Altos BrainSphere™ P30 F6

Workstation Hardware Service Guide

About Altos

Altos Computing Inc. (abbr. Altos) is established in 2017 and it is a subsidiary of Acer Inc. The business model of Altos is to provide the best streamlined and cost-effective integrated solutions thru in-house R&D working with ODM/IHV/ISV on servers, workstations, thin client, network and storage. In the era of demanding speed, Altos provides leading solution included, but not limited to High Performance Computing, Virtual Desktop Infrastructure, Cloud Infrastructure and Software Defined Storage, etc.

Altos provides solutions and services to government, academia, cloud service providers, datacenter operators and enterprises.

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For More Information

For related product specifications, the latest firmware and software, and other information please visit our website at http://www.altoscomputing.com

Federal Communications Commission (FCC)

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 installa-tion. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful inter-ference 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 the receiver
- Connect the equipment onto 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

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manu-facturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

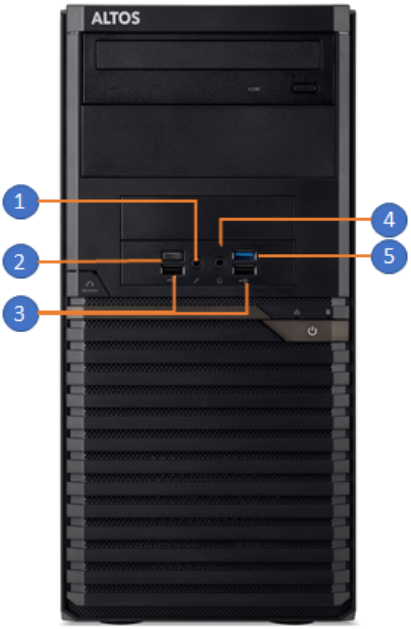
- This device may not cause harmful interference.
- This device must accept any interference received, including interfer-ence that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

Altos P30 F6 Workstation Product Front View

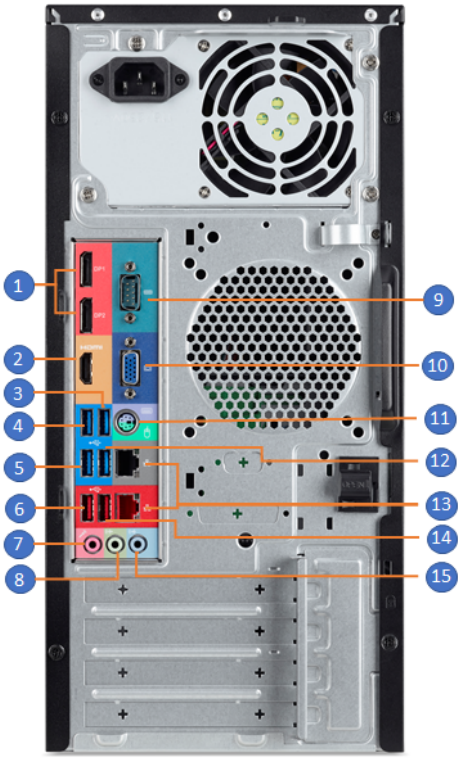


Tower Form Factor

Compact Form Factor

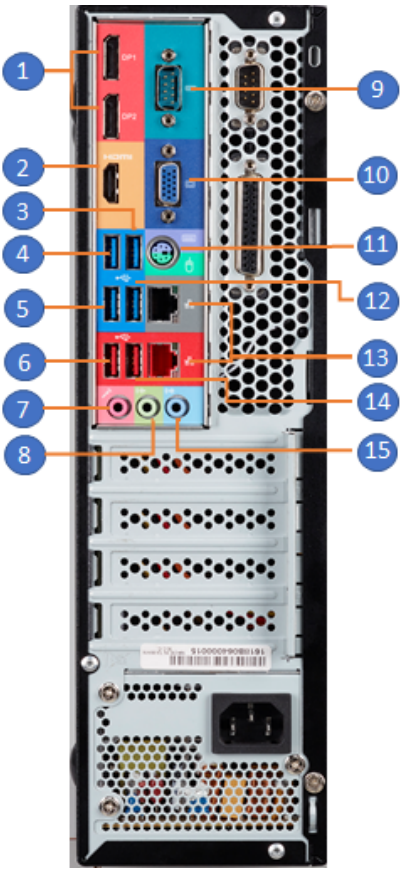
#	Description
1	Microphone jack
2	1 x USB3.1 Gen1 Type C Port
3	2 x USB2.0 ports
4	Headphone/Speaker-out/line-out Port
5	1 x USB 3.1 Gen1 Type A Port

Altos P30 F6 Workstation Product Rear View (Tower Form Factor)



#	Description
1	Monitor DP port 1/2
2	HDMI port
3	USB 3.1 Gen1 port 2
4	USB 3.1 Gen1 port 1
5	USB 3.1 Gen1 port 3
6	USB 3.1 Gen2 port 1
7	Microphone jack
8	Line-out jack
9	Serial Port (COM1)
10	Monitor VGA port
11	PS2 Keyboard & Mouse combo port
12	USB 3.1 Gen1 port 4
13	Network port 1/2
14	USB 3.1 Gen 2 port 2
15	Line-in jack

Altos P30 F6 Workstation Product Rear View (Compact Small Form Factor)



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12	USB 3.1 Gen1 port 4
13	Network port 1/2
14	USB 3.1 Gen 2 port 2
15	Line-in jack

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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the Q37H4-AMS motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA1151 socket for Intel® CFL-S Processor with GT2 (6+2, 4+2) for high-end business or personal desktop markets.

This motherboard is based on Intel® Q370 Chipset for best desktop platform solution. This motherboard supports up to 64 GB of system memory with dual channel DDR4 2666/2400MHz SDRAM. High resolution graphics via two PCI Express x16 slots*, intended for Graphics Interface, are fully compliant to the PCI Express Base Specification revision 3.0. In addition, one PCI Express x1 slot is supported, fully compliant to the PCI Express Base Specification revision 3.0, two M.2 slots (M2_1 combines with USB2.0 and CNVi for WLAN, M2_2 supports for SSD and Intel Optane MEM) and one PCI slot are for extending usage.

It implements an EHCI (Enhanced Host Controller Interface) compliant interface that provides three USB 2.0 ports (one 5-pin USB 2.0 header supports one USB 2.0 port and one 10-pin USB 2.0 header supports additional two USB 2.0 ports), and ten USB 3.1 ports (four USB 3.1 Gen1 ports and two USB 3.1 Gen2 at the back panel, one front panel USB 3.1 header supports additional two USB 3.1 Gen1 ports, and two STD-A USB3.1 headers support two USB 3.1 Gen2 ports).

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including one PS/2 mouse and keyboard combo connector, one Serial port (COM1), one HDMI port, one VGA port, two DP ports, four USB 3.1 Gen1 ports, two USB 3.1 Gen2 ports, two LAN ports, and audio jacks for microphone, line-in and line-out.

In addition, this motherboard supports five SATA 6Gb/s connectors for expansion.

* *The PCIE16X_2 slot will run at x4 mode.*

Feature

Processor

The motherboard uses an LGA1151 type of socket that carries the following features:

- Accommodates the Intel® CFL-S processor with GT2 (6+2, 4+2)

Chipset

The Intel® Q370 Chipset is a single-chip with proven reliability and performance.

- Support two PCI Express x16 slots*
- Support one PCI Express x1 slot
- Support two M.2 slots
- Integrated five SATA 6Gb/s Host Controllers
- Three USB 2.0 ports supported
- Ten USB 3.1 ports supported
- Serial Peripheral Interface (SPI) support
- Intel® High Definition Audio Controller

Memory

- Supports DDR4 2666/2400MHz DDR4 SDRAM with Dual-channel architecture
- Accommodates two unbuffered DIMMs
- Up to 16GB per DIMM with maximum memory size up to 64 GB

Audio

- 5.1+2 Channel High Definition Audio Codec
- Meets Microsoft Windows Logo Program and Lync audio requirements
- All DACs supports 44.1k/48k/96k/192kHz sample rate
- Software selectable 2.5V/3.2V/4.0V VREFOUT
- Direct Sound 3D™ compatible
- Power Support: Digital: 3.3V; Analog: 5.0V

LAN

The onboard LAN provides the following features:

- Controller: Intel I219-LM+Intel I211-AT
- Support Wake up on LAN function, including from S3,S4,S5,G3->S5, power button off (non-ACPI OS)

** The PCIE16X_2 slot will run at x4 mode.*

Expansion Options

The motherboard comes with the following expansion options:

- Two PCI Express x16 slots* for Graphic Interface
- One PCI Express x1 slot
- One M.2 (2280) for PCIe SSD and Intel Optane memory (2242)
- One M.2 (2230) with USB2.0 for WLAN
- One PCI slot

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- One PS/2 keyboard and mouse combo connector
- One Serial port (COM1)
- One HDMI port
- Two DP ports
- One VGA port
- Two LAN ports
- Six USB 3.1 ports
- Audio jacks for microphone, line-in and line-out

BIOS Firmware

This motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing
- Graphic parameters

The firmware can also be used to set parameters for different processor clock speeds.

1. Some hardware specifications and software items are subject to change without prior notice.

2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50 ° C.

* *The PCIE16X_2 slot will run at x4 mode.*

Specifications

CPU	•	LGA1151 socket for Intel® CFL-S Processor with GT2 (6+2, 4+2)
Chipset	•	Intel® Q370 Chipset
Memory	•	Dual-channel DDR4 memory architecture
	•	4 x 288-pin DDR4 DIMM sockets support up to 64 GB
	•	Supports 2666/2400MHz DDR4 SDRAM
Expansion Slots	•	2 x PCI Express x16 slot* (PCIE V3.0)
	•	1 x PCI Express x1 slot (PCIE V3.0)
	•	1 x M.2 (2280) for PCIe SSD and Intel Optane memory (2242)
	•	1 x M.2 (2230) for WLAN/Bluetooth
Storage	•	Supported by Intel® Q370 Express Chipset -5 x Serial ATA 6Gb/s Host Controllers
Audio	•	Realtek ALC662VD 5.1-Ch HD audio CODEC
Ethernet LAN	•	Intel I219-LM+Intel I211-AT -Wake-on-LAN and remote wake-up support
Rear Panel I/O	•	1 x PS/2 keyboard and mouse comboport
	•	1 x Serial port (COM1)
	•	1 x HDMI port
	•	2 x DP ports
	•	1 x VGA port
	•	6 x USB 3.1 ports
	•	2 x RJ45 LAN connectors
	•	1 x Audio port (Line in, line out and microphone)
Internal I/O Connectors & Headers	•	1 x 24-pin ATX Power Supply connector
	•	1 x 4-pin 12V Power Supply connector
	•	1 x 4-pin CPU_FAN connector
	•	2 x 4-pin SYS_FAN connectors
	•	5 x SATA 6Gb/s connectors
	•	1 x Front panel switch/LED header
	•	1 x Front panel audio header
	•	1 x 5-pin USB 2.0 header supports one USB 2.0 port for card reader
	•	1 x USB 2.0 header supports additional two USB 2.0 ports
	•	1 x USB 3.1 header supports additional two USB 3.1 Gen1 ports
	•	2 x USB 3.1 STD-A headers support additional two USB 3.1 Gen2 ports
	•	1 x Onboard Serial port header (COM2)
	•	1 x Internal Speaker header
	•	1 x Clear CMOS header with jumper
	•	1 x BIOS flash protect header with jumper

** The PCIE16X_2 slot will run at x4 mode.*

	• 1 x One button recovery header (OBR) • 1 x Onboard parallel port header (LPT) • 1 x Buzzer • 1 x Opened Chassis detective header • 2 x 2-pin GPIO headers
System BIOS	• AMI BIOS with 64Mb SPI Flash ROM • Supports Plug and Play, STR (S3) / STD (S4) , Hardware monitor • Supports ACPI & DMI • Audio, LAN, can be disabled in BIOS
Form Factor	• uATX Size, 244mm x 244mm

Motherboard Components

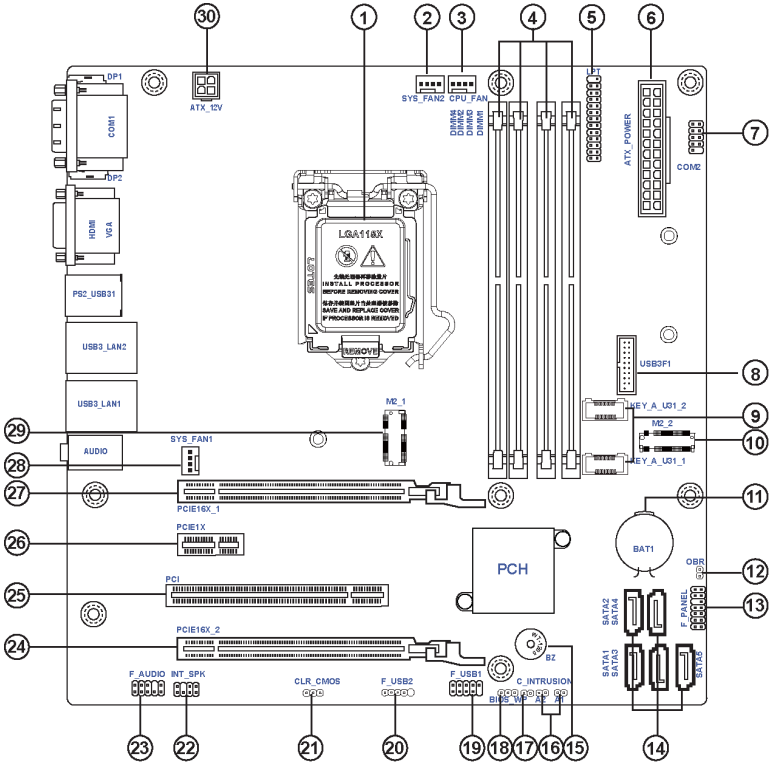
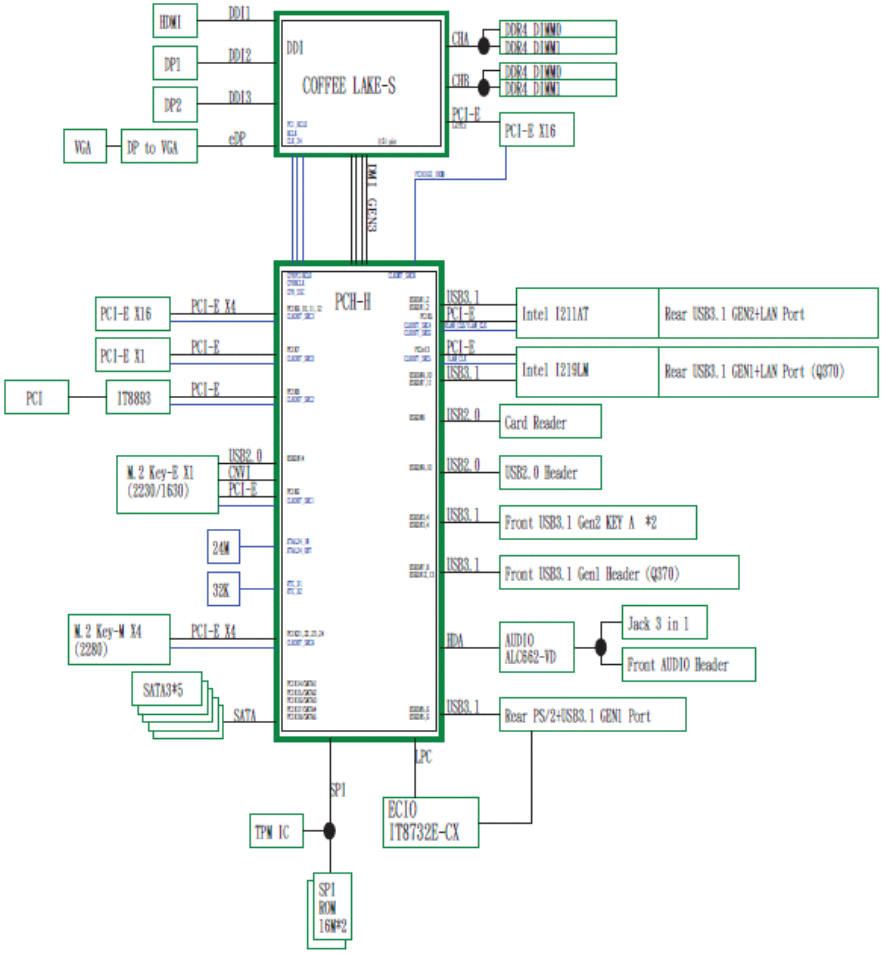


