

DDR5 Module Part Numbering System

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

DDR5 SDRAM modules

MT

C

40

F

2

0

4

6

S

1

R

C

48B

A

1

T

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^{33.5})
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

Final Pack Type - Optional - for CPG Distribution Parts Only

Mark

Shipment Packaging

R

T

Tray

Printed Circuit Board Revision
Numeric = Production
Alpha = Engineering Sample

Die Revision (Part Mark Designator)

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)



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	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

MT

36

K

SF

2G

72

P

Z

-

1G6

E

1

Micron Technology

Number of Die

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 miniDIMM

MB Vendor/Revision*

Printed Circuit Board Revision

Die Revision

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
-1GA**	-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
-1GC	-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

** -1GA = -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

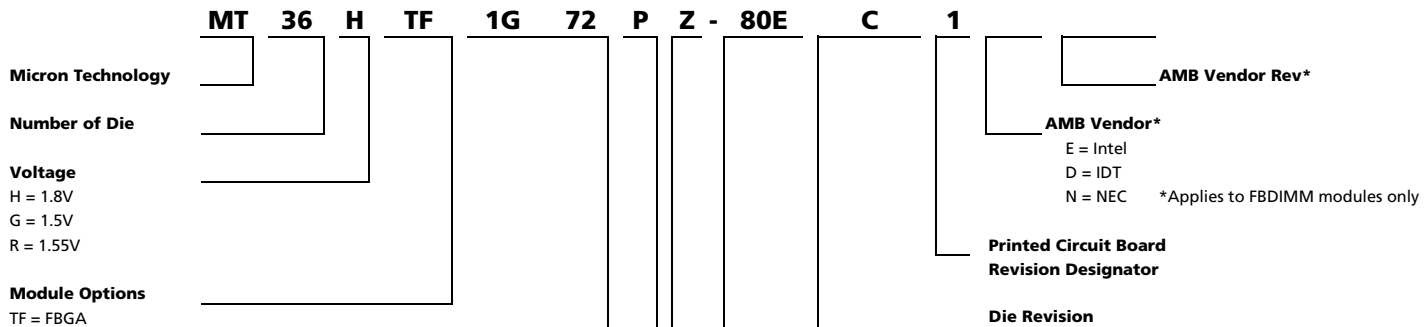
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The part numbering system is available at [**www.micron.com/numbering**](http://www.micron.com/numbering)

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

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DDR/SDRAM Module Part Numbering System

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

DDR/SDRAM modules

MT

36

V

DDF

256

72

Y

-

40B

J

2

Micron Technology

Number of Die

Voltage

L = 3.3V (SDRAM)

V = 2.5V (DDR SDRAM)

Module Options

DDF = DDR FBGA

DDT = DDR TSOP

DVF = DDR FBGA VLP

SDF = SDRAM FBGA

SDT = SDRAM TSOP

Module Configuration

Depth, Width

Blank = Megabits

G = Gigabits

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.

Printed Circuit Board

Revision Designator

Die Revision Designator

DDR 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-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

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



DDR4 NVDIMM Part Numbering System

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

DDR4 SDRAM Nonvolatile modules

MT

A

18

A

SF

2G

72

XF

1

Z

-

2G9

WP

1

AB

Micron Technology

Product Family

Number of DRAM Die

Voltage

Module Options

Module Configuration

Module Type

A = DDR4

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

Depth, Width

Blank = Megabits

G = Gigabits

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 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)
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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