

**DDR4 2133 Qualified Vendors List (QVL)**

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
SAMSUNG	M378A5143DB0--CPB	4G	SS	SEC 428	K4A4G085WD	13-13-13-33	1.5V	•	•	•
SAMSUNG	M378A1G43DB0--CPB	8G	DS	SEC 428	K4A4G085WD	13-13-13-33	1.5V	•	•	•
G.SKILL	F4-2133C15Q-32GRK	8G	DS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
G.SKILL	F4-2133C15Q-16GRB	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
GLOWAY	PC4-17000	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
KINGSTON	HX421C13PBK4/16	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
KINGSTON	HX421C14FB/8	8G	DS	N/A	Heat-Sink Package	14-14-14-35	1.2V	•	•	•
KINGSTON	HX421C14FBK4/32	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
PANRAM	PUD42133C138G4NJW	8G	DS	N/A	Heat-Sink Package	13-13-13-35	1.2V	•	•	•
PANRAM	PUD42133C134G4NJW	4G	SS	N/A	Heat-Sink Package	13-13-13-35	1.2V	•	•	•
CORSAIR	CMK16GX4M4A2133C15	4G	SS	N/A	Heat-Sink Package	15-15-15-36	1.2V	•	•	•
CORSAIR	CMV4GX4M1A2133C15	4G	SS	N/A	4GA7229RGR	13-13-34-33	1.5V	•	•	•
CORSAIR	CMV8GX4M1A2133C15	8G	DS	SEC 446	K4A4G085WD	13-13-13-33	1.5V	•	•	•
CRUCIAL	MTA8ATF51264A2-ZG1A1	4G	SS	MICRON	4QA77D9RCQ	13-13-13-33	1.2V	•	•	•
TEAM	TED48GM2133C15BK	8G	DS	SEC	K4A4G085WD	15-15-15-36	1.2V	•	•	•
TEAM	TED44GM2133C15BK	4G	SS	SEC 443	K4A4G085WD	15-15-15-36	1.2V	•	•	•
APACER	78.C1GM3.AF10B	8G	DS	SK HYNIX	H5AN4G8NMFR	14-14-14-33	1.5V	•	•	•
APACER	AU04GGB13CDTBGC	4G	SS	SK HYNIX	H5AN4G8NMFR	14-14-14-33	1.5V	•	•	•
TEKISM	T4U2133B8G15-SAD	8G	DS	SEC 446	K4A4G085WD			•	•	•
KINGSTON	KVR21N15S8/4	4G	SS	SK HYNIX	H5AN4G8NMFR		1.2V	•	•	•
KINGSTON	KVR21N15D8/8	8G	DS	SK HYNIX	H5AN4G8NMFR		1.2V	•	•	•
CENTURY	PX4-17000	8G	DS	SK HYNIX	H5AN4G8NMFR			•	•	•
KINGSTON	KVR21N15S8/4	4G	SS	SK HYNIX	H5AN4G8NMFR		1.2V	•	•	•
KINGSTON	KVR21N15D8/8	8G	DS	SK HYNIX	H5AN4G8NMFR		1.2V	•	•	•
KINGSTON	HX421C14FB/8	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
CENTURY	PX4-17000	8G	DS	SK HYNIX	H5AN4G8NMFR			•	•	•
APACER	AHU08GGB13CGT7G	8G	DS	N/A	N/A			•	•	•
KINGSTON	KVR21N15S8/4	4G	SS	SK HYNIX	H5AN4G8NMFR		1.2V	•	•	•
