



DDR4 DRAM Module

Module Type	DDR4 UDIMM	DDR4 SODIMM	DDR4 ECC UDIMM	DDR4 ECC SODIMM
Speed	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s
Density	4GB, 8GB, 16GB, 32GB	2GB, 4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB	2GB, 4GB, 8GB, 16GB, 32GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	ECC Unbuffered Memory
Pin Number	288pin	260pin	288pin	260pin
Bus Width	x64	x64	x72	x72
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	1.23 Inches	1.18 Inches	1.23 Inches	1.18 Inches
Operating Temperature	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)

Module Type	DDR4 RDIMM	DDR4 UDIMM VLP	DDR4 SODIMM VLP	DDR4 ECC UDIMM VLP
Speed	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s
Density	4GB, 8GB, 16GB, 32GB, 64GB, 128GB	4GB, 8GB, 16GB	4GB, 8GB	4GB, 8GB, 16GB, 32GB
Function	Registered Memory with ECC	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory
Pin Number	288pin	288pin	260pin	288pin
Bus Width	x72	x64	x64	x72
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	1.23 Inches	0.738 Inches	0.7 Inches	0.738 Inches
Operating Temperature	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)

Module Type	DDR4 ECC SODIMM VLP	DDR4 Mini ECC VLP	DDR4 RDIMM VLP	DDR4 Mini RDIMM VLP
Speed	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	2133MT/s,2400 MT/s,2666MT/s
Density	4GB, 8GB	4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB	4GB, 8GB,16GB
Function	ECC Unbuffered Memory	ECC Unbuffered Memory	Registered Memory with ECC	Registered Memory with ECC
Pin Number	260pin	288pin	288pin	288pin
Bus Width	x72	x72	x72	x72
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	0.7 Inches	0.738 Inches	0.738 Inches	0.738 Inches
Operating Temperature	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)	0°C ~ 95°C (Tc)

Module Type	DDR4 XR-DIMM	DDR4 UDIMM WT	DDR4 SODIMM WT	DDR4 ECC UDIMM WT
Speed	2400 MT/s,2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 3200 MT/s
Density	8GB, 16GB	4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB
Function	ECC Unbuffered Memory	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory
Pin Number	300pin	288pin	260pin	288pin
Bus Width	x72	x64	x64	x72
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	1.18 Inches	1.23 Inches	1.18 Inches	1.23 Inches
Operating Temperature	0°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)

Module Type	DDR4 ECC SODIMM WT	DDR4 RDIMM WT	DDR4 UDIMM VLP WT	DDR4 ECC UDIMM VLP
Speed	2133 MT/s, 2400 MT/s, 2666 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 3200 MT/s	2400 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s
Density	4GB, 8GB, 16GB, 32GB	4GB, 8GB, 16GB, 32GB, 64GB, 128GB	8GB, 16GB	8GB, 16GB, 32GB
Function	ECC Unbuffered Memory	Registered Memory with ECC	Non-ECC Unbuffered Memory	ECC Unbuffered Memory
Pin Number	260pin	288pin	288pin	288pin
Bus Width	x72	x72	x64	x72
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	1.18 Inches	1.23 Inches	0.738 Inches	0.738 Inches
Operating Temperature	-40°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)

Module Type	DDR4 ECC SODIMM VLP WT	DDR4 RDIMM VLP WT	DDR4 Rugged DIMM
Speed	2133 MT/s, 2400 MT/s, 2666 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 3200 MT/s	2400 MT/s
Density	8GB	4GB, 8GB, 16GB, 32GB	16GB
Function	ECC Unbuffered Memory	Registered Memory with ECC	Non-ECC Unbuffered Memory
Pin Number	260pin	288pin	260pin
Bus Width	x72	x72	x64
Voltage	1.2V	1.2V	1.2V
PCB Height	0.7 Inches	0.738 Inches	1.18 Inches
Operating Temperature	-40°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)	-40°C ~ 95°C (Tc)