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU	Supports the LGA1151 socket for Intel® CFL-S Processor with GT2 (6+2, 4+2)
2. SYS_FAN2	System cooling fan connector
3. CPU_FAN	CPU cooling fan connector
4. DIMM1~4	288-Pin DDR4 SDRAM slots
5. LPT	Onboard parallel port header
6. ATX_POWER	24-pin ATX power connector
7. COM2	Onboard serial port header
8. USB3F1	Front panel USB3.1 connector
9. KEY_A_U31_1~2	USB 3.1 STD-A headers
10. M2_2	M.2(2280&2242) slot (for PCIE SSD & Intel optane memory)
11. BAT1	Battery
12. OBR	One Button Recovery header
13. F_PANEL	Front panel switch/LED header
14. SATA1~5	Serial ATA 6Gb/s connectors
15. BZ	Buzzer
16. A1~2	2-pin GPIO headers
17. C_INTRUSION	Opened Chassis detective header
18. BIOS_WP	BIOS flash protect header with jumper
19. F_USB1	2*5 pin Front panel USB 2.0 header
20. F_USB2	5 pin Front panel USB 2.0 header
21. CLR_CMOS	Clear CMOS header with jumper
22. INT_SPK	Internal speaker header
23. F_AUDIO	Front panel audio header
24. PCIE16X_2	PCI Express x16 slot (wired as x4 PCIe V3.0)
25. PCI	32-bit add-on card slot
26. PCIE1X	PCI Express x1 slot
27. PCIE16X_1	PCI Express x16 slot
28. SYS_FAN1	System cooling fan connector
29. M2_1	M.2 (2230) slot for (co-lay with USB2.0 for WLAN)
30. ATX_12V	Auxiliary 4-pin power connector

This concludes Chapter 1. The next chapter explains how to install the motherboard.

P30 F6 Mainboard Block Diagram



Chapter 2
Installing the Motherboard

Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the uATX system case. Some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

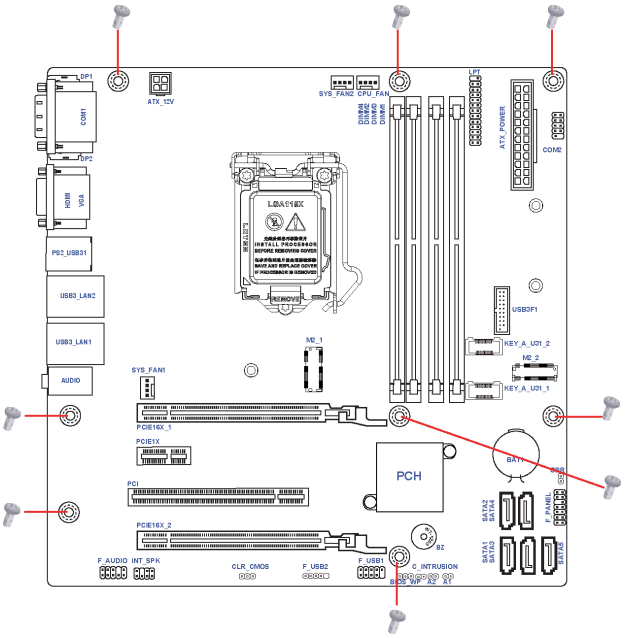
This motherboard carries a uATX form factor of 244 x 244 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



Do not over-tighten the screws as this can stress the motherboard.

Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

Setting Jumpers

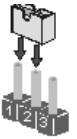
Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.

SHORT

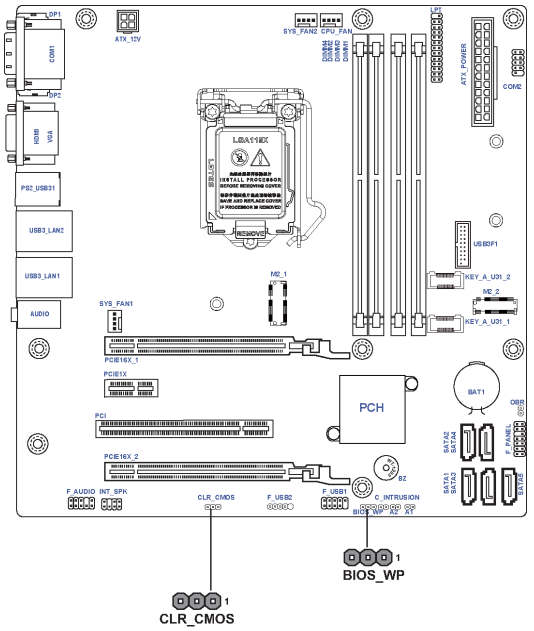
OPEN

This illustration shows a 3-pin jumper. Pins 1 and 2 are SHORT.



Checking Jumper Settings

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.



Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	Clear CMOS	1-2: NORMAL 2-3: CLEAR Before clearing the CMOS, make sure to turn off the system.	1 **CLR_CMOS**
BIOS_WP	3-pin	BIOS Flash Protect	1-2: BIOS_WP 2-3: NORMAL	1 **BIOS_WP**

To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".

Installing Hardware

Installing the Processor

Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.

On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

Warning:

1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

This motherboard has an LGA1151 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

Fail-Safe Procedures for Over-clocking

When end-users encounter failure after attempting over-clocking, please take the following steps to recover from it.

1. Shut down the computer.

2. Press and hold the “Page Up Key (PgUp)” of the keyboard, and then boot the PC up.

3. Two seconds after the PC boots up, release the “Page Up Key (PgUp)”.

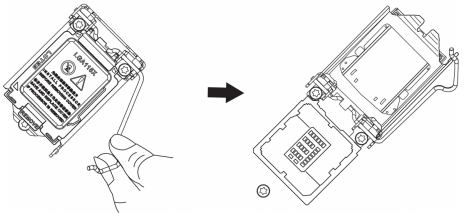
4. The BIOS returns to the default setting by itself.

CPU Installation Procedure

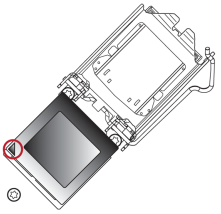
The following illustration shows CPU installation components.

A. Press the hook of lever down with your thumb and pull it to the right side to release it from retention tab.

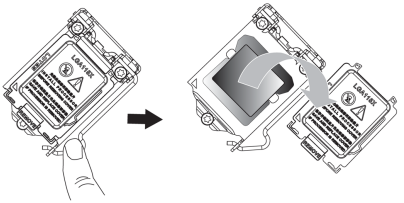
B. Lift the tail of the load lever and rotate the load plate to fully open position.



C. Grasp the edge of the package substrate. Make sure pin 1 indicator is on your bottom-left side. Aim at the socket and place the package carefully into the socket by purely vertical motion.

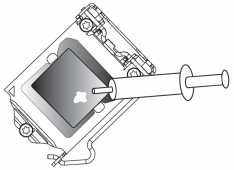


D. Rotate the load plate onto the package IHS (Intergraded Heat Spreader). Engage the load lever while pressing down lightly onto the load plate. Secure the load lever with the hook under retention tab. Then the cover will flick automatically.

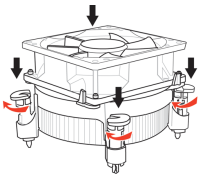


Please save and replace the cover onto the CPU socket if processor is removed.

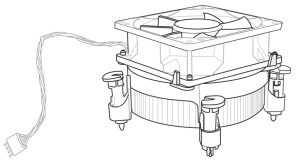
E. Aplly some thermal grease onto the contacted area between the heatsink and the CPU, and make it to be a thin layer.



F. Fasten the cooling fan supporting base onto the CPU socket on the motherboard. And make sure the CPU fan is plugged to the CPU fan connector.



G. Connect the CPU cooler power connector to the CPU_FAN connector.



1. To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/ heatsink supplied. The form and size of fan/heatsink may also vary.

2. DO NOT remove the CPU cap from the socket before installing a CPU.

3. Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA1151 socket.

Installing Memory Modules

This motherboard accommodates two memory modules. It can support four 288-pin DDR4 2666/2400MHz. The total memory capacity is 64 GB.

DDR4 SDRAM memory module table

Memory module	Frequency
DDR4	*2400 MHz*
DDR4	*2666 MHz*

You must install at least one module in any of the four slots.

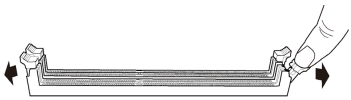
Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

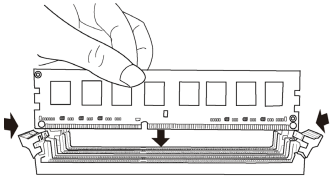
Installation Procedure

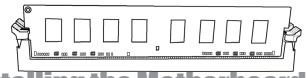
Refer to the following to install the memory modules.

1 This motherboard supports unbuffered DDR4 SDRAM .
2 Push the latches on each side of the DIMM slot down.
3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
6 Install any remaining DIMM modules.

** For reference only*



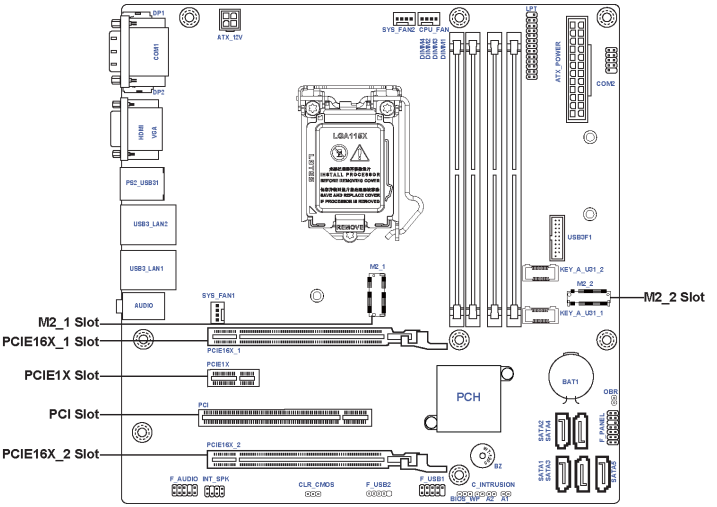




Expansion Slots

Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



PCIE16X_1~2 Slots*

The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 3.0.

M2_1 slot

The M.2 (2230) slot is for the WLAN/Bluetooth module.

PCIE1X Slot

The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 3.0.

M2_2 slot

The M.2 (2280 & 2242) slot is for PCIe SSD and Intel Optane memory.

PCI Slot

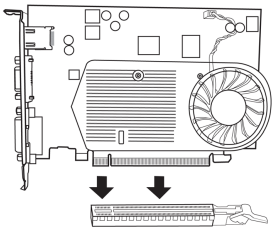
This motherboard is equipped with one standard PCI slot. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slot on this board is PCI v2.3 compliant.

* *The PCIE16X_2 slot will run at x4 mode.*

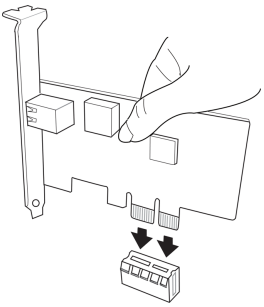
Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

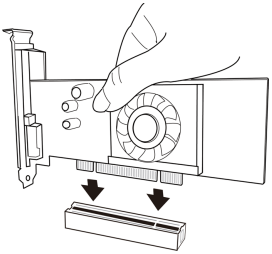
1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.



Install the VGA Card in the PCIE16X slot



Install the LAN Card in the PCIE1X slot



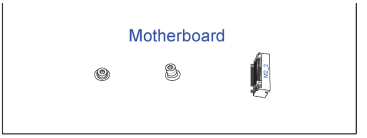
Install the VGA Card in the PCI slot

** For reference only*

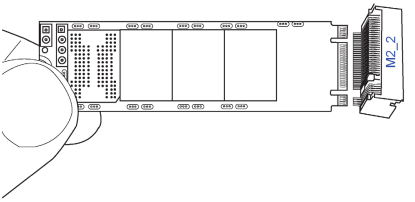
For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Follow these instructions to install the M.2 SSD card:

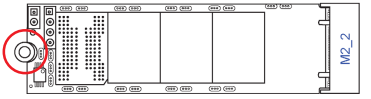
1 Demount the screw not used according to the length of your M.2 SSD card.



