



MEMORY CONFIGURATION
FOR
SUPERMICRO X13OEx/X13QEx/
X13Dxx/X13SEx/B13DEx/B13SEx
SERIES MOTHERBOARDS

BASED ON

THE 4TH/5TH GEN INTEL® XEON SCALABLE PROCESSORS

USER'S GUIDE

Revision 1.0b

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Memory Support for the X13/B13 Series Motherboards

This document provides the user with an easy-to-use guide for proper memory configuration and installation for the X13/B13 Series motherboards utilizing RDIMM / 3DS RDIMM DDR5 (288-pin) ECC memory with speeds up to 5600MT/s (1DPC) or 4400MT/s (2DPC) memory modules. (See Note below.)



Note 1: This memory configuration user's guide is written for Supermicro X13OEx/X13QEx/X13Dxx/X13SEx/B13DEx/B13SEx motherboards based on the 4th Gen Intel® Xeon Scalable (84xx/64xx/54xx/44xx/34xx Series) processors, the 5th Gen Intel® Xeon Scalable (85xx/65xx/55xx/45xx/35xx Series) processors, and Intel® Xeon Max Series (HBM) (94xx Series) processors.

To ensure proper memory installation, please carefully follow the information and instructions provided in this user's guide.

1. ESD Precautions

Electrostatic Discharge (ESD) can damage electronic components including memory modules. To avoid damaging your DIMM modules, it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Handle the memory module by its edges only.
- Put the memory modules into the antistatic bags when not in use.
- Check the Supermicro website for recommended memory modules

2. Memory Installation Sequence

To maximize memory capacity, the rule of thumb is to populate all DIMM slots available on the motherboard, including all blue slots and black slots. However, there are exceptions to this general rule. Good examples of exceptions include the X13DEM motherboard, for these motherboards do not require onboard DIMM slots to be populated to the fullest capacity in order to achieve optimal memory performance.

Memory modules for the X13/B13 Series motherboards (**Note below**) are populated using the "Fill First" method. The blue memory slot of each channel is considered the "first DIMM module" of the channel, and the black slot, the second module of the channel. When installing memory modules, be sure to populate the blue memory slots first and then populate the black slots. Using unbalanced memory topology such as populating two DIMMs in one channel while populating one DIMM in another channel on the same motherboard will result in reduced memory performance.

 **Note:** The memory population information listed below is intended for Supermicro X130Ex/X13QEx/X13Dxx/X13SEx/B13DEx/B13SEx motherboards.

3. General Memory Population Requirements

1. Be sure to use the memory modules of the same type and speed on the motherboard to max. Mixing of memory modules of different types and speeds is not allowed.
2. Populating memory slots with a pair of DIMM modules of the same type and size will result in interleaved memory, which will improve memory performance.
3. Populating memory slots with mixed 1DPC (1 DIMM per memory channel) and 2DPC (2 DIMM per memory channel) with odd number of DIMMs in one CPU will result in a unbalanced DIMM population. Unbalanced DIMM populations will affect channel interleave operation and decrease the memory performance, so it is not recommended.

DDR5 Memory Support for the 4th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
				1DPC (Note)	2DPC
		16Gb	24Gb	1.1V	
RDIMM	SRx8 (RC D)	16GB	24GB	4800	4400
	SRx4 (RC C)	32GB	48GB		
	SRx4 (RC F) 9x4	32GB	N/A		
	DRx8 (RC E)	32GB	48GB		
	DRx4 (RC A))	64GB	96GB		
	DRx4 (RC B) 9x4	64GB	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		
LRDIMM/LRDIMM-3DS	N/A	N/A	N/A	Not Supported	Not Supported

DDR5 Memory Support for the 5th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
				1DPC (Note)	2DPC
		16Gb	24Gb	1.1V	
RDIMM	SRx8 (RC D)	16GB	24GB	5600	4400
	SRx4 (RC C)	32GB	48GB		
	SRx4 (RC F) 9x4	N/A	N/A		
	DRx8 (RC E)	32GB	48GB		
	DRx4 (RC A))	64GB	96GB		
	DRx4 (RC B) 9x4	N/A	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		
LRDIMM/LRDIMM-3DS	N/A	N/A	N/A	Not Supported	Not Supported



Note: 1DPC (1 DIMM per memory channel) applies to 1 SPC (Sockets Per Channel) or 2 SPC implementation.

4. DIMM Population Guidelines for Optimal Performance

For optimal memory performance, follow the instructions listed in the tables below when populating memory modules.


4.1 Key Parameters for DIMM Configuration

Key Parameters for DIMM Configurations	
Parameters	Possible Values
Number of Channels per Socket	1, 2, 4, 6, 8
Number of DIMMs per Channel	1DPC (1 DIMM Per Channel) or 2DPC (2 DIMMs Per Channel)
DIMM Type	RDIMM and 3DS RDIMM
DIMM Construction	non-3DS RDIMM Raw Cards: A (2Rx4), C (1Rx4), D (1Rx8), E (2Rx8) 3DS RDIMM Raw Cards: A (4Rx4, 8Rx4) 9x4 RDIMM Raw Cards: B (2Rx4), F (1Rx4)

Compatible and Incompatible Type in a Channel and a System				
DIMM Type	RDIMM	RDIMM 3DS	9x4 RDIMM	PMem
RDIMM	Compatible	Incompatible	Incompatible	Compatible
RDIMM 3DS	Incompatible	Compatible	Incompatible	Compatible
9x4 RDIMM	Incompatible	Incompatible	Compatible	Incompatible
PMem	Compatible	Compatible	Incompatible	Incompatible


4.2 Memory Population Tables for the X13SEx/B13SEx Motherboards

For your system memory to work properly, please follow the memory population tables below to install your memory modules on the X13SEx/B13SEx motherboard (Note below). These memory population tables were created based on the general memory population guidelines provided by Intel to support Supermicro X13SEx/B13SEx motherboards.

 **Note 1:** The memory support information provided in this section is for the X13SEx/B13SEx Series motherboards that are based on 4th/5th Gen Intel Xeon Scalable (94xx /84xx/64xx/54xx/44xx/34xx/85xx/65xx/55xx/45xx/35xx Series) processors.

Note 2: 94xx series is the Intel Max Series (HBM) (High Bandwidth Memory) processors.

DDR5 Memory Support for the 4th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
		16Gb	24Gb	1DPC (Note)	2DPC
RDIMM	SRx8 (RC D)	16GB	24GB	4800	4400
	SRx4 (RC C)	32GB	48GB		
	SRx4 (RC F) 9x4	32GB	N/A		
	DRx8 (RC E)	32GB	48GB		
	DRx4 (RC A))	64GB	96GB		
	DRx4 (RC B) 9x4	64GB	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		
LRDIMM/LRDIMM-3DS	N/A	N/A	N/A	Not Supported	Not Supported


 **Note 1:** 1DPC (1 DIMM Per Memory Channel) applies to 1 SPC (Sockets Per Channel) or 2 SPC implementation.

Note 2: 24Gb XCC only with limited configs: 1DPC all DIMM type, 2DPC 96GB only. Only 8 and 16 DIMM configs, no fallbacks.