KINGSTON	KVR21N15D8/8	8G	DS	SK HYNIX	H5AN4G8NMFR		1.2V	•	•	•
KINGSTON	HX421C14FB/8	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
CENTURY	PX4-17000	8G	DS	SK HYNIX	H5AN4G8NMFR			•	•	•
APACER	AHU08GGB13CGT7G	8G	DS	N/A	N/A			•	•	•
KINGSTON	HX421C13SBK4/16	16GB (4x 4G)	SS	N/A	Heat-Sink Package	15-15-15-36	1.2V	•	•	•
KINGSTON	KVR21N15D8/8	8G	DS	SK HYNIX	H5AN4G8NAFR	15-15-15-36	1.2V	•	•	•
GALAXY	GAM4DBLBM2133D15IE041C	4G	DS	N/A	Heat-Sink Package	15-15-15-36	1.2V	•	•	•
Silicon Power	SP004GBLFU213N02	4G	SS	SP	4N4083HMBS S1543X	15-15-15-36	1.2V	•	•	•
GALAXY	GAM4DBLBM213315IE081C	8G	DS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
AVEXIR	AVD4U21331508G-1COB	8G	DS	N/A	Heat-Sink Package	15-15-15-36	1.2V	•	•	•
TEAM	T4D4C10S61163	4G	DS	SEC 446	K4A4G085WD	15-15-15-36	1.2V	•	•	•
TEAM	TED48GM2133C15BK	8G	DS	SK HYNIX	H5AN4G8NMFR	15-15-15-36	1.2V	•	•	•
CUSO	PC4-17000	8G	SS	CUSO	512X8DDR4	15-15-15-35	1.2V	•	•	•
ADATA	AD4U2133W8G15-B	128GB( 16x 8G)	DS	SK HYNIX	H5AN4G8NAFR			•	•	•
CORSAIR	CMK16GX4M4A2133C13	16GB (4GB*4)	SS	N/A	Heat-Sink Package	13-15-15-28	1.2V	•	•	•
GEIL	GPR48GB2133C15DC	8GB (4GB*2)	SS	N/A	Heat-Sink Package	15-15-15-36	1.2V	•	•	•
ADATA	AX4U2133W4G15-ORZ	16GB (4GB*4)	SS	N/A	Heat-Sink Package	15-15-15	1.2V	•	•	•
CRUCIAL	CT8G4DFD8213.16FA11	32GB (8GB*4)	DS	MICRO	5CA77D9RGQ		1.2V	•	•	•
KINGSTON	KVR21E15S8/4	4GB	SS	SK HYNIX	H5AN4G8NAFR		1.2V	•	•	•
G.SKILL	F4-2133C15S-4GNT	4G	SS	G.SKILL	D4 512M8GE15	15-15-15-35	1.2V	•	•	•
TEAM	TPAD44G2133HC15BK	4G	SS	N/A	Heat-Sink Package	15-15-15-36	1.2V	•	•	•
APACER	AHU08GGB13CGT7G	8G	DS	N/A	Heat-Sink Package			•	•	•
ASINT	SLB404G08-CCN2B 1615	8G	DS	SK HYNIX	H5AN4G8NMFR			•	•	•
PATRIOT	PSD48G21332	8G	DS	PAIROT	PM512M8D4BU-083			•	•	•
APACER	AU08GGB13CDTBGC	8G	DS	APACER	AM6F6008THSA11550F			•	•	•
SAMSUNG	M378A1K43BB1-CPB	8G	SS	SEC 610	K4A8G085WBBCPB			•	•	•
KINGSTON	HX421C14FBK2/8	8GB (4GB*2)	SS	N/A	Heat-Sink Package		1.2V	•	•	•
KINGSTON	HX421C14FB/4	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•

