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FOR YOUR SYSTEM TO WORK PROPERLY, PLEASE DOWNLOAD APPROPRIATE DRIVERS/IMAGES/USER'S MANUAL FROM THE LINKS BELOW:

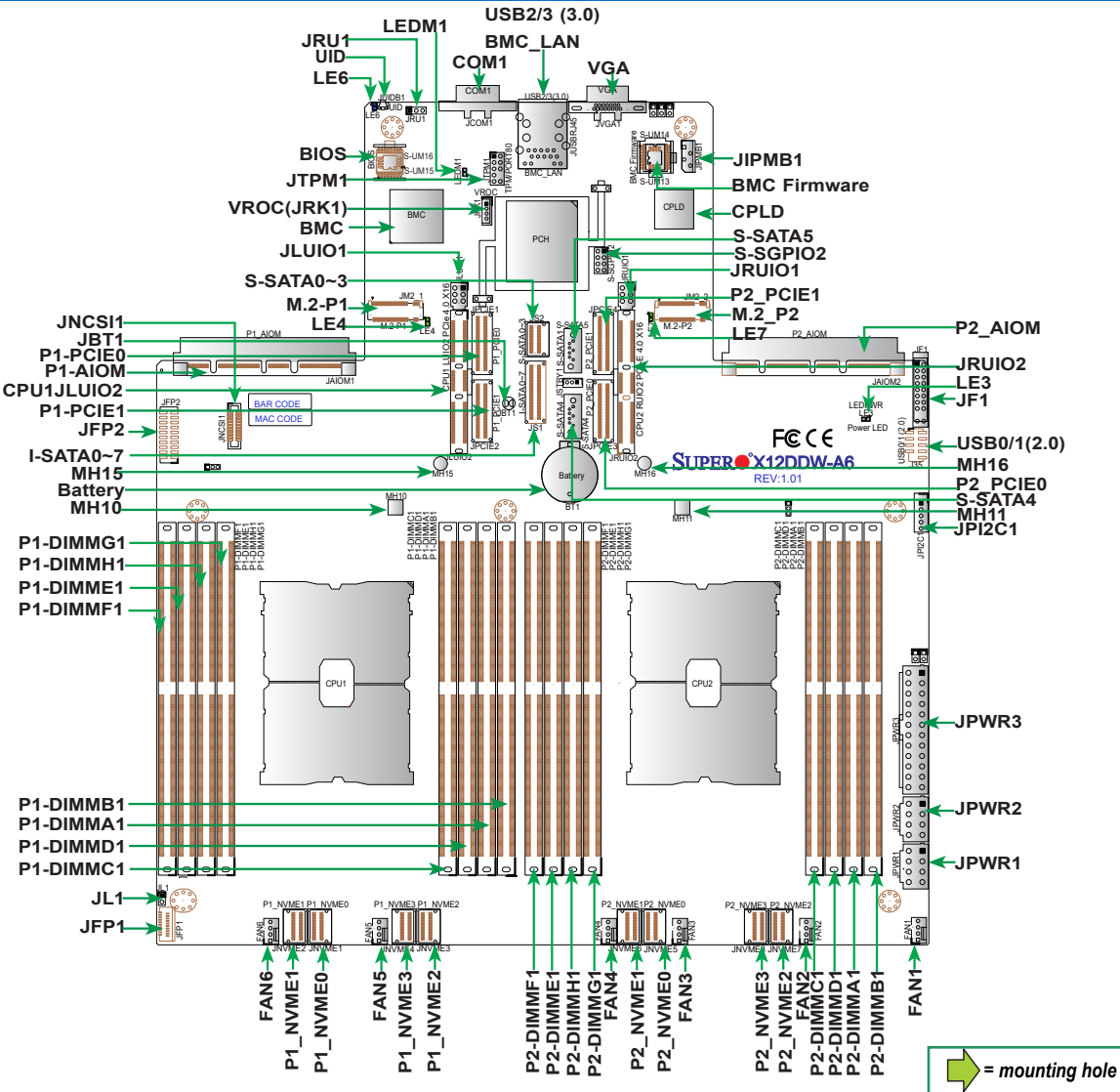
- Manuals: <http://www.supermicro.com/support/manuals>
- Drivers & Utilities: <http://www.supermicro.com/wdl/driver>
- Safety: http://www.supermicro.com/about/policies/safety_information.cfm

