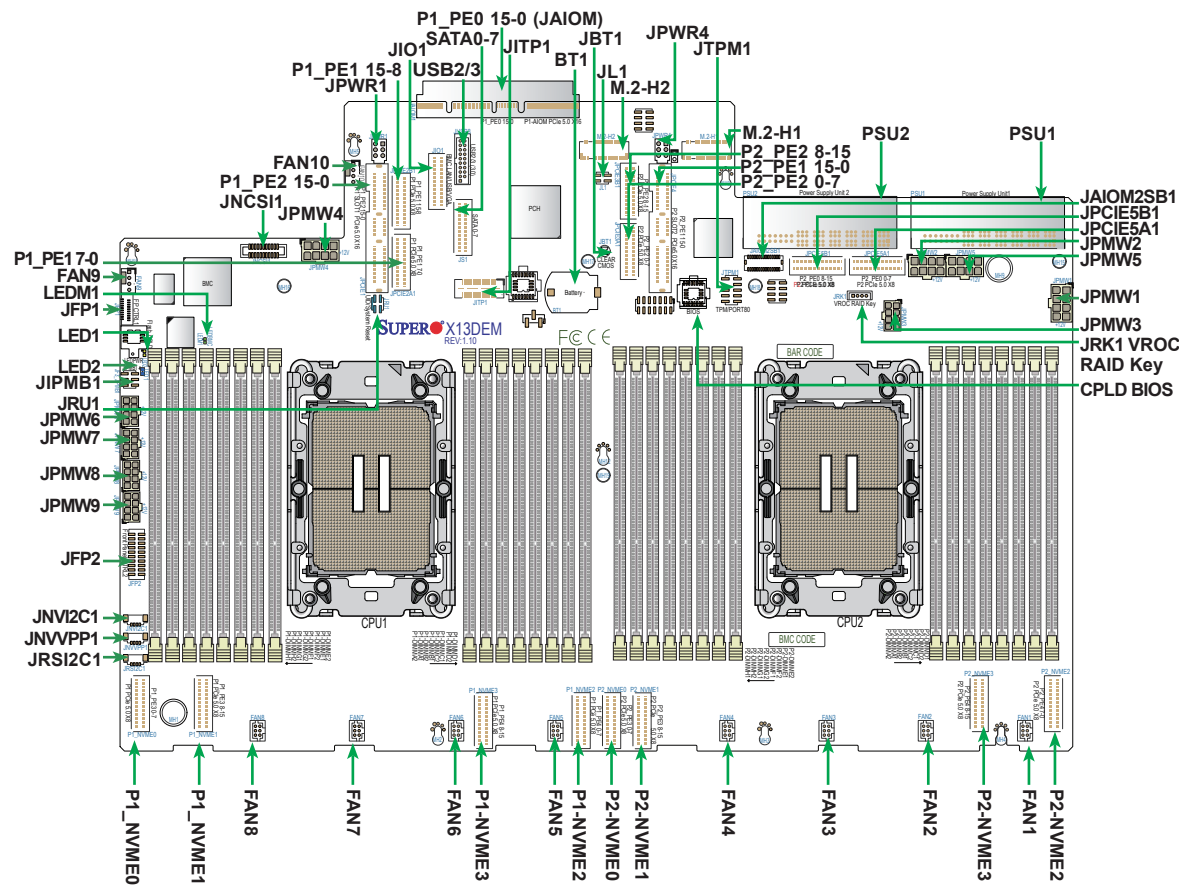


# SUPERMICR SuperServer 221HE-FTNR/FTNRD Quick Reference Guide

## Board Layout

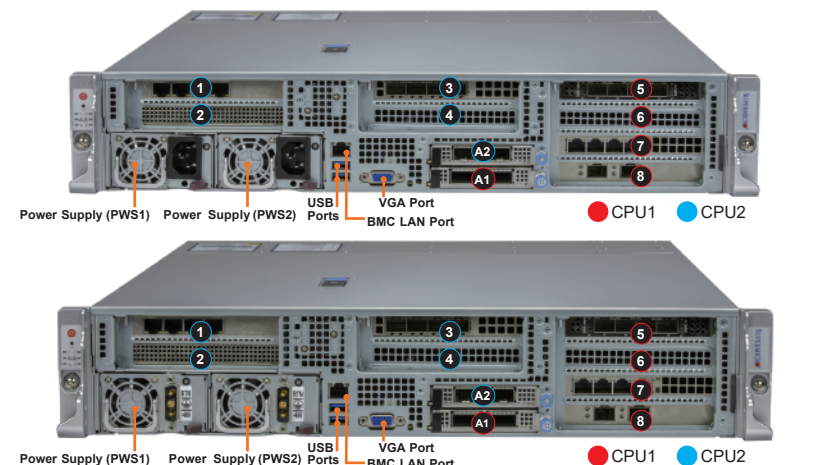


Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
<b>Connector</b>		
Battery (BT1)	Onboard battery	
BMCLAN/USB/VGA (JIO1)	Low-profile (LP) Slim SAS I/O connector used for dedicated BMC LAN/USB/VGA connections	
FAN1-FAN8, FAN9/ FAN10	Eight 6-pin cooling fan headers (FAN1-FAN 8) and two 4-pin cooling fan headers (FAN9-FAN10)	
JAIOM1 (P1_PE0 15-0)	Supermicro Advanced Input/Output Module (AIOM) PCIe 5.0 x16 connector for rear I/O support	
JAIOM2SB1	Supermicro Advanced Input/Output Module (AIOM2) sideband connector	
JFP1	Front Control Panel header	
JFP2	Front Control Panel header with USB and VGA support	
JPMW1 - JPMW9	+12V power connectors 1-9	
JPWR1 and JPWR4	6-pin power connectors	
PS1/PS2	Power Supply Unit/Power Supply Unit2 for system power use (See Note 1 below.)	
JL1	Chassis Intrusion header	
JNV2C1	NVMe SMBus I2C header used for PCIe SMBus clock and data connections with hot-plug support.	
JNVVP1	NVMe VPP SMBus (System Management Bus) with hot-plug support	
JTPM1	Trusted Platform Module/Port 80 connector	
M.2-H1/M.2-H2	PCIe 3.0 x2/SATA3 Hybrid M.2 slots (with support of M-Key 2280, and 22110)	
P1_NVME 0-3	(P1) PCIe 5.0 x8 MCIO connectors supported by CPU1 with four NVMe connections (0/1/2/3)	
P2_NVME 0-3	(P2) PCIe 5.0 x8 MCIO connectors supported by CPU2 with four NVMe connections(0/1/2/3)	
P1_PE0 15-0 (JAIOM1)	PCIe 5.0 x16 AIOM (OCP3.0-compliant) slot supported by CPU1	
P1_PE1 7-0 (JPCIE2A1)	(P1) PCIe 5.0 x8 MCIO connector	
P1_PE1 15-8 (JPCIE2B1)	(P1) PCIe 5.0 x8 MCIO connector support by CPU1	
P1_PE2 15-0 (JPCIE1)	(P1-SLOT1) PCIe 5.0 x16 slot supported by CPU1	
P2_PE0 0-7 (JPCIE5A1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2	
P2_PE0 8-15 (JPCIE5B1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2	