2 Insert the M.2 SSD card into NGFF slot in the fool-proof way.



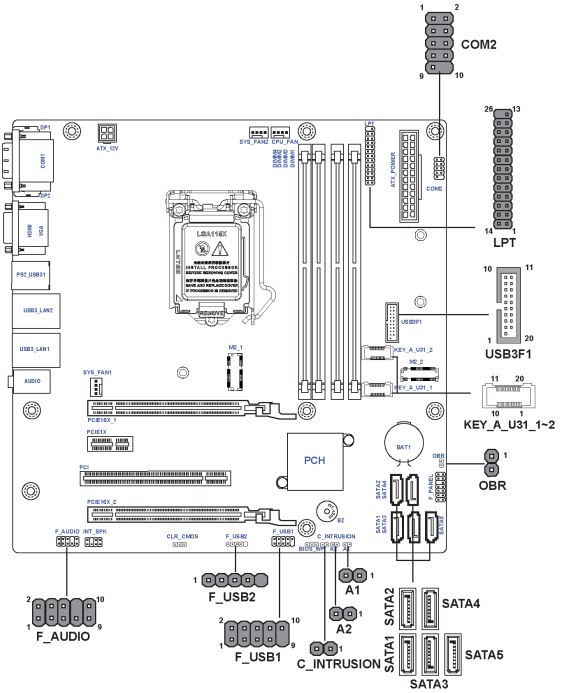
3 Lock the screw as the following picture shows to make sure the M.2 SSD card is installed in place.



For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

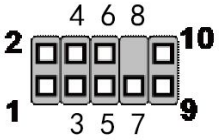
Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



F_AUDIO: Front Panel Audio Header

The front panel audio header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access. This header supports HD audio by default. If you want connect an AC' 97 front panel audio to HD onboard headers, please set as below picture.



For HD Front Audio

Pin	Description	Pin	Description
1	Left channel microphone input signal	2	Analog groud
3	Right channel microphone input signal	4	HD Panel sensor detect
5	Right channel to front panel	6	Microphone sensor detect
7	Analog ground	8	No pin
9	Left channel to front panel	10	Line-in sensor detect

COM2 : Onboard Serial Port Header

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal Name	Function
1	DCD	Data Carrier Detect
2	SIN	Serial Input
3	SOUT	Serial Output
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI	Ring Indicator
10	Key	No pin

LPT: Onboard Parallel Port Header

This is a header that can be used to connect to the printer, scanner or other devices.

Pin	Signal Name	Pin	Signal Name
1	STROBE	14	ALF
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK	23	Ground
11	BUSK	24	Ground
12	PE	25	Ground
13	SLCT	26	Key

OBR: One Button Recovery Jumper

Pin	Signal Name
1	OBR
2	GND

SATA1~5: Serial ATA Connectors

SATA1~5 connectors are used to support the Serial ATA 6Gb/s devices, simpler disk drive cabling and easier PC assembly.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

C_INTRUSION: Opened Chassis Detective Header

This detects if the chassis cover has been removed. This function needs a chassis equipped with intrusion detection switch and needs to be enabled in BIOS.

Pin	Signal Name
1	Case open
2	GND

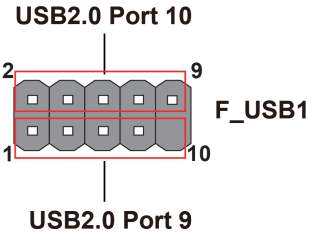
A1~2: 2-pin GPIO Headers

Pin	Signal Name
1	GPIO
2	GND

F_USB1: Front Panel USB 2.0 Header

The onboard F_USB1 header supports two USB 2.0 ports. Additionally, some computer cases have USB 2.0 ports at the front of the case. If you have this kind of case, use auxiliary USB 2.0 connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	DATA9-	USB Port 9 Negative Signal
4	DATA10-	USB Port 10 Negative Signal
5	DATA9+	USB Port 9 Positive Signal
6	DATA10+	USB Port 10 Positive Signal
7	GND	Ground
8	GND	Ground
9	NC	Not connected
10	USB DET	USB DET

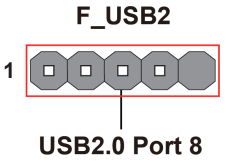


Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

F_USB2: Front Panel USB 2.0 Header

The onboard F_USB2 header delegate for card reader, it supports additonal one USB 2.0 port.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	DATA8-	USB Port 8 Negative Signal
3	DATA8+	USB Port 8 Positive Signal
4	GND	Ground
5	NC	Not connected

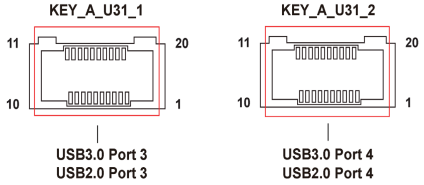


Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

KEY_A_U31_1~2: Front Panel USB 3.1 STD-A Headers

This Motherboard implements two USB 3.1 headers supporting 2 extra front USB 3.1 Gen2 ports, which delivers 10Gb/s transfer rate.

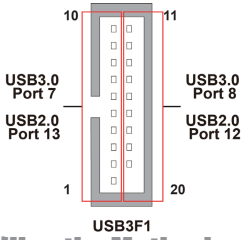
Pin	Signal Name	Pin	Signal Name
1	+USB3VCC5	2	RA_UTXP_SW1_R
3	RA_UTXN_SW1_R	4	GND
5	USB3_RX_P3	6	USB3_RX_N3
7	+USB3VCC5	8	NC
9	NC	10	NC
11	+USB3VCC5	12	NC
13	NC	14	GND
15	NC	16	NC
17	GND	18	USB_N3_R
19	USB_P3_R	20	NC



USB3F1: Front Panel USB 3.1 Header

This Motherboard implements one USB 3.0 header supporting 2 extra front USB 3.1 Gen1 ports, which delivers 5Gb/s transfer rate.

Pin	Signal Name	Pin	Signal Name
1	USB POWER	2	SSRX0+
3	SSRX0-	4	GND
5	SSTX0-	6	SSTX0+
7	GND	8	D0-
9	D0+	10	NC
11	D1+	12	D1-
13	GND	14	SSTX1+
15	SSTX1-	16	GND
17	SSRX1+	18	SSRX1-
19	USB POWER	20	KEY



Installing a SATA Hard Drive

This section describes how to install a SATA Hard Drive.

About SATA Connectors

Your motherboard features five SATA connectors supporting a total of five drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

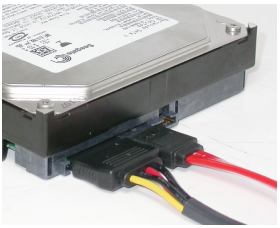
Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with a SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

SATA cable (optional)

Refer to the illustration below for proper installation:

1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.

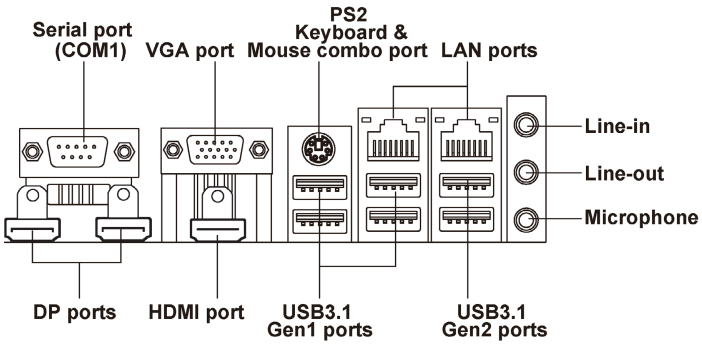


** For reference only*

This motherboard supports the "Hot-Plug" function.

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



Serial Port (COM1) Use the COM1 port to connect the serial devices such as mice or fax/modems.

VGA Port Connect your monitor to the VGA port.

DP Ports Connect your monitor to the DP ports.

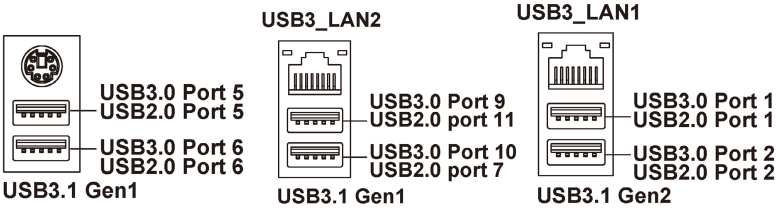
HDMI Port Connect your monitor to the HDMI port.

PS2 Keyboard & Mouse combo port Use the upper PS/2 port to connect a PS/2 pointing device or keyboard.

USB 3.1 Gen2 Ports Use the USB 3.1 ports to connect USB 3.1 devices.

USB 3.1 Gen1 Ports Use the USB 3.1 ports to connect USB 3.1 devices.

LAN Ports Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

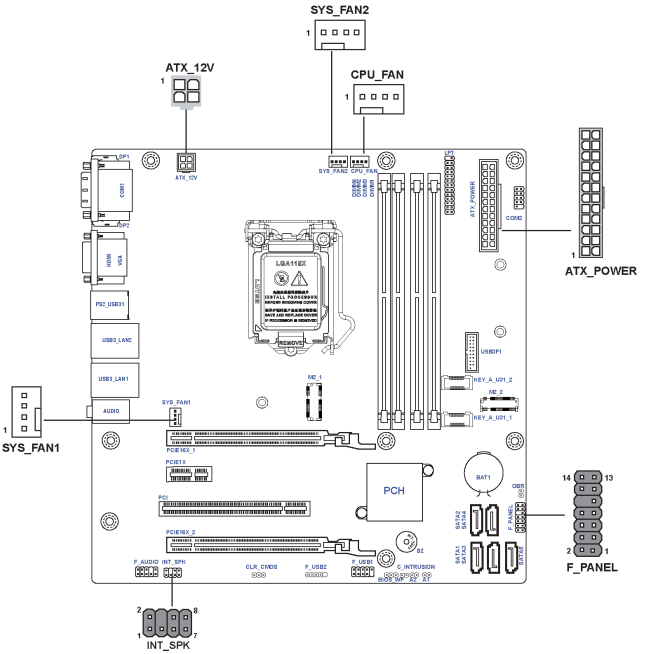


Audio Ports Use the three audio ports to connect audio devices. The first jack is for stereo line-in singal. The second jack is for stereo line-out singal. The third jack is for microphone.

Connecting Case Components

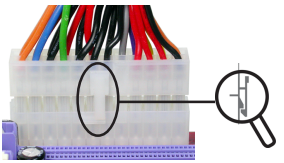
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1. Connect the system cooling fan connector to **SYS_FAN**.
2. Connect the CPU cooling fan cable to **CPU_FAN**.
3. Connect the standard power supply connector to **ATX_POWER**.
4. Connect the case switches and indicator LEDs to the **F_PANEL**.
5. Connect the case speaker cable to **INT_SPK**.
6. Connect the auxiliary case power supply connector to **ATX_12V**.



Connecting 24-pin power cable

The ATX 24-pin connector allows you to connect to ATX v2.x power supply.

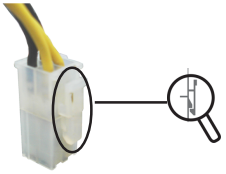


24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX_POWER match perfectly.

Connecting 4-pin power cable

The ATX_12V power connector is used to provide power to the CPU.



4-pin power cable

When installing 4-pin power cable, the latches of power cable and the ATX_12V match perfectly.

CPU_FAN: CPU cooling FAN Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	CONTROL	CONTROL

Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.

SYS_FAN: System Cooling FAN Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	CONTROL	CONTROL

ATX_POWER: ATX 24-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	COM	15	COM
4	+5V	16	PS_ON
5	COM	17	COM
6	+5V	18	COM
7	COM	19	COM
8	PWR OK	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

ATX_12V: ATX 12V Power Connector

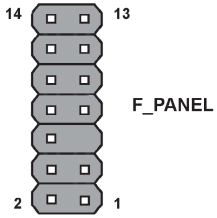
Pin	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

INT_SPK: Internal Speaker Header

Pin	Signal Name	Pin	Signal Name
1	Output_L	2	GND
3	Output_R	4	Ground
5	GND	6	GND
7	N/A	8	VCC

Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



Pin	Signal	Function	Pin	Signal	Function
1	VCC	5V	2	GLED0	MSG LED
3	HDD_LED	Hard disk LED	4	GLED1	MSG LED
5	GND	Ground	6	PWRSW	POWER SWITCH
7	HWRST_L	Reset	8	GND	GROUND
9	F_PANEL_DET	FRONT PANEL DETECT	10	KEY	NO PIN
11	NC	Reserved	12	VCC	5V
13	NC	Reserved	14	F_PANEL_LED	FRONT PANEL LED

** MSG LED (dual color or single color)*

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

LAN LED

Connecting pins 12 and 14 to a LAN LED provides visual indication that data is being read from or written to the LAN drive.

This concludes Chapter 2. The next chapter covers the BIOS.

Memo

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest "Acer Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

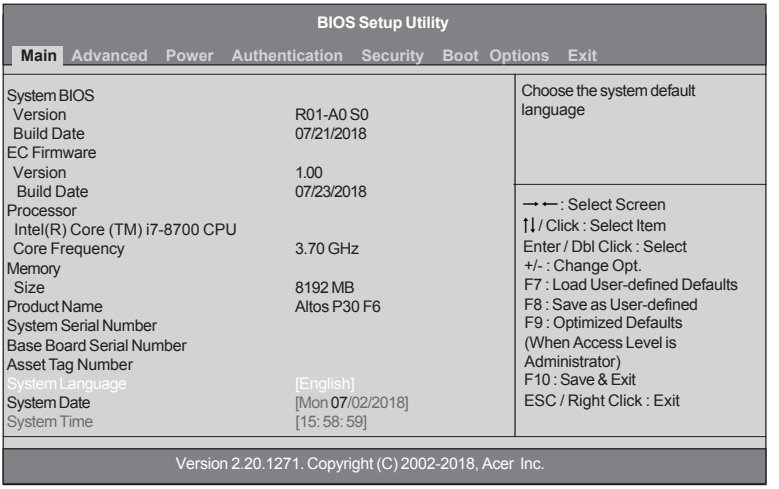
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

Press the delete key to access BIOS Setup Utility.



Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.
In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Discard changes and Exit Setup
↑↓→←	Scrolls through the items on a menu
+/-/Spacebar	Modifies the selected field's values
Enter	Select
F7	Load User default Settings
F8	Save as User Default Settings
F9	Load default Settings
F10	Save & Exit

For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

Main Menu

When you enter the BIOS Setup program, the main menu appears, giving you an overview of the basic system information. Select an item and press <Enter> to display the submenu.

BIOS Setup Utility

Main Advanced Power Authentication Security Boot Options Exit

System BIOS		Choose the system default language
Version	R01-A0 S0	
Build Date	07/21/2018	
EC Firmware		
Version	1.00	
Build Date	07/23/2018	
Processor		→←: Select Screen
Intel(R) Core (TM) i7-8700 CPU		↑↓/ Click : Select Item
Core Frequency	3.70 GHz	Enter / Dbl Click : Select
Memory		+/- : Change Opt.
Size	8192 MB	F7 : Load User-defined Defaults
Product Name	Altos P30 F6	F8 : Save as User-defined
System Serial Number		F9 : Optimized Defaults
Base Board Serial Number		(When Access Level is
Asset Tag Number		Administrator)
System Language	[English]	F10 : Save & Exit
System Date	[Mon 07/02/2018]	ESC / Right Click : Exit
System Time	[15: 58: 59]	

Version 2.20.1271. Copyright (C) 2002-2018, Acer Inc.

