Disclaimer

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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 installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the 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 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 manufacturer 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 interference that may cause undesired operation.

This device is in conformity with the following EC/EMC directives:

❑ **EN 55032**   Electromagnetic compatibility of multimedia equipment - Emission requirements

❑ **EN 61000-3-2**   Electromagnetic Compatibility(EMC)
Part 3-2: Limits-Limits for harmonic current emissions (equipment input current ⩽16A per phase)

❑ **EN 61000-3-3**   Electromagnetic Compatibility(EMC)
Part 3-3: Limits-Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ⩽16A per phase and not subject to conditional connection

❑ **EN 55024**   Information technology equipment-Immunity characteristics-Limits and methods of measurement

❑ **EN 60950**   Safety for information technology equipment including electrical business equipment

❑ **CE marking**   CE

GLKD-I2 USER MANUAL

TABLE OF CONTENTS

Brief Introduction

Specifications

SoC	• Onboard Intel® Gemini Lake 1090 BGA 14nm
Memory	• Single channel DDR4 SO-DIMM memory architecture • 1 x 228-pin DDR4 SO-DIMM socket supports up to 8 GB • Supports DDR4 2400 MHz SDRAM *Note: Please go to our website for the latest Memory support list.*
Expansion Slots	• 1 x M.2 slot (Socket 3 key A/E 2230 for WiFi/BT supports CNVi)
Storage	• Supported by Intel® Gemini Lake 1090 BGA 14nm - 2 x Serial ATA 6Gb/s devices

Audio	• Realtek ALC662-VD0-GR 6CH HD Audio CODEC
	  - 6-Channel High Definition Audio Codec
	  - Compliant with HD audio specification

LAN	• Realtek RTL8111H Gigabit LAN
Rear Panel I/O	• 1 x PS/2 Keyboard & PS/2 Mouse connectors • 4 x USB 3.0 ports • 1 x RJ45 LAN connector • 2 x USB 2.0 ports • 1 x HDMI port • 1 x D-sub (VGA) port*(or DP port) • 1 x Audio port (1 x line-in, 1 x line-out, 1 x Microphone)
Internal I/O Connectors & Headers	• 1 x 24-pin ATX Power Supply connector • 1 x 4-pin SYS_FAN connector • 2 x USB 2.0 headers support additional four USB 2.0 ports • 2 x Serial ATA 6Gb/s connectors • 2 x COM headers • 1 x Buzzer • 1 x Front Panel switch/LED header • 1 x Front Panel audio header • 1 x Clear CMOS jumper • 1 x Case open header • 1 x Printer header

*Note: * VGA port (rear panel I/O) and DP port (rear panel I/O) are alternative options of the motherboard.*

System BIOS	•	AMI BIOS with 128Mb SPI Flash ROM
		- Supports Plug and Play
		- Supports ACPI & DMI
		- Supports STR (S3) /STD (S4)
		- Supports Hardware monitor
		- Audio(Buzzer), LAN, can be disabled in BIOS
		- F7 hot key for boot up devices option
		- Support PgUp clear CMOS Hotkey (PS2 KB Model only)
		- Add BIOS parameters and copy to USB Flash Drive
Form Factor	•	Mini ITX Size, 170mm x 170mm

QR Code for the complete manual download
on ECS website: http://www.ecs.com.tw

Motherboard Components

Table of Motherboard Components

LABEL	COMPONENTS
1. SoC	Onboard Intel® Gemini Lake 1090 BGA 14nm
2. CASE	Case open header
3. DIMM	228-pin DDR4 SDRAM SO-DIMM
4. BZ	Buzzer
5. SYS_FAN	4-pin system cooling fan connector
6. F_PANEL	Front panel switch/LED header
7. LPT	Onboard parallel port header
8. COM1~2	Onboard serial port headers
9. SATA1~2	Serial ATA 6Gb/s connectors
10. M2_2230	M.2 slot for 2230 WiFi/BT (supports intel build-in WiFi/BT)
11. F_AUDIO	Front panel audio header
12. F_USB1~2	Front panel USB 2.0 headers
13. BAT	Battery
14. CLR_CMOS	Clear CMOS jumper
15. ATX_POWER	Standard 24-pin ATX power connector

