ASRock Rack

OPEN
Industry Standard, Flexible Architecture

GREEN
Less Heat, Less Power Consumption

STABLE
Robust Design, Quality Parts

Stable and
Reliable Solution

Barebone

TR-KNL

User Manual

Version 1.0
Published June 2016
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In no event shall we, our directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of data, interruption of business and the like), even if we have been advised of the possibility of such damages arising from any defect or error in the documentation or product.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

Setting up the Server in a Restricted Access Location

- Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.
- Leave enough clearance (25 inches in the front and 30 inches in the back of the rack) to allow the front door to be opened completely and to allow for sufficient airflow.
- This product is for installation merely in a Restricted Access Location.
- This product is not suitable for use with visual display work place devices according to §2 of the the German Ordinance for Work with Visual Display Units.

Replaceable Batteries

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

Warning

When removal of the chassis lid required for servicing:
- Turn off power and unplug any power cords/cables, and
- Reinstall the chassis lid before restoring power.

Important Safety Instructions

Pay close attention to the following safety instructions before performing any of the operation. Basic safety precautions should be followed to protect yourself from harm and the product from damage:

- Operation of the product should be carried out by suitably trained, qualified, and certified personnel only to avoid risk of injury from electrical shock or energy hazard.
- Disconnect the power cord from the wall outlet when installing or removing main system components, such as the motherboard and power supply unit.
- Place the system on a stable and flat surface.
- Use extreme caution when working with high-voltage components.
- When handling parts, use a grounded wrist strap designed to prevent static discharge.
- Keep the area around the system clean and clutter-free.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags when not in use.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

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Chapter 1 Introduction

Thank you for purchasing TR-KNL, a reliable system produced under our consistently stringent quality control. It delivers excellent performance with robust design conforming to our commitment to quality and endurance.

Because the hardware specifications might be updated, the content of this documentation will be subject to change without notice.

The illustrations shown in this manual are examples only, the actual system may differ slightly .

1.1 Shipping Box Contents

Item	Quantity
TR-KNL Barebone	1
9225 Fan Cooler	1
US Power Cord	1
SATA Cables (60cm)	2
I/O Shields	2
Support CD	1
Quick Installation Guide	1

If any items are missing or appear damaged, contact your authorized dealer.

1.2 Specifications

TR-KNL	
System Physical Status	
Form Factor	Pedestal
Dimension (D x W x H)	560 x 200 x 430 mm (22" x 7.9" x 16.9")
Support MB Size	CRB-KNLMB (SSI EEB, 12"x13")
Front Panel	
Buttons	• Power button • System reset button
LEDs	• Power LED • UID LED • LAN LED • Hard drive activity LED • System Fail LED
I/O Port	2 x USB 3.0 ports
Drive Bay	
Internal Side	3.5" or 2.5" x 2 SATA HDD (6Gb/s)
System Cooling (per node)	
Fan	120 x 25 mm Fan x3
Power Supply	
Type	Single
Output Watts	600 W

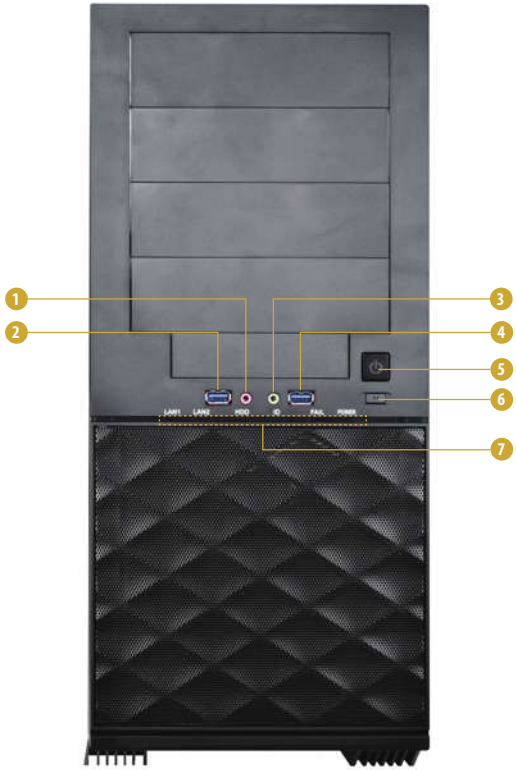
1. *Please contact ASRock Rack sales for target system configuration.*
2. *Please refer to the user manual of the motherboard you use for detailed information about motherboard components and features.*

English

Chapter 2 Server System Overview

This chapter provides diagrams showing the location of important components of the server system.