**DDR4 2400 Qualified Vendors List (QVL)**

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
ADATA	AX4U2400W8G16-DRZ	8G	DS	N/A	Heat-Sink Package	16-16-16	1.2V	•	•	•
G.SKILL	F4-2400C15Q-32GRB	8G	DS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
G.SKILL	F4-2400C14Q2-128GRK	16G	DS	N/A	Heat-Sink Package	14-14-14-34	1.2V	•	•	•
G.SKILL	F4-2400C14Q-16GRK	4G	SS	N/A	Heat-Sink Package	14-14-14-34	1.2V	•	•	•
G.SKILL	F4-2400C15Q-16GRR	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
PATRIOT	PX416G240C5QK	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
GLOWAY	PC4-19200	4G	SS	GLOWAY	512X8DDR4	16-16-16-35	1.2V	•	•	•
TEAM	TED44GM2400C16BK	4G	SS	SEC 437	K4A4G085WD	16-16-16-39	1.2V	•	•	•
TEAM	TED48GM2400C16BK	8G	DS	SEC 443	K4A4G085WD	16-16-16-39	1.2V	•	•	•
PANRAM	PUD42400C154G4NJW	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
PANRAM	PUD42400C158G4NJW	8G	DS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
CORSAIR	CMK32GX4M4A2400C14	8G	DS	N/A	Heat-Sink Package	14-16-16-31	1.2V	•	•	•
CRUCIAL	BLS4K4G4D240FSA	4G	SS	N/A	Heat-Sink Package	16-16-16-39	1.2V	•	•	•
ADATA	AX4U2400W4G16-DRZ	4G	SS	N/A	Heat-Sink Package	16-16-16	1.2V	•	•	•
GEIL	GPR416GB2400C15QC	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
KINGSTON	HX424C15FBK4/32	8G	DS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
KINGSTON	HX424C15FBK4/16	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
APACER	78.C1GMA.AF30B	8G	DS	SK HYNIX	H5AN4G8NMFR	16-16-16-36	1.2V	•	•	•
APACER	78.B1GMA.AF20B	4G	SS	SK HYNIX	H5AN4G8NMFR	16-16-16-36	1.2V	•	•	•
AVEXIR	AVD4UZ124001608G-4COR	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ124001604G-4COB	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ124001608G-4COR	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ124001604G-4COB	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
TEAM	TED48G2400C16BK	8G	DS	TEAM	T4D5128HT-24	16-16-16-39	1.2V	•	•	•
KINGSTON	HX424C12PBK4/32	8G	DS	N/A	Heat-Sink Package		1.35V	•	•	•
CUSO	PC4-19200	8G	SS	CUSO	512X8DDR4	16-16-16-35	1.2V	•	•	•
G.SKILL	F4-2400C15Q-32GRR	8G	DS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
CORSAIR	CMD32GX4M4A2400C14	8G	DS	N/A	Heat-Sink Package	14-16-16-31	1.2V	•	•	•
AMD	R748G2400U2S	8G	DS	N/A	Heat-Sink Package	15-15-15-36	1.2V	•	•	•
KINGSTON	HX424C12SB2K4/16	16GB (4x 4G)	SS	N/A	Heat-Sink Package		1.2V	•	•	•
KINGSTON	HX424C12SB2K4/32	32GB (4x 8G)	DS	N/A	Heat-Sink Package		1.35V	•	•	•
KINGSTON	HX424C15FBK2/16	16GB (2x 8G)	DS	N/A	Heat-Sink Package		1.2V	•	•	•
GALAXY	GAM4BXLBS240016JE164C	16GB (4x 4G)	SS	N/A	Heat-Sink Package	16-16-16-36	1.2V	•	•	•
APACER	AH08GGB24CDT5H	16GB (2x 8G)	DS	N/A	Heat-Sink Package	16-16-16-36		•	•	•
CORSAIR	CMK8GX4M2A2400C14	8GB (2x 4G)	SS	N/A	Heat-Sink Package	14-16-16-31	1.2V	•	•	•
PNY	MD16GK2D4240015AB	16GB (8GB*2)	DS	N/A	Heat-Sink Package		1.2V	•	•	•
V-COLOR	TD8G16C16-UHK	16GB (8GB*2)	DS	N/A	Heat-Sink Package	16-16-16-35	1.2V	•	•	•

G.SKILL	F4-2400C15D-169GVR	16GB (8GB*2)	DS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
APACER	AHU08GGB24CDT7G	8G	DS	N/A	Heat-Sink Package	16-16-16-36		•	•	•
CORSAIR	CM4X8GE2400C14K4-CN	8G	DS	N/A	Heat-Sink Package	14-16-16-31	1.2V	•	•	•
PATRIOT	PV416G240C5QK	16GB (4GB*4)	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
PATRIOT	PSD44G240081	4G	SS	PAIROT	PM512M8D4BU-083			•	•	•
PATRIOT	PSD48G240002	8G	DS	PAIROT	1621JB5454512X8DDR4			•	•	•
GOMOS	GRR-D4-2400-8GB	8G	SS	GOMOS	GD4N8G8F-UH			•	•	•
GEIL	DDR48GB2400C16QC	8G	SS	GEIL	1GX8DDR4 HL 1612	16-16-16-36	1.2V	•	•	•
CORSAIR	CM4X8GE2400C16K4-CN	8G	DS	N/A	Heat-Sink Package	16-16-16-39	1.2V	•	•	•
AVEXIR	AVD4U24001608G-1BW	8G	DS	N/A	512X8DDR4		1.2V	•	•	•
APACER	AU08GGB24CETBGC	8G	DS	APACER	AM6F60080THSB21550F			•	•	•