Note 3: Memory speed will be 4800MT/s 1DPC or 4400MT/s 2DPC.

Note 4: Mixing DRAM Density (16 Gb/24 Gb) and/or Frequency is not allowed.

DDR5 Memory Support for the 5th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
		16Gb	24Gb	1DPC (Note)	2DPC
RDIMM	SRx8 (RC D)	16GB	24GB	1.1V	
	SRx4 (RC C)	32GB	48GB	5600	4400
	SRx4 (RC F) 9x4	N/A	N/A		
	DRx8 (RC E)	32GB	48GB		
	DRx4 (RC A)	64GB	96GB		
	DRx4 (RC B) 9x4	N/A	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		
LRDIMM/LRDIMM-3DS	N/A	N/A	N/A	Not Supported	Not Supported

 **Note 1:** 1DPC (1 DIMM Per Memory Channel) applies to 1 SPC (Sockets Per Channel) or 2 SPC implementation.


Note 2: 24Gb, 24GB and 48GB DRAM Capacity is not supported in 2DPC.

Note 3: Memory speed will be 5600MT/s 1DPC or 4400MT/s 2DPC.


Note 4: For 1DPC 5600MT/s speed, DDR5-5600 DIMMs are required.

Note 5: Mixing DRAM Density (16 Gb/24 Gb) and/or Frequency is not allowed.

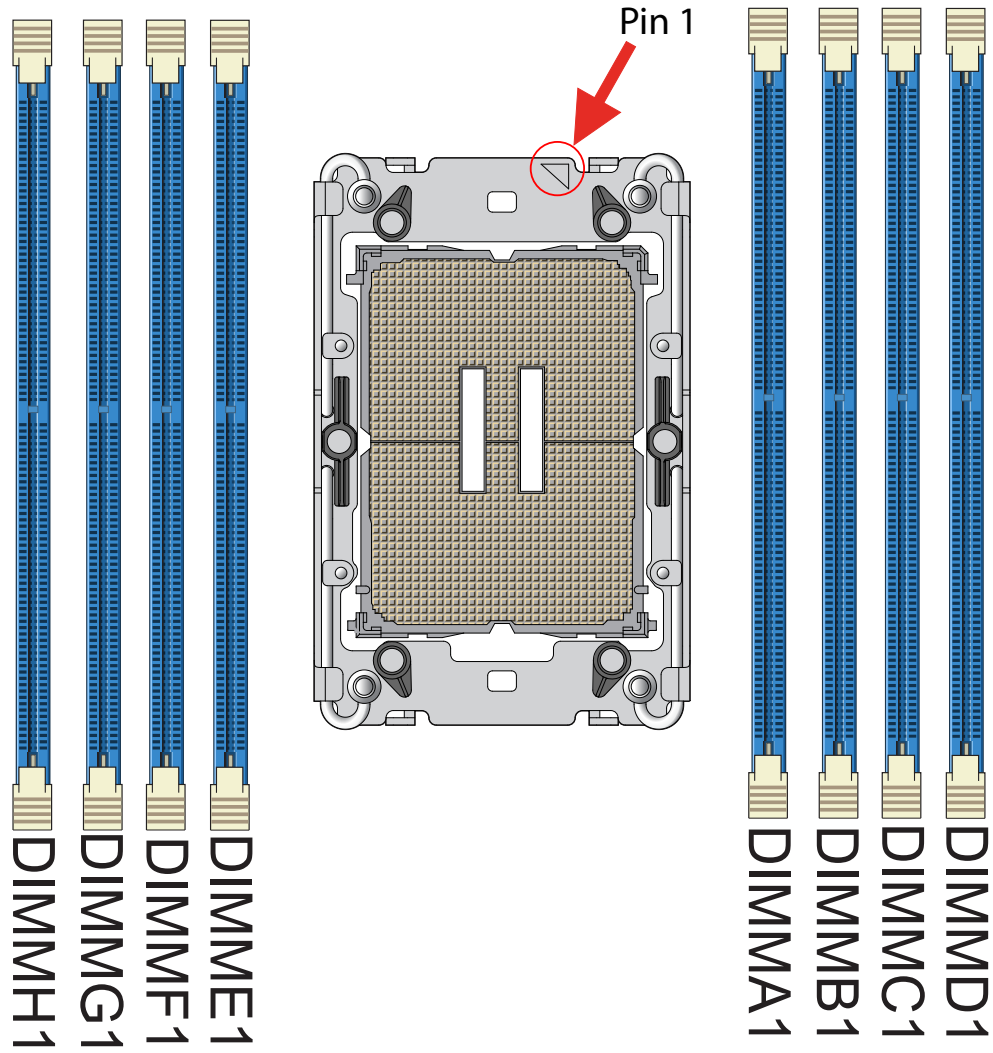
Memory Population for the X13SEx/B13SEx Motherboards (with 8 DIMM Slots)

 **Note:** The memory table below supports the X13SEx/B13SEx motherboards with 8 DIMM memory slots onboard, such as X13SEM-F/TF.

DDR5 Memory Population Table for Motherboards with 1 CPU and 8-DIMMs Installed	
DIMM Counts	Memory Population Sequence
1 CPU & 1 DIMM	DIMMA1 DIMME1
1 CPU & 2 DIMMs	DIMMA1 / DIMMG1 DIMMC1 / DIMME1
1 CPU & 4 DIMMs	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1
1 CPU & 6 DIMMs	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMD1 / DIMMF1 DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMB1 / DIMMH1 DIMMC1 / DIMME1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1 DIMMA1 / DIMMG1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1
1 CPU & 8 DIMMs	DIMMA1 / DIMMG1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1 / DIMMC1 / DIMME1

 **Note 1:** This memory configuration is recommended by Supermicro for optimal memory performance. Please use this configuration to maximize your memory performance.

Note 2: Mixing DDR5-4800 DIMMs with DDR5-5600 DIMMs within a channel is not allowed.




Memory Population on X13SEx/B13SEx Motherboards with 8 DIMMs Installed




Note: The drawing above shows DIMM module population for each CPU installed on the motherboard. Please install your processors starting with CPU Socket 1.

Memory Population for the X13SEx/B13SEx Motherboards (with 16 DIMM Slots)

 **Note:** The memory table below supports the X13SEx/B13SEx motherboards with 16 DIMM memory slots onboard, such as X13SET-G/-GC.

