



LPDDR4/x SDRAM

Validation Results

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LPDDR4/x SDRAM Validation Results

Listed below are validation results from a small sample of LPDDR4/x SDRAMs tested on Intel client reference platforms (DRAM down testing). We are providing this information as a guide to memory compatibility with Intel reference platforms and in-accordance to Intel platform memory POR (Plan of Record). This testing is not intended to replace the normal OEM component qualification process. For test results on specific Intel motherboards refer to Intel Client Customer Enabling support. For test results on OEM production motherboards, please refer to the OEM's list of qualified memory suppliers.



LPDDR4-3733/4266 (200 ball) tested on ATE at native frequency and downbinned to 2400 Mbps at the platform (1.1V).

DRAM Supplier	DRAM Part Number	Rated Speedbin	PKG Size	Die per Ch	Ranks per Ch	PKG Stacking	PKG Width	Die Rev	Date Code
Micron	MT53B256M32D1NP-053 WT:C	3733 Mbps	8 Gb (1 GB)	4 Gb x16	1R	DDP	x32	C	1650
Micron	MT53E512M32D2NP-046 WT:E	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	E	1828
Micron	MT53E1G32D4NQ-046 WT:E	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	E	1912
Samsung	K4F8E3S4HD-MGCL	4266 Mbps	8 Gb (1 GB)	4 Gb x16	1R	DDP	x32	D	1919
Samsung	K4F6E3S4HM-MGCJ	3733 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	M	1734
Samsung	K4FBE3D4HM-MGCJ	3733 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	M	1737
SK Hynix	H9HCNNN8KUMLHR-NME	3733 Mbps	8 Gb (1 GB)	4 Gb x16	1R	DDP	x32	M	1835
SK Hynix	H9HCNNNBPUMLHR-NME	3733 Mbps	16 Gb (2 GB)	4 Gb x16	2R	QDP	x32	M	1834
Nanya	NT6AN256T32AV-J2	3733 Mbps	8 Gb (1 GB)	4 Gb x16	1R	DDP	x32	A	1947
Nanya	NT6AN512T32AV-J2	3733 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	A	2021

LPDDR4-3733/4266 (200 ball) tested on ATE at native frequency and downbinned to 3733 Mbps at the platform (1.1V).

DRAM Supplier	DRAM Part Number	Rated Speedbin	PKG Size	Die per Ch	Ranks per Ch	PKG Stacking	PKG Width	Die Rev	Date Code
Micron	MT53E1G32D4NQ-046 WT:E	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	E	1912
Micron	MT53E512M32D2NP-046 WT:E	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	E	1828
Samsung	K4F6E3S4HM-MGCJ	3733 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	M	1734

LPDDR4x-3733/4266 (200 ball) tested on ATE at native frequency and downbinned to 3733 Mbps at the platform (0.6V).

DRAM Supplier	DRAM Part Number	Rated Speedbin	PKG Size	Die per Ch	Ranks per Ch	PKG Stacking	PKG Width	Die Rev	Date Code
Micron	MT53E512M32D2NP-046 WT:E	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	E	1828
Micron	MT53E1G32D4NQ-046 WT:E	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	E	1744
Micron	MT53E512M32D2NP-046 WT:F	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	F	1926
Micron	MT53E1G32D4NQ-046 WT:F	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	F	2008
Micron	MT53E2G32D8QD-046 WT:E	4266 Mbps	64 Gb (8 GB)	8 Gb x8	2R	ODP	x32	E	1740
Samsung	K4U6E3S4AA-MGCL	3733 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	A	1901
Samsung	K4UBE3D4AA-MGCL	3733 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	A	1922
SK Hynix	H9HCNNNBKMLHR-NEE	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	A	1836
SK Hynix	H9HCNNNCPMALHR-NEE	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	A	1836
SK Hynix	H9HCNNNFAMALTR-NME	3733 Mbps	64 Gb (8 GB)	8 Gb x8	2R	ODP	x32	A	1823
SK Hynix	H9HCNNNBKMLXR-NEE	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	M	2027
SK Hynix	H9HCNNNCPMMLXR-NEE	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	M	2025



DRAM Supplier	DRAM Part Number	Rated Speedbin	PKG Size	Die per Ch	Ranks per Ch	PKG Stacking	PKG Width	Die Rev	Date Code
SK Hynix	H9HCNNNFAMMLXR-NEE	4266 Mbps	64 Gb (8 GB)	8 Gb x8	2R	ODP	x32	M	2025
Nanya	NT6AP256T32AV-J1	4266 Mbps	8 Gb (1 GB)	4 Gb x16	1R	DDP	x32	A	2032

LPDDR4x-4266 (200 ball) tested on ATE and platform at native frequency (0.6V).