2.1 Front View



No.	Item
1	Microphone port (Pink)*
2	USB 3.0 port (USB1)
3	Headphone port (Lime)*
4	USB 3.0 port (USB2)
5	Power button
6	Reset button
7	Status LED Indicators

**Please be noted that the functions are supported depending on the type of the server board.*

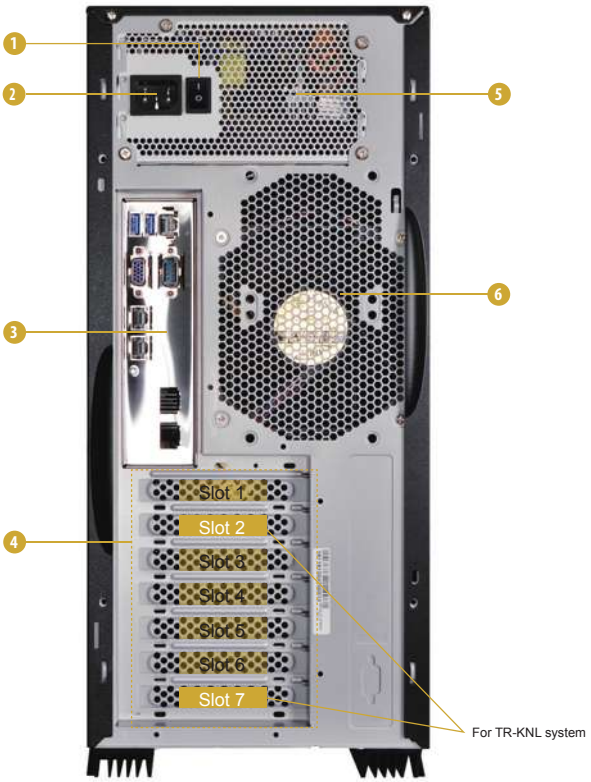
System Reset Button

When the system is completely unresponsive, press the system reset button to reboot the server without shutting it off and initialize the system.

Power Button

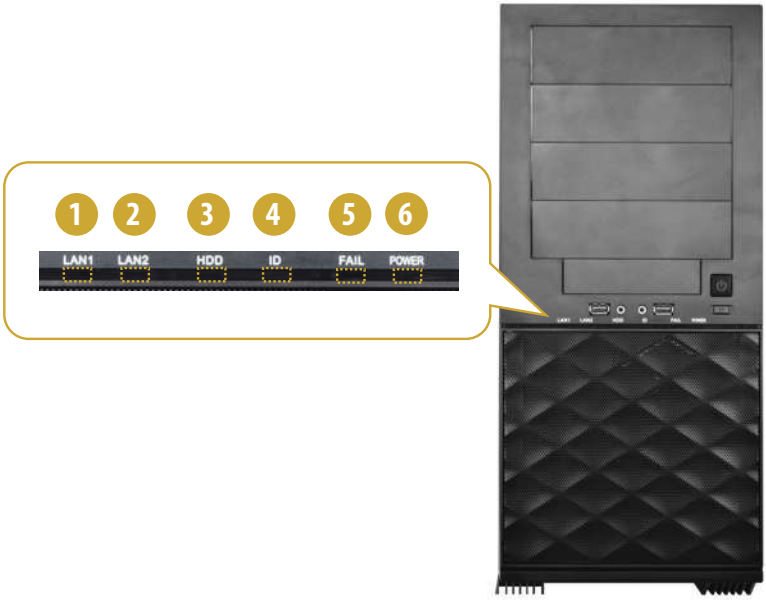
Press the power switch button to toggle the system power on and off modes.
To remove all power from the system completely, disconnect the power cord from the server.