DDR5 Memory Population Table for Motherboards with 1 CPU and 16-DIMMs Installed	
DIMM Counts	Memory Population Sequence
1 CPU & 1 DIMM	DIMMA1 DIMME1 DIMMB1 DIMMF1
1 CPU & 2 DIMMs	DIMMA1 / DIMMG1 DIMMC1 / DIMME1
1 CPU & 4 DIMMs	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1
1 CPU & 6 DIMMs	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMD1 / DIMMF1 DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMB1 / DIMMH1 DIMMC1 / DIMME1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1 DIMMA1 / DIMMG1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1
1 CPU & 8 DIMMs	DIMMA1 / DIMMG1 / DIMMB1 / DIMMH1 / DIMMD1 / DIMMF1 / DIMMC1 / DIMME1
1 CPU & 12 DIMMs	DIMMA1 / DIMMA2 / DIMMB1 / DIMMC1 / DIMMC2 / DIMMD1 / DIMME1 / DIMME2 / DIMMF1 / DIMMG1 / DIMMG2 / DIMMH1 DIMMA1 / DIMMB1 / DIMMB2 / DIMMC1 / DIMMD1 / DIMMD2 / DIMME1 / DIMMF1 / DIMMF2 / DIMMG1 / DIMMH1 / DIMMH2
1 CPU & 16 DIMMs	DIMMA1 / DIMMA2 / DIMMB1 / DIMMB2 / DIMMC1 / DIMMC2 / DIMMD1 / DIMMD2 / DIMME1 / DIMME2 / DIMMF1 / DIMMF2 / DIMMG1 / DIMMG2 / DIMMH1 / DIMMH2

 **Note 1:** This memory configuration is recommended by Supermicro for optimal memory performance. Please use this configuration to maximize your memory performance.

Note 2: Mixing DDR5-4800 DIMMs with DDR5-5600 DIMMs within a channel is not allowed.

DDR5 Memory Population Table for Motherboards with One Max Series (HBM) CPU and 16-DIMMs Installed	
DIMM Counts	Memory Population Sequence
1 CPU & 1 DIMM	DIMMA1 DIMME1
1 CPU & 2 DIMMs	DIMMA1 / DIMMG1 DIMMC1 / DIMME1
1 CPU & 4 DIMMs	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1
1 CPU & 8 DIMMs	DIMMA1 / DIMMG1 / DIMMC1 / DIMME1 / DIMMD1 / DIMMF1 / DIMMB1 / DIMMH1
1 CPU & 16 DIMMs	DIMMA1 / DIMMA2 / DIMMB1 / DIMMB2 / DIMMC1 / DIMMC2 / DIMMD1 / DIMMD2 / DIMME1 / DIMME2 / DIMMF1 / DIMMF2 / DIMMG1 / DIMMG2 / DIMMH1 / DIMMH2



Notes:

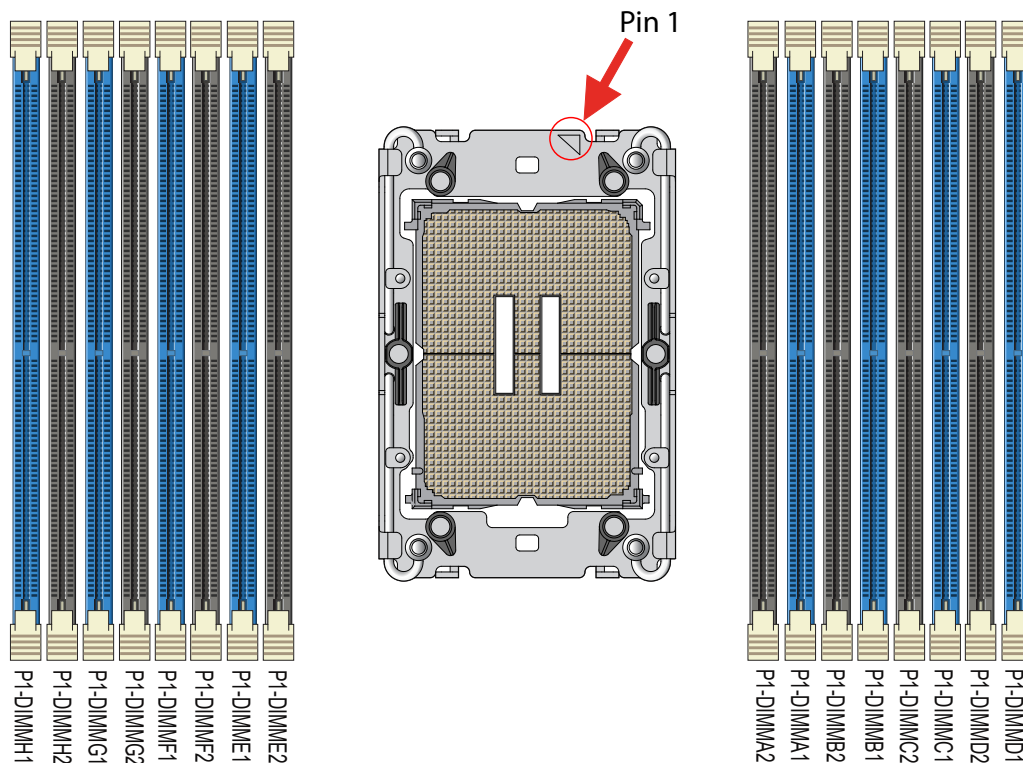
1. Max Series (HBM) processors support 1DPC (4800MT/s) / 2DPC (4400MT/s) to optimize the memory bandwidth. Max Series (HBM) processors support 1, 2, 4, 8, or 16 DIMMs in Flat Mode and Cache Mode, and 0 DIMMs in HBM-Only mode. HBM-Only mode runs exclusively using HBM memory.
2. For the best memory performance in Flat mode and Cache mode, please use 4, 8, or 16 DIMM configurations. (At least one DIMM per memory controller for balanced configuration)

4 DIMMs -> populate 1 DIMM/iMC (*Integrated Memory Controller)*


8 DIMMs -> populate 1 DIMM/Channel, 2 DIMM/iMC

16 DIMMs -> populate 2 DIMM/Channel, 4 DIMM/iMC

3. All other configurations not listed above are not supported.
4. For 2-Socket design, each socket has to be populated identically.




Memory Population on X13SEx/B13SEx Motherboards with 16 DIMMs Installed

 **Note:** The drawing above shows DIMM module population for each CPU installed on the motherboard. Please install your processors starting with CPU Socket 1.


4.3 Memory Population Tables for the X13Dxx/B13DEx Motherboards

For your system memory to work properly, please follow the memory population tables below to install the memory modules on your motherboard. These memory population tables were created based on the general memory population guidelines provided by Intel to support Supermicro X13Dxx/B13DEx motherboards.

 **Note 1:** The memory support information provided in this section is for the X13Dxx/B13DEx Series motherboards that are based on 4th/5th Gen Intel Xeon Scalable (94xx /84xx/64xx/54xx/44xx/85xx/65xx/55xx/45xx Series) processors.

Note 2: 94xx series is the Intel Max Series (HBM) (High Bandwidth Memory) processors.

DDR5 Memory Support for the 4th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
		16Gb	24Gb	1DPC (Note)	2DPC
RDIMM	SRx8 (RC D)	16GB	24GB	4800	4400
	SRx4 (RC C)	32GB	48GB		
	SRx4 (RC F) 9x4	32GB	N/A		
	DRx8 (RC E)	32GB	48GB		
	DRx4 (RC A)	64GB	96GB		
	DRx4 (RC B) 9x4	64GB	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		
LRDIMM/LRDIMM-3DS	N/A	N/A	N/A	Not Supported	Not Supported

 **Note 1:** 1DPC (1 DIMM Per Memory Channel) applies to 1 SPC (Sockets Per Channel) or 2 SPC implementation.

Note 2: 24Gb XCC only with limited configs: 1DPC all DIMM type, 2DPC 96GB only. Only 8 and 16 DIMM configs, no fallbacks.

