

# DDR5 Module Part Numbering System

The part numbering system is available at [www.micron.com/numbering](http://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 (2<sup>33</sup>)  
Z = 12GB (2<sup>32.5</sup>)  
4 = 16GB (2<sup>34</sup>)  
Y = 24GB (2<sup>34.5</sup>)  
5 = 32GB (2<sup>35</sup>)  
X = 48GB (2<sup>35.5</sup>)  
6 = 64GB (2<sup>36</sup>)  
W = 96GB (2<sup>36.5</sup>)  
7 = 128GB (2<sup>37</sup>)  
V = 192GB (2<sup>37.5</sup>)  
8 = 256GB (2<sup>38</sup>)  
9 = 512GB (2<sup>39</sup>)  
A = 1024GB (2<sup>40</sup>)  
B = 2048GB (2<sup>41</sup>)  
C = 4096GB (2<sup>42</sup>)

**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)



Rev. 22 Aug, 2023

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# DDR4 Module Part Numbering System

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

Rev. 6 Apr, 2022

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# DDR3 Module Part Numbering System

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## DDR3 SDRAM modules

**Micron Technology** MT

**Number of Die** 36

**Voltage** K

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

**Module Options** SF

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** 2G 72

Depth, Width  
Blank = Megabits  
G = Gigabits

**Module Type** P

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** Z

**E** E

**1** 1

**Die Revision**

**Printed Circuit Board Revision**

**MB Vendor/Revision\***  
\*Applies to LRDIMM modules only

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

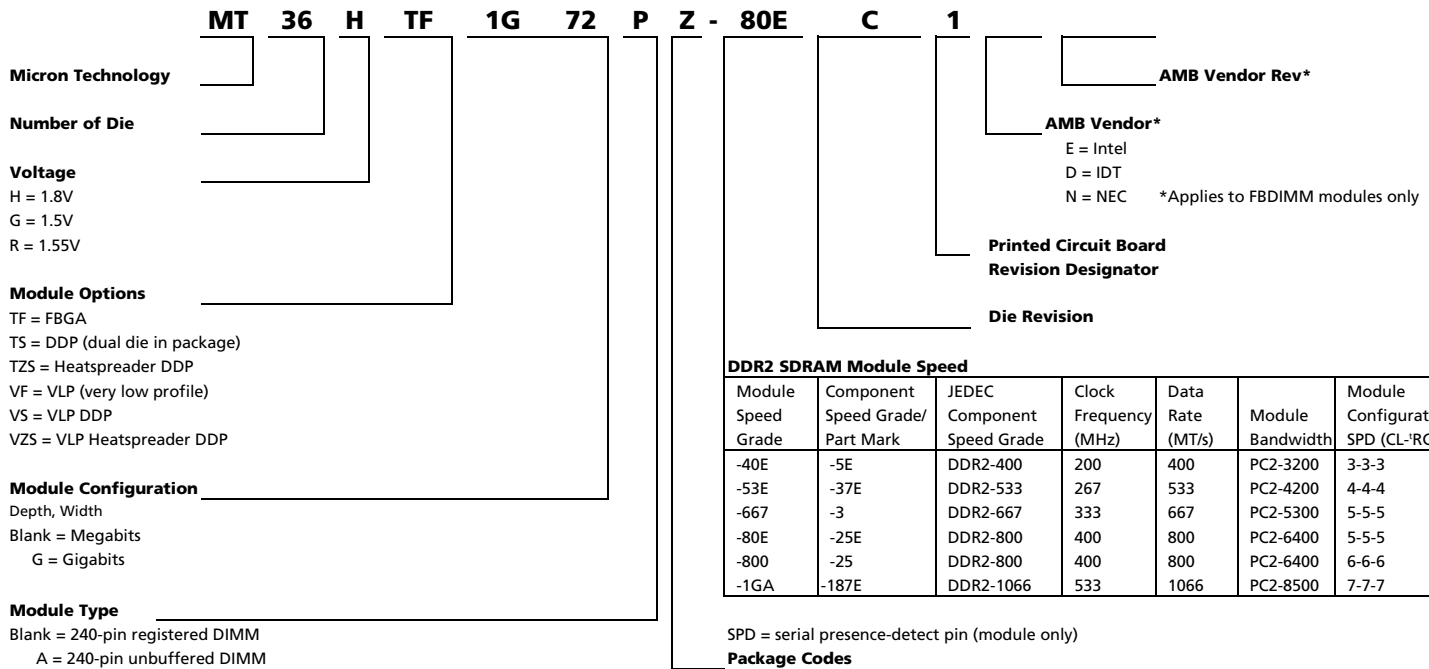
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# DDR2 Module Part Numbering System