P2_PE1 15-0 (JPCIE4)	(P2-SLOT2) PCIe 5.0 x16 slot supported by CPU2	
P2_PE2 0-7 (JPCIE3A1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2	
P2_PE2 8-15 (JPCIE3B1)	(P2) PCIe 5.0 x8 MCIO connector supported by CPU2	
SATA 0-7 (JS1)	SlimSAS LP (MCIO) connector with support of eight Intel® PCH SATA 3.0 connections (RAID 0, RAID 1, RAID 5, and RAID 10 supported)	
USB2/3 (3.2) (JUSB3)	Rear USB header with support for two USB 3.2 Gen1 ports	
VROC RAID Key (JRK1)	Intel VROC RAID key header for NVMe RAID support (See the note below.)	

## Memory Support

DDR5 Memory Population Table (with SPXCC & MCC CPUs and 32 DIMMs Installed)	
2 CPUs: (Recommended)	Memory Population Sequence
2 CPUs & 2 DIMMs	CPU1: P1-DIMMA1, CPU2:P2-DIMMA1 CPU1: P1-DIMME1, CPU2:P2-DIMME1 CPU1: P1-DIMMB1, CPU2:P2-DIMMB1 CPU1: P1-DIMMF1, CPU2:P2-DIMMF1
2 CPUs & 4 DIMMs	CPU1: P1-DIMMA1/P1-DIMMG1, CPU2: P2-DIMMA1/P2-DIMMG1 CPU1: P1-DIMMC1/P1-DIMME1, CPU2: P2-DIMMC1/P2-DIMME1
2 CPUs & 8 DIMMs	CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1
2 CPUs & 10 DIMMs	CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1
2 CPUs & 12 DIMMs	CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1 CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMME1/P1-DIMMF1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMME1/P2-DIMMF1/P2-DIMMH1 CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMH1
2 CPUs & 16 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 22 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/ P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1
2 CPUs & 24 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/ P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMMD2/ P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1/P2-DIMMH2
2 CPUs & 32 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMMD2/ P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMMD2/ P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1/P2-DIMMH2

