

Advantech AE Technical Share Document

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Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	N/A
Abstract	Memory Support on Alder Lake and Raptor Lake Platforms		
Keyword	DDR5, Memory, DIMM, 5600 MT/s, 5200 MT/s, 4800 MT/s, 4400 MT/s		
Related Product	ASMB-788, ASMB-588, ASMB-610V3		

Problem Description:

We've met several customer who queried about the memory support for 5600 MT/s, 5200 MT/s, 4800 MT/s, 4400 MT/s, and 4000 MT/s on ASMB-788, ASMB-588, and ASMB-610V3 motherboards. This document indicates how to select compatible memory configuration with correct frequency support.

Memory Configurations with Different Frequency:

Below table from Intel datasheet indicates DDR support matrix table for Alder Lake and Raptor Lake platform. We uses 2DPC (2 DIMM Per Channel) design for ASMB-788, ASMB-588, and ASMB-610V3 motherboards.

5.0 Memory								
5.1 System Memory Interface								
5.1.1 Processor SKU Support Matrix								
Table 30. DDR Support Matrix Table								
Processor	Technology	DDR4		DDR5 ¹⁷		LPDDR4x	LPDDR5 ¹³	LPDDR5x ¹³
RPL	Processor Lines	S / H / HX / P / U	S / HX	S / H / HX / P / U	S / HX	H / P / U	H / P / U / PX	H / P / U / PX
	Configuration	1DPC	2DPC ^{9,11}	1DPC ¹⁵	2DPC ^{7,9,11}	1R/2R	1R/2R	1R/2R
	Maximum Frequency [MT/s]	S: UDIMM 3200 S / HX / H / P / U: SoDIM M 3200	S: UDIMM 3200 HX : SoDIM M 3200	S/HX SoDIM M: 1R: 5600 2R: 5200 H/P/U SoDIM M: 1R: 5200 2R: 5200 S : UDIMM 1R: 5600 2R: 5200	S UDIMM: 1 DIMM - 4400 2 DIMMs 1R - 4000 2 DIMMs 2R - 3600 HX SoDIMM: 1 DIMM - 4000 2 DIMMs 1R - 4000 2 DIMMs 2R - 3600	4266	H/P/U Type4: 1R: 6400 2R: 6000 H/P/U Type3 ¹⁸ : 1R: 4800 2R: 4800 PX Type4: 1R: 6400 2R: 6000 ¹⁴	H/P/U Type4: 1R: 6400 2R: 6000 H/P/U Type3 ¹⁸ : 1R: 4800 2R: 4800 PX Type4: 1R: 6400 2R: 6000 ¹⁴

4800 MT/s or Higher

Only available for motherboard with 1DPC design, which is NOT supported.

4400 MT/s

Maximum frequency can be supported when installing 1 DIMM per channel, total 2 DIMMs installed on DIMMA1 & DIMMB1 slots.

4000 MT/s

Maximum frequency can be supported when installing 2 x 1R DIMM per channel, total 4 DIMMs on motherboard.

3600 MT/s

Maximum frequency can be supported when installing 2 x 2R DIMM per channel, total 4 DIMMs on motherboard.