2.2 Rear View



No.	Item
1	PSU power button
2	AC input power connector
3	Power supply unit
4	I/O Shield (depends on the specification of the server board)
5	System fan
6	7 x Add-on card slots* **The TR-KNL system only supports Slot 2 and Slot 7 for add-on card installation.*

2.3 Front Control LED Indicators



No.	Description
1	LAN1 Activity LED*
2	LAN2 Activity LED*
3	HDD Activity LED
4	UID LED*
5	System Fail LED
6	Power LED

**Please be noted that the functions are supported depending on the type of the server board.*

UID LED

Press the UID button on the rear panel to toggle the front panel UID LED on and off. You are able to locate the server you're working on from behind a rack of servers.

Status LED Definitions

LAN1, LAN2 LEDs	
Status	**Description**
Off	No access
Blinking Amber	Network access

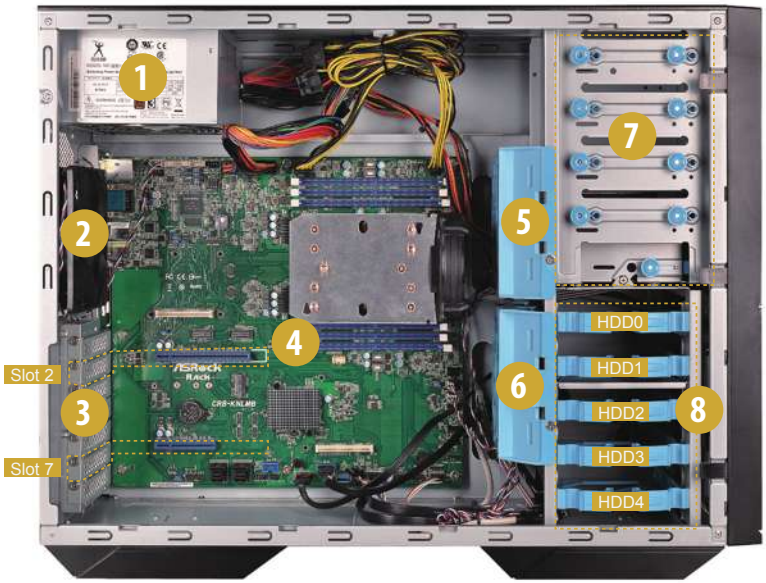
UID LED	
Status	**Description**
Blue	System identification is active.
Off	System identification is disabled.

HDD Activity LED	
Status	**Description**
Blinking Green	HDD access
Off	HDD idle

System Fail LED	
Status	**Description**
Off	Running or normal operation
Blinking Red	At least one sensor has critical alert

Power LED	
Status	**Description**
Blue	Power on
Off	Power off

2.4 Inside View



No.	Description
1	1 x Power Supply Unit (600W)
2	Rear System Fan
3	7 x Add-on Card Slots* **The TR-KNL system only supports Slot 2 and Slot 7 for add-on card installation.*
4	Server Board
5	Front System Fan 1
6	Front System Fan 2
7	Media Bays*
8	Drive Bays*

**Please be noted that the functions are supported depending on the type of the server board.*

Chapter 3 Hardware Installation and Maintenance

This chapter helps you assemble the chassis and install components.

Before You Begin

Before you work with the server, pay close attention to the "Important Safety Instructions" at the beginning of this manual.

1. Make sure the server is powered off.
   Power down the server if it is still running.
   (1) Press the Power button to power off the server from full-power mode to off mode. The Power LED at the front turns from solid green to blinking green.
   (2) Disconnect the power cord first from the AC outlet and then from the server. The power LED turns off.

> ⚠ *The server is not completely powered down when you press the Power button on the front panel. To remove all power from the system completely, be sure to disconnect the power cord from the server.*

2. Ensure you have a clean and stable working environment. Avoid dust and dirt because contaminants may cause malfunctions.
3. Ground yourself properly before touching any system component. A discharge of static electricity may damage components. Wear a grounded wrist strap if available.