## Front View



Feature	Description
Power Supplies	Two redundant power supply modules, PWS1 on the left and PWS2 on the right, SYS-221HE-FTNR: 2000 W AC Power Supplies with PMBus, SYS-221HE-FTNRD: 1300 W DC Power Supplies with PMBus
USB	Two USB 3.0 ports
BMC LAN Port	One RJ45 dedicated BMC LAN port
VGA Port	One video port
Control Panel	One control panel
A1	AIOM/OCP NIC 3.0 Slot
A2	AIOM/OCP NIC 3.0 Slot
1 - 4	1 - PCIe 5.0 x16 Slot (FHFL 10.5") or PCIe 5.0 x8 (in x16) slot 2 - Optional: PCIe 5.0 x8 (in x16) slot (FHFL 10.5", slot 2 is disabled if slot 1 is configured as PCIe 5.0 x16) 3 - PCIe 5.0 x16 Slot (FHFL 10.5") or PCIe 5.0 x8 (in x16) slot 4 - Optional: PCIe 5.0 x8 (in x16) slot (FHFL 10.5", slot 4 is disabled if slot 3 is configured as PCIe 5.0 x16)
5 - 8	5 - PCIe 5.0 x16 Slot (FHFL 10.5") or PCIe 5.0 x8 (in x16) Slot 6 - Optional: PCIe 5.0 x8 (in x16) Slot (FHFL 10.5", Slot 6 is disabled if slot 5 is configured as PCIe 5.0 x16) 7 - PCIe 5.0 x8 (in x16) Slot (FHFL) 8 - PCIe 5.0 x8 (in x16) Slot (FHFL)

## Rear View



Item	Description
System Fans	Six 6-cm heavy duty fans with optimal fan speed control
0 - 3	2.5" hot-swap NVMe Gen5/SATA3/SAS drive bays (NVMe from CPU1)
4 - 5	2.5" hot-swap NVMe Gen5/SATA3/SAS drive bays (NVMe from CPU2)

Feature	Description
Power button	The main power switch applies or removes primary power from the power supply to the server but maintains standby power.
UID button/LED BMC button	The unit identification (UID) button turns on or off the blue light function of their information LED and a blue LED on the rear of the chassis. This button can also be used to reset the BMC. See Section 7.8.
Power LED	Steady on - Power on Blinking at 4 Hz - Checking BIOS/BMC integrity Blinking at 4 Hz and "I" LED is blue - BIOS firmware updating Two blinks at 4 Hz, one pause 2 Hz and "I" LED blue - BMC firmware updating Blinking at 1 Hz and "I" LED red - Fault detected
HDD LED	Indicates activity on a PCH connected storage device (SATA drives and M.2 SATA) when flashing.
NIC (LAN2) LED	Indicates network activity on odd numbered LAN ports. A1 (ports 1 & 3) and A2 (ports 1 & 3).
NIC (LAN1) LED	Indicates network activity on even numbered LAN ports. A1 (ports 2 & 4) and A2 (ports 2 & 4).
Power Fail LED	Indicates a power supply module has failed.
Information LED	Alerts operator to several states, as noted in the table below.

## CPU Installation

- Put processor into bracket - attention to the lineup pin and key on both processor and carrier.
- Put processor carrier module into HS.
- Put processor heatsink module into MB.

## System Information

Pull-out tag with BMC unique password and Serial Number Label underneath.

Each system comes with a unique default password for the ADMIN user. This can be found on a sticker on the motherboard and a sticker underneath the service tag on chassis. If necessary, the password can be reset by the Supermicro IPMICFG tool.

For more information, please visit <https://www.supermicro.com/en/solutions/management-software/bmc-resources>

## Caution and Product Resources

**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)

**CAUTION:**  
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.

**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.

**PRODUCT RESOURCES:**  
For more information go to: <http://www.supermicro.com/support>