Note 3: Memory speed will be 4800MT/s 1DPC or 4400MT/s 2DPC.

Note 4: Mixing DRAM Density (16 Gb/24 Gb) and/or Frequency is not allowed.

DDR5 Memory Support for the 5th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
				1DPC (Note)	2DPC
		16Gb	24Gb	1.1V	
RDIMM	SRx8 (RC D)	16GB	24GB	5600	4400
	SRx4 (RC C)	32GB	48GB		
	SRx4 (RC F) 9x4	N/A	N/A		
	DRx8 (RC E)	32GB	48GB		
	DRx4 (RC A)	64GB	96GB		
	DRx4 (RC B) 9x4	N/A	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		
LRDIMM/LRDIMM-3DS	N/A	N/A	N/A	Not Supported	Not Supported



Note 1: 1DPC (1 DIMM Per Memory Channel) applies to 1 SPC (Sockets Per Channel) or 2 SPC implementation.


Note 2: 24Gb, 24GB and 48GB DRAM Capacity is not supported in 2DPC.

Note 3: Memory speed will be 5600MT/s 1DPC or 4400MT/s 2DPC.

Note 4: For 1DPC 5600MT/s speed, DDR5-5600 DIMMs are required.


Note 5: Mixing DRAM Density (16 Gb/24 Gb) and/or Frequency is not allowed.

4.3.1 Memory Population for the X13Dxx/B13DEx Motherboards (with 16 DIMM Slots)

 **Note:** The following memory population table supports Supermicro X13Dxx/B13DEx motherboards with 16 DIMM memory slots onboard.

Memory Population Table (with 16 DIMM Slots)

DDR5 Memory Population Table for X13Dxx/B13DEx Motherboards (with 16 DIMMs installed)	
1 CPU:	<i>Memory Population Sequence</i>
1 CPU & 1 DIMM	P1-DIMMA1 P1-DIMME1 P1-DIMMB1 P1-DIMMF1
1 CPU & 2 DIMMs	P1-DIMMA1 / P1-DIMMG1 P1-DIMMC1 / P1-DIMME1
1 CPU & 4 DIMMs	P1-DIMMA1 / P1-DIMMC1 / P1-DIMME1 / P1-DIMMG1
1 CPU & 6 DIMM	P1-DIMMA1 / P1-DIMMC1 / P1-DIMMD1 / P1-DIMME1 / P1-DIMMF1 / P1-DIMMG1 P1-DIMMA1 / P1-DIMMB1 / P1-DIMMC1 / P1-DIMME1 / P1-DIMMG1 / P1-DIMMH1 P1-DIMMB1 / P1-DIMMC1 / P1-DIMMD1 / P1-DIMME1 / P1-DIMMF1 / P1-DIMMH1 P1-DIMMA1 / P1-DIMMB1 / P1-DIMMD1 / P1-DIMMF1 / P1-DIMMG1 / P1-DIMMH1
1 CPU & 8 DIMMs	P1-DIMMA1 / P1-DIMMB1 / P1-DIMMC1 / P1-DIMMD1 / P1-DIMME1 / P1-DIMMF1 / P1-DIMMG1 / P1-DIMMH1
2 CPUs: (Recommended)	<i>Memory Population Sequence</i>
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 & 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-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1/P2-DIMMH1 CPU1: P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMH1 CPU2: P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMH1 CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMD1/P2-DIMMF1/P2-DIMMG1/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

 **Note 1:** This memory configuration is recommended by Supermicro for optimal memory performance. Please use this configuration to maximize your memory performance.

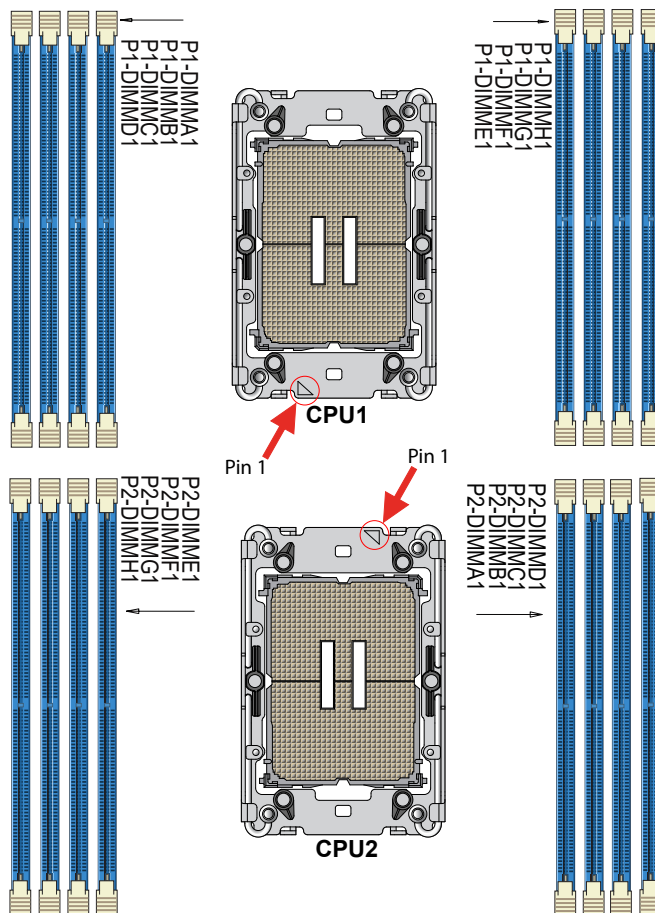
Note 2: Mixing DDR5-4800 DIMMs with DDR5-5600 DIMMs within a channel is not allowed.

DDR5 Memory Population Table for X13Dxx/B13DEx Motherboards (with Max series ((HBM)) CPUs and 16 DIMMs Installed)	
1 CPU:	Memory Population Sequence
1 CPU & 1 DIMM	P1-DIMMA1 P1-DIMME1
1 CPU & 2 DIMMs	P1-DIMMA1/P1-DIMMG1 P1-DIMMC1/P1-DIMME1
1 CPU & 4 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 CPU & 8 DIMMs	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
2 CPUs: (Recommended)	Memory Population Sequence
2 CPUs & 2 DIMMs	CPU1: P1-DIMMA1, CPU2: P2-DIMMA1 CPU1: P1-DIMME1, CPU2: P2-DIMME1
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 & 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

