

DDR5 Module Part Numbering System

The part numbering system is available at www.micron.com/numbering

DDR5 SDRAM modules

MT = Micron Technology

Product Family
C = DDR5 SDRAM

Number of DRAM Die

Voltage
F = 12V (RDIMM)
C = 5V (SODIMM, SOEDIMM, CSODIMM, UDIMM, EUDIMM, CUDIMM)

Package Ranks
1 Rank
2 Ranks
3 Ranks
4 Ranks
8 Ranks

Logical Ranks (3DS or WB)
0 = None
2 = Total Logical Ranks
4 = Total Logical Ranks
8 = Total Logical Ranks
16 = Total Logical Ranks

Component Config
4 = x4
8 = x8
16 = x16

Module Density
3 = 8GB (2³³)
Z = 12GB (2^{32.5})
4 = 16GB (2³⁴)
Y = 24GB (2^{34.5})
5 = 32GB (2³⁵)
X = 48GB (2^{35.5})
6 = 64GB (2³⁶)
W = 96GB (2^{36.5})
7 = 128GB (2³⁷)
V = 192GB (2^{37.5})
8 = 256GB (2³⁸)
9 = 512GB (2³⁹)
A = 1024GB (2⁴⁰)
B = 2048GB (2⁴¹)
C = 4096GB (2⁴²)

Module Height
S = LP
D = VLP
H = 2U
L = 4U

Die-in-Package
1 = Single-Die
2 = Dual-Die
4 = Quad-Die
8 = Octal-Die

48B **A** **1** **T**

Printed Circuit Board Revision
Numeric = Production
Alpha = Engineering Sample

Die Revision (Part Mark Designator)

Final Pack Type - Optional - for CPG Distribution Parts Only

Mark	Shipment Packaging
R	Retail
T	Tray

DDR5 SDRAM Module Speed

Module Speed Bin (Part Mark)	Component JEDEC Speed Bin	Component Speed Grade	Module Clock Frequency (MHz)	Module Data Rate (MTPS)	CL-nRCD-nRP
32B	DDR5-3200B	PC5-3200	1600	3200	26-26-26
36B	DDR5-3600B	PC5-3600	1800	3600	30-30-30
40B	DDR5-4000B	PC5-4000	2000	4000	32-32-32
44B	DDR5-4400B	PC5-4400	2200	4400	36-36-36
48B	DDR5-4800B	PC5-4800	2400	4800	40-39-39
52B	DDR5-5200B	PC5-5200	2600	5200	42-42-42
56B	DDR5-5600B	PC5-5600	2800	5600	46-45-45
60B	DDR5-6000B	PC5-6000	3000	6000	48-48-48
64B	DDR5-6400B	PC5-6400	3200	6400	52-52-52
68B	DDR5-6800B	PC5-6800	3400	6800	56-56-56
72B	DDR5-7200B	PC5-7200	3600	7200	58-58-58
76B	DDR5-7600B	PC5-7600	3800	7600	62-61-61
80B	DDR5-8000B	PC5-8000	4000	8000	64-64-64
88B	DDR5-8800B	PC5-8800	4400	8800	72-71-71

Package Temperature Capability

Code	Definition
C	Commercial temp
I	Industrial temp
B	Extended temp

Module Type

CODE	DESCRIPTION
S	262-pin SODIMM X64
V	262-pin CSODIMM X64
T*	262-pin SOEDIMM X72
W*	262-pin CSODIMM X72
U	288-pin UDIMM X64
A	287-pin CUDIMM X64
E*	288-pin EUDIMM X72
B*	287-pin CUDIMM X72
R	288-pin/287-pin RDIMM X80
P	288-pin/287-pin RDIMM X72

* Die count increment of 10 (not 9)



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DDR4 Module Part Numbering System

The part numbering system is available at www.micron.com/numbering

DDR4 SDRAM modules

MT A 36 A SF 2G 72 P Z - 2G3 A 1 T

MT = Micron Technology
CC = Crucial & Components (Internal only)