#### DDR4 2666 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
CORSAIR	CMK16GX4M4A2666C16	4G	SS	N/A	Heat-Sink Package	16-16-18-35	1.2V	•	•	•
CORSAIR	CMD32GX4M4A2666C15(Ver5.29)	8G	DS	N/A	Heat-Sink Package	15-17-17-35	1.2V	•	•	•
CORSAIR	CMD128GX4MM8A2666C15	16G	DS	N/A	Heat-Sink Package	15-18-18-35	1.2V	•	•	•
CRUCIAL	BLE4G4D26AFE.8FAD	8G	SS	N/A	Heat-Sink Package	16-16-17-36	1.2V	•	•	•
CRUCIAL	BLE8G4D26AFE.16FAD	16G	DS	N/A	Heat-Sink Package	16-16-17-36	1.2V	•	•	•
G.SKILL	F4-2666C15Q-16GRR	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
PATRIOT	PX416G266C5QK	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
G.SKILL	F4-2666C16Q2-64GRB	8G	DS	N/A	Heat-Sink Package	16-16-16-36	1.2V	•	•	•
TEAM	TCD48G2666C15ABK	8G	DS	SK HYNIX	H5AN4G8NMFR	15-15-15-35	1.2V	•	•	•
TEAM	TCD44G2666C15ABK	4G	SS	SEC 443	K4A4G085WD	15-15-15-35	1.2V	•	•	•
MUSHKIN	997192F	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
KINGSTON	HX426C13PBK4/32	8G	DS	N/A	Heat-Sink Package	13-14-14-39	1.35V	•	•	•
KINGSTON	HX426C15FBK4/32	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
KINGSTON	HX426C15FBK4/16	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
CRUCIAL	BLE4G4D26AFE.8FAD	8G	SS	N/A	Heat-Sink Package	16-16-17-36	1.2V	•	•	•
CRUCIAL	BLE8G4D26AFE.16FAD	8G	DS	N/A	Heat-Sink Package	16-16-17-36	1.2V	•	•	•
CRUCIAL	BLT4G4D26AFTA.8FADG	4G	SS	N/A	Heat-Sink Package	16-17-17-36	1.2V	•	•	•
CRUCIAL	BLT8G4D26AFTA.16FAD	8G	DS	N/A	Heat-Sink Package	16-17-17-36	1.2V	•	•	•
AVEXIR	AVD4UZ126661504G-4COB	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ126661508G-4COB	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
CRUCIAL	BLE4G4D26AFE.8FAD	8G	SS	N/A	Heat-Sink Package	16-16-17-36	1.2V	•	•	•
CRUCIAL	BLE8G4D26AFE.16FAD	8G	DS	N/A	Heat-Sink Package	16-16-17-36	1.2V	•	•	•
CRUCIAL	BLT4G4D26AFTA.8FADG	4G	SS	N/A	Heat-Sink Package	16-17-17-36	1.2V	•	•	•
CRUCIAL	BLT8G4D26AFTA.16FAD	8G	DS	N/A	Heat-Sink Package	16-17-17-36	1.2V	•	•	•
AVEXIR	AVD4UZ126661504G-4COB	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ126661508G-4COB	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
KINGSTON	HX426C13SB2K4/32	32GB (4x 8G)	DS	N/A	Heat-Sink Package	15-15-15-36	1.35V	•	•	•
TEAM	TCD48G2666C15ABK	8G	SS	TEAM	T4D10248HT-266	15-15-15-35	1.2V	•	•	•
PATRIOT	PV416G266C5QK	16GB (4GB*4)	SS	N/A	Heat-Sink Package	15-15-15-35	1.2V	•	•	•
PNY	MD16GK4D4266615AXR	16GB (4GB*4)	SS	N/A	Heat-Sink Package		1.2V	•	•	•

