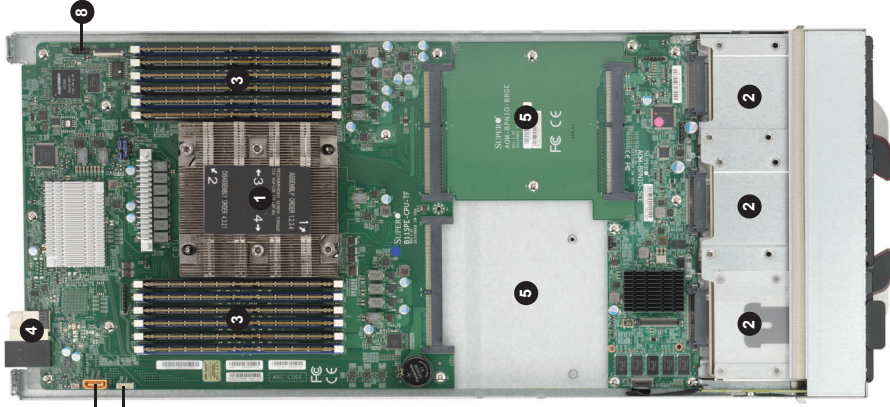


## Board Layout



SBI-6419P-C3N Module Layout

Item	Description
1	CPUs installed
2	Front housing for 2.5" SATA3/SSD/NVMe hard drive bays
3	DIMM slots (twelve total)
4	Power and Logic connectors to backplane
5	AOM, Bridge Board
6	USB Port
7	Intel VROC upgrade key for NVMe
8	9-pin TPM Connector
9	Broadcom 3108 Mezzanine Card

## Caution

- SAFETY INFORMATION**  
**IMPORTANT:** See installation instructions and safety warning before connecting system to power supply.  
[http://www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm)
- WARNING:**  
To reduce risk of electric shock/damage to equipment, disconnect power from server by disconnecting all power cords from electrical outlets, if any CPU socket empty, install protective plastic CPU cap
- WARNING:**  
Always be sure all power supplies for this system have the same power output. If mixed power supplies are installed, the system will not operate. For more information go to: <http://www.supermicro.com/support>

## Memory Support

The motherboard features twelve (12) 288-pin DIMM sockets that can support up to 1.5 TB of RDIMM/LRDIMM DDR4 2666/2400 MHz speed, 8 GB, 16 GB, 32 GB, 64 GB and 128 GB size memory per node. See [https://www.supermicro.com/support/resources/memory/X11\\_memory\\_config\\_guide.pdf](https://www.supermicro.com/support/resources/memory/X11_memory_config_guide.pdf) for details.

DDR4 Memory Support for Two Slots per Channel	Speed (MT/s)	
	One DIMM per Channel	Two DIMMs per Channel
Type	1.2 Volts	1.2 Volts
Rank	4 Gb	8 Gb
Per DIMM	8 GB	16 GB
and Data Width	8 GB	8 GB
SRx4	2666	2666
DRx8	2666	2666
DRx4	2666	2666
DRx4	2666	2666
RDIMM 3Ds	N/A	2H-64GB
8Rx4	N/A	4H-128GB
QRx4	2666	2666
LRDIMM 3Ds	N/A	2H-64GB
QRx4	2666	2666
8Rx4	N/A	4H-128 GB

DDR4 Memory Support for One Slot per Channel	Speed (MT/s)	
	One DIMM per Channel	One Slot per Channel
Type	1.2 Volts	1.2 Volts
Rank	4 Gb	8 Gb
Per DIMM	8 GB	16 GB
and Data Width	8 GB	8 GB
SRx4	2666	2666
DRx8	2666	2666
DRx4	2666	2666
DRx4	2666	2666
RDIMM 3Ds	N/A	2H-64GB
8Rx4	N/A	4H-128GB
QRx4	2666	2666
LRDIMM 3Ds	N/A	2H-64GB
QRx4	2666	2666
8Rx4	N/A	4H-128 GB