System BIOS Version (R01-A0 S0)

This item shows the information of system BIOS version.

Build Date (07/21/2018)

This item shows the build date of the system BIOS.

EC Firmware Version (1.00)

This item shows the information of EC firmware version.

Build Date (07/23/2018)

This item shows the build date of the EC firmware.

Processor (Intel(R) Core (TM) i7-8700 CPU)

This item shows the information of processor.

Core Frequency (3.70 GHz)

This item shows the information of core frequency.

Memory Size (8192 MB)

This item shows the information of the memory size.

Product Name (Altos P30 F6)

This item shows the information of the product name.

System Serial Number

This item shows the information of system serial number.

Base Board Serial Number

This item shows the information of base board serial number.

Asset Tag Number

This item shows the information of system asset tag number.

System Language (English)

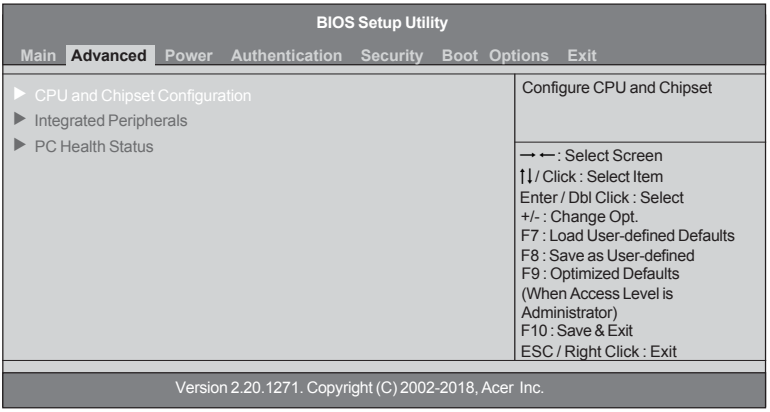
This item is used to set the system default language.

System Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

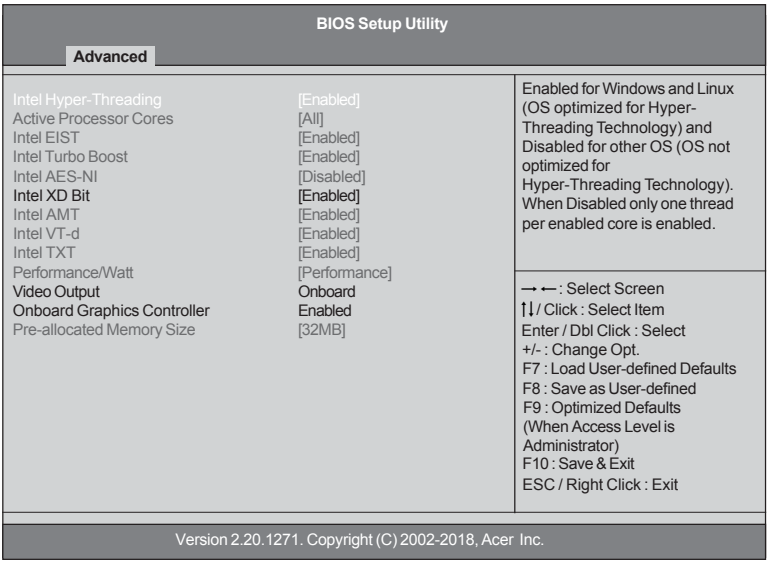
Advanced Menu

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



▶CPU and Chipset Configuration

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



Intel Hyper-Threading (Enabled)

Use this item to enable or disable the Intel Hyper-Threading technology.

Active Processor Cores (All)

Use this item to control the active processor cores.

Intel EIST (Enabled)

This item allows users to enable or disable the EIST(Enhanced Intel SpeedStep technology).

Intel Turbo Boost (Enabled)

This item enables or disables Intel Turbo Boost.

Intel AES-NI (Disabled)

This item allows users to enable or disable the Intel AES-NI.

Intel XD Bit (Enabled)

This item allows users to enable or disable the Intel XD Bit.

Intel VT (Enabled)

This item allows you to enable or disable the Intel VT function.

Intel AMT (Enabled)

This item allows users to enable or disable the Intel AMT.

Intel VT-d (Enabled)

This item allows users to enable or disable the Intel VT-d.

Intel TXT (Disabled)

This item allows users to enable or disable the Intel TXT.

Performance/Watt (Performance)

Optimize between performance and power savings.

Video Output (Onboard)

This item indicates the status of video output is Onboard or Discrete.

Onboard Graphics Controller (Enabled)

This item indicates the status of the onboard graphic controller. Enable this item, the motherboard will not support VGA slot. It can not be changed when in gray and the default setting is *Enabled*.

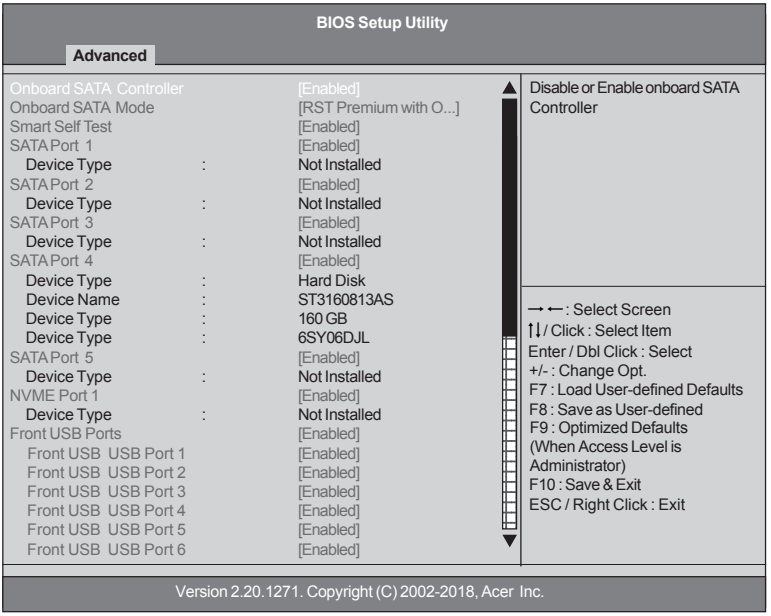
Pre-allocated Memory Size (32MB)

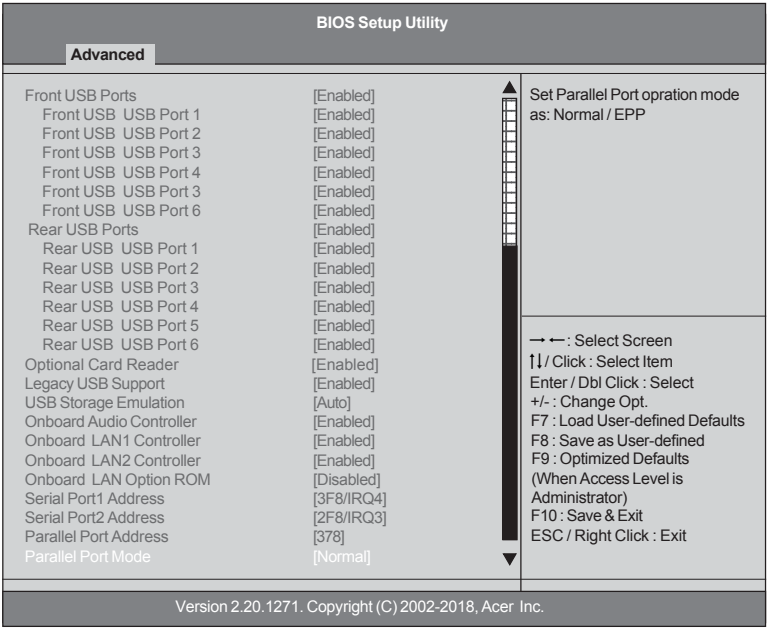
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

Press <Esc> to return to the Advanced Menu page.

►Integrated Peripherals

This page sets up some parameters for peripheral devices connected to the system.





Onboard SATA Controller (Enabled)
This item allows you to enable or disable the onboard SATA controller.

Onboard SATA Mode (RST Premium with O...)
Use this item to select the mode of the Serial ATA.

SMART Self Test (Enabled)
Use this item to enable or disable smart self test.

SATA1/2/3/4/5/NVME Port1 (Enabled)
These items allow you to enable or disable to support the SATA1/2/3/4/5/NVME Port1.

Device Type (Not Installed/Hard Disk)
Use these items to show the information of device type.

Device Name
Use these items to show the information of device type.

Size
Use this item to show the size of SATA device in port 1.

Serial Number
Use this item to show the serial number of SATA device in port 1.

Front USB Ports (Enabled)
Use this item to enable or disable all front USB ports.

Front USB Port 1/2/3/4 (Enabled)
Use these items to enable or disable per front USB port.

Rear USB Ports (Enabled)
Use this item to enable or disable all rear USB ports.

Rear USB Port 1/2/3/4/5/6 (Enabled)
Use these items to enable or disable per rear USB port.

Optional Card Reader (Enabled)
Use this item to enable or disable optional card reader function.

Legacy USB Support (Enabled)
Use this item to enable or disable support for legacy USB devices. Disabling it might cause the USB devices not to work properly.

USB Storage Emulation (Auto)
If Auto, USB device equal or less than 2GB will be emulated as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD (Ex. ZIP drive).

Onboard Audio Controller (Enabled)
This item enables or disables the onboard audio controller.

Onboard LAN1 / Onboard LAN2 Controller (Enabled)
These options allow you to control the onboard LAN device.

Onboard LAN Option ROM (Disabled)
This item enables or disables the onboard LAN option ROM function.

Serial Port1 Address / Serial Port2 Address (3F8/IRQ4 / 2F8/IRQ3)

Use these items to enable or disable the onboard COM serial port, and to assign a port address.

Parallel Port Address (378)

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

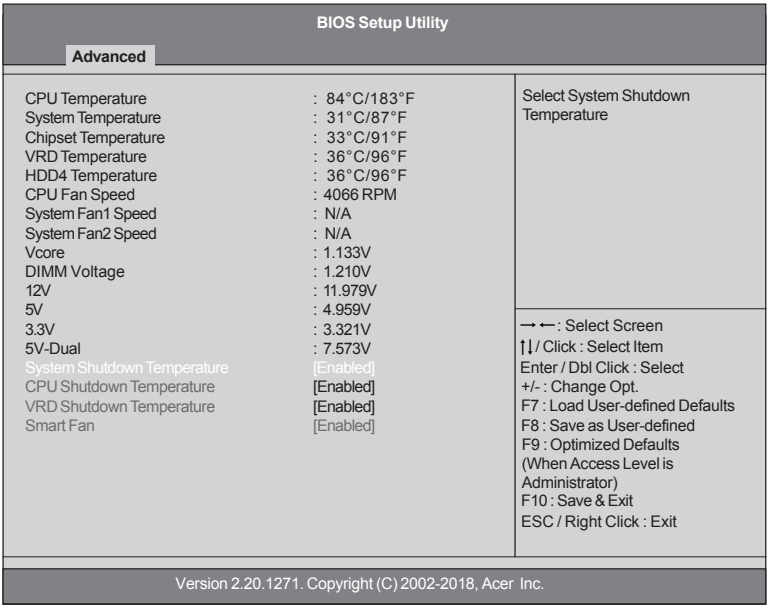
Parallel Port Mode (Normal)

Use this item to select the parallel port mode. You can select Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP+EPP.

Press <Esc> to return to the Advanced Menu page.

►PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



System Component Characteristics

These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU voltage, CPU & system fan speed...etc.

- CPU Temperature
- System Temperature
- Chipset Temperature
- VRD Temperature
- HDD4 Temperature
- CPU Fan Speed
- System Fan1 Speed
- System Fan2 Speed
- Vcore
- DIMM Voltage
- 12V
- 5V
- 3.3V
- 5V-Dual

System Shutdown Temperature (Enabled)

This item enables or disables you to set the shutdown temperature of the System.

CPU Shutdown Temperature (Enabled)

This item enables or disables you to set the shutdown temperature of the CPU.

VRD Shutdown Temperature (Enabled)

This item enables or disables you to set the shutdown temperature of the VRD.

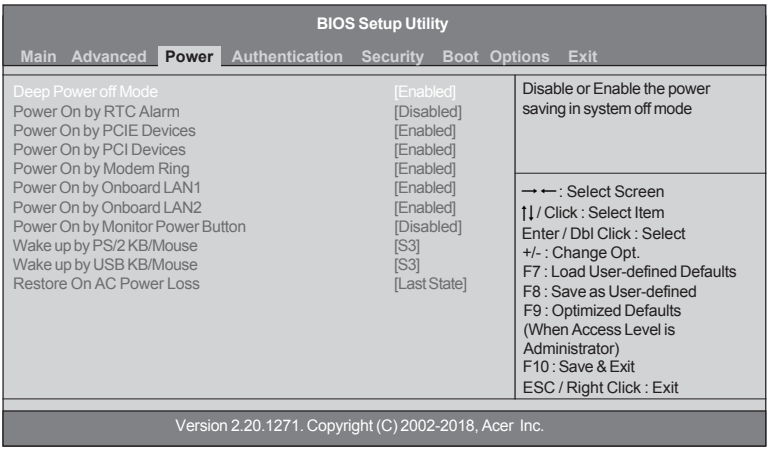
Smart Fan (Enabled)

This item enables or disables the smart fan speed by changing the fan voltage.

Press <Esc> to return to the Advanced Menu page.

Power Menu

This page sets up some parameters for system power management operation.



Deep Power off Mode (Enabled)

This item allows users to enable or disable the Deep Power off Mode.

Power On by RTC Alarm (Disabled)

This system can be turned off with a software commend. If you enable this item, the system can automatically resume at a fixed time based on the system RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Power On by PCIE Devices (Enabled)

This system can be turned off with a software commend. If you enable this item, the system can automatically resume if there is an incoming call on the PCIE LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCIE card.

Power On by PCI Devices (Enabled)

This system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call through the PCI device connected. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI device.

Power On by Modem Ring (Enabled)

This system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

Power On by Onboard LAN1/2 (Enabled)

This system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the onboard LAN card. You must use an ATX power supply in order to use this feature.

Power On by Monitor Power Button (Disabled)

This item enables or disables system to wake up by monitor power button.

Wake up by PS/2 KB/Mouse (S3)

This item enables or disables you to allow PS/2 keyboard or mouse activity to awaken the system from power saving mode.