> ⚠
> 1. *Some components are already pre-installed. Simply properly connect the relavant cables before or after installation. See the Quick Installation Guide for more details.*
> 2. *Refer to the user manual of the server board you use for instructions on how to install server board components.*

3.1 Hard Drive

Installing a Hard Disk Drive into Hard Drive Tray

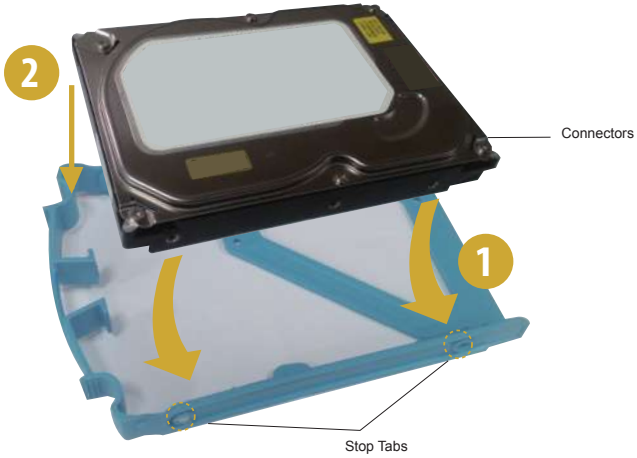
Five hard drive trays are located inside the case. Each of the trays can support either a 2.5" or 3.5" drive.

Removing Hard Drive Trays from the Chassis

1. Press both tabs towards the center to release the drive tray.
2. Pull and remove the drive tray from the drive bay.

Installing a 3.5” Hard Drive to the Drive Tray

1. Fit the right edge of the drive into the tray, pressing the drive firmly backward against the stop tab near the right side of the tray.
2. Lower the left side of the drive into the tray until the drive snaps into place.
3. Align the drive assembly with the guide rails in the drive bay. Gently slide the drive assembly into the drive bay until the drive snaps into place.

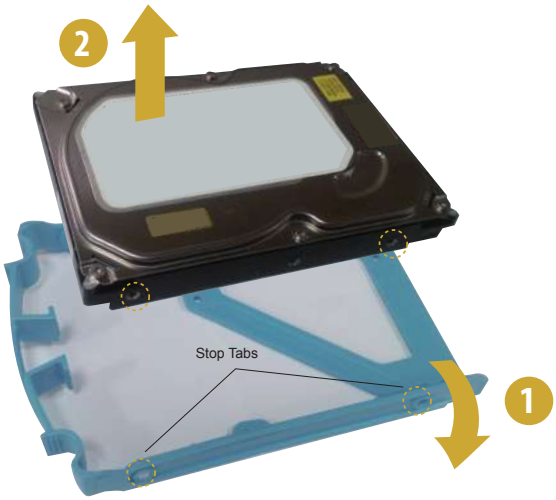


Remove the right side panel of the case to attach the SATA and power cables to the hard drive and route the cables.

Removing a 3.5" Hard Drive from the Drive Trays

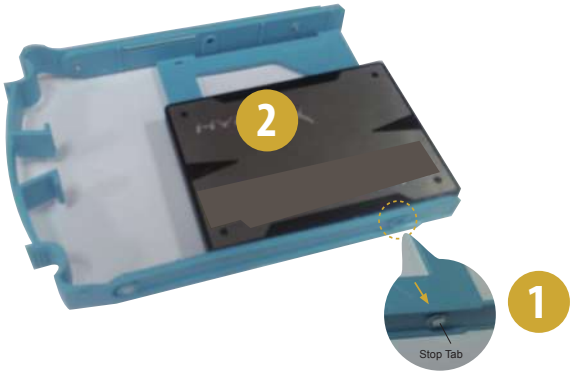
Remove the drive tray from the disk drive that you pulled out of the system if you are replacing a disk drive.