PACKAGE CONTENTS

- One Supermicro Motherboard
- One QRG (MNL-2301-QRG)

WARNING: This product can expose you to chemicals including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Motherboard Layout and Features



➔ = mounting hole

Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JRU1	Front Control Board (JFP1) Signal Reset Jumper	Pins 1-2 (Reset JFP1 Signals for Power Button Use)

LED	Description	Status
LE3	Power LED	LED On: Onboard Power On
LE4	M.2-P1 Heartbeat LED	Blinking Green: M.2 device normal
LE6	Unit Identifier (UID) LED	Solid Blue: Unit Identified
LE7	M.2-P2 Heartbeat LED	Blinking Green: M.2 device normal
LEDM1	BMC Heartbeat LED	Blinking Green: BMC Normal

Connector	Description
Battery (BT1)	Onboard CMOS battery
COM1 (JCOM1)	Rear I/O COM port
CPU1 LUIO2 (JLUIO2)	Left side PCIe 4.0 x16 riser card slot supported by CPU1
CPU2 RUIO2 (JRUIO2)	Right side PCIe 4.0 x16 riser card slot supported by CPU2
FAN1 - FAN6	CPU/System fan headers
BMC_LAN (JUSBRJ45)	Dedicated BMC LAN port
JF1	Front Control Panel header
JFP1	Front Control Board header for signals (can be used independently)
JFP2	Front Control Board header for VGA & USB (to be used in conjunction with JFP1)
JIPMB1	4-pin BMC external I°C header
JL1	Chassis Intrusion header
JPI2C1	Power System Management Bus (SMB) I°C header
JPWR1/JPWR2	8-pin power connectors
JPWR3	24-pin ATX power connector
JLUIO1	Power connector used for left side PCIe 4.0 x16 riser card (CPU1 LUIO2)
JRUIO1	Power connector used for right side PCIe 4.0 x16 riser card (CPU2 RUIO2)
JSTBY1	5V Standby power header
JTPM1	Trusted Platform Module/Port 80 connector
M.2-P1 (JM2_1)	PCIe 3.0 x2 M.2 slot from PCH (support for M-Key 2280, and 22110)
M.2-P2 (JM2_2)	PCIe 3.0 x2 M.2 slot from PCH (support for M-Key 2280, and 22110)
MH10/MH11	M.2_P1 module mounting hole (MH10)/M.2_P2 module mounting hole (MH11)
MH15/MH16	CPU1 LUIO2 PCIe slot guide pin (MH15)/CPU2 RUIO2 PCIe slot guide pin (MH16)
P1_AIOM (JAIOM1)	AIOM (Advanced I/O Module) PCIe 4.0 x16 supported by CPU1
P2_AIOM (JAIOM2)	AIOM (Advanced I/O Module) PCIe 4.0 x16 supported by CPU2
P1_PCIE0/1 (JPCIE1/2)	PCIe 4.0 x16 Slot0/Slot1 supported by CPU1
P2_PCIE0/1 (JPCIE3/4)	PCIe 4.0 x16 Slot0/Slot1 supported by CPU2
P1-NVME0/1, P1-NVME2/3	PCIe 4.0 x4 SlimSAS ports with support of four NVMe connections (0/1/2/3) supported by CPU1 (JNVME1/2, JNVME3/4)
P2-NVME0/1, P2-NVME2/3	PCIe 4.0 x4 SlimSAS ports with support of four NVMe connections (0/1, 2/3) supported by CPU2 (JNVME5/6, JNVME7/8)
I-SATA 0-7 (JS1)	Intel® PCH SATA 3.0 ports (with RAID 0, 1, 5, 10)
S-SATA 0-3 (JS2)	Intel PCH SATA 3.0 ports (with RAID 0, 1, 5, 10)
S-SATA4/S-SATA5	Powered SATA connectors (with power pins built-in) for SuperDOM devices (S-SATA4/5)
S-SGPIO2	Serial Link General Purpose I/O connection header (for S-SATA4/5 SuperDOM support)
SUM-13/14	BMC firmware
SUM-15/16	System BIOS
USB0/1 (2.0) (J35)	Front-accessible USB header with two USB 2.0 ports supported
USB2/3 (3.0) (JUSBRJ45)	Rear I/O USB Port 2/Port 3 (USB 3.0)
UID (JUIDB1)	Unit Identifier (UID) button
VGA (JVGA1)	Rear VGA port on the I/O back panel
VROC (JVRK1)	Intel VROC key header for NVMe RAID support