Wake up by USB KB/Mouse (S3)

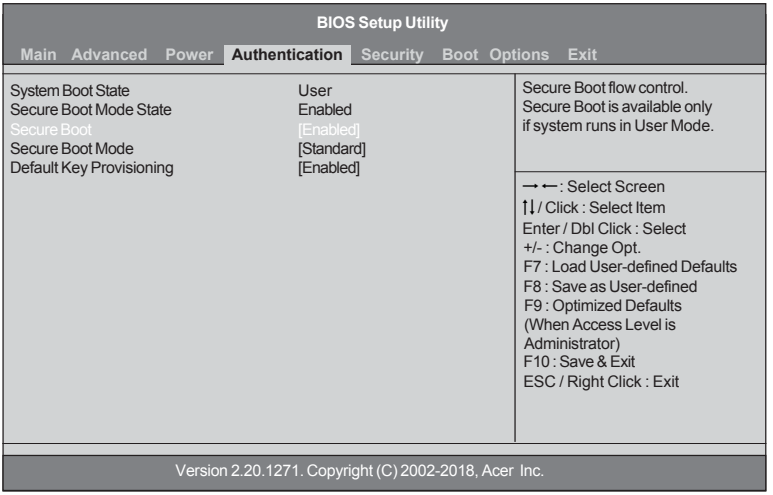
This item enables or disables you to allow USB keyboard or mouse activity to awaken the system from power saving mode.

Restore On AC Power Loss (Last State)

This item defines how the system will act after AC power loss during system operation. When you set Off, it will keep the system in Off state until the power button is pressed.

Authentication Menu

This page enables you to set boot state and secure boot mode.



System Boot State (User)

This item shows the system boot state.

Secure Boot Mode State (Enabled)

This item enables or disables to secure boot mode state.

Secure Boot (Enabled)

This item is used to control the secure boot flow, it is possible only if system runs in User Mode.

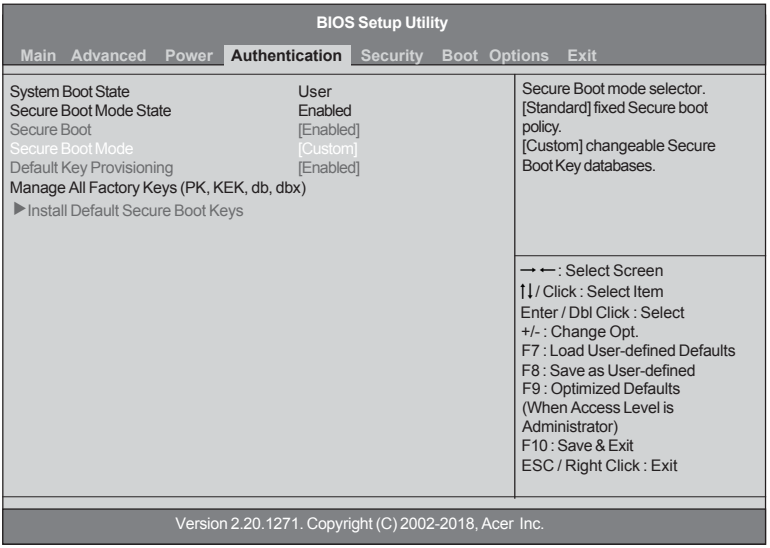
Secure Boot Mode (Standard)*

This item shows the system boot state.

Default Key Provisioning (Enabled)*

This item enables or disables to secure boot mode state.

**These items will be hidden when Secure Boot is set to be Disabled.*



Manage All Factory Keys(PK, KEK, db, dbx)*

This item shows the system boot state.

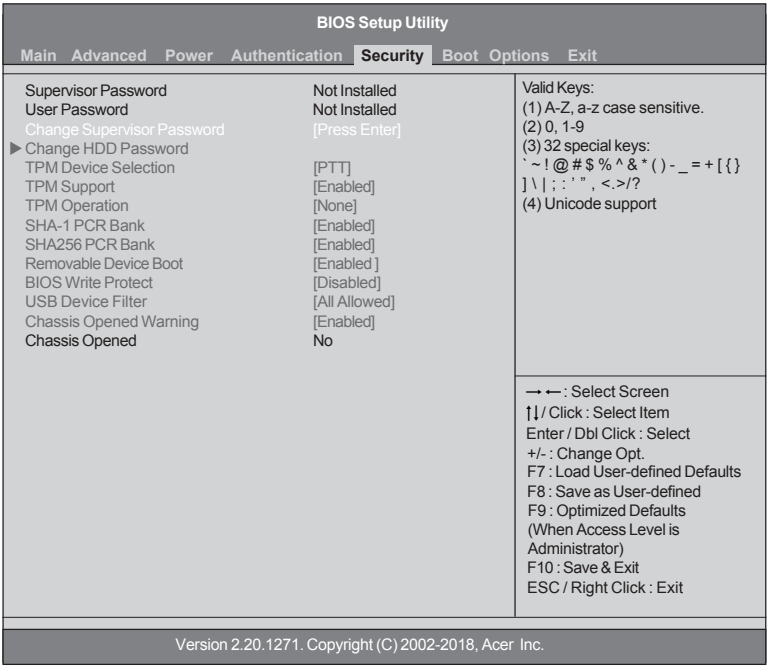
Install Default Secure Boot Keys*

Use this item to force system to user mode-install all factory default keys (PK, KEK, db, dbx). Change takes effect after reboot.

**These items will be hidden when Secure Boot Mode is set to be Standard.*

Security Menu

This page enables you to set setup administrator and password.



Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

User Password (Not Installed)

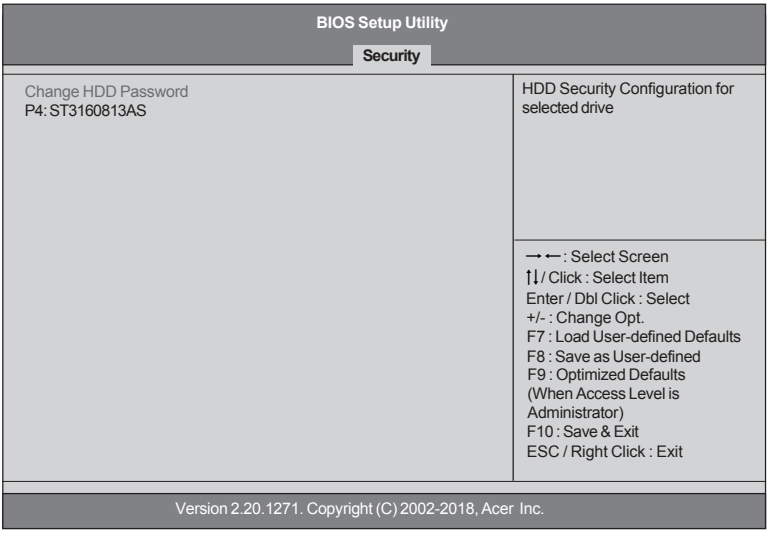
This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

►Change HDD Password

This item enables you to set HDD password.



Change HDD Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the HDD password.

Press <Esc> to return to the Security Menu page.

TPM Device Selection (PTT)

Use this item to select TPM device.

TPM Support (Enabled)

This item enables or disables TPM(Trusted Platform Module) support for system security and data integrity. If this option is set to Enabled, the following items will display.

TPM Operation (None)

Use this item to schedule a TPM operation that is pending. If the option “None” is displayed, there is no pending TPM operation in the queue. Please note that a system reboot is needed for any change on the feature to become effective.

SHA-1 PCR Bank (Enabled)

Use this item you can enable or disable the SHA-1 PCR Bank.

SHA256 PCR Bank (Enabled)

Use this item you can enable or disable the SHA256 PCR Bank.

Removable Device Boot (Enabled)

This item enables or disables support the boot from USB mass storage devices.

BIOS Write Protect (Disabled)

Use this item you can enable or disable the BIOS Write Protect.

USB Device Filter (All Allowed)

Use this item to control USB device behavior on system. [All Allowed]: Allow all USB devices to work on system. [Keyboard/Mouse Only]: Only USB Keyboard and Mouse can work on system. [Read-Only]: USB mass storage connected to system are read-only and write-protected.

Chassis Opened Warning (Enabled)

This item enables or disables the warning if the case is opened up, and the item below indicates the current status of the case.

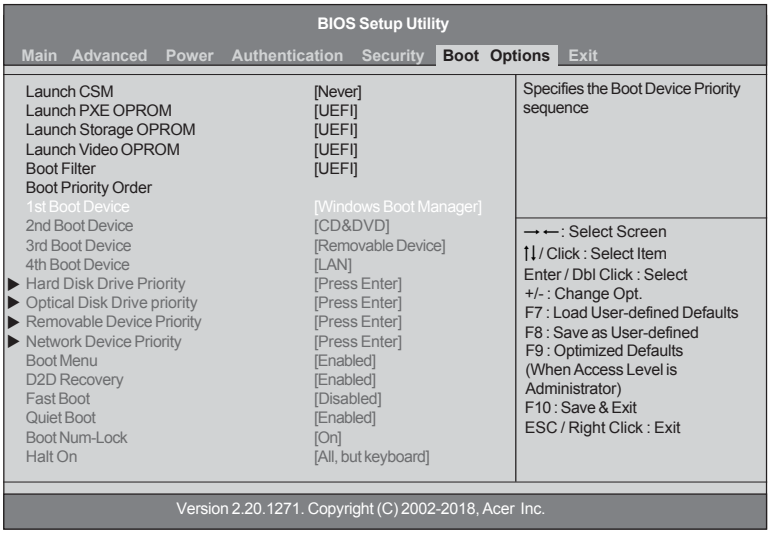
Chassis Opened (No)

This item indicates whether the case has been opened.

Press <Esc> to return to the Security Menu page.

Boot Options Menu

This page enables you to set the keyboard Numlock state.



Launch CSM (Never)

This option controls if CSM will be launched.

Launch PXE OPROM (UEFI)

This option shows the information of the launch PXE Option ROM.

Launch Storage OPROM (UEFI)

This option shows the information of the launch Storage Option ROM.

Launch Video OPROM (UEFI)

This option shows the information of the launch Video Option ROM.

Boot Fliter (UEFI)

Use this item to select system boot to UEFI or Legacy OS.

Boot Priority Order

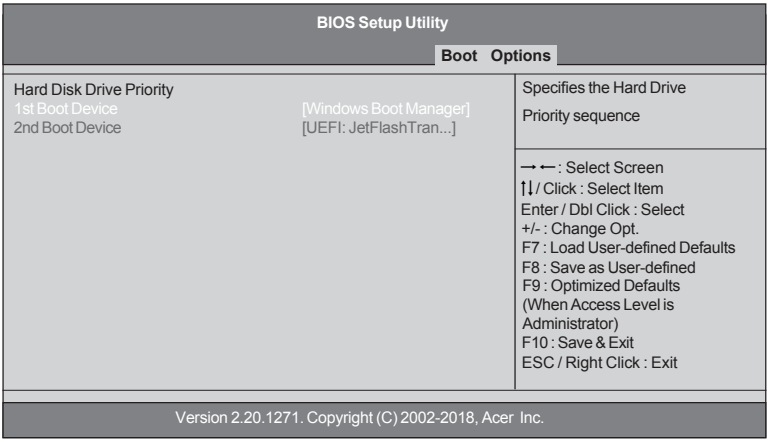
This item shows the information of the boot priority order.

1st/2nd/3rd/4th Boot Device

Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.

▶Hard Disk Drive Priority (Press Enter)

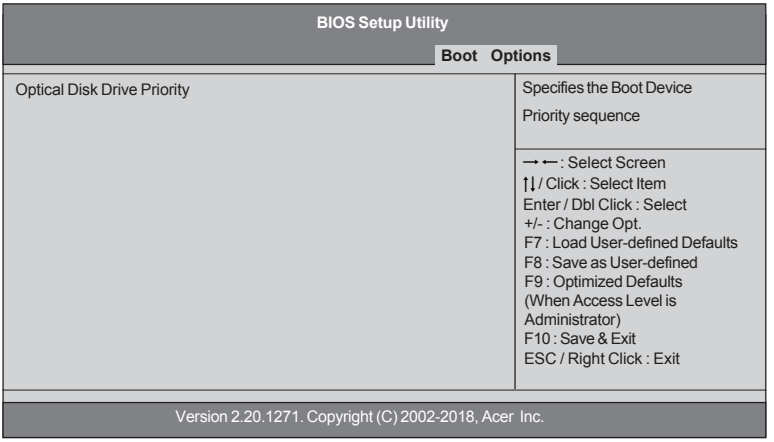
Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to the Boot Options Menu page.

▶ Optical Disk Drive Priority (Press Enter)

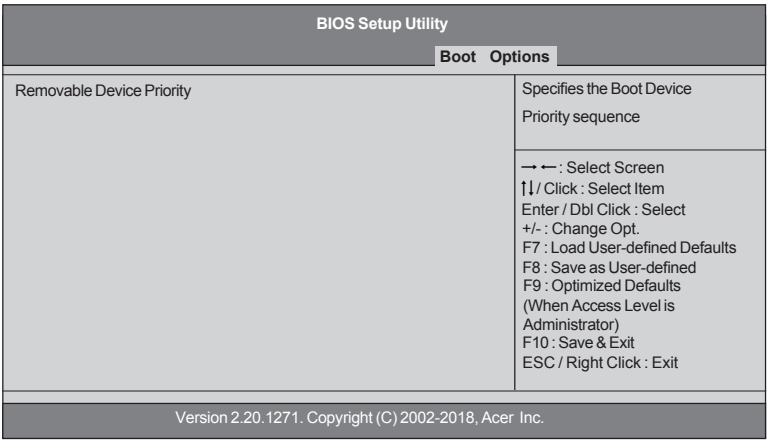
Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to the Boot Options Menu page.

▶ Removable Device Priority (Press Enter)

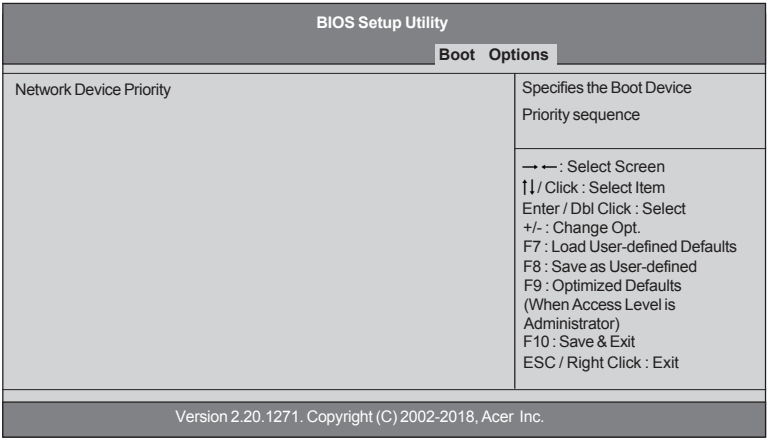
Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to the Boot Options Menu page.