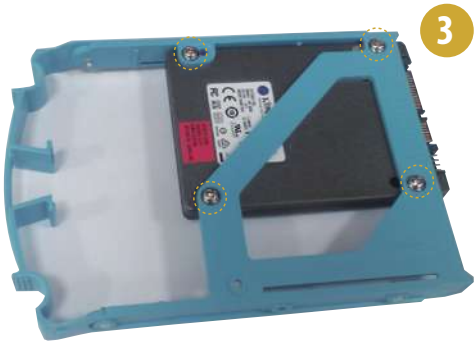
1. Bend the tray slightly, or pull the pins out a little.
2. Gently pull out on one side of the drive tray and pull the drive out of the drive tray.



Installing and Removing a 2.5” Hard Drive

1. Remove the stop tab at the upper right corner of the tray.
2. Place a 2.5" HDD into the tray with the printed circuit board side facing down. Carefully align the mounting holes in the hard drive and the tray.
3. Then turn the drive and the tray upside down. Secure the hard drive with the screws.
4. Slide the drive tray into the HDD bay until the drive is fully seated.
5. Reverse the procedures to remove the drive from the tray.



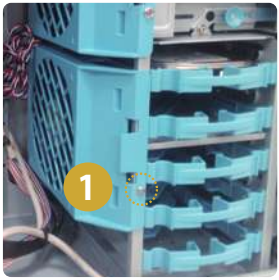


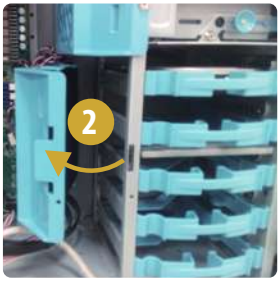
3.2 System Fan

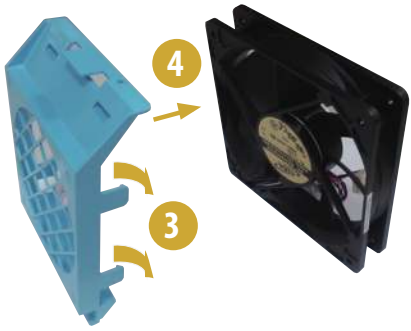
Replacing the Front Fan

Removing the failed fan

1. Unplug the fan connecter. Release the screw that secures the fan assembly to the chassis.
2. Pull the fan assembly away from the chassis.
3. Slightly bend the fan holder to release the tabs.
4. Remove the failed fan.

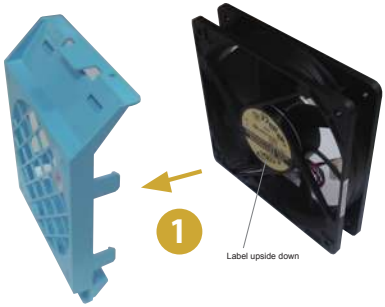


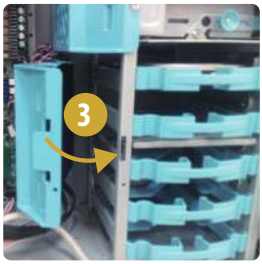


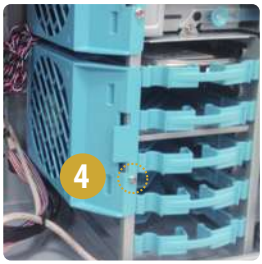


Installing a new fan

1. Attach the fan to the fan holder.
2. Align the mounting holes on chassis with the tabs on the fan assembly.
3. Make sure the tabs are firmly in place and gently hold the fan assembly close to the chassis.
4. Seure the fan assembly to the chassis with the screw.
5. Connect the end of the fan cable to the fan connector.







Replacing the Rear System Fan

1. Unplug the fan connecter. Release the four screws that secure the fan to the chassis.
2. Remove the failed fan.
3. Reverse the procedures to install the rear fan.