## Memory Population for 12 DIMM Slots

Number of DIMMs	Memory Population Sequence
1 CPU & 1 DIMM	CPU1: P1-DIMMA1
1 CPU & 2 DIMMs	CPU1: P1-DIMMA1/P1-DIMMD1
1 CPU & 3 DIMMs	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1
1 CPU & 4 DIMMs	CPU1: P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1
1 CPU & 5 DIMMs	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1
(Unbalanced; not recommended)	
1 CPU & 6 DIMM	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1

## Control Panel



Item	Function	State	Description
1	Power Button	N/A	Turns blade module on and off
2	Power LED	Green	Indicates power status "On"
		Solid Orange	Indicates power status "Off" (with power cables plugged in)
		Flashing Orange	Flashing Orange: Indicates node is not ready or not enough power to turn on
3	KVM/UID LED	Blue	Indicates KVM being utilized on blade unit
		Flashing Blue	Indicates UID activated on blade module
4	Network/IB LED	Flashing Green	Indicates network activity over LAN
		Flashing Orange	Indicates network activity
5	System Fault LED	Red	Indicates a memory error, overheat, VGA error or any error that prevents booting

## Enclosure Requirements

**Enclosure Requirements**  
The SBI-6419P-C3N blade module requires one of the following enclosures to run in:  
SBE-610E-822 SBE-610E-422  
SBE-610E-622 SBE-610E-422  
SBE-610E-422 SBE-610EB-422

See the Supermicro website for details on enclosures at: <https://www.supermicro.com/en/products/superblade/enclosure>

**Note:** The SBI-6419P-C3N blade module also requires one or more power supplies in the enclosure to run the blade module. Available SuperBlade power supplies can be found on the Supermicro website at <https://www.supermicro.com/products/SuperBlade/powersupply>.



## CPU and Heat Sink Installation

### Attaching the Processor Package Assembly to the Heatsink to Form the Processor Heatsink Module (PHM)

After you have made a processor package assembly by following the instructions on the previous page, please follow the steps below to mount the processor package assembly onto the heatsink to create the Processor Heatsink Module (PHM).

1. Locate "1" on the heatsink label and the triangular corner next to it on the heatsink. With your index finger pressing against the screw at this triangular corner, carefully hold and turn the heatsink upside down with the thermal-grease side facing up. Remove the protective thermal film if present, and apply the proper amount of the thermal grease as needed. (Skip this step if you have a new heatsink because the necessary thermal grease is pre-applied in the factory.)

2. Holding the processor package assembly at the center edge, turn it upside down. With the thermal-grease side facing up, locate the hollow triangle located at the corner of the processor carrier assembly ("a" in the graphic). Note a larger hole and plastic mounting clicks located next to the hollow triangle. Also locate another set of mounting clicks and a larger hole at the diagonal corner of the same (reverse) side of the processor carrier assembly ("b" in the graphic).

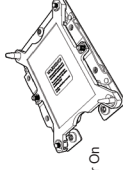
3. With the back of heatsink and the reverse side of the processor package assembly facing up, align the triangular corner on the heatsink ("A" in the graphic) against the mounting clips next to the hollow triangle ("a") on the processor package assembly.

4. Also align the triangular corner ("B") at the diagonal side of the heatsink with the corresponding clips on the processor package assembly ("b").

5. Once the mounting clips on the processor package assembly are properly aligned with the corresponding holes on the back of heatsink, securely attach the heatsink to the processor package assembly by snapping the mounting clips at the proper places on the heatsink to create the processor heatsink module (PHM).

### Preparing the CPU Socket for Installation

This motherboard comes with the CPU socket pre-assembled in the factory. The CPU socket contains 1) a dust cover, 2) a socket bracket, 3) the CPU (P0) socket, and 4) a back plate. These components are pre-installed on the motherboard before shipping.



CPU Socket w/Dust Cover On

### Removing the Dust Cover from the CPU Socket

Remove the dust cover from the CPU socket, exposing the SKX socket and socket pins as shown on the illustration below.