Note: Refer to Chapter 2 of the user's manual for CPU/Heatsink and memory installation instructions. Please also visit our website at www.supermicro.com for CPU/Memory support updates.

CPU Support

This motherboard supports dual 3rd Gen Intel® Xeon Scalable Family Processors in (Socket P+/LGA4189) with up to 40 cores and with a TDP of up to 270W.

Memory Support

This motherboard supports up to 4TB 3DS LRDIMM/LRDIMM/3DS RDIMM/RDIMM DDR4 (288-pin) ECC memory with speeds of 3200/2933/2666MHz in 16 memory slots and up to 4TB Intel® Optane PMem 200 Series with speeds of up to 3200MHz.

Note 1: The Intel® Optane™ Persistent Memory (PMem) 200 Series are supported by the 3rd Gen Intel Xeon Scalable (83xx/63xx/53xx/4314 Series) Processors.

Note 2: Memory speed support depends on the processors used in the system.

DDR4 Memory Population Table for X12DP 16-DIMM Motherboards

When 1 CPU is used:		Memory Population Sequence
1 CPU & 1 DIMM		CPU1: P1-DIMMA1
1 CPU & 2 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1
1 CPU & 4 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1
1 CPU & 8 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1
1 CPU & 16 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1
When 2 CPUs are used:		Memory Population Sequence
2 CPUs & 2 DIMMs (Note)		CPU1: P1-DIMMA1 CPU2: P2-DIMMA1
2 CPUs & 4 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1 CPU2: P2-DIMMA1/P2-DIMME1
2 CPUs & 6 DIMMs		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMME1
2 CPUs & 8 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1
2 CPUs & 10 DIMMs		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1
2 CPUs & 12 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1
2 CPUs & 14 DIMMs		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1
2 CPUs & 16 DIMMs (Note)		CPU1: P1-DIMMA1/P1-DIMME1/P1-DIMMC1/P1-DIMMG1/P1-DIMMB1/P1-DIMMF1/P1-DIMMD1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMME1/P2-DIMMC1/P2-DIMMG1/P2-DIMMB1/P2-DIMMF1/P2-DIMMD1/P2-DIMMH1

Note: Please use this configuration to maximize your memory performance.

PMem 200 Series Population Table for X12DP 16-DIMM Motherboards (within 1 CPU socket)

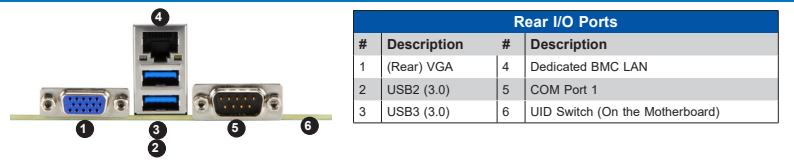
DDR4+PMem	Mode	AD Interleave	P1-DIMM1	P1-DIMM2	P1-DIMM3	P1-DIMM4	P1-DIMM5	P1-DIMM6	P1-DIMM7	P1-DIMM8	P1-DIMM9	P1-DIMM10	P1-DIMM11	P1-DIMM12	
4+4	AD MM	One - x4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	
		One - x4	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	
6+1	AD	One - x1	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	PMem	
			PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	PMem	DDR4	
			DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	PMem
			DDR4	DDR4	DDR4	PMem	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4