3.3 Server Board

Installing and Removing the Server Board

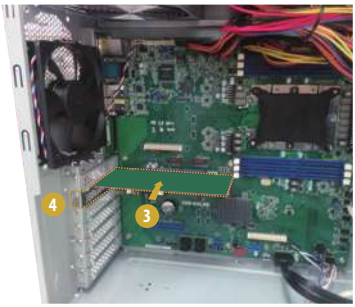
1. Disconnect all cables attached to the server board.
2. Remove screws on the server board.
3. Lift the server board up from the chassis.
4. Hold the server board only by the edges and on a stable and antistatic surface.
5. Reverse the procedures to install the server board.

3.4 Add-on Card

1. You can install an add-on card to the chassis if the server board is supported.
2. Before installing the add-on card, power off the server and unplug the power cord.

Removing the Blanking Plate from the Chassis

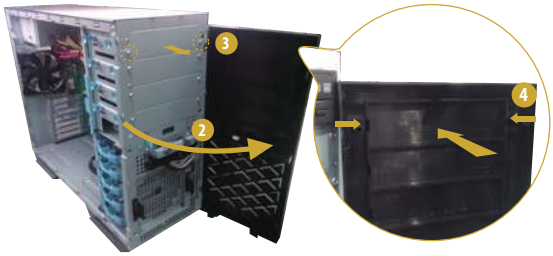
1. Remove the screw securing the blanking plate to the chassis. Keep the screw for later use.
2. Slide the blanking plate out sideways.
   **The TR-KNL system only supports Slot 2 and Slot 7 for add-on card installation.*
3. Align the plate of the add-on card with the openings in the back of the chassis.
4. Attach the add-on card to the chassis with the screw that was previously set aside.



3.5 Optical Drive (ODD)

Installing and Removing an Optical Drive to the Chassis

1. Release the three tabs on the side of the front bezel.
2. Swing the front panel outward, then remove the bezel.
3. Release the screws and remove the blank on the chassis.
4. Press inward on the retaining tabs that hold the bezel to remove a 5.25-inch bezel blank.
5. Line the optical drive up with the opening of the drive bay and gently slide it into position.
6. Align the mounting holes of the drive and the chassis. Secure the drive in place using screws.
7. Install the bezel by inserting the bezel tabs into the slots on the case, then swinging the bezel closed.

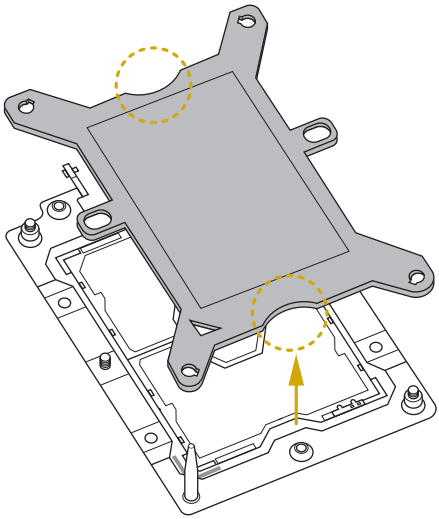


Appendix A

Installing the CPU (Socket: FC-LGA/MCP 3647)

1. *Before you insert the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.*
2. *Unplug all power cables before installing the CPU.*

1



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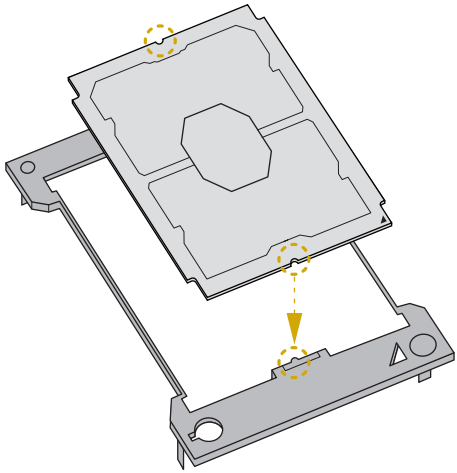