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## DDR2 SDRAM modules



Rev. 27-Nov-2018

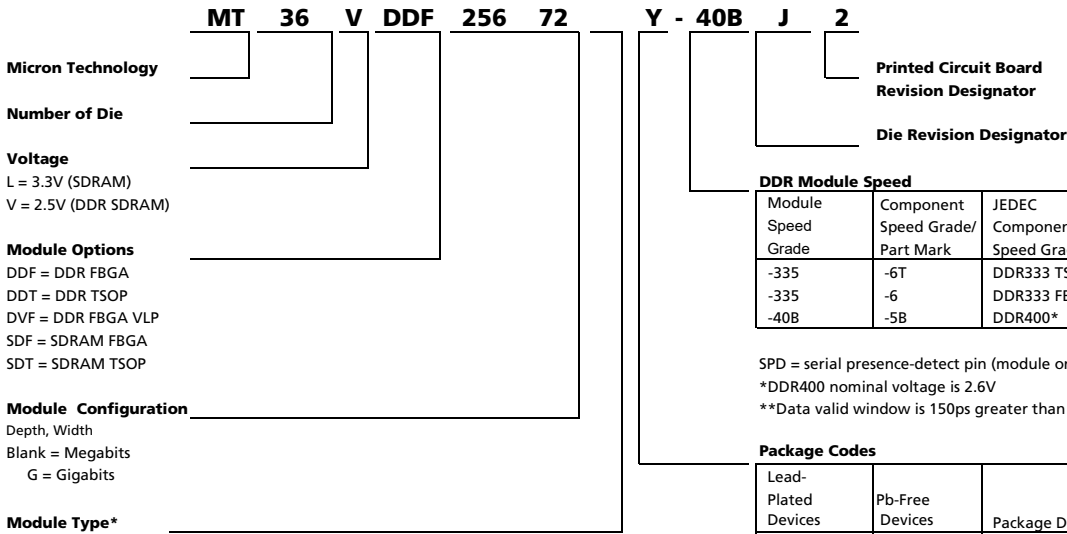
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# DDR/SDRAM Module Part Numbering System

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

## DDR/SDRAM modules



**Number of Die**  
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.

### 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 <sup>-1</sup> RCD <sup>-1</sup> 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

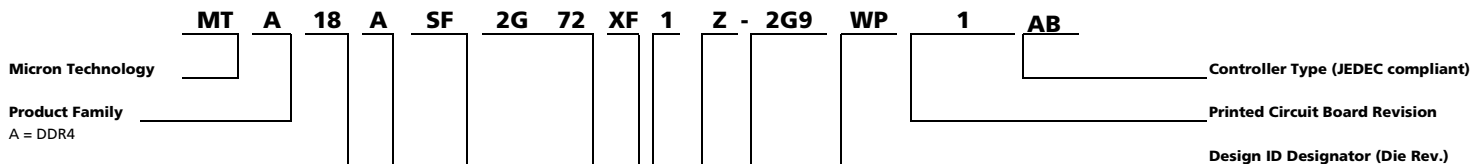
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# DDR4 NVDIMM Part Numbering System

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

Rev. 11-Dec-2018

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