Product Family
 A = DDR4 SDRAM

Number of Die

Voltage
 A = 1.2V

Module Options
 TF = FBGA w/out Temp Sensor
 TS = Dual-Die w/out Temp Sensor
 TQ = Quad-Die w/out Temp Sensor
 SF = FBGA w/Temp Sensor
 SS = Dual-Die w/Temp Sensor
 SQ = Quad-Die w/Temp Sensor
 SE = Octal-Die w/Temp Sensor
 DF = VLP w/Temp Sensor
 DS = VLP Dual-Die w/Temp Sensor
 DQ = VLP Quad-Die w/Temp Sensor
 LF = 4U height with temp sensor
 LS = 4U height Dual-Die with temp sensor
 LQ = 4U height Quad-Die with temp sensor
 LE = 4U height Octal-Die with temp sensor
 HF = 2U height with temp sensor
 HS = 2U height Dual-Die with temp sensor
 HQ = 2U height Quad-Die with temp sensor
 HE = 2U height Octal-Die with temp sensor
 SZF = FBGA w/Temp Sensor and Heat Spreader
 SZS = Dual-Die w/Temp Sensor and Heat Spreader
 SZQ = Quad-Die w/Temp Sensor and Heat Spreader
 SZE = Octal-Die w/Temp Sensor and Heat Spreader
 DZF = VLP w/Temp Sensor and Heat Spreader
 DZS = VLP Dual-Die w/Temp Sensor and Heat Spreader
 DZQ = VLP Quad-Die w/Temp Sensor and Heat Spreader

Module Configuration
 Depth, Width
 Blank = Megabits
 G = Gigabits

Final Pack Type - Optional - for CPG Distribution Parts Only

Mark	Shipment Packaging
R	Retail
T	Tray

Printed Circuit Board Revision

Die Revision (up to 2 characters)

DDR4 SDRAM Module Speed

Module Speed Grade	Component Speed Grade/Part Mark	Component Speed Bin	Clock Freq. (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration (CL-nRCD-nRP)
-2G1	-093E	DDR4-2133	1067	2133	PC4-2133	15-15-15
-2S1	-093H*	DDR4-2133	1067	2133	PC4-2133	18-15-15
-2G3	-083	DDR4-2400	1200	2400	PC4-2400	17-17-17
-2G4	-083E	DDR4-2400	1200	2400	PC4-2400	16-16-16
-2S3	-083H*	DDR4-2400	1200	2400	PC4-2400	20-18-18
-2S4	-083J*	DDR4-2400	1200	2400	PC4-2400	19-17-17
-2G6	-075	DDR4-2666	1333	2666	PC4-2666	19-19-19
-2S6	-075H*	DDR4-2666	1333	2666	PC4-2666	22-19-19
-2G7	-075E	DDR4-2666	1333	2666	PC4-2666	18-18-18
-2G9	-068	DDR4-2933	1467	2933	PC4-2933	21-21-21
-2S9	-068H*	DDR4-2933	1467	2933	PC4-2933	24-21-21
-3G2	-062E	DDR4-3200	1600	3200	PC4-3200	22-22-22
-3S2	-062H*	DDR4-3200	1600	3200	PC4-3200	26-22-22

SPD = serial presence-detect pin (module only)
 * Master Slave (MS)

Package Codes

Pb-Free Devices	Package Descriptions
Z	Commercial temp; Green; 1Rx8, 1Rx4, 2Rx4, 4Rx4, 8Rx4 RDIMM & LRDIMM
DZ	Commercial temp; Green; 2Rx8, 4Rx8, 8Rx8 RDIMM
IZ	Industrial temp, Green; 1Rx8, 1Rx4, 2Rx4, 4Rx4, 8Rx4 RDIMM & LRDIMM
BZ	Extended temp, Green; 1Rx8, 1Rx4, 2Rx4, 4Rx4, 8Rx4 RDIMM & LRDIMM
DBZ	Extended temp, Green; 2Rx8, 4Rx8, 8Rx8 RDIMM