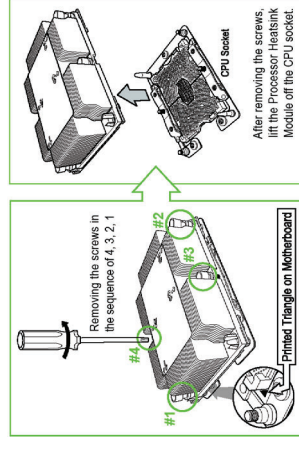
**Note:** Do not touch the socket pins to avoid damaging them, causing the CPU to malfunction.

### Removing the Processor Heatsink Module (PHM) from the Motherboard

Before removing the processor heatsink module (PHM), unplug power cord from the power outlet.

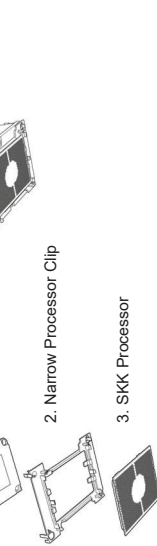
1. Using a T30 Torx-bit screwdriver, turn the screws on the PHM counterclockwise to loosen them from the socket, starting with screw marked #4 (in the sequence of 4, 3, 2, 1).
2. After all four screws are removed, wiggle the PHM gently and pull it up to remove it from the socket.

**Note:** To properly remove the processor heatsink module, be sure to loosen and remove the screws on the PHM in the sequence of 4, 3, 2, 1 as shown below.



### Installing the Processor

The Processor Heatsink Module (PHM) contains 1) a heatsink, 2) a narrow processor clip, and 3) the SKX(-F) processor.



### Attaching the Processor to the Narrow Processor Clip to Create the Processor Package Assembly

To properly install the CPU into the narrow processor clip, please follow the steps below.

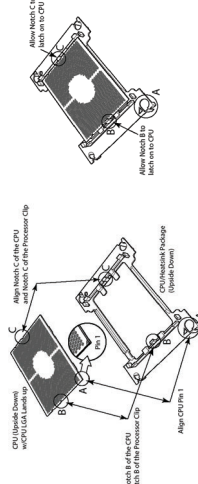
1. Locate pin 1 (notch A), which is the triangle located on the top of the narrow processor clip. Also locate notch B and notch C on the processor clip.

2. Locate pin 1 (notch A), which is the triangle on the substrate of the CPU. Also, locate notch B and notch C on the CPU as shown below.

3. Align pin 1 (the triangle on the substrate) of the CPU with pin 1 (the triangle) of the narrow processor clip. Once they are aligned, carefully insert the CPU into the processor clip by sliding notch B of the CPU into notch B of the processor clip, and sliding notch C of the CPU into notch C of the processor clip.

4. Examine all corners of the CPU to ensure that it is properly seated on the processor clip. Once the CPU is securely attached to the processor clip, the processor package assembly is created.

**Note:** Please exercise extreme caution when handling the CPU. Do not touch the CPU LGA-lands to avoid damaging the LGA-lands or the CPU. Be sure to wear ESD gloves when handling components.



### Installing the Processor Heatsink Module (PHM)

Once you have assembled the processor heatsink module (PHM) by following the instructions listed on page 29 or page 30, you are ready to install the processor heatsink module (PHM) into the CPU socket on the motherboard. To install the PHM into the CPU socket, follow the instructions below.

1. Locate the triangle (pin 1) on the CPU socket, and locate the triangle (pin 1) at the corner of the PHM that is closest to "1." (If you have difficulty locating pin 1 of the PHM, turn the PHM upside down. With the LGA-lands side facing up, you will note the hollow triangle located next to a screw at the corner. Turn the PHM right side up, and you will see a triangle marked on the processor clip at the same corner of hollow triangle.)

2. Carefully align pin 1 (the triangle) on the PHM against pin 1 (the triangle) on the CPU socket.

3. Once they are properly aligned, insert the two diagonal oval holes on the heatsink into the guiding posts.

4. Using a T30 Torx-bit screwdriver, install four screws into the mounting holes on the socket to securely attach the PHM onto the motherboard starting with the screw marked "1" (in the sequence of 1, 2, 3, and 4).

Do not use excessive force when tightening the screws to avoid damaging the LGA-lands and the processor.