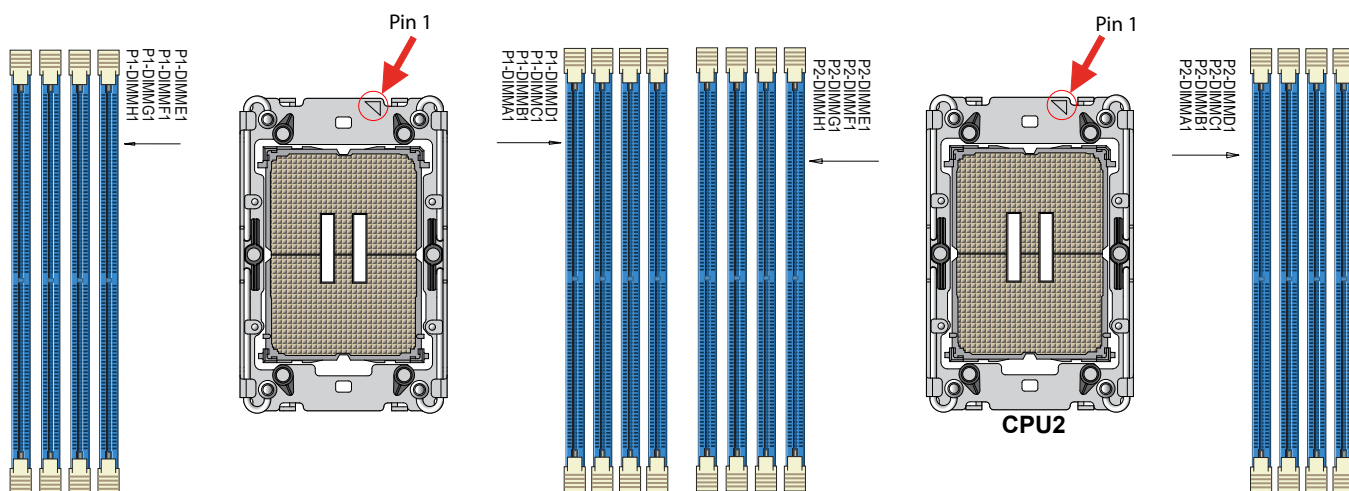


Notes:

1. Max series (HBM) processors support 1DPC (4800MT/s) / 2DPC (4400MT/s) to optimize the memory bandwidth. Max series (HBM) processors support 1, 2, 4, 8, or 16 DIMMs in Flat Mode and Cache Mode, and 0 DIMMs in HBM-Only mode. HBM-Only mode runs exclusively using HBM memory.
2. For the best memory performance in Flat mode and Cache mode, please use 4, 8, or 16 DIMM configurations. (At least one DIMM per memory controller for balanced configuration)
 - 4 DIMMs -> populate 1 DIMM/iMC* (*Integrated Memory Controller)*
 - 8 DIMMs -> populate 1 DIMM/Channel, 2 DIMM/iMC*
 - 16 DIMMs -> populate 2 DIMM/Channel, 4 DIMM/iMC*
3. All other configurations not listed above are not supported.
4. For 2-Socket design, each socket has to be populated identically.



Memory Population on B13Dex Motherboards with 16 DIMMs Installed



Memory Population on X13Dxx Motherboards with 16 DIMMs Installed



Note: The drawing above shows DIMM module population for each CPU installed on the motherboard. Please install your processors starting with CPU Socket 1.

4.3.2 Memory Population for the X13Dxx/B13DEx Motherboards with 32 DIMM Slots



Note: The memory table below supports the X13Dxx/B13DEx motherboards with 32 DIMM memory slots, such as X13DEM.

Memory Population Table (with 32 DIMM Slots)

DDR5 Memory Population Table for X13Dxx/B13DEx Motherboards (with 32 DIMMs Installed)	
1 CPU:	Memory Population Sequence
1 CPU & 1 DIMM	P1-DIMMA1 P1-DIMME1 P1-DIMMB1 P1-DIMMF1
1 CPU & 2 DIMMs	P1-DIMMA1/P1-DIMMG1 P1-DIMMC1/P1-DIMME1
1 CPU & 4 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 CPU & 6 DIMM	P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1/P1-DIMMH1 P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMH1 P1-DIMMA1/P1-DIMMB1/P1-DIMMD1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 8 DIMMs	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 12 DIMMs	P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 P1-DIMMA1/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMH1/P1-DIMMH2
1 CPU & 16 DIMMs	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
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-DIMME1/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-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1/P2-DIMMH1 CPU1: P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMH1 CPU2: P2-DIMMB1/P2-DIMMC1/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-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
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



Note: This memory configuration is recommended by Supermicro for optimal memory performance. Please use this configuration to maximize your memory performance.

Note 2: Mixing DDR5-4800 DIMMs with DDR5-5600 DIMMs within a channel is not allowed.

DDR5 Memory Population Table for X13Dxx/B13DEx Motherboards (with Max series ((HBM)) CPUs and 32 DIMMs Installed)	
1 CPU:	Memory Population Sequence
1 CPU & 1 DIMM	P1-DIMMA1 P1-DIMME1
1 CPU & 2 DIMMs	P1-DIMMA1/P1-DIMMG1 P1-DIMMC1/P1-DIMME1
1 CPU & 4 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 CPU & 8 DIMMs	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 16 DIMMs	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
2 CPUs: (Recommended)	Memory Population Sequence
2 CPUs & 2 DIMMs	CPU1: P1-DIMMA1, CPU2: P2-DIMMA1 CPU1: P1-DIMME1, CPU2: P2-DIMME1
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 & 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 & 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



Notes:

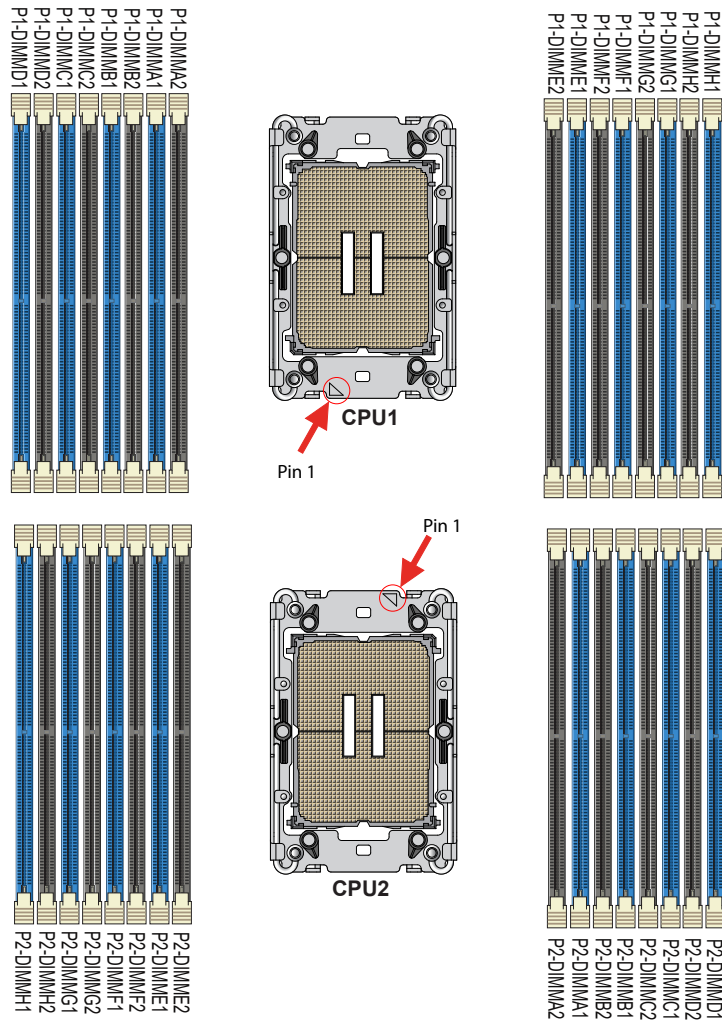
1. Max series (HBM) processors support 1DPC (4800MT/s) / 2DPC (4400MT/s) to optimize the memory bandwidth. Max series (HBM) processors support 1, 2, 4, 8, or 16 DIMMs in Flat Mode and Cache Mode, and 0 DIMMs in HBM-Only mode. HBM-Only mode runs exclusively using HBM memory.
2. For the best memory performance in Flat mode and Cache mode, please use 4, 8, or 16 DIMM configurations. (At least one DIMM per memory controller for balanced configuration)

