installing any of the features in this guide, use a grounded wrist strap or touch a safely grounded object or metal object to avoid damaging them due to static electricity.

NOTE: The illustrations in this section are for reference only. The slots may vary depending on model.

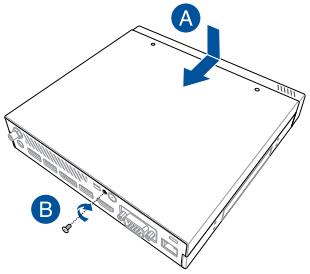
Removing the top cover

1. Turn off your Mini PC then disconnect all cables and peripherals.
2. Remove the screw from the rear (A), then push the top cover towards the front to remove the top cover (B).



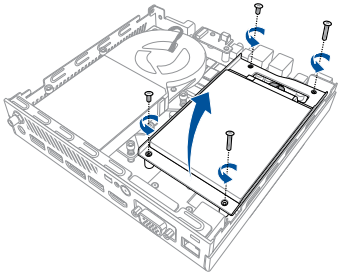
Replacing the top cover

Replace the top cover and push it towards the rear (A), then secure it with the screw removed previously (B).



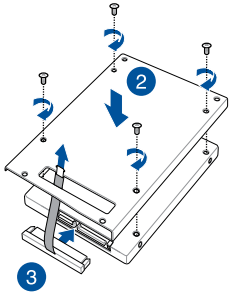
Installing 2.5” HDD or SSD

1. Remove the four (4) screws, then lift the storage bay to remove it from the chassis.

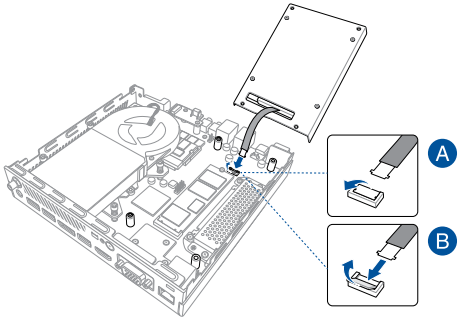


2. Insert your HDD or SSD into the storage bay, then secure it with four (4) screws.

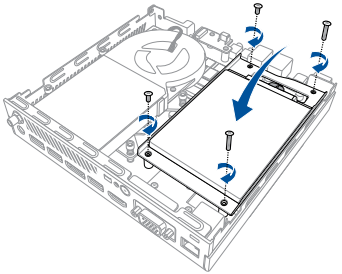
3. Connect the SATA cable to the HDD or SSD.



4. Lift the flap on the SATA connector (A), connect the SATA cable to the SATA connector, then push the flap down to secure the cable (B).



5. Replace the storage bay and secure it with the four (4) screws removed previously.

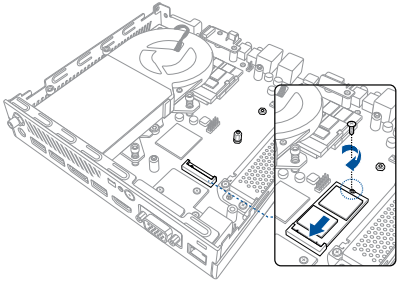


Installing the M.2 SSD

(optional) Remove the storage bay if a storage bay is installed. Follow step 2 under the *Installing 2.5" HDD or SSD* section to remove the storage bay.

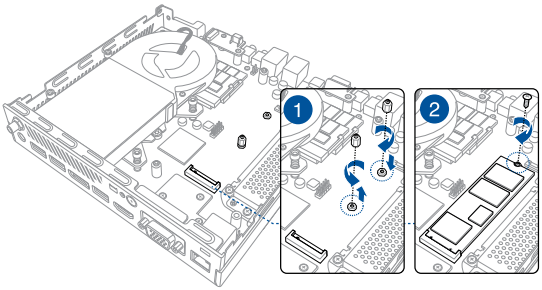
To install 2242 M.2 SSD

Align and insert the 2242 M.2 SSD into its slot inside the Mini PC, then gently push down the M.2 SSD on top of the screw hole and fasten it using one of the bundled 3mm round screws.



To install 2280 M.2 SSD

1. Remove the stand screw and install it into the 2280 M.2 screw hole.
2. Align and insert the 2280 M.2 SSD into its slot inside the Mini PC, then gently push down the M.2 SSD on top of the screw hole and fasten it using one of the bundled 3mm round screws.



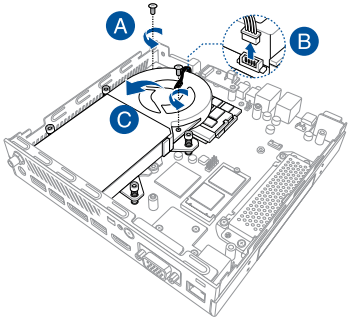
Installing top memory module

IMPORTANT!

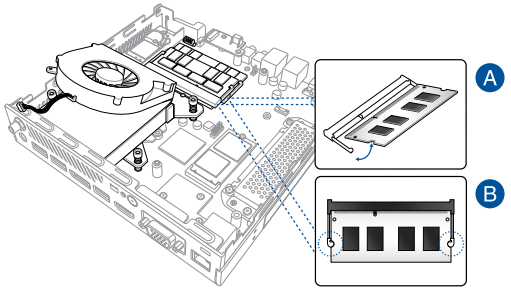
- Refer to http://www.asus.com for the list of compatible DIMMs. You can only install DDR4 SO-DIMMs to the Mini PC's DIMM slot.
- Only ASUS-authorized technicians should remove and install motherboard and mechanical parts inside your Mini PC. Please refer to the terms and conditions in the warranty card.
- Visit an authorized ASUS service center or retailer for information on module upgrades for your Mini PC.