Module Type

	TAB_COUNT	FORM_FACTOR	BUFFERED
A = 288-pin UDIMM (unbuffered)	288	UDIMM	FALSE
H = 260-pin SODIMM	260	SODIMM	FALSE
L = 288-pin LRDIMM	288	LRDIMM	TRUE
LS = 288-pin 3DS (M/S) LRDIMM	288	LRDIMM	TRUE
P = 288-pin RDIMM	288	RDIMM	TRUE
PS = 288-pin 3DS (M/S) RDIMM	288	RDIMM	TRUE
AK = 288-pin miniUDIMM (unbuffered)	288	MINIUDIMM	FALSE
PK = 288-pin miniRDIMM	288	MINIRDIMM	TRUE
N = 84-pin DDIMM	84	DDIMM	TRUE
X = 84-pin DDIMM (w/out registers)	84	DDIMM	FALSE

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DDR3 Module Part Numbering System

The part numbering system is available at www.micron.com/numbering

DDR3 SDRAM modules

Micron Technology MT 36 K SF

Number of Die 2G 72

Voltage
 J = 1.5V
 K = 1.35V
 M = 1.35V reduced standby

Module Options

TF = FBGA
 TS = DDP (dual die in package)
 SF = FBGA with temp sensor
 SS = DDP with temp sensor
 BF = VLP (17.9mm) with temp sensor
 BS = VLP (17.9mm) DDP with temp sensor
 DF = VLP (18.75mm) with temp sensor
 DS = VLP (18.75mm) DDP with temp sensor
 GF = 1.5U height FBGA with temp sensor
 GS = 1.5U height DDP with temp sensor
 HF = 2U height with temp sensor
 LF = 4U height with temp sensor
 SZF = FBGA with temp sensor and heat spreader
 SZS = DDP with temp sensor and heat spreader
 SZQ = QDP with temp sensor and heat spreader
 BZF = VLP (17.9mm) with temp sensor and heat spreader
 BZS = VLP (17.9mm) DDP with temp sensor and heat spreader
 DYS = VLP (18.75mm) DDP with temp sensor and alternate heat spreader
 DZF = VLP (18.75mm) with temp sensor and heat spreader
 DZS = VLP (18.75mm) DDP with temp sensor and heat spreader
 DZQ = VLP (18.75mm) QDP with temp sensor and heat spreader

Module Configuration
 Depth, Width
 Blank = Megabits
 G = Gigabits

Module Type
 Blank = 240-pin registered DIMM
 A = 240-pin unbuffered DIMM
 H = 204-pin SODIMM
 HS = 204-pin SODIMM (R/C G: standard layout)
 HR = 204-pin SODIMM (R/C H: reverse layout)
 P = 240-pin parity RDIMM
 L = 240-pin LRDIMM
 AK = 244-pin unbuffered miniDIMM
 PK = 244-pin parity miniRDIMM

Z - 1G6 E 1

Die Revision

Printed Circuit Board Revision

MB Vendor/Revision*
 *Applies to LRDIMM modules only

DDR3 SDRAM Module Speed						
Module Speed Grade	Component Speed Grade/Part Mark	JEDEC Component Speed Grade	Clock Freq. (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-nRCD-nRP)
-80B	-25	DDR3-800	400	800	PC3-6400	6-6-6
-80C	-25E	DDR3-800	400	800	PC3-6400	5-5-5
-1G0	-187	DDR3-1066	533	1066	PC3-8500	8-8-8
-1G1	-187E	DDR3-1066	533	1066	PC3-8500	7-7-7
-1G2	-187F	DDR3-1066	533	1066	PC3-8500	6-6-6
-1G3	-15	DDR3-1333	667	1333	PC3-10600	10-10-10
-1G4	-15E	DDR3-1333	667	1333	PC3-10600	9-9-9
-1G5	-15F	DDR3-1333	667	1333	PC3-10600	8-8-8
-1G6**	-125	DDR3-1333	667	1333	PC3-10600	11-11-11
-1G6	-125	DDR3-1600	800	1600	PC3-12800	11-11-11
-1G7	-125E	DDR3-1600	800	1600	PC3-12800	10-10-10
-1G8	-125F	DDR3-1600	800	1600	PC3-12800	9-9-9
-1G9	-107	DDR3-1866	933	1866	PC3-14900	13-13-13
-1G8	-107E	DDR3-1866	933	1866	PC3-14900	12-12-12
-1G1	-107F	DDR3-1866	933	1866	PC3-14900	11-11-11
-2G1	-093	DDR3-2133	1067	2133	PC3-17000	14-14-14
-2G2	-093E	DDR3-2133	1067	2133	PC3-17000	13-13-13
-2G3	-093F	DDR3-2133	1067	2133	PC3-17000	12-12-12