▶Network Device Priority (Press Enter)

Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to the Boot Options Menu page.

Boot Menu (Enabled)

This item allows you to control POST Boot menu hotkey F12 support or not.

D2D Recovery (Enabled)

This item allows you to enable or disable the D2D recovery.

Fast Boot (Disabled)

This item enables or disables boot with initialization of a minimal set of device required to launch active boot option.

Quiet Boot (Enabled)

This item enables or disables quiet boot.

Boot Num-Lock (On)

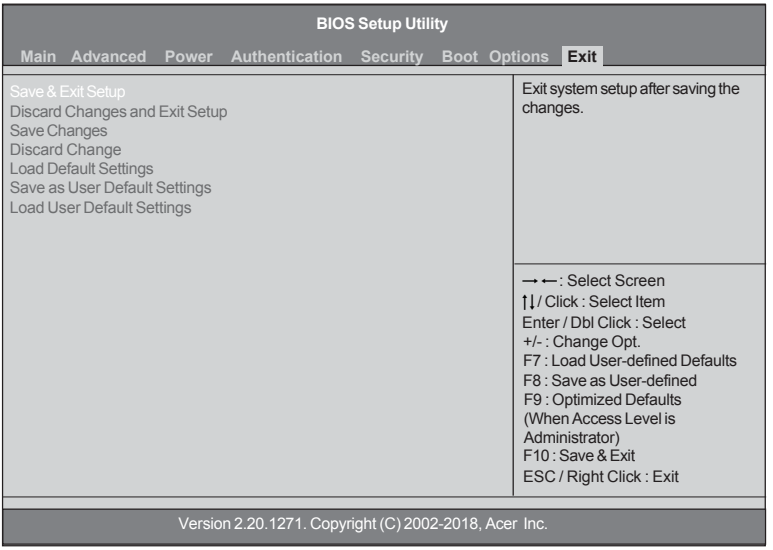
This item enables you to select NumLock state.

Halt On (All, But Keyboard)

This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

Exit Menu

This page enables you to exit system setup after saving or without saving the changes.



Save & Exit Setup

This item enables you to save the changes that you have made and exit.

Discard Changes and Exit Setup

This item enables you to discard any changes that you have made and exit.

Save Changes

This item enables you to save the changes that you have made.

Discard Changes

This item enables you to discard any changes that you have made.

Load Default Settings

This item enables you to restore the system defaults.

Save as User Default Settings

This item enables you to save the changes that you have made as user defaults.

Load User Default Settings

This item enables you to restore user defaults.

If you have made settings that you do not want to save, use the "Discard Changes and Exit" item and select [OK] to discard any changes you have made.

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1 If your motherboard has a BIOS_WP jumper, change the setting to allow BIOS flashing.

2 If your motherboard has an item called BIOS Write Protect in Security Menu, disable it. (BIOS Write Protect prevents BIOS from being overwritten.)

3 Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)

4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.

5 Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first. And set [Secure Boot] item on [Authentication] page to Disabled to avoid Secure Boot block.)

6 Power on Sysyem and Boot to EFI Shell.

- Key in "cd EFI" (Go to Shell path like "fs0:\EFI")
- Key in "flash.nsh" or "flash" and following pictures are reference only

- Press<Y>, system will be going to shutdown.
- System will auto reboot and flash BIOS.

7 When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

Chapter 4
Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

a) System does not power up and the fans are not running.

1.Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.

2. Check the VGA adapter card (if applicable) is inserted properly.

3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous beeping : memory not detected
   b. 1 long beep and 2 short beeps looping : VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.

2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

4. Remove the hard drive, optical drive or DDR memory to determine which of these components may be at fault.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.

2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.

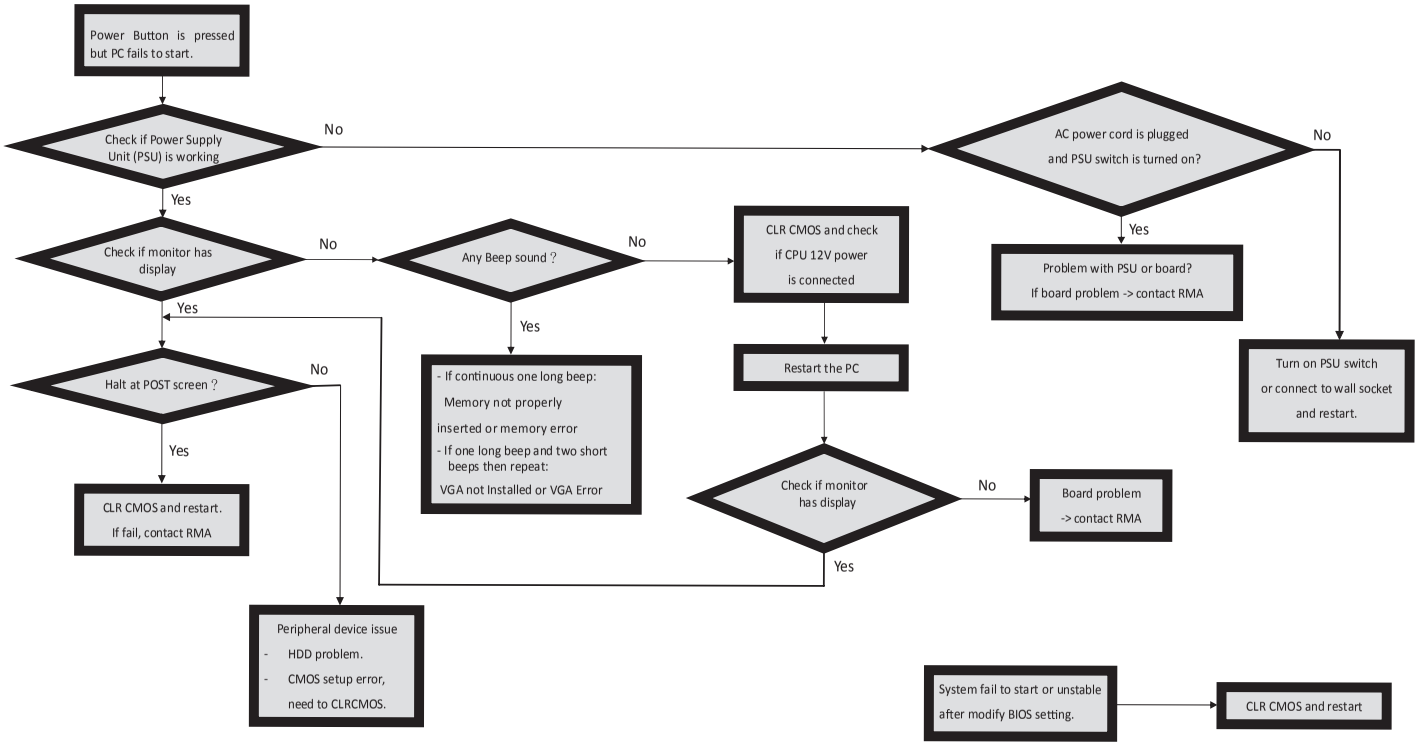
3. Routinely clean the CPU cooler fan to remove dust and hair.

4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.

5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.

6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

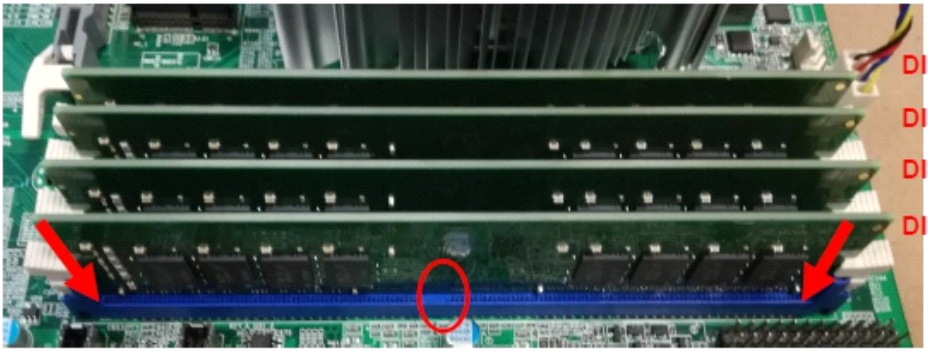
Basic Troubleshooting Flowchart



Chapter 5

Motherboard Component Installation

Memory assembly rule



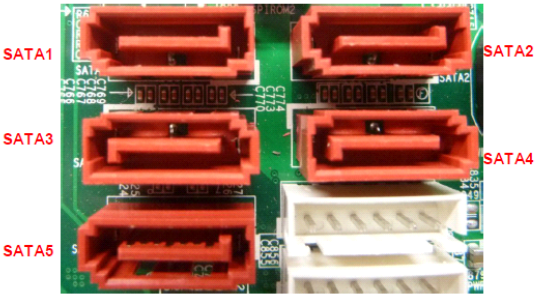
Total Memory	DIMM1	DIMM2	DIMM3	DIMM4
2	2G			
4	4G			
4	2G*	2G*		
6	2G*	2G*	2G	
8	2G*	2G*	2G*	2G*
8	4G*	4G*		
8	8G			
10	4G*	4G*	2G	
10	8G*	2G*		
12	4G*	4G*	4G	
12	4G*	4G*	2G*	2G*
12	8G*	2G*	2G	
12	8G*	4G*		
14	4G*	4G*	4G*	2G*
14	8G*	2G*	2G*	2G*
16	4G*	4G*	4G*	4G*
16	8G*	8G*		
16	16G			
16	8G*	4G*	4G	
18	16G*	2G*		
20	8G*	4G*	4G*	4G*
20	8G*	8G*	2G*	2G*
20	8G*	8G*	4G	
20	16G*	2G*	2G	
20	16G*	4G*		

Total Memory	DIMM1	DIMM2	DIMM3	DIMM4
24	8G*	8G*	8G	
24	8G*	8G*	4G*	4G*
24	16G*	2G*	2G*	2G*
24	16G*	4G*	4G	
24	16G*	8G*		
26	8G*	8G*	8G*	2G*
28	8G*	8G*	8G*	4G*
28	16G*	4G*	4G*	4G*
32	8G*	8G*	8G*	8G*
32	16G*	16G*		
32	16G*	8G*	8G	
34	16G*	16G*	2G	
36	16G*	16G*	2G*	2G*
36	16G*	16G*	4G	
40	16G*	16G*	4G*	4G*
40	16G*	16G*	8G	
48	16G*	16G*	16G	
48	16G*	16G*	8G*	8G*
50	16G*	8G*	8G*	8G*
50	16G*	16G*	16G*	2G*
52	16G*	16G*	16G*	4G*
56	16G*	16G*	16G*	8G*
64	16G*	16G*	16G*	16G*

Note:

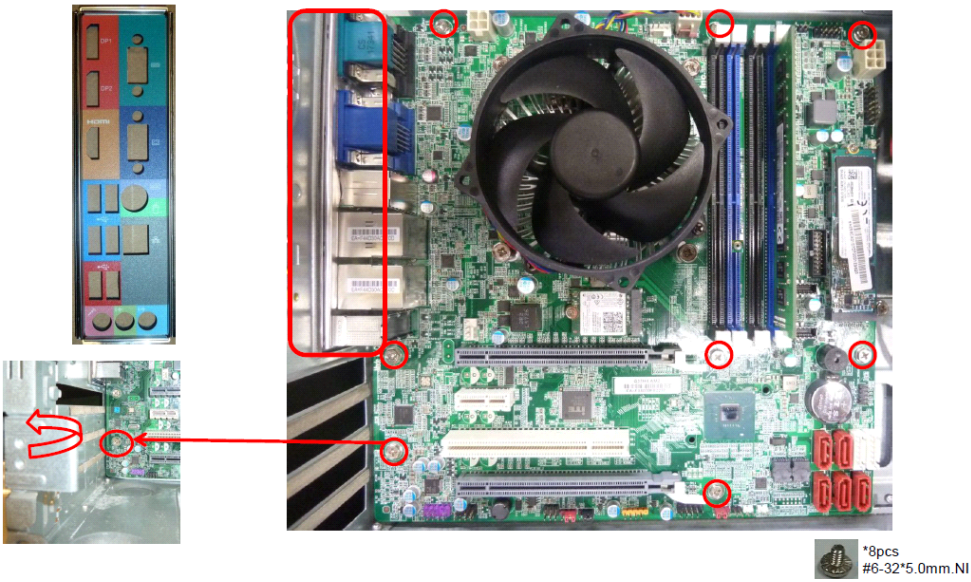
1. " * " : Support Dual Channel
2. you can install memory modules in any combination as long as they match the specifications about memory information please reference the latest AVLc list
3. In case of different size Memory, must put the big size on the top
4. Not recommend more than 2 (including the same capacity conditions) Memory combination

HDD/ODD SATA port assembly rule

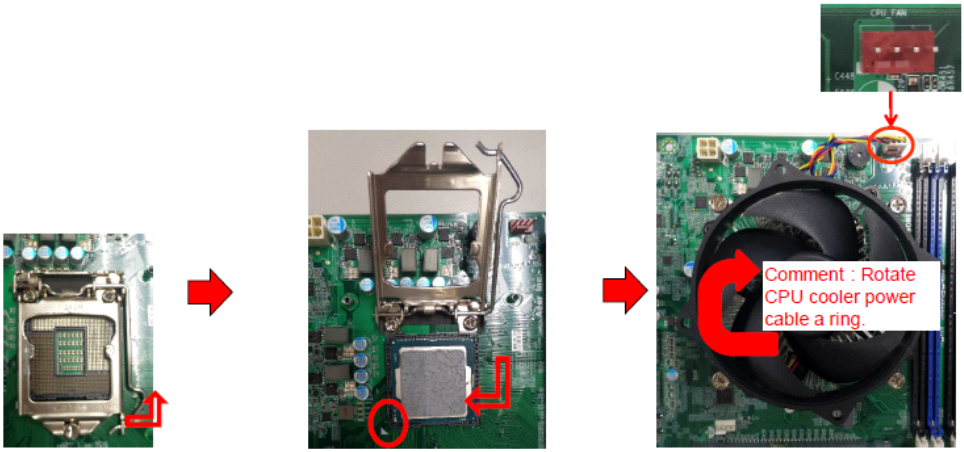


Configuration	SATA1	SATA2	SATA3	SATA4	SATA5
1HDD(SSD)	HDD(SSD)	/	/	/	/
1HDD(SSD)+1ODD	HDD(SSD)	/	/	ODD	/
2HDD(SSD)+1ODD	HDD1(SSD) (Main)	HDD2	/	ODD	/
3HDD(SSD)+2ODD	HDD1(SSD) (Main)	HDD2	HDD3	ODD1(Main)	ODD2
4HDD(SSD)+1ODD	HDD1(SSD) (Main)	HDD2	HDD3	HDD4	ODD