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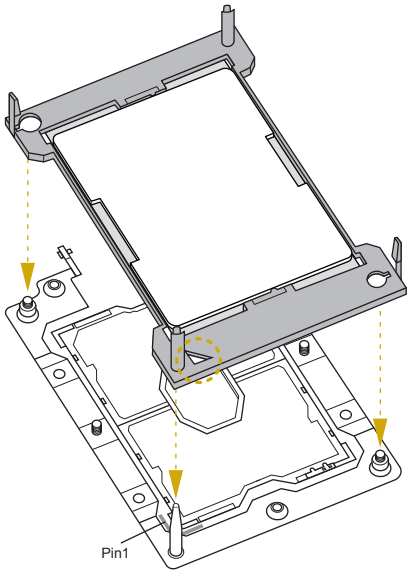
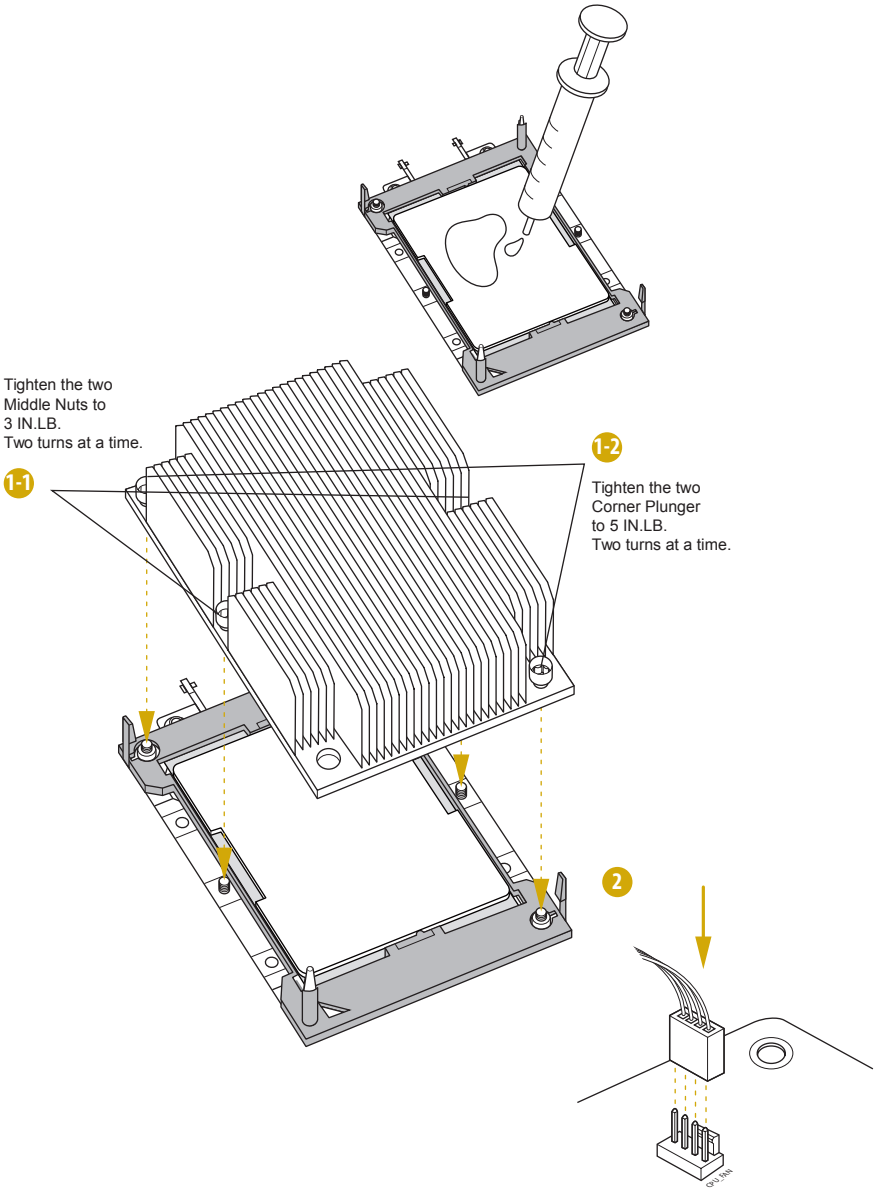


Installing the CPU Fan and Heatsink

1. *Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.*
2. *Illustration in this documentation are examples only. Heatsink or fan cooler type may differ.*