** -1G6 = -1333 SPD with -125 tested DRAM
 SPD = serial presence-detect pin (module only)

Package Codes

Pb-Free Devices	Package Descriptions
Y	Commercial temp; single-, dual- or quad-rank DIMM
Z	Halogen-free; commercial temp; single-, dual-, quad- or octal-rank DIMM
IZ	Halogen-free; Industrial temp, commercial temp; single-, dual- or quad-rank DIMM
TZ	Halogen-free; Industrial temp; select dual- and quad-rank DIMM
DY	Commercial temp; select dual- or quad-rank DIMM
DZ	Halogen-free; commercial temp; select dual-, quad- or octal-rank DIMM

Rev. 27-Nov-2018

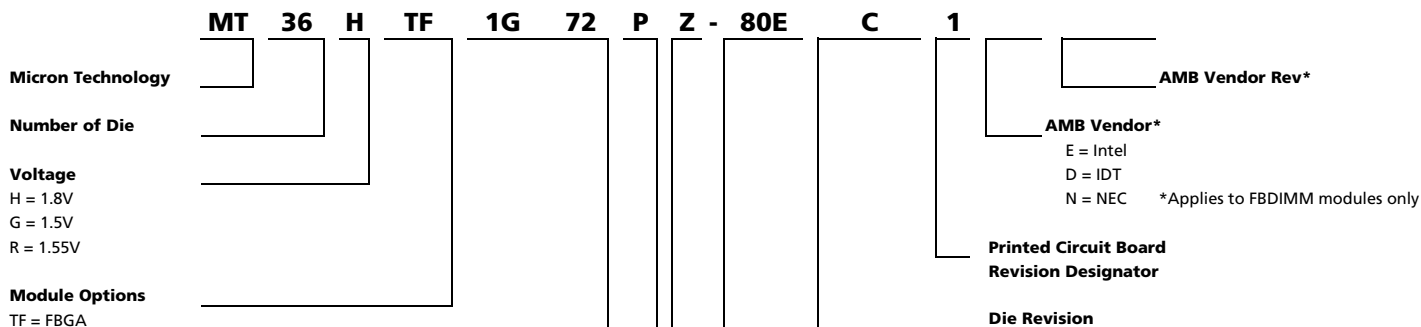
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DDR2 Module Part Numbering System

The part numbering system is available at www.micron.com/numbering

DDR2 SDRAM modules



DDR2 SDRAM Module Speed

Module Speed Grade	Component Speed Grade/ Part Mark	JEDEC Component Speed Grade	Clock Frequency (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-RCD-nRP)
-40E	-5E	DDR2-400	200	400	PC2-3200	3-3-3
-53E	-37E	DDR2-533	267	533	PC2-4200	4-4-4
-667	-3	DDR2-667	333	667	PC2-5300	5-5-5
-80E	-25E	DDR2-800	400	800	PC2-6400	5-5-5
-800	-25	DDR2-800	400	800	PC2-6400	6-6-6
-1GA	-187E	DDR2-1066	533	1066	PC2-8500	7-7-7

SPD = serial presence-detect pin (module only)