Note: * VGA port(rear panel I/O) and DP port (rear panel I/O) are alternative options of the motherboard.
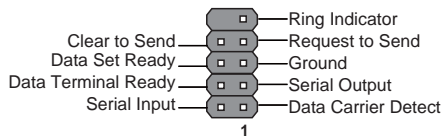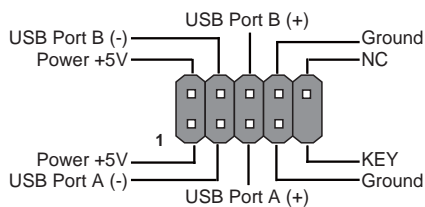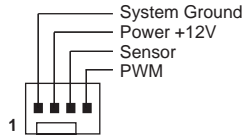
Header Pin Definition and Jumper Settings

F_PANEL

Reset Switch (+)
Reserved
Reset Switch (-)
Hard disk LED (-)
Hard disk LED (+)
1
KEY
Power Switch (-)
Power Switch (+)
MSG LED (+)
MSG LED (-)

F_AUDIO

AUD_GND
PORT 2L
PORT 2R
PORT 1R
PORT 1L
1
SENSE2_RETURN
Key
SENSE1_RETURN
AUD_GND
PRESENCE#

COM1~2

Clear to Send
Data Set Ready
Data Terminal Ready
Serial Input
Ring Indicator
Request to Send
Ground
Serial Output
Data Carrier Detect
1

F_USB1~2

USB Port B (-)
Power +5V
USB Port B (+)
Ground
NC
1
Power +5V
USB Port A (-)
USB Port A (+)
KEY
Ground

SYS_FAN

System Ground
Power +12V
Sensor
PWM

1

CASE

GND ———— 2
Intruder ———— 1

Chassis cover
is removed   1

Chassis cover
is closed   1

LPT

Key	SLCT
Ground	PE
Ground	BUSK
Ground	ACK
Ground	PD7
Ground	PD6
Ground	PD5
Ground	PD4
Ground	PD3
SLCT	PD2
INIT	PD1
ERROR	PD0
AFD	STROBE

1

CLR_CMOS Jumper

3
2
1

CLR_CMOS

1-2: NORMAL

2-3: CLEAR CMOS

Before clearing the CMOS, make sure to turn off the system.

I/O Ports

or

1. PS/2 Mouse (green)
Use the upper PS/2 port to connect a PS/2 mouse.

2. PS/2 Keyboard (purple)
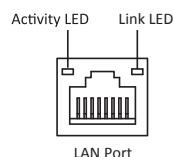Use the lower PS/2 port to connect a PS/2 keyboard.

3. USB 3.0 Ports
Use the USB 3.0 port to connect USB 3.0 device.

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

LAN LED	Status	Description
Activity LED	OFF	No data
	Orange blinking	Active
Link LED	OFF	No link
	Green	Link (10/100 port)
	Orange	Link (Giga port)

Activity LED   Link LED

LAN Port

5. USB 2.0 Ports
Use the USB 2.0 port to connect USB 2.0 device.

6. HDMI Port
You can connect the display device to the HDMI port.

7. Line-in (blue)
It can be connected to an external CD/DVD player, Tape player or other audio devices for audio input.

8. Line-out (green)
It is used to connect to speakers or headphones.

9. Microphone (pink)
It is used to connect to a microphone.

10. VGA Port* (optional)
Connect your monitor to the VGA port.

11. DP Port* (optional)
You can connect the display device to the display port.

*Note: * VGA port(rear panel I/O) and DP port (rear panel I/O) are alternative options of the motherboard.*

Memo

Hardware Installation Guide

Installation Steps

Step 1. Installation of Memory Modules:

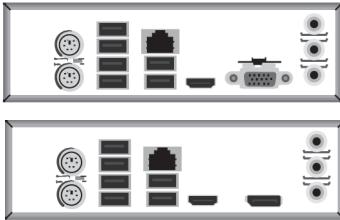1-1. Align the cutouts on the DIMM module edge connector to the notches in the DIMM slot.

1-2. Insert the memory module to the slot and press it down until it seats correctly. Make sure the slot latches cling to the edge of the DIMM module.

Step 2. Installation of Motherboard:

2-1. Replace the back I/O plate of the case with the I/O shield provided in motherboard's package.

2-2. Place the motherboard within the case by positioning it into the I/O plate. Secure the motherboard to the case with screws.

VGA port(rear panel I/O) and DP port (rear panel I/O) are alternative options of the motherboard.