#### DDR4 2800 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
CORSAIR	CMK16GX4M4A2800C16	4G	SS	N/A	Heat-Sink Package	16-18-18-36	1.2V	•	•	•
G.SKILL	HX428C14PB2K4/16	4G	SS	N/A	Heat-Sink Package		1.35V	•	•	•
G.SKILL	F4-2800C6Q-16GRK	4G	SS	N/A	Heat-Sink Package	16-16-16-36	1.2V	•	•	•
PATRIOT	PX416G280C6QK	4G	SS	N/A	Heat-Sink Package	16-18-18-36	1.2V	•	•	•
GLOWAY	PC4-22400	4G	SS	SK HYNIX	H5AN4G8NMFR	16-16-16-36	1.2V	•	•	•
PANRAM	PUD42800C164G4NJW	4G	SS	N/A	Heat-Sink Package	16-18-18-36	1.25V	•	•	•
MUSHKIN	994207F	4G	SS	N/A	Heat-Sink Package	16-16-16-36	1.2V	•	•	•
KINGSTON	HX428C14PBK/32	8G	DS	N/A	Heat-Sink Package	14-15-15-39	1.35V	•	•	•
AVEXIR	AVD4UZ128001604G-4COB	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ128001608G-4COB	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ128001604G-4COB	4G	SS	N/A	Heat-Sink Package		1.2V	•	•	•
AVEXIR	AVD4UZ128001608G-4COB	8G	DS	N/A	Heat-Sink Package		1.2V	•	•	•
CORSAIR	CMK32GX4M4A2800C16	32GB (4x 8G)	DS	N/A	Heat-Sink Package	16-18-18-36	1.2V	•	•	•
KINGSTON	HX428C14SB2K4/32	32GB (4x 8G)	DS	N/A	Heat-Sink Package	15-15-15-36	1.35V	•	•	•
TEAM	TGDED48G2800HC16ABK	16GB (8GB*2)	SS	N/A	Heat-Sink Package	16-16-16-36	1.2V	•	•	•

#### DDR4 3000 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
KINGSTON	HX430C15PB2K4/16	4G	SS	N/A	Heat-Sink Package		1.35V	•	•	•
KINGSTON	HX430C15PB2K4/16	4G	SS	N/A	Heat-Sink Package		1.35V	•	•	•
G.SKILL	F4-3000C15Q-16GRR	4G	SS	N/A	Heat-Sink Package	15-15-15-35	1.35V	•	•	•
TEAM	TCD48G3000C16ABK	8G	DS	TEAM	T4D5128HT-30	16-16-16-36	1.35V	•	•	•
TEAM	TCD44G3000C16ABK	4G	SS	TEAM	T4D5128HT-30	16-16-16-36	1.35V	•	•	•
PANRAM	PUD43000C154G4NJW	4G	SS	N/A	Heat-Sink Package	15-17-17-35	1.35V	•	•	•
KINGSTON	HX430C15PBK4/32	8G	DS	N/A	Heat-Sink Package	15-16-16-39	1.35V	•	•	•
AVEXIR	AVD4UZ130001604G-4COB	4G	SS	N/A	Heat-Sink Package		1.35V	•	•	•
AVEXIR	AVD4UZ130001608G-4COB	8G	DS	N/A	Heat-Sink Package		1.35V	•	•	•
AVEXIR	AVD4UZ130001604G-4COB	4G	SS	N/A	Heat-Sink Package		1.35V	•	•	•
AVEXIR	AVD4UZ130001608G-4COB	8G	DS	N/A	Heat-Sink Package		1.35V	•	•	•
CORSAIR	CMD32GX4M2B3000C15	32GB (2x 16G)	DS	N/A	Heat-Sink Package	15-17-17-35	1.35V	•	•	•
KINGSTON	HX430C15SB2K4/32	32GB (4x 8G)	DS	N/A	Heat-Sink Package	15-15-15-36	1.35V	•	•	•
TEAM	TCD48G3000C15ABK	8G	DS	SK HYNIX	H5AN4G8NMFR	15-15-15-35	1.35V	•	•	•
KEVV	IM44GU48A30-GIHMHC	16GB (4x 4G)	SS	N/A	Heat-Sink Package	16-18-18	1.35V	•	•	•
CORSAIR	CMK16GX4M2B3000C15	16GB (2x 8G)	DS	N/A	Heat-Sink Package	15-17-17-35	1.35V	•	•	•
KINGSTON	HX430C15SB2K4/16	16GB (4x 4G)	SS	N/A	Heat-Sink Package	15-15-15-36	1.35V	•	•	•
TEAM	TGDED48G3000HC16ABK	16GB (8GB*2)	DS	N/A	Heat-Sink Package	16-16-16-36	1.35V	•	•	•
G.SKILL	F4-3000C15D-32GVR	32GB (16GB*2)	DS	N/A	Heat-Sink Package	15-15-15-35	1.35V	•	•	•