4 DIMMs -> populate 1 DIMM/iMC (*Integrated Memory Controller)*

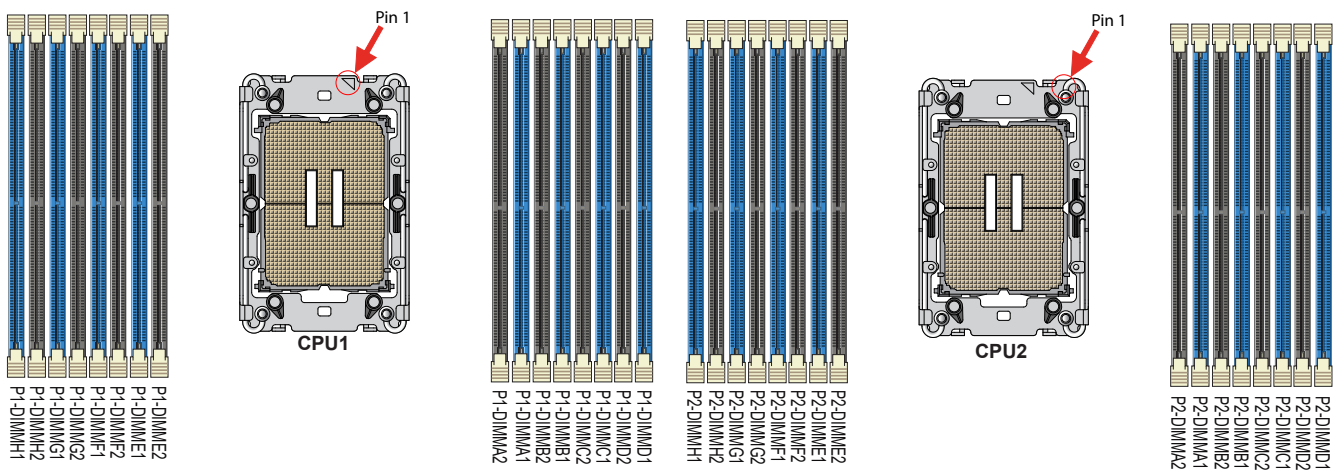
8 DIMMs -> populate 1 DIMM/Channel, 2 DIMM/iMC

16 DIMMs -> populate 2 DIMM/Channel, 4 DIMM/iMC

3. All other configurations not listed above are not supported.
4. For 2-Socket design, each socket has to be populated identically.



Memory Population on B13DEx Motherboards with 32 DIMMs Installed



Memory Population on X13Dxx Motherboards with 32 DIMMs Installed




Note: The drawing above shows DIMM module population for each CPU installed on the motherboard. Please install your processors starting with CPU Socket 1.

4.4 Memory Population Tables for the X13OEx/X13QEx Motherboards based on the 4th Gen Intel Xeon Scalable Processors

For your system memory to work properly, please follow the memory population tables below to install your memory modules on the X13QEx (4-way) motherboards based on the 4th Gen Intel Xeon Scalable processors. All memory population tables included in this user guide were created based on the general memory population guidelines provided by Intel to support Supermicro X13QEx motherboards.

DDR5 Memory Support for the 4th Gen Intel Xeon Scalable Processors					
Type	Ranks Per DIMM & Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); DIMM Per Channel (DPC)	
				1DPC (Note)	2DPC
		16Gb	24Gb	1.1V	
RDIMM	SRx8 (RC D)	16GB	24GB	4800	4400
	SRx4 (RC C)	32GB	48GB		
	SRx4 (RC F) 9x4	32GB	N/A		
	DRx8 (RC E)	32GB	48GB		
	DRx4 (RC A))	64GB	96GB		
	DRx4 (RC B) 9x4	64GB	N/A		
RDIMM 3DS	(4R/8R) x4 (RC A)	2H-128GB 4H-256GB	N/A		
LRDIMM/LRDIMM-3DS	N/A	N/A	N/A	Not Supported	Not Supported

 **Note 1:** 1DPC (1 DIMM Per Memory Channel) applies to 1 SPC (Sockets Per Channel) or 2 SPC implementation.

Note 2: 24Gb XCC only with limited configs: 1DPC all DIMM type, 2DPC 96GB only. Only 8 and 16 DIMM configs, no fallbacks.

Note 3: Memory speed will be 4800MT/s 1DPC or 4400MT/s 2DPC.


Note 4: Mixing DRAM Density (16 Gb/24 Gb) and/or Frequency is not allowed.

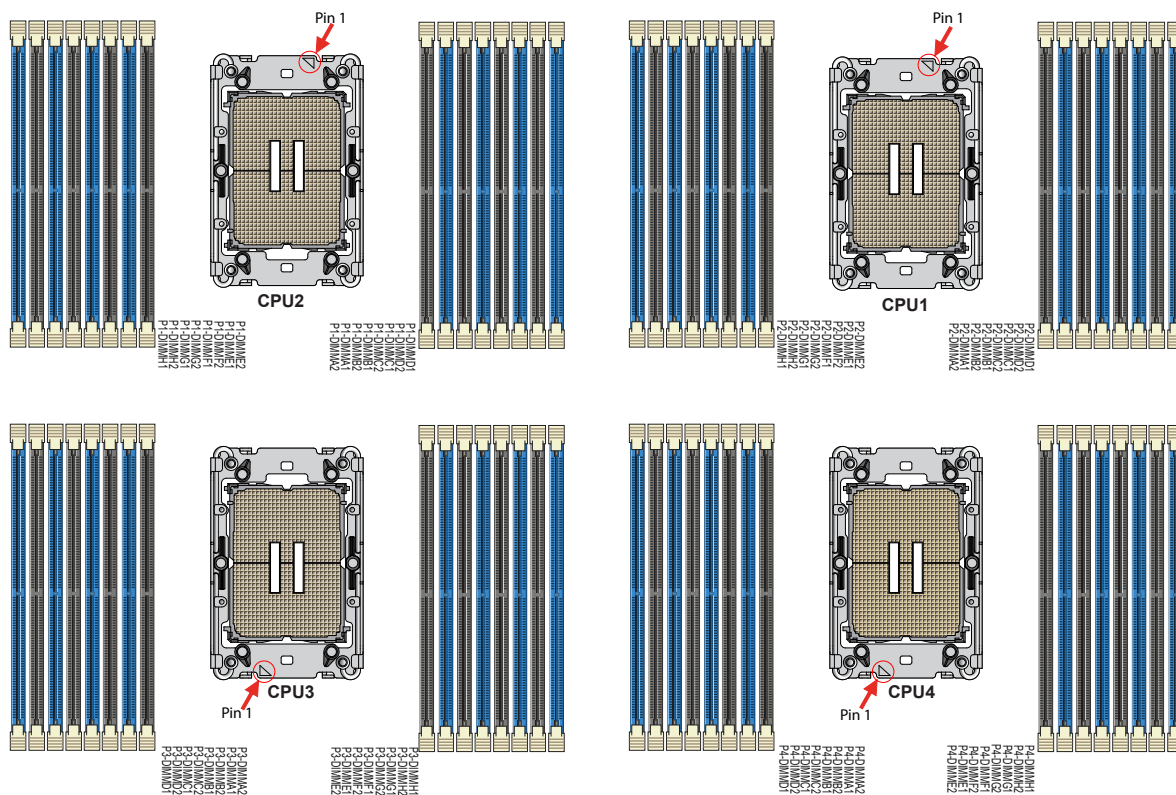
4.4.1 Memory Population for the 4-way X13QEx Motherboard based on the 4th Gen Intel Xeon Scalable (64xxH Series) Processors