Step 3. Connecting Cables and Power Connectors:

*a. Connect the SATA hard drive to its SATA cable*

b. Connect 24-pin power cable
Please note that when installing 24-pin power cable, the latches of power cable and the ATX connector match perfectly.
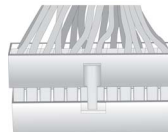
Step 4: Connecting ports on the case:

Once the steps above have been completed, please connect the peripherals such as the keyboard, mouse, monitor, etc. Then, connect the power and turn on the system. Please install all the required software.
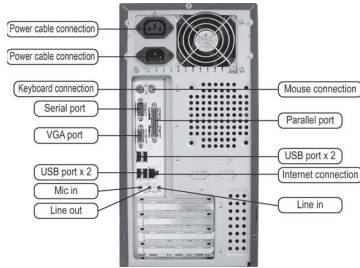
Using BIOS

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you options to set system parameters. When you power on the system, BIOS enters the Power-On Self Test (POST) routines, please ***press <DEL> or F2 to enter setup***. When powering on for the first time, the POST screen may show a ***"CMOS Settings Wrong"*** message. Please ***enter BIOS and choose "Load Default Settings"*** to reset the default CMOS values. (Changes to system hardware such as different CPU, memories, etc. may also trigger this message.)

The sequence of installation may differ depending on the type of case and devices used.

硬件安装指南

安装步骤

1.安装记忆体模组：
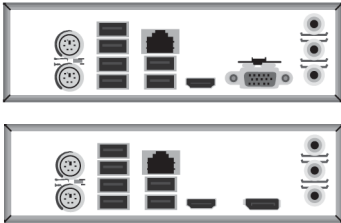
1-1. 将DIMM模块边缘连接器上的切口与DIMM插槽中的凹槽对齐。

1-2. 将内存模块插入插槽和向下按直至其正确就位。 确保插槽锁扣紧贴DIMM模块的边缘。
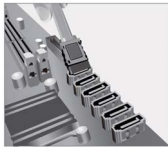
2.安装主板：

2-1. 取下机箱后面的I/O挡板，换上主板附带的I/O弹片。
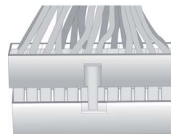
2-2. 将主板的后I/O对准机箱上的I/O挡板孔位，放入机箱并以螺丝固定。

VGA端口（后置面板I／O）和DP端口（后置面板I／O）是主板上可选的项目。

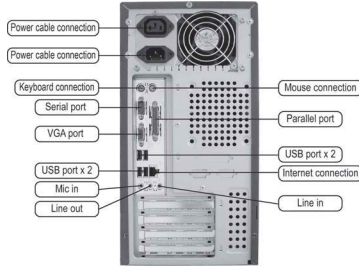## 3.连接电源线与电源接头：

a. 将*SATA*电缆连接至*SATA* 硬盘

b. 连接*24*针电源线与电源接头
请注意电源接头与电源线必须完全扣合。

4.连接机箱端口：

当上述安装步骤完成后，请开始安装键盘，鼠标，显示器等外围设备，然后连接电源并启动系统。请安装好所需的软件。

BIOS使用设定

BIOS程序画面会显示系统配置，同时提供操作选项让您设定系统参数。当开机时，BIOS会进行开机自我测试 (POST)，请点击 <DEL> 或 F2 进入BIOS程序设定。第一次开机时，POST画面可能会显示 "CMOS Settings Wrong" 信息，请进入BIOS选单并选择 **"Load Default Settings"** 将BIOS重新设定为默认值 (更换CPU或内存等硬件变更也可能会出现此信息)。

此说明内容中提供图片或安装方式仅供参考。

하드웨어 설치 가이드

단계별 설치 방법

1단계. 메모리 모듈 설치하기:

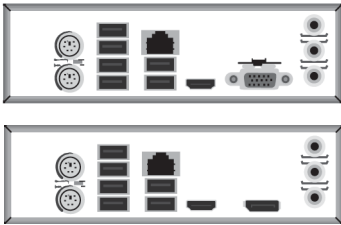1-1. DIMM 모듈 에지 커넥터의 컷 아웃을 DIMM 슬롯의 노치에 맞춥니다.

1-2. 메모리 모듈을 슬롯에 삽입하고 올바르게 장착 될 때까지 아래로 누르십시오. 슬롯 래치가 DIMM 모듈의 모서리에 달라 붙지 않도록하십시오.