Module Type	DDR4 SODIMM Ultra Temperature	DDR4 ECC SODIMM Ultra Temperature
Speed	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s
Density	8GB, 16GB, 32GB	8GB, 16GB, 32GB
Function	Non-ECC Unbuffered Memory	ECC Unbuffered Memory
Pin Number	260pin	260pin
Bus Width	x64	x72
Voltage	1.2V	1.2V
PCB Height	1.18 Inches	1.18 Inches
Operating Temperature	-40°C ~ 125°C (Tc)	-40°C ~ 125°C (Tc)



DDR3 DRAM Module

Module Type	DDR3 UDIMM	DDR3 SODIMM	DDR3 ECC UDIMM	DDR3 ECC SODIMM	DDR3 RDIMM
Speed	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1333 MT/s, 1600 MT/s, 1866 MT/s
Density	2GB, 4GB, 8GB	1GB, 2GB, 4GB, 8GB	2GB, 4GB, 8GB	2GB, 4GB, 8GB	2GB, 4GB, 8GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	ECC Unbuffered Memory	Registered Memory with ECC
Pin Number	240pin	204pin	240pin	204pin	240pin
Bus Width	x64	x64	x72	x72	x72
Voltage	1.5V, 1.35V	1.5V, 1.35V	1.5V, 1.35V	1.5V, 1.35V	1.5V, 1.35V
PCB Height	1.18 Inches	1.18 Inches	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	0°C ~ 85°C	0°C ~ 85°C	0°C ~ 85°C	0°C ~ 85°C	0°C ~ 85°C

Module Type	DDR3 UDIMM WT	DDR3 SODIMM WT	DDR3 ECC UDIMM WT	DDR3 ECC SODIMM WT
Speed	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Density	2GB, 4GB, 8GB	2GB, 4GB, 8GB	2GB, 4GB, 8GB	2GB, 4GB, 8GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	ECC Unbuffered Memory
Pin Number	240pin	204pin	240pin	204pin
Bus Width	x64	x64	x72	x72
Voltage	1.5V, 1.35V	1.5V, 1.35V	1.5V, 1.35V	1.5V, 1.35V
PCB Height	1.18 Inches	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C

DDR2 DRAM Module

Module Type	DDR2 UDIMM	DDR2 SODIMM	DDR2 ECC UDIMM	DDR2 SODIMM WT
Speed	533 MT/s, 667 MT/s, 800 MT/s	533 MT/s, 667 MT/s, 800 MT/s	667 MT/s, 800 MT/s	533 MT/s, 667 MT/s, 800 MT/s
Density	1GB, 2GB	512MB, 1GB, 2GB	1GB, 2GB	1GB, 2GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Non-ECC Unbuffered Memory
Pin Number	240pin	200pin	240pin	200pin
Bus Width	x64	x64	x72	x64
Voltage	1.8V	1.8V	1.8V	1.8V
PCB Height	1.18 Inches	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	0°C ~ 85°C	0°C ~ 85°C	0°C ~ 85°C	-40°C ~ 85°C

DDR1 DRAM Module

Module Type	DDR1 UDIMM	DDR1 SODIMM
Speed	333 MT/s, 400 MT/s	333 MT/s, 400 MT/s
Density	512MB, 1GB	256MB, 512MB, 1GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory
Pin Number	184pin	200pin
Bus Width	x64	x64
Voltage	2.6V	2.6V
PCB Height	1.16 inches	1.25 Inches
Operating Temperature	0°C ~ 70°C	0°C ~ 70°C

SDRAM DRAM Module

Module Type	SDRAM SODIMM
Speed	100 MT/s, 133 MT/s
Density	128MB, 256MB, 512MB
Function	Non-ECC Unbuffered Memory
Pin Number	144pin
Bus Width	x64
Voltage	3.3V
PCB Height	1.25 Inches
Operating Temperature	0°C ~ 70°C