Memory Population Table for the 4-Way X13QEx Motherboards (with 64 DIMM Slots Installed)

DDR5 Memory Population Table for X13QEx Motherboards (with 64 DIMMs Installed)	
1 CPU:	Memory Population Sequence
1 CPU & 1 DIMM	P1-DIMMA1
1 CPU & 2 DIMMs	P1-DIMMA1/P1-DIMMG1
1 CPU & 4 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1
1 CPU & 6 DIMMs	P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1
1 CPU & 8 DIMMs	P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1
1 CPU & 12 DIMMs	P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1
1 CPU & 16 DIMMs	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
2 CPUs:	Memory Population Sequence
2 CPUs & 2 DIMMs	CPU1: P1-DIMMA1 CPU2: P2-DIMMA1
2 CPUs & 4 DIMMs	CPU1: P1-DIMMA1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMG1
2 CPUs & 6 DIMMs	CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMG1
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-DIMME1/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
2 CPUs & 14 DIMMs	CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1
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 & 18 DIMMs	CPU1: P1-DIMMA1/P1-DIMM2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMME2/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 & 20 DIMMs	CPU1: P1-DIMMA1/P1-DIMM2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 22 DIMMs	CPU1: P1-DIMMA1/P1-DIMM2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1
2 CPUs & 24 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1
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
4 CPUs:	Memory Population Sequence
4 CPUs & 4 DIMMs	CPU1: P1-DIMMA1 CPU2: P2-DIMMA1 CPU3: P3-DIMMA1 CPU4: P4-DIMMA1

4 CPUs & 8 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMG1 CPU3: P3-DIMMA1/P3-DIMMG1 CPU4: P4-DIMMA1/P4-DIMMG1</p>
4 CPUs & 12 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMG1 CPU3: P3-DIMMA1/P3-DIMMC1/P3-DIMME1/P3-DIMMG1 CPU4: P4-DIMMA1/P4-DIMMG1</p>
4 CPUs & 16 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1 CPU3: P3-DIMMA1/P3-DIMMC1/P3-DIMME1/P3-DIMMG1 CPU4: P4-DIMMA1/P4-DIMMC1/P4-DIMME1/P4-DIMMG1</p>
4 CPUs & 20 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMME1/P2-DIMMG1 CPU3: P3-DIMMA1/P3-DIMMC1/P3-DIMMD1/P3-DIMME1/P3-DIMMF1/P3-DIMMG1 CPU4: P4-DIMMA1/P4-DIMMC1/P4-DIMME1/P4-DIMMG1</p>
4 CPUs & 24 DIMMs	<p>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 CPU3: P3-DIMMA1/P3-DIMMC1/P3-DIMMD1/P3-DIMME1/P3-DIMMF1/P3-DIMMG1 CPU4: P4-DIMMA1/P4-DIMMC1/P4-DIMMD1/P4-DIMME1/P4-DIMMF1/P4-DIMMG1</p>
4 CPUs & 28 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1 CPU3: P3-DIMMA1/P3-DIMMB1/P3-DIMMC1/P3-DIMMD1/P3-DIMME1/P3-DIMMF1/P3-DIMMG1/P3-DIMMH1 CPU4: P4-DIMMA1/P4-DIMMC1/P4-DIMMD1/P4-DIMME1/P4-DIMMF1/P4-DIMMG1</p>
4 CPUs & 32 DIMMs	<p>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 CPU3: P3-DIMMA1/P3-DIMMB1/P3-DIMMC1/P3-DIMMD1/P3-DIMME1/P3-DIMMF1/P3-DIMMG1/P3-DIMMH1 CPU4: P4-DIMMA1/P4-DIMMB1/P4-DIMMC1/P4-DIMMD1/P4-DIMME1/P4-DIMMF1/P4-DIMMG1/P4-DIMMH1</p>
4 CPUs & 36 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMM2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1 CPU3: P3-DIMMA1/P3-DIMM2/P3-DIMMB1/P3-DIMMC1/P3-DIMMD1/P3-DIMME1/P3-DIMME2/P3-DIMMF1/P3-DIMMG1/P3-DIMMH1 CPU4: P4-DIMMA1/P4-DIMMB1/P4-DIMMC1/P4-DIMMD1/P4-DIMME1/P4-DIMMF1/P4-DIMMG1/P4-DIMMH1</p>
4 CPUs & 40 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMM2/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1 CPU3: P3-DIMMA1/P3-DIMM2/P3-DIMMB1/P3-DIMMC1/P3-DIMMD1/P3-DIMME1/P3-DIMME2/P3-DIMMF1/P3-DIMMG1/P3-DIMMH1 CPU4: P4-DIMMA1/P4-DIMMA2/P4-DIMMB1/P4-DIMMC1/P4-DIMMD1/P4-DIMME1/P4-DIMME2/P4-DIMMF1/P4-DIMMG1/P4-DIMMH1</p>
4 CPUs & 44 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMM2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1 CPU3: P3-DIMMA1/P3-DIMM2/P3-DIMMB1/P3-DIMMC1/P3-DIMMC2/P3-DIMMD1/P3-DIMME1/P3-DIMME2/P3-DIMMF1/P3-DIMMG1/P3-DIMMG2/P3-DIMMH1 CPU4: P4-DIMMA1/P4-DIMMA2/P4-DIMMB1/P4-DIMMC1/P4-DIMMD1/P4-DIMME1/P4-DIMME2/P4-DIMMF1/P4-DIMMG1/P4-DIMMH1</p>
4 CPUs & 48 DIMMs	<p>CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1 CPU3: P3-DIMMA1/P3-DIMMA2/P3-DIMMB1/P3-DIMMC1/P3-DIMMC2/P3-DIMMD1/P3-DIMME1/P3-DIMME2/P3-DIMMF1/P3-DIMMG1/P3-DIMMG2/P3-DIMMH1 CPU4: P4-DIMMA1/P4-DIMMA2/P4-DIMMB1/P4-DIMMC1/P4-DIMMC2/P4-DIMMD1/P4-DIMME1/P4-DIMME2/P4-DIMMF1/P4-DIMMG1/P4-DIMMG2/P4-DIMMH1</p>
4 CPUs & 64 DIMMs	<p>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 CPU3: P3-DIMMA1/P3-DIMMA2/P3-DIMMB1/P3-DIMMB2/P3-DIMMC1/P3-DIMMC2/P3-DIMMD1/P3-DIMMD2/P3-DIMME1/P3-DIMME2/P3-DIMMF1/P3-DIMMF2/P3-DIMMG1/P3-DIMMG2/P3-DIMMH1/P3-DIMMH2 CPU4: P4-DIMMA1/P4-DIMMA2/P4-DIMMB1/P4-DIMMB2/P4-DIMMC1/P4-DIMMC2/P4-DIMMD1/P4-DIMMD2/P4-DIMME1/P4-DIMME2/P4-DIMMF1/P4-DIMMF2/P4-DIMMG1/P4-DIMMG2/P4-DIMMH1/P4-DIMMH2</p>