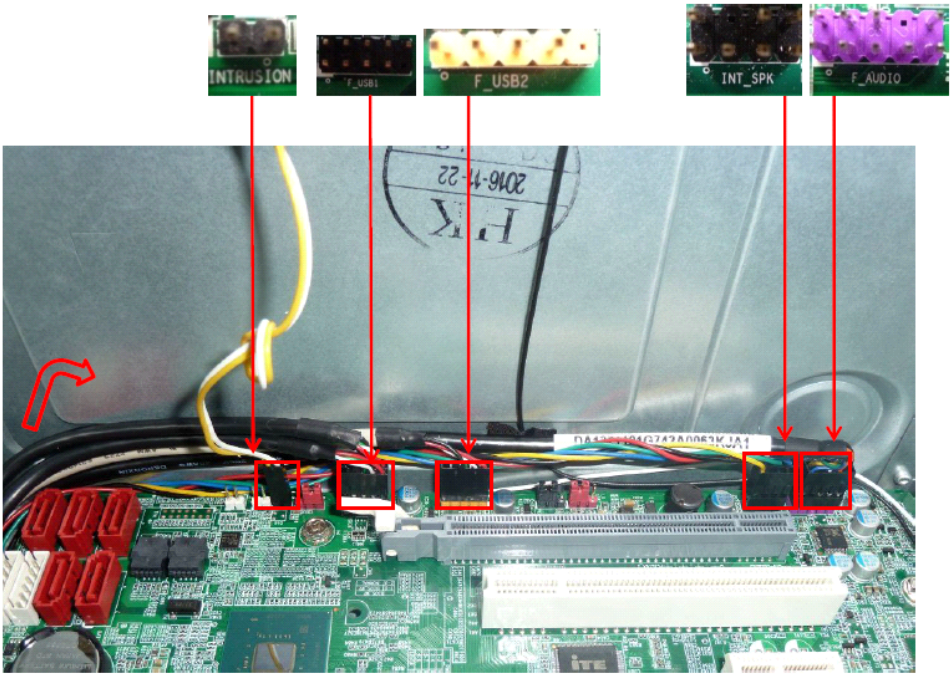
8 Motherboard Screws



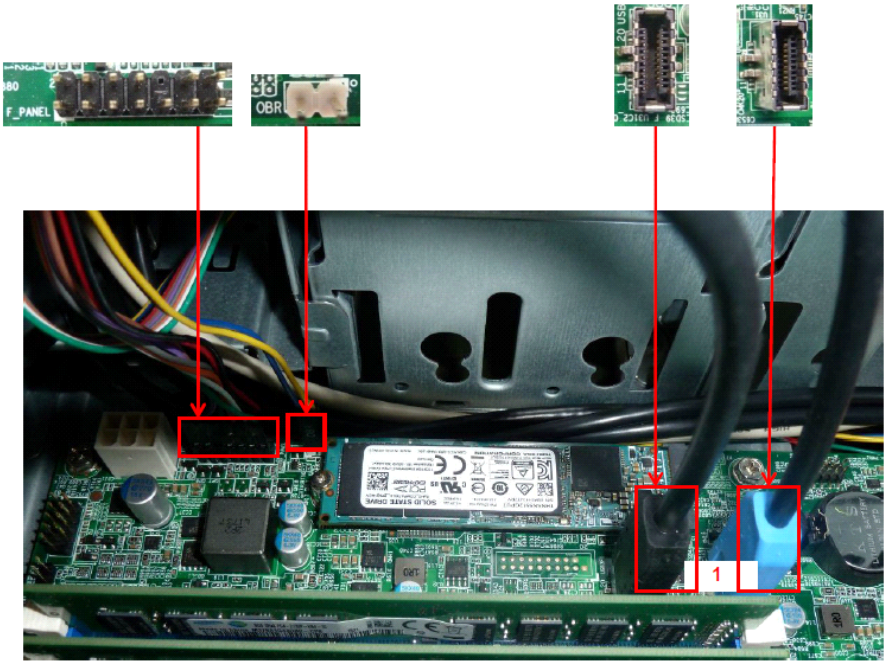
CPU and Thermal Module Assembly



CR, Intrusion, INT SPK, audio, USB2.0 cables Assembly



OBR, F_Panel, Type-C cables Assembly



Remark:

1. Insert “Key A device” into F_U31_C1, FU31_C2 and keep vertical with MB.

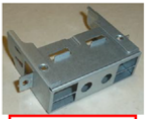
Chapter 6

Tower Form Factor Product Assembly

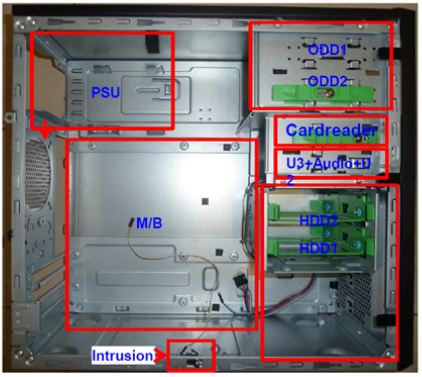
HDD TOOLLESS

HDD Cage1

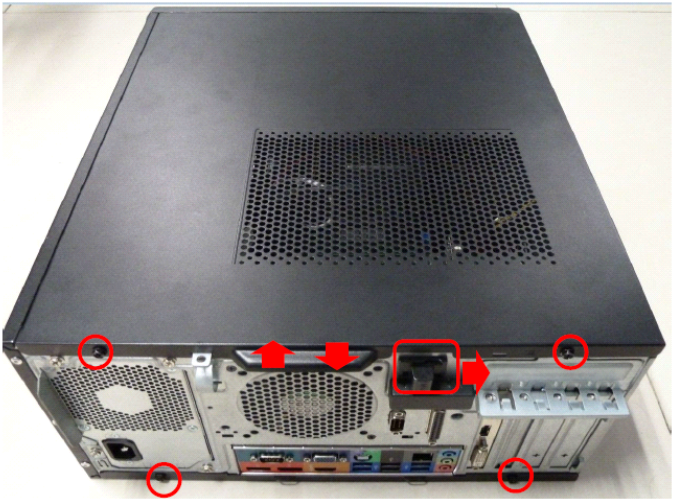
HDD Cage2



FIO BKT



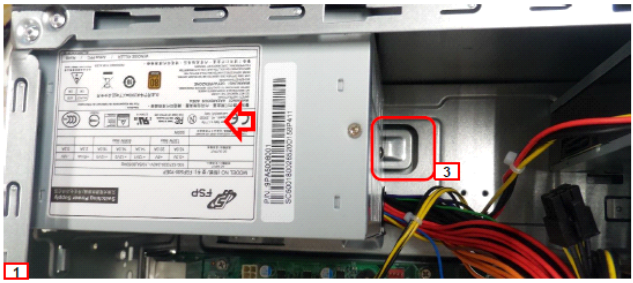
Tower Chassis Screws Removal



*2/4pcs
#6-32*7.2mm D11.7* H7.5..BLACK ZN

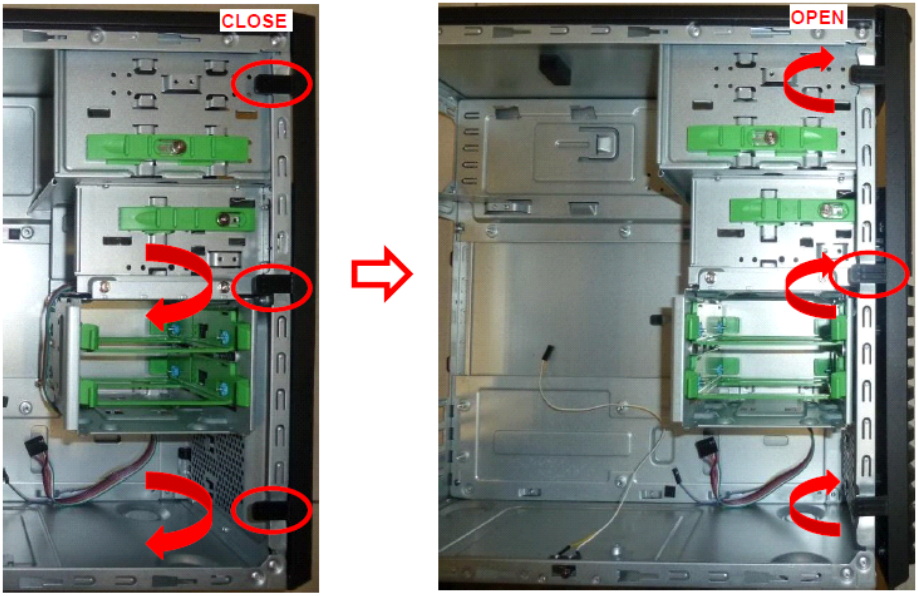
*2pcs
#6-32*5mm

Power Supply Installation

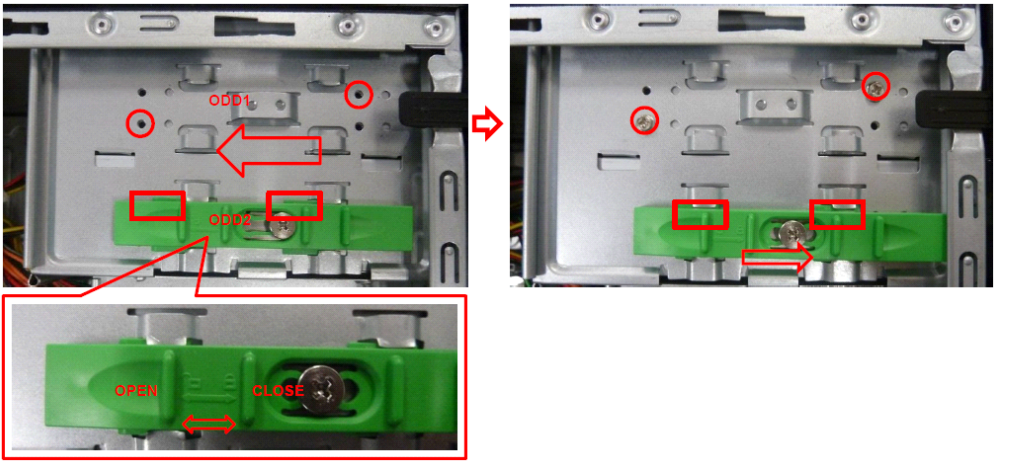


#	Step
1	Insert the power supply
2	Locking the blue Circle screw and then locking other 3 screws
3	Need to check the item3 lock pin

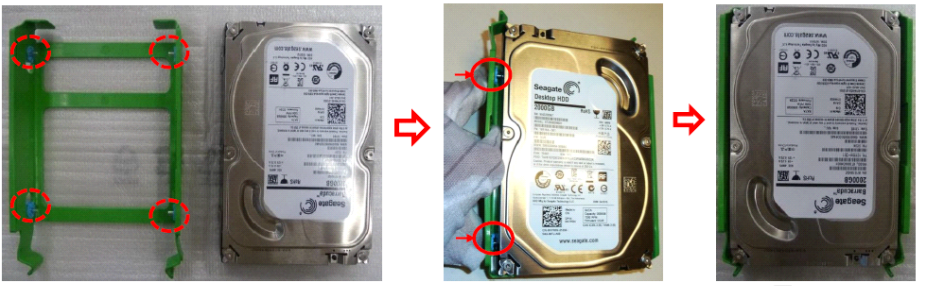
Release Front Cover Latch

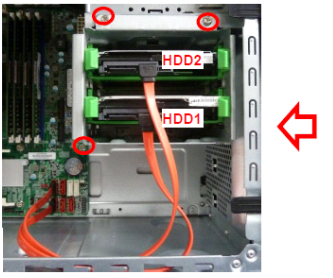


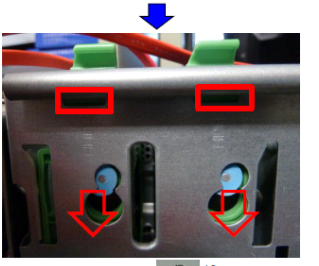
Optical Disk Drive Installation



For 1st or 2nd 3.5” HDD assembly







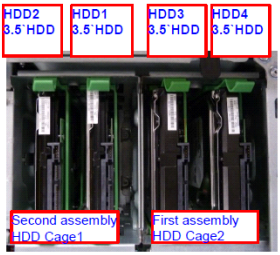
*3pcs
#6-32*5.0mm.NI

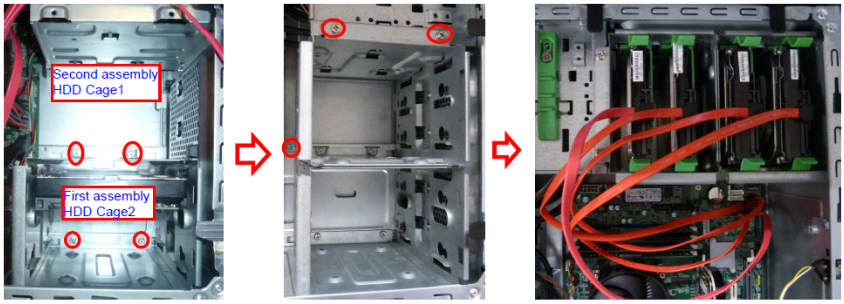
Remark:
HDD Cage2/1 bridge location for Chassis HDD Cage location slot;

For 3rd or 4th 3.5” HDD assembly

HDD Cage2
*1pcs

HDD tool less
*2pcs

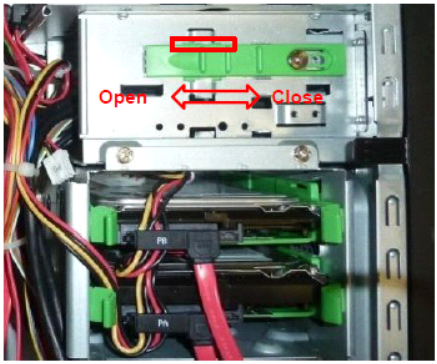


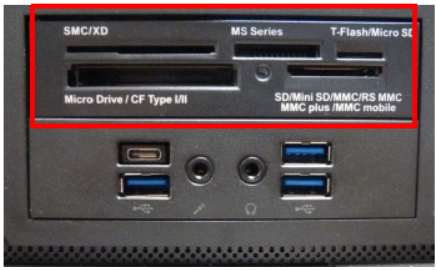


Remark:
HDD Cage2/1 bridge location for Chassis HDD Cage location slot;