1. (optional) Remove the storage bay if a storage bay is installed. Follow step 2 under the *Installing 2.5" HDD or SSD* section to remove the storage bay.

2. Remove the two (2) screws securing the fan (A), then disconnect the fan connector (B) and lift the fan upwards so that it is perpendicular to the heatsink (C), but do not remove the fan completely.



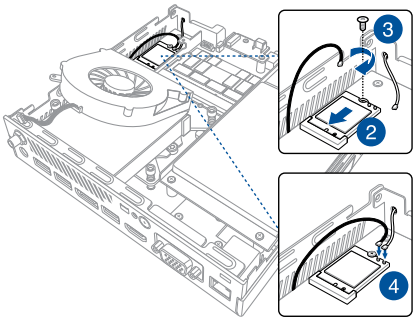
3. Align and insert the memory module into the slot (A) and press it down (B) until it is securely seated in place.



Installing the wireless card

NOTE: Your Mini PC includes a M.2 slot for 2230 wireless and Bluetooth modules. Refer to http://www.asus.com for the list of compatible wireless and Bluetooth modules.

1. Follow steps 1 and 2 under the *Installing top memory module* section to lift the fan before installing the wireless card.
2. Align and insert the wireless card into its slot inside the Mini PC.
3. Gently push down the wireless card on top of the screw hole and fasten it using the bundled 3mm round screw.
4. (optional) Connect the antennas to your wireless card.



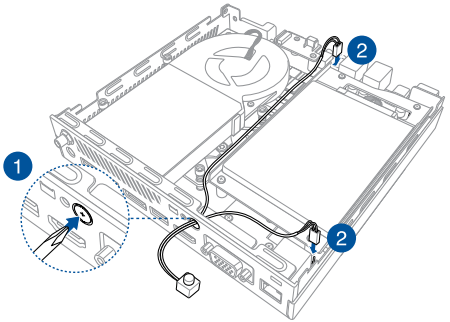
Installing an external button

1. Remove the metal cover of the punch-out port.

CAUTION! Take extra care when removing the metal cover. Use tools such as a screw driver to bend and remove the metal cover to avoid physical injury.

2. Insert the external button connector through the punch-out port and connect it to one of the following 2-pin headers:

Header name	Description
PWRBTN_HEADER	Power on or power off the Mini PC.
CLRTC	Clear the Real Time Clock (RTC) RAM in CMOS.



Appendix

Safety information

Your Mini PC is designed and tested to meet the latest standards of safety for information technology equipment. However, to ensure your safety, it is important that you read the following safety instructions.

Setting up your system

- Read and follow all instructions in the documentation before you operate your system.
- Do not use this product near water or a heated source.
- Set up the system on a stable surface.
- Openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the system for ventilation. Never insert objects of any kind into the ventilation openings.
- Use this product in environments with ambient temperatures between 0˚C and 35˚C.
- If you use an extension cord, make sure that the total ampere rating of the devices plugged into the extension cord does not exceed its ampere rating.
- This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

Care during use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill water or any other liquids on your system.
- When the system is turned off, a small amount of electrical current still flows. Always unplug the power cord from the power outlets before cleaning the system.

- If you encounter the following technical problems with the product, unplug the power cord and contact a qualified service technician or your retailer.
  - The power cord or plug is damaged.
  - Liquid has been spilled into the system.
  - The system does not function properly even if you follow the operating instructions.
  - The system was dropped or the cabinet is damaged.
  - The system performance changes.

Lithium-Ion Battery Warning

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

NO DISASSEMBLY

The warranty does not apply to the products that have been disassembled by users

DO NOT throw the Mini PC in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical, electronic equipment, and mercury-containing button cell battery) should not be placed in municipal waste. Check local technical support services for product recycling.

Regulatory notices

REACH

Complying with the REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulatory framework, we publish the chemical substances in our products at ASUS REACH website at **http://csr.asus.com/english/REACH.htm**

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

COATING NOTICE

IMPORTANT! To provide electrical insulation and maintain electrical safety, a coating is applied to insulate the device except on the areas where the I/O ports are located.

RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- 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.

IMPORTANT! Outdoor operations in the 5.15~5.25 GHz band is prohibited. This device has no Ad-hoc capability for 5250~5350 and 5470~5725 MHz.

CAUTION! Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

ISED Radiation Exposure Statement for Canada

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. To maintain compliance with ISED RF exposure compliance requirements, please avoid direct contact to the transmitting antenna during transmitting. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Operation is subject to the following two conditions:

- This device may not cause interference and
- This device must accept any interference, including interference that may cause undesired operation of the device.

Compliance Statement of Innovation, Science and Economic Development Canada (ISED)

This device complies with Innovation, Science and Economic Development Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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

Déclaration de conformité de Innovation, Sciences et Développement économique Canada (ISED)

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

Wireless Operation Channel for Different Domains

N. America	2.412-2.462 GHz	Ch01 through CH11
Japan	2.412-2.484 GHz	Ch01 through Ch14
Europe ETSI	2.412-2.472 GHz	Ch01 through Ch13

Regional notice for California

WARNING

Cancer and Reproductive Harm -
www.P65Warnings.ca.gov

HDMI Compliance Statement

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

ENERGY STAR complied product

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices.

All ASUS products with the ENERGY STAR logo comply with the ENERGY STAR standard, and the power management feature is enabled by default. The monitor and computer are automatically set to sleep after 10 and 30 minutes of user inactivity. To wake your computer, click the mouse or press any key on the keyboard.

Please visit http://www.energystar.gov/powermanagement for detail information on power management and its benefits to the environment. In addition, please visit http://www.energystar.gov for detail information on the ENERGY STAR joint program.

NOTE: Energy Star is NOT supported on FreeDOS and Linux-based products.