Legend (for the table above)	
DDR4 Type and Capacity	See Validation Matrix (DDR4 DIMMs validated with PMem)
Capacity	Any Capacity (Uniformly for all channels for a given configuration)

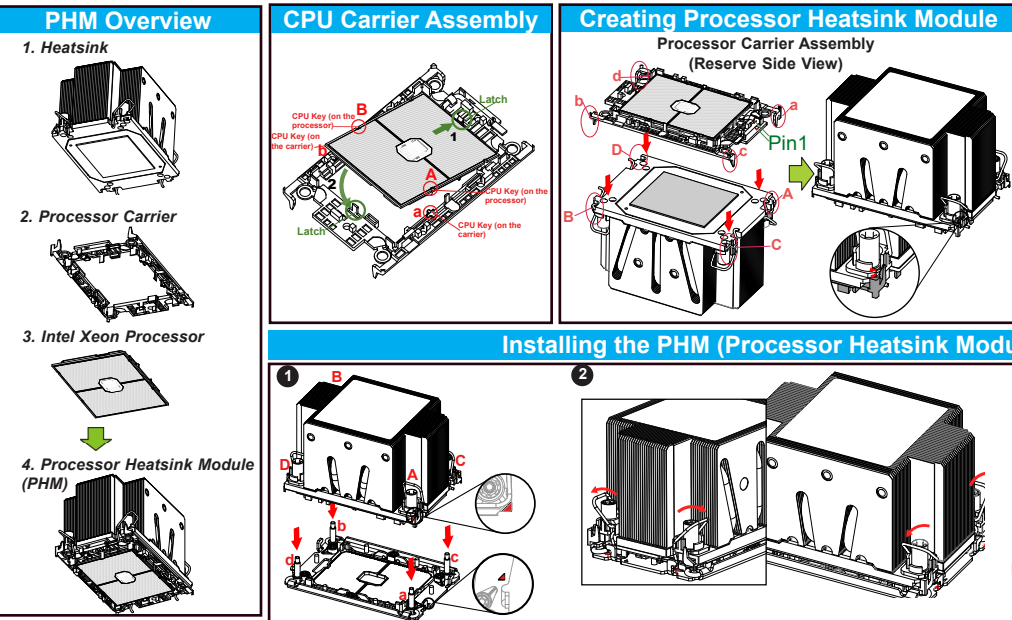
Validation Matrix (DDR4 DIMMS with PMem 200 Series)

DIMM Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)	
		8Gb	16Gb
RDIMM (up to 3200)	1Rx8	N/A	N/A
	1Rx4	16GB	32GB
	1Rx8	16GB	32GB
	1Rx4	32GB	64GB
RDIMM 3DS (up to 3200)	4Rx4 (2H)	N/A	128GB
	8Rx4 (4H)	NA	256GB
LRDIMM (up to 3200)	4Rx4	64GB	128GB
	4Rx4 (2H)	N/A	N/A
LRDIMM 3DS (up to 3200)	4Rx4 (4H)	128GB	256GB
	8Rx4 (4H)	128GB	256GB

Rear I/O Connectors



CPU/Heatsink Installation



Front Control Panel

	1	2	
Power Button	○	○	Ground
Reset Button	○	○	Ground
3.3V	○	○	Power Fail LED
UID LED	○	○	OH/Fan Fail PWR Fail LED
3.3V Stby	○	○	NIC2 Active LED
3.3V Stby	○	○	NIC1 Active LED
3.3V Stby	○	○	HDD LED
3.3V Stby	○	○	PWR LED
X	○	X	
NMI	○	○	Ground