Package Codes

Pb-Free Devices	Package Descriptions
Y	Commercial temp; single- or dual-rank DIMM
Z	Halogen-free; commercial temp; single- or dual-rank DIMM
DY	Commercial temp; select dual-rank
DZ	Halogen-free; commercial temp; select dual- or quad-rank DIMM
IY	Industrial temp; select single and dual-rank DIMM
TY	Industrial temp; select dual and quad-rank DIMM
IZ	Halogen-free; industrial temp; select single and dual-rank DIMM
TZ	Halogen-free; industrial temp; select dual and quad-rank DIMM

Rev. 27-Nov-2018

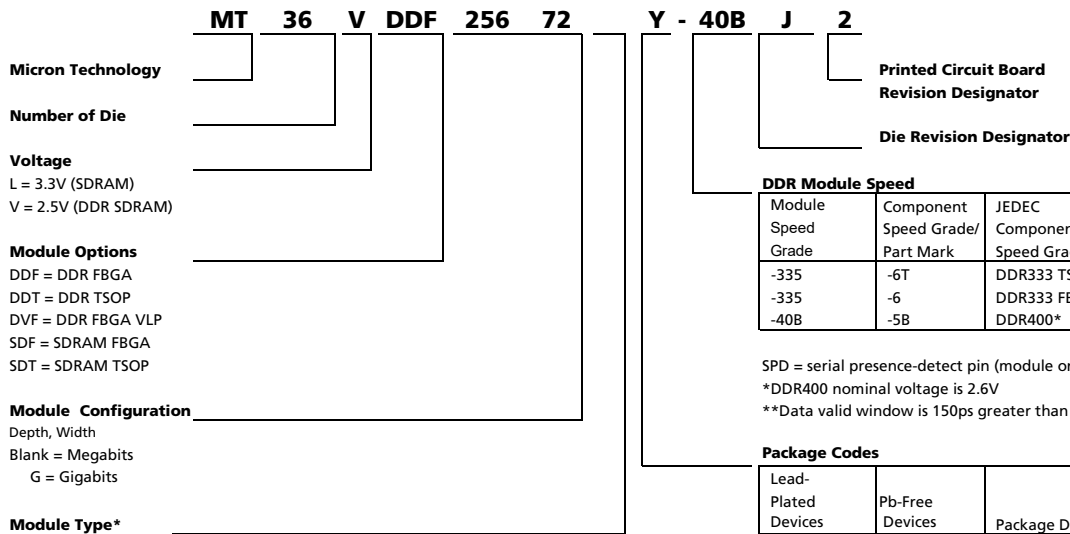
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DDR/SDRAM Module Part Numbering System

The part numbering system is available at www.micron.com/numbering

DDR/SDRAM modules



Module Speed	Component Speed Grade/ Part Mark	JEDEC Component Speed Grade	Clock Frequency (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-nRCD-nRP)
-335	-6T	DDR333 TSOP	167	333	PC2700	2.5-3-3
-335	-6	DDR333 FBGA	167	333	PC2700	2.5-3-3**
-40B	-5B	DDR400*	200	400	PC3200	3-3-3

SPD = serial presence-detect pin (module only)

*DDR400 nominal voltage is 2.6V

**Data valid window is 150ps greater than -6T

Package Codes

Lead-Plated Devices	Pb-Free Devices	Package Descriptions
G	Y	Commercial temp; single- or dual-rank DIMM
DG	DY	Commercial temp; select dual-rank
I	IY	Industrial temp DIMM
T	TY	Industrial temp; select dual-rank DIMM

Module Type*

Blank = 168-pin/184-pin/240-pin registered DIMM
 A = 168-pin/184-pin/240-pin unbuffered DIMM
 H = 144-pin/200-pin SODIMM
 PH = 144-pin/200-pin unbuffered SODIMM with PLLs
 U = 100-pin unbuffered DIMM

*All SDRAM and DDR DIMMs have serial-presence detect.