2단계. 마더보드 설치하기:

2-1. 케이스의 후면 I/O 플레이트를 마더보드의 패키지에 제공된 I/O 실드로 교체합니다.

2-2. 마더보드를 I/O 플레이트에 위치 시켜 케이스 내에. 스크류로 마더보드를 케이스에 고정시킵니다.

VGA 포트 (후방 패널 I / O) 및 DP 포트(후방 패널 I / O)는 선택 사항입니다 마더 보드의 옵션.

3단계. 케이블 및 전원 커넥터 연결하기:

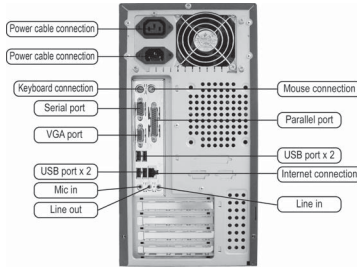a. SATA 하드 드라이브를 SATA 케이블에 연결합니다

b. 4 핀 전원 케이블을 연결합니다 24핀 전원 케이블 연결시 전원 케이블과 ATX 커넥터의 걸쇠가 완벽하게 맞아야 합니다.

4단계. 케이스의 포트 연결하기:

일단 위의 단계들이 완료되면, 키보드, 마우스, 모니터 등과 같은 주변기기들을 연결합니다. 그런 후에, 전원을 연결하고 시스템을 켭니다. 모든 필수 소프트웨어를 설치합니다.

Power cable connection
Power cable connection
Keyboard connection
Serial port
VGA port
USB port x 2
Mic in
Line out

Mouse connection
Parallel port
USB port x 2
Internet connection
Line in

BIOS 사용하기

BIOS 셋업 유틸리티(Setup Utility)는 시스템의 환경설정 상태를 표시하며 시스템 매개변수를 설정하기 위한 옵션을 제공합니다. 시스템의 전원을 켜면, BIOS는 Power-On Self Test (POST) 루틴을 실행합니다, **<DEL> 또는 F2를 눌러 셋업으로 들어가십시.**오처음으로 전원을 켜면 POST 화면에"CMOS Settings Wrong" 메시지가 나타날 수 있습니다. **BIOS로 들어가 "Load Default Settings"을 선택하여** 기본 CMOS 설정값을 재설정합니다. (CPU, 메모리 등과 같은 시스템 변경할 때에도 본 메뉴가 나타날 수 있습니다.)

설치절차는 사용된 케이스 및 장치의 유형에 따라 다를 수 있습니다.

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Panduan Pemasangan Perangkat Keras

Langkah-Langkah Pemasangan

Langkah 1. Pemasangan Modul Memori:

1-1. Sejajarkan guntingan pada modul DIMM konektor tepi ke takik di slot DIMM.
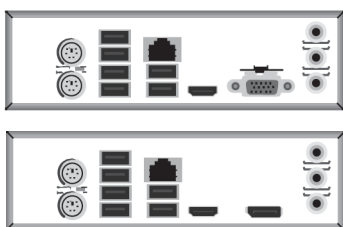
1-2. Masukkan modul memori ke slot dan tekan ke bawah sampai itu kursi dengan benar. Pastikan kait slot yang melekat pada tepi modul DIMM.

Langkah 2. Pemasangan Motherboard:

2-1. Pasang kembali pelat I/O casing dengan pelindung I/O yang disediakan dalam paket motherboard.
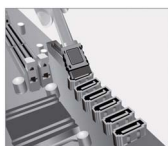
2-2. Tempatkan motherboard pada casing dengan memosisikannya ke dalam pelat I/O. Kencangkan motherboard pada casing dengan sekrup.

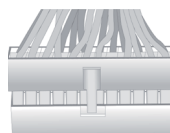Port VGA (panel belakang I / O) dan port DP (Panel belakang I / O) adalah opsional Pilihan pada motherboard.

Langkah 3. Menyambungkan Kabel dan Konektor Daya:

**a. Sambungkan hard drive SATA ke kabel SATA**

b. Sambungkan kabel daya 24 pin
Perhatikan bahwa saat memasang kabel daya 24, kait pada kabel daya dan konektor ATX harus sesuai.