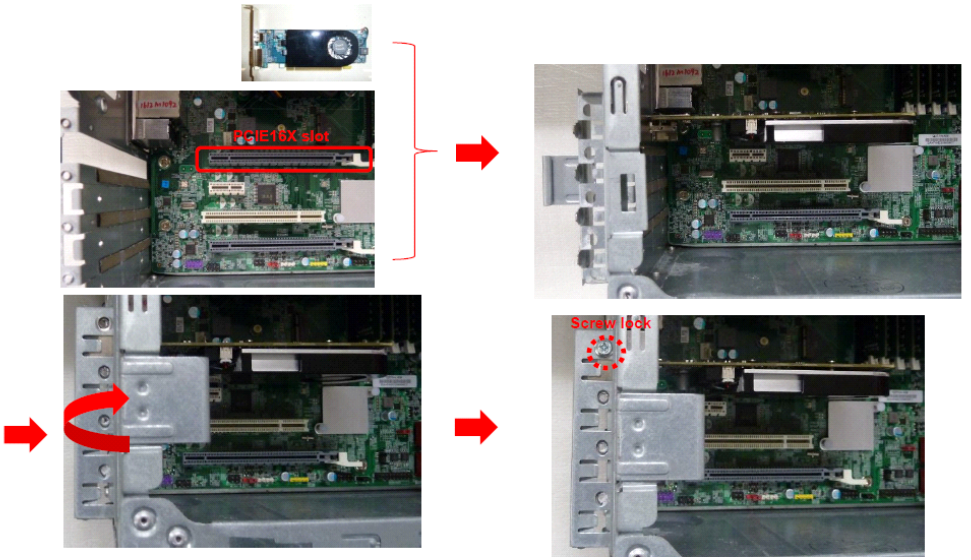
*7pcs
#6-32*5.0mm.NI

For card reader installation





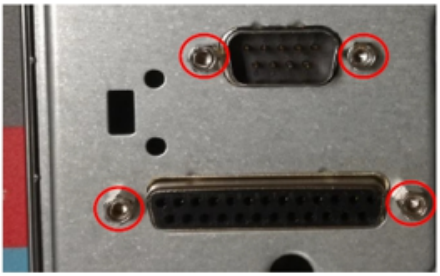
For PCIe x16 discrete graphics card assembly



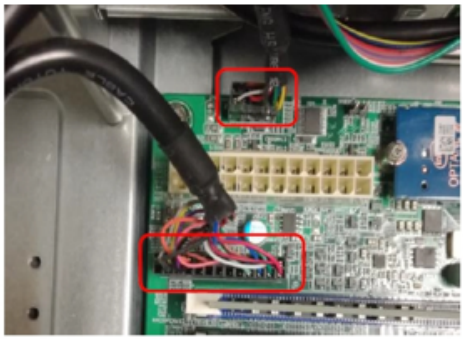
For internal speaker assembly

Printer cable and COM cable Assembly Guidelines

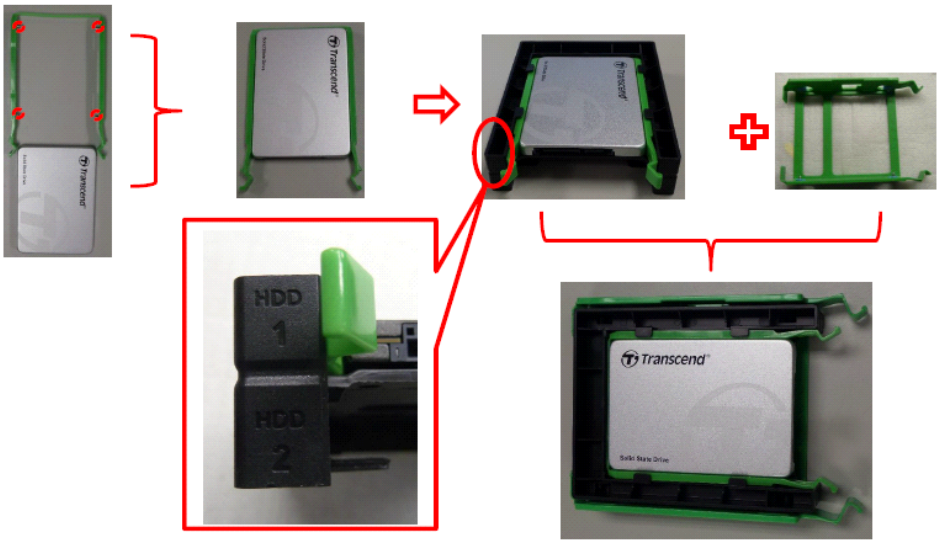
Remove the covers and fix with screws



Connect the printer cable and COM cable from MB



Assembly 2.5” device to 3.5” cage



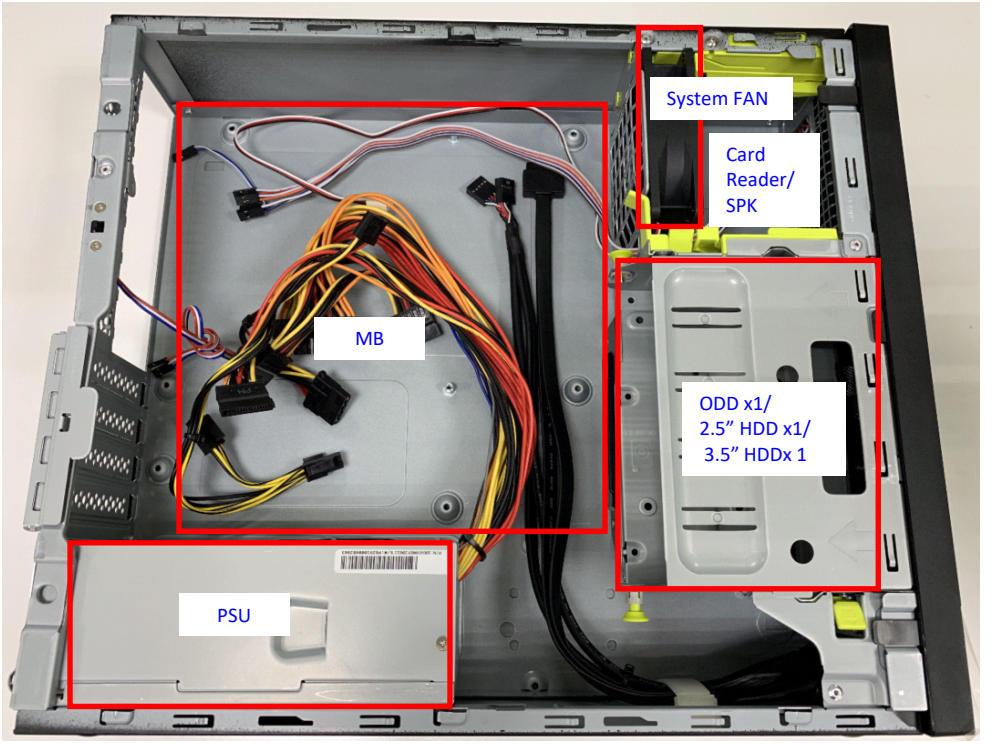
Chapter 7

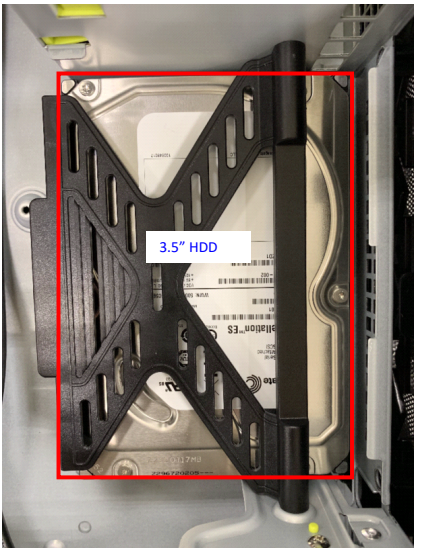
Compact Form Factor Product Assembly

Remove the two screws fixed in the side-cover

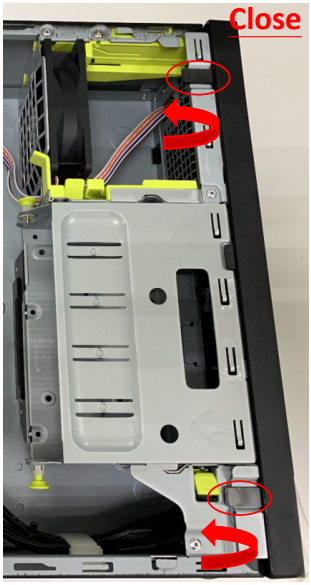
Slither the side-cover-latch then you can take out the side cover

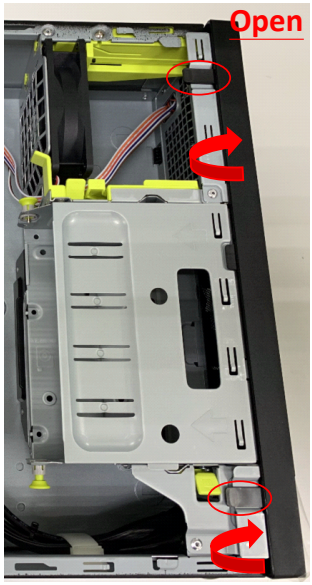
Compact Form Factor Components Placement





Release Front Panel Latch

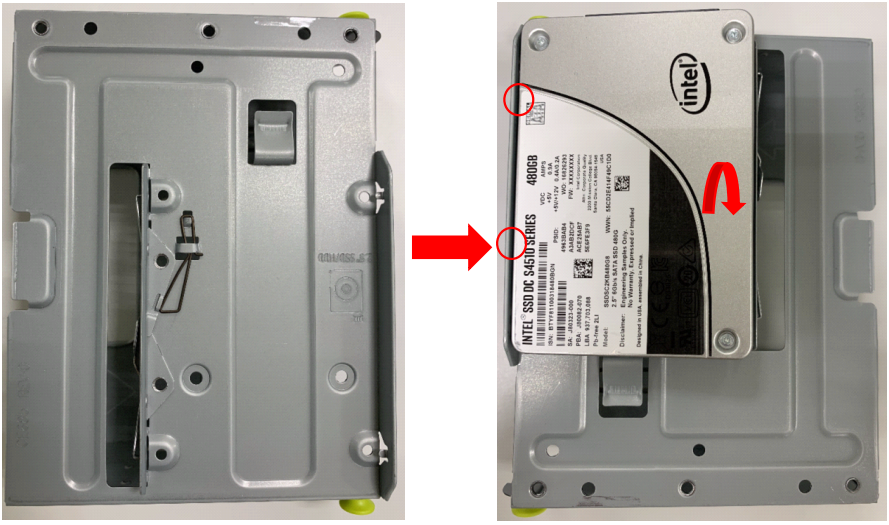




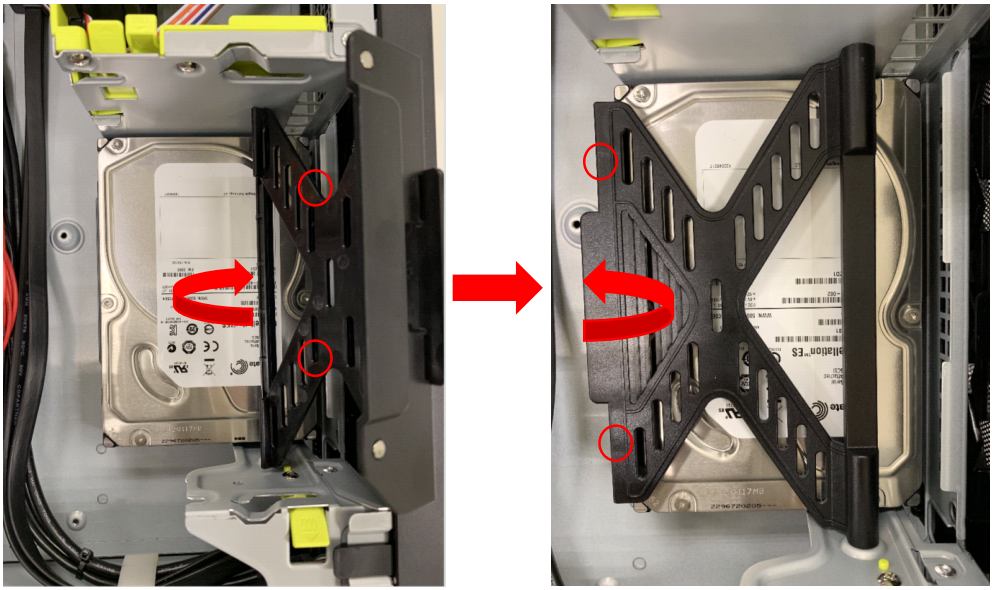
2.5” SSD/HDD tool less assembly:

- Take ODD cage and assembly at button side.

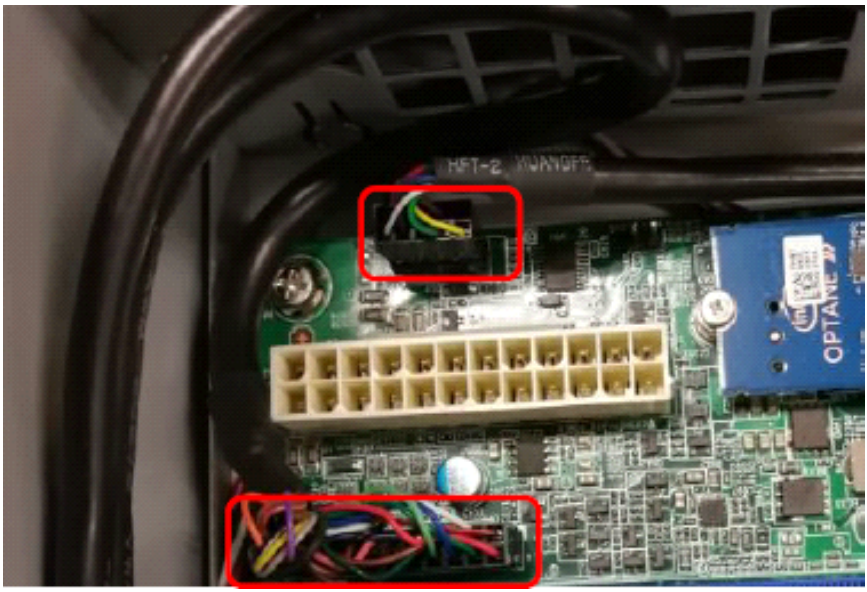
- Align left side with SSD’s holes



3.5” HDD tool less assembly:
- Open the HDD holder.
Align right side with HDD’s holes
Close the HDD holder and make sure the holder fix with HDD’s left holes.



Connect the print cable and COM cable from MB



Remove the covers and fix with screws