SDR Modules		
Module Speed	Allowable Component Speed	CL ⁻¹ RCD ⁻¹ RP
-133	-6A, -75, -7E	3-3-3
-13E	-7E	2-2-2

DDR Modules	
Module Speed	Allowable Component Speed
-335	-6, -6T, -5B
-40B	-5B

Rev. 05-Dec-2018

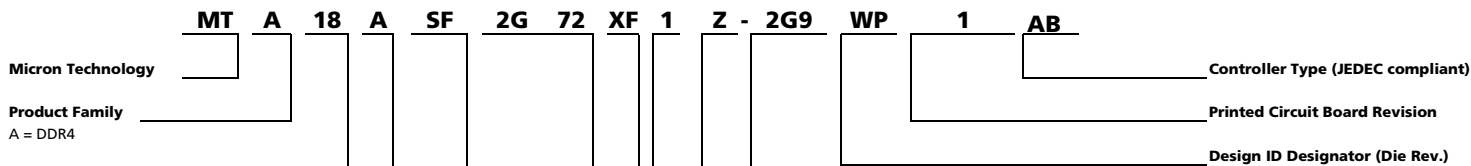
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DDR4 NVDIMM Part Numbering System

The part numbering system is available at www.micron.com/numbering

DDR4 SDRAM Nonvolatile modules



Micron Technology

Product Family

A = DDR4

Number of DRAM Die

Voltage

A = 1.2V

Module Options

- SF = FBGA with temp sensor
- SS = DDP with temp sensor
- SQ = QDP with temp sensor
- SZF = FBGA with temp sensor and heat spreader
- SZS = DDP with temp sensor and heat spreader
- SZQ = QDP with temp sensor and heat spreader
- DZF = VLP (22mm) with temp sensor and heat spreader

Module Configuration

- Depth, Width
- Blank = Megabits
- G = Gigabits

Module Type

- DDR4: PF = 288-pin parity NAND Based NVRDIMM (Save-N, with Pullup Resistor)
- DDR4: XF = 288-pin parity NAND Based NVRDIMM (Save-N, No Pullup Resistor)
- DDR4: LF = 288-pin NAND Based NVLRDIMM

Controller Type (JEDEC compliant)

Printed Circuit Board Revision

Design ID Designator (Die Rev.)

DDR4/DDR3 SDRAM Module Speed

DRAM Technology	Module Speed	Component Speed Grade/ Part Mark	JEDEC Component Speed Grade	Clock Freq. (MHz)	Data Rate (MT/s)	Module Bandwidth	Module Configuration SPD (CL-nRCD-nRP)
DDR4 SDRAM	-1G6	-125E	DDR4-1600	800	1600	PC4-1600	11-11-11
	-1G9	-107E	DDR4-1866	933	1866	PC4-1866	13-13-13
	-1S9	-107H	DDR4-1866	933	1866	PC4-1866	14-13-13
	-2G1	-093E	DDR4-2133	1067	2133	PC4-2133	15-15-15
	-2S1	-093H	DDR4-2133	1067	2133	PC4-2133	16-15-15
	-2G3	-083	DDR4-2400	1200	2400	PC4-2400	17-17-17
	-2G4	-083E	DDR4-2400	1200	2400	PC4-2400	16-16-16
	-2G6	-075	DDR4-2666	1333	2666	PC4-2666	19-19-19
	-2G9	-068	DDR4-2933	1467	2933	PC4-2933	21-21-21
	-3G2	-062E	DDR4-3200	1600	3200	PC4-3200	22-22-22

SPD = serial presence-detect pin (module only)

Package Codes

Pb-Free Devices	Package Descriptions
Z	Halogen-free; commercial temp; single-, dual-, quad- or octal-rank DIMM
DZ	Halogen-free; commercial temp; select dual-, quad- or octal-rank DIMM
IZ	Halogen-free; Industrial temp, commercial temp; single-, dual- or quad-rank DIMM
TZ	Halogen-free; Industrial temp; select dual- and quad-rank DIMM

Flash Type

- 1 = Initial version of module
- 2-9 = Subsequent version of module with different Flash memory

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