Langkah 4. Menyambungkan port pada casing:

Setelah langkah-langkah di atas selesai, harap sambungkan peripheral seperti keyboard, mouse, monitor, dll. Lalu sambungkan daya dan nyalakan sistem. Harap pasang semua perangkat lunak yang dibutuhkan.
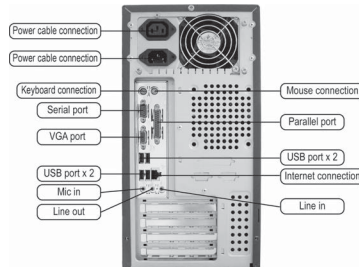
Menggunakan BIOS

Utulitas Pengaturan BIOS (Basic Input and Output System) menampilkan status konfigurasi sistem dan memberi Anda opsi untuk mengatur parameter sistem. Saat Anda menyalakan daya pada sistem, BIOS masuk ke rutinitas Power-On Self Test (POST), harap **tekan <DEL > atau F2 untuk masuk ke pengaturan**. Saat menyalakan untuk pertama kalinya, layar POST mungkin akan menunjukkan pesan "CMOS Settings Wrong" (Kesalahan Pengaturan CMOS). Harap **masukkan BIOS dan tentukan "Load Default Settings" (Pengaturan Standar Beban)** untuk menyetel kembali nilai CMOS standar. (Perubahan pada perangkat keras sistem seperti CPU, memori yang berbeda, dll. juga dapat memicu pesan ini.)

Urutan pemasangan mungkin berbeda bergantung pada jenis casing dan perangkat yang digunakan.

ハードウェアインストールガイド
インストール手順

手順 1 メモリモジュールのインストール：
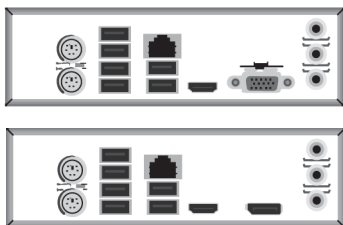
1-1. DIMMモジュールのエッジコネクタの切り
欠きをDIMMスロットのノッチに合わせます。

2-2. メモリモジュールをスロットに挿入し、それ
が正しく座るまで押し下げます。スロットのラッ
チがDIMMモジュールの端にしっかりとはまっ
ていることを確認します。

手順 2 マザーボードのインストール：

3-1. ケースの背面Ｉ／Ｏプレートをマザーボ
ードに付属のＩ／Ｏシールドと交換します。

3-2. Ｉ／Ｏプレートにマザーボードを位置決め
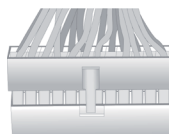し、ケース内に配置します。ネジでマザーボー
ドをケースに固定します。

 VGAポート（背面パネルＩ／Ｏ）およびDPポート（背面パネルＩ／Ｏ）は代替ですマ
ザーボードのオプション。

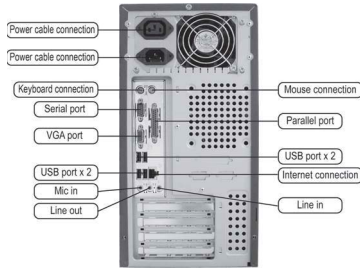### 手順 3 ケーブルと電源コネクタの接続：

a. ＩＤＥハードドライブにＩＤＥケーブルを接
続します

b. ２４ピン電源ケーブルを接続します
　２４ピン電源ケーブルを接続するとき、電源
ケーブルのラッチとＡＴＸコネクタが適合す
ることを確認してください。

手順 4 ケース上のポートに接続：

背面パネルは図と異なる場合があります。マザーボードによって異なります。
上記の手順を完了した後、キーボードやマウスなどの周辺機器を接続してください。その後電源
を接続し、システムを起動します。必要なソフトウェアをすべてインストールしてください。周
辺機器をすべてインストールしてください。

Power cable connection	
Power cable connection	
Keyboard connection	Mouse connection
Serial port	Parallel port
VGA port	
	USB port x 2
USB port x 2	Internet connection
Mic in	
Line out	Line in