#### DDR4 3200 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
PANRAM	PUD43200C164G4NJW	4G	SS	N/A	Heat-Sink Package	16-18-18-39	1.35V	•	•	•
MUSHKIN	997202F	4G	SS	N/A	Heat-Sink Package	16-16-16-36	1.35V	•	•	•
G.SKILL	F4-3200C16D-8GVKB	8GB (2x 4G)	SS	N/A	Heat-Sink Package	16-18-18-38	1.35V	•	•	•
APACER	78.BAGMD.AF20B	8GB (4GB*2)	SS	N/A	Heat-Sink Package	16-16-16-36		•	•	•
PATRIOT	PV48G320C6K	8GB (4GB*2)	SS	N/A	Heat-Sink Package		1.35V	•	•	•

#### DDR4 3300 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM

<b>G.SKILL</b>	F4-3300C16Q-16GRKD	4G	SS	N/A	Heat-Sink Package	16-16-16-36	1.35V	•	•	•
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#### DDR4 3333 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
<b>ADATA</b>	AX4U3333W4G16-QGZ	4G	SS	N/A	Heat-Sink Package	161-16-16	1.35V	•	•	•

#### DDR4 3400 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
<b>GEIL</b>	GLWR416GB3400C16AQC	4GB	SS	N/A	Heat-Sink Package	16-18-18-36	1.35V	•	•	•
<b>G.SKILL</b>	F4-3400C16Q-16GRBD	4G	SS	N/A	Heat-Sink Package	16-18-18-38	1.35V	•	•	•
<b>G.SKILL</b>	F4-3400C16D-16GVK	16GB (4x 8G)	DS	N/A	Heat-Sink Package	16-18-18-38	1.35V	•	•	•
<b>PATRIOT</b>	PV48G340C6K	8GB (4GB*2)	SS	N/A	Heat-Sink Package		1.35V	•	•	•

#### DDR4 3466 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
<b>G.SKILL</b>	F4-3466C16Q-16GVK	4G	SS	N/A	Heat-Sink Package	16-18-18-38	1.35V	•	•	•
<b>CORSAIR</b>	CMD16GX4M4B3466C18	4G	SS	N/A	Heat-Sink Package		1.35V	•	•	•
<b>CORSAIR</b>	CMD16GX4M4B3466C18	4G	SS	N/A	Heat-Sink Package		1.35V	•	•	•

#### DDR4 3600 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
<b>G.SKILL</b>	F4-3600-C17Q-16GVK	4G	SS	N/A	Heat-Sink Package	17-18-18-38	1.35V	•	•	•

#### DDR4 4000 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
<b>G.SKILL</b>	F4-4000C19D-8GTZ	8GB (2x 4G)	SS	N/A	Heat-Sink Package	19-21-21-41	1.35V	•	•	

#### DDR4 4133 Qualified Vendors List (QVL)

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)		
								1 DIMM	2 DIMM	4 DIMM
<b>GEIL</b>	GWW48GB4133C19DC	8GB (4GB*2)	SS	GEIL	CG4L512G88BA093AU	19-25-25-45	1.4V	•	•	•

#### 4 DIMM Slots

- **1 DIMM**: Supports one module inserted in any slot as Single-channel memory configuration
- **2 DIMM**: Supports one pair of modules inserted into either the **blue** slots or the **black** slots as one pair of Dual-channel memory configuration
- **4 DIMM**: Supports 4 modules inserted into both the **blue** and **black** slots as two pairs of Dual-channel memory configuration

\*Supports Intel® Extreme Memory Profile (XMP)

\*Due to Intel® chipset limitation, DDR4 2133 MHz and higher memory modules on XMP mode will run at the maximum transfer rate of DDR4 2133 Mhz.

\*The maximum memory frequency supported varies by processor

-When installing total memory of 4GB capacity or more, Windows 32-bit operation system may only recognize less than 3GB. Hence, a total installed memory of less than 3GB is recommended.

-It is recommended to install the memory modules from the **blue** slots for better overclocking capability.

-The default DIMM frequency depends on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value.