 **Note:** This memory configuration is recommended by Supermicro for optimal memory performance. Please use this configuration to maximize your memory performance.



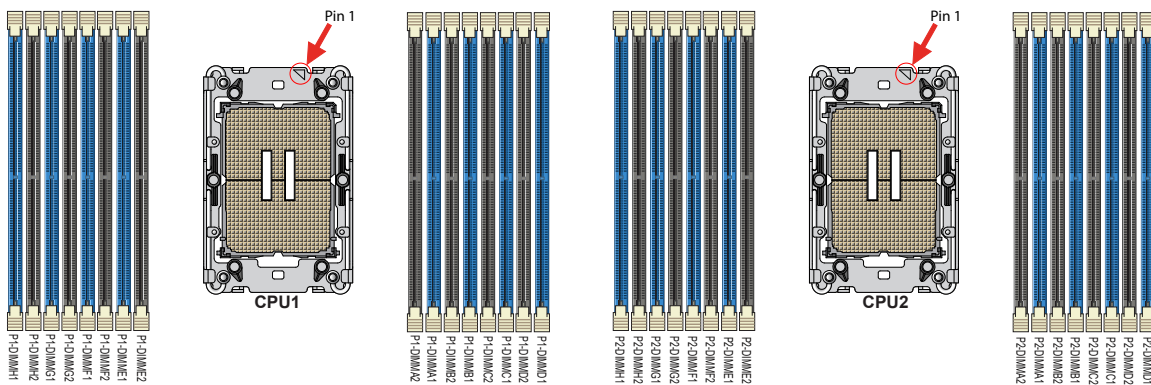
Memory Population on X13QEx Motherboards with 64 DIMMs Installed

4.4.2 Memory Population for the 8-way X13OEx CPU Board based on the 4th Gen Intel Xeon Scalable (84xxH Series) Processors

Memory Population Table for the 8-Way X13OEx CPU Board (with 128 DIMM Slots Installed)

DDR5 Memory Population Table for X13 OEx CPU Board (with 32 DIMMs Installed)	
2 CPUs:	Memory Population Sequence
2 CPUs & 2 DIMMs	CPU1: P1-DIMMA1, CPU2: P2-DIMMA1
2 CPUs & 4 DIMMs	CPU1: P1-DIMMA1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMG1
2 CPUs & 8 DIMMs	CPU1: P1-DIMMA1/P1-DIMMC1/P1-DIMME1/P1-DIMMG1 CPU2: P2-DIMMA1/P2-DIMMC1/P2-DIMME1/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
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 & 24 DIMMs	CPU1: P1-DIMMA1/P1-DIMMA2/P1-DIMMB1/P1-DIMMC1/P1-DIMMC2/P1-DIMMD1/P1-DIMME1/P1-DIMME2/P1-DIMMF1/P1-DIMMG1/P1-DIMMG2/P1-DIMMH1 CPU2: P2-DIMMA1/P2-DIMMA2/P2-DIMMB1/P2-DIMMC1/P2-DIMMC2/P2-DIMMD1/P2-DIMME1/P2-DIMME2/P2-DIMMF1/P2-DIMMG1/P2-DIMMG2/P2-DIMMH1 CPU1: P1-DIMMA1/P1-DIMMB1/P1-DIMMB2/P1-DIMMC1/P1-DIMMD1/P1-DIMMD2/P1-DIMME1/P1-DIMMF1/P1-DIMMF2/P1-DIMMG1/P1-DIMMH1/P1-DIMMH2 CPU2: P2-DIMMA1/P2-DIMMB1/P2-DIMMB2/P2-DIMMC1/P2-DIMMD1/P2-DIMMD2/P2-DIMME1/P2-DIMMF1/P2-DIMMF2/P2-DIMMG1/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

Note: This memory configuration is recommended by Supermicro for optimal memory performance. Please use this configuration to maximize your memory performance.

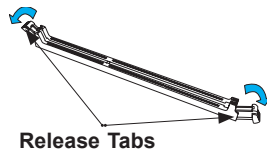
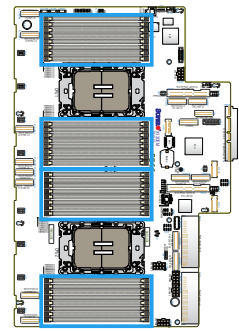


Memory Population on X13OEx CPU Board with 32 DIMMs Installed

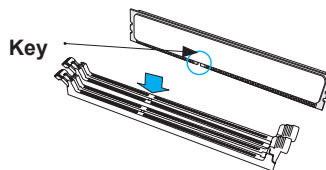
Note: The drawing above shows DIMM module population for each CPU installed on the motherboard. Please install your processors starting with CPU Socket 1.

DIMM Installation

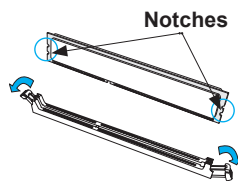
1. Insert the desired number of DIMMs into the memory slots based on the recommended DIMM population tables in the previous section. Locate DIMM memory slots on your motherboard. Please note that all graphics shown in this guide are for illustration only. Your motherboard may look different from the drawing on the right.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.



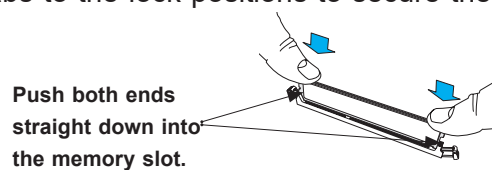
3. Align the key of the DIMM module with the DIMM socket key on the memory slot.



4. Align the notches on both ends of the module against the latches on the ends of the slot.

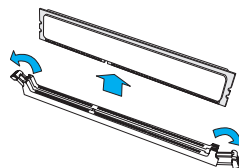


5. Push both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.



DIMM Removal

Press both release tabs on the ends of the DIMM module to unlock it. Once the DIMM module is loosened, remove it from the memory slot.



Warning! Please do not use excessive force when pressing the release tabs on the ends of the DIMM socket to avoid causing any damage to the DIMM module or the DIMM socket. Please handle DIMM modules with care. Carefully follow all the instructions given on Page 1 of this chapter to avoid ESD-related damages done to your memory modules or components.