ＢＩＯＳの使用

ＢＩＯＳ（基本入出力システム）セットアップユーティリティはシステムの構成状態を表示し、
システムパラメータ設定のオプションを提供します。システムを起動すると、ＢＩＯＳが
ＰＯＳＴという診断テストのルーチンを実行します。セットアップを開始するには<ＤＥＬ>ま
たはＦ２を押してください。初めて電源を投入したとき、ＰＯＳＴ画面に「ＣＭＯＳ　Ｓｅｔ-
ｔｉｎｇｓ　Ｗｒｏｎｇ」（ＣＭＯＳの設定が正しくありません）というメッセージが表示され
ることがあります。ＢＩＯＳに入って「Ｌｏａｄ　Ｄｅｆａｕｌｔ　Ｓｅｔｔｉｎｇｓ」（デフォ
ルトの設定を読み込み）を選択し、デフォルトのＣＭＯＳ値をリセットしてください。（別の
ＣＰＵ、メモリなどのシステムハードウェアへの変更でもこのメッセージが表示されることがあ
ります。）

詳細な製品仕様については仕様説明書を参照するか、ＥＣＳウェブサイトの製品マニ
ュアルで詳細な内容をダウンロードしてください。

Hướng Dẫn Lắp Đặt Phần Cứng
Các Bước Lắp Đặt

Bước 1. Lắp Các Mô-đun Bộ Nhớ:

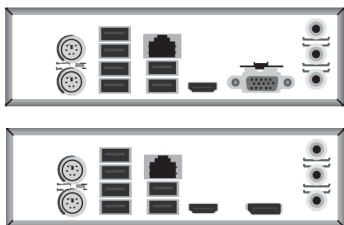1-1. Căn xảo trên các kết nối cạnh mô-đun DIMM để các bậc trong các khe cắm DIMM.

1-2. Chèn module bộ nhớ với khe cắm và bấm nó xuống cho đến khi nó ghế một cách chính xác. Hãy chắc chắn rằng các chốt khe bám vào cạnh của module DIMM.

Bước 2. Lắp Bảng Mạch Chủ:

2-1. Thay tấm I/O phía sua của thùng máy bằng tấm I/O được bán kèm trong bao bì của bảng mạch chủ.

2-2. Đặt bảng mạch chủ trong thùng máy bằng cách đặt nó vào tấm I/O. Cố định bảng mạch chủ vào thùng máy bằng ốc vít.

Cổng VGA (phía sau bảng điều khiển I / O) và cổng DP(phía sau bảng điều khiển I / O) là tùy chọn Tuỳ chọn trên các bo mạch chủ.
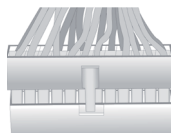
Bước 3. Nối Dây Cáp và Đầu Nối Điện:

**a. Nối ổ cứng SATA với dây cáp SATA của nó.**

b. Nối dây cáp nguồn 24 chân

Vui lòng lưu ý rằng khi lắp cáp nguồn 24 chân, các chốt của cáp nguồn và đầu nối ATX khớp nhau chính xác.

Bước 4: Nối các cổng trên thùng máy:

Một khi đã hoàn tất các bước bên trên, vui lòng kết nối các thiết bị ngoại vi như bàn phím, chuột, màn hình, v.v. Sau đó, kết nối nguồn và bật hệ thống. Vui lòng cài đặt tất cả phần mềm bắt buộc.
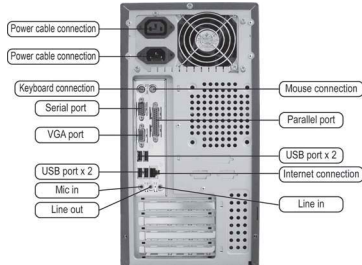
Sử dụng BIOS

Tiện Ích Cài Đặt (Setup Utility) BIOS (Basic Input and Output System) hiển thị trạng thái cấu hình của hệ thống và cung cấp cho bạn các tùy chọn để cài đặt các tham số của hệ thống. Khi bạn bật hệ thống, BIOS tiến hành các bước kiểm tra Power-On Self Test (POST), **vui lòng nhấn <DEL> hoặc F2 để vào cài đặt.** Khi bật nguồn lần đầu, màn hình POST có thể hiển thị thông báo **"CMOS Settings Wrong". Vui lòng vào BIOS và chọn "Load Default Settings"** để cài đặt lại các giá trị CMOS mặc định. (Những thay đổi đối với phần cứng hệ thống chẳng hạn như CPU, bộ nhớ khác, v.v. cũng có thể kích hoạt thông báo này.)

Trình tự cài đặt có thể khác nhau tùy vào loại thùng máy và các thiết bị được sử dụng.