DRAM Supplier	DRAM Part Number	Rated Speedbin	PKG Size	Die per Ch	Ranks per Ch	PKG Stacking	PKG Width	Die Rev	Date Code
Micron	MT53E512M32D2NP-046 WT:E	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	E	1938
Micron	MT53E512M32D2NP-046 WT:F	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	F	1926
Micron	MT53E1G32D4NQ-046 WT:E	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	E	1942
Micron	MT53E1G32D4NQ-046 WT:F	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	F	2008
Micron	MT53E1G32D2NP-046 WT:A	4266 Mbps	32 Gb (4 GB)	16 Gb x16	1R	DDP	x32	A	2008
Micron	MT53E2G32D4NQ-046 WT:A	4266 Mbps	64 Gb (8 GB)	16 Gb x16	2R	QDP	x32	A	1938
Micron	MT53E2G32D8QD-046 WT:E	4266 Mbps	64 Gb (8 GB)	8 Gb x8	2R	ODP	x32	E	1928
Samsung	K4U6E3S4AA-MGCR	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	A	2019
Samsung	K4UBE3D4AA-MGCR	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	A	2019
Samsung	K4UBE3S4AM-MGCL	4266 Mbps	32 Gb (4 GB)	16 Gb x16	1R	DDP	x32	A	2043
SK Hynix	H9HCNNNBKMLXR-NEE	4266 Mbps	16 Gb (2 GB)	8 Gb x16	1R	DDP	x32	M	2027
SK Hynix	H9HCNNNPCMMLXR-NEE	4266 Mbps	32 Gb (4 GB)	8 Gb x16	2R	QDP	x32	M	2025
SK Hynix	H9HCNNNFAMMLXR-NEE	4266 Mbps	64 Gb (8 GB)	8 Gb x8	2R	ODP	x32	M	2025

LPDDR4x-3733/4266 (432 ball) tested on ATE at native frequency (0.6V).

DRAM Supplier	DRAM Part Number	Rated Speedbin	PKG Size	Die per Ch	Ranks Per Ch	PKG Stacking	PKG Width	Die Rev	Date Code
Micron	MT53E512M64D4NW-046 WT:E	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	E	1742
Micron	MT53E1G64D8NW-046 WT:E	4266 Mbps	64 Gb (8 GB)	8 Gb x16	2R	ODP	x64	E	1748
Micron	MT53D512M64D4NW-046 WT:F	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	F	1944
Micron	MT53D1G64D4NW-046 WT:A	4266 Mbps	64 Gb (8 GB)	16 Gb x16	1R	QDP	x64	A	2002
Samsung	K3UH5H50AM-JGCL	3733 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	A	1907
Samsung	K3UH7H70AM-JGCL	3733 Mbps	64 Gb (8 GB)	8 Gb x16	2R	ODP	x64	A	1922
Samsung	K3UH5H50AM-JGCR	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	A	2022
Samsung	K3UH7H70AM-JGCR	4266 Mbps	64 Gb (8 GB)	8 Gb x16	2R	ODP	x64	A	2022
SK Hynix	H9HCNNNFMBLPR-NEE	4266 Mbps	64 Gb (8 GB)	8 Gb x16	2R	ODP	x64	B	1944
SK Hynix	H9HCNNNCRMBLPR-NEE	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	B	2026



LPDDR4x-4266 (556 ball) tested on ATE and platform at native frequency (0.6V).

DRAM Supplier	DRAM Part Number	Rated Speedbin	PKG Size	Die per Ch	Ranks per Ch	PKG Stacking	PKG Width	Die Rev	Date Code
Micron	MT53D1G64D8SQ-046 WT:E	4266 Mbps	64 Gb (8 GB)	8 Gb x16	2R	ODP	x64	E	1934
Micron	MT53D512M64D4RQ-046 WT:E	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	E	1850
Micron	MT53E1G64D4SQ-046 WT:A	4266 Mbps	64 Gb (8 GB)	16 Gb x16	1R	QDP	x64	A	1948
Micron	MT53E512M64D4RQ-046 WT:F	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	F	2022
Micron	MT53E1G64D8SQ-046 WT:F	4266 Mbps	64 Gb (8 GB)	8 Gb x16	2R	ODP	x64	F	2024
SK Hynix	H9HKNNNCRMBVAR-NEH	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	B	2001
SK Hynix	H9HKNNNFBMAVAR-NEH	4266 Mbps	64 Gb (8 GB)	8 Gb x16	2R	ODP	x64	A	2031
Samsung	K3UH5H50AM-AGCL	4266 Mbps	32 Gb (4 GB)	8 Gb x16	1R	QDP	x64	A	2016

Approved Test Labs

The following test labs have the capability of performing ATE and system-level validation testing:

Advanced Validation Labs

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