

DRAM Component Part Numbering System

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

DDR4/DDR3/DDR2/DDR/SDRAM, Mobile LPDDR4/LPDDR3/LPDDR2/LPDDR/LPSDR, RLD RAM® & GDDR6/GDDR5X/GDDR5 Memory

MT 42 A 128M16 D1 KL - 25 IT ES :A

Micron Technology

Product Family

40 = DDR4 SDRAM
 41 = DDR3 SDRAM
 42 = Mobile LPDDR2
 44 = RLD RAM 3
 46 = DDR SDRAM/Mobile LPDDR
 47 = DDR2 SDRAM
 48 = SDRAM/Mobile LPSDR
 49 = RLD RAM 2
 51 = GDDR5
 52 = Mobile LPDDR3
 53 = Mobile LPDDR4 (2x16 ch/die)
 58 = GDDR5X
 61 = GDDR6
 62 = Mobile LPDDR5

Voltage

A = 1.2V V_{DD}
 AX = 1.275V V_{DD}
 B = 1.1V V_{DD}
 C = 5.0V V_{CC}
 D = 1.1V V_{DD}, 0.6V VDDQ (see datasheets for 200b Z11M VDDQ options)
 E = 1.1V VDD, (1.1V VDDQ / 0.6V VDDQ (backward compatible))
 F = 1.05V VDD, 0.5V VDDQ
 G = 3.0V V_{DD}
 H = 1.8V V_{DD}
 HC = 1.8V V_{DD}, 1.2V I/O
 J = 1.5V V_{DD}
 K = 1.35V V_{DD}
 L = 1.2V V_{DD}
 LC = 3.3V V_{DD}
 M = 1.25V V_{DD}
 N = 1.0V V_{DD}
 R = 1.55V V_{DD}
 V = 2.5V V_{DD}

Component Configuration

Depth, Width
 Blank = Bits
 K = Kilobits
 M = Megabits
 G = Gigabits

Device Versions

Alphanumeric character(s) specified by individual datasheet

Mobile devices

D1 = Single die (LPDDR2, LPDDR3, LPDDR4, LPDDR5)
 LF = Single die (LPDDR)
 LG = Single die, reduced page-size addressing (LPDDR)
 D2 = 2-die stack (LPDDR2, LPDDR3, LPDDR4, LPDDR5)
 L2 = 2-die stack (LPDDR)
 D4 = 4-die stack (LPDDR2, LPDDR3, LPDDR4, LPDDR5)
 L4 = 4-die stack (LPDDR)
 D6 = 6-die stack (LPDDR3)
 D8 = 8-die stack (LPDDR4, LPDDR5)
 DA = 16-die stack (LPDDR4, LPDDR5)

RLDRAM only

Blank = Common I/O
 C = Separate I/O

GDDR5X only

Blank = Initial version
 1,2,3,etc. = Sequential number for product variations

DRAM Package Codes

Codes range from 1-3 characters depending on the product.
 Please refer to the datasheet for package details.

Die Revision Designator

Production Status

ES = Engineering sample
 MS = Mechanical sample
 Blank = Production

Operating Temperatures

Blank = Commercial temperature
 IT** = Industrial temperature
 AT = Automotive temperature
 WT = Wireless temperature
 XT = Wide temperature
 UT = Ultra temperature
 ET = Extreme temperature
 **The number one (1) and the capital letter "I" utilize the same laser mark—"I"

Special Options

(Multiple processing codes are separated by a space and are listed in hierarchical order)
 A = Automotive
 G = Graphics
 L = Low power
 M = Reduced standby
 N = Networking (Graphics)
 X = Product Longevity Program (Automotive & Industrial only)
 OS = Off Spec
 RS = Relaxed Spec

| DRAM Technology | Speed Grade Mark | MAX Clock Frequency | PC Targets CL-nRCD-nRP |
|-----------------|------------------|------------------------------|------------------------|
| Mobile LPDDR5 | -031 | 3200 MHz | |
| | -036 | 2750 MHz | |
| Mobile LPDDR4 | -046 | 2133 MHz | |
| | -053 | 1866 MHz | |
| | -062 | 1600 MHz | |
| | -075 | 1333 MHz | |
| | -093 | 1066 MHz | |
| | -125 | 800 MHz | |
| | -125 | 800 MHz | |
| | -18 | 533 MHz | |
| Mobile LPDDR3 | -375 | 266 MHz | |
| | -15 | 667 MHz | |
| Mobile LPDDR2 | -125 | 800 MHz | |
| | -18 | 533 MHz | |
| Mobile LPDDR | -25 | 400 MHz | |
| | -3 | 333 MHz | |
| | -37 | 266 MHz | |
| | -5 | 200 MHz | |
| Mobile LPSDR | -48 | 208 MHz | |
| | -8 | 125 MHz | |
| | -75 | 133 MHz | |
| RLDRAM 1 & 2 | -6 | 167 MHz | |
| | -54 | 185 MHz | |
| | -5 | 200 MHz | |
| | -48 | 208 MHz | |
| RLDRAM 3 | -6 | 167 MHz | |
| | -5 | 200 MHz | |
| | -33 | 300 MHz | |
| | -25 | 400 MHz with 'RC 20ns | |
| | -25E | 400 MHz with 'RC 15ns | |
| GDDR5 | -18 | 533 MHz | |
| | -125 | 800 MHz with 'RC (MIN) 12ns | |
| | -125E | 800 MHz with 'RC (MIN) 10ns | |
| | -107 | 933 MHz with 'RC (MIN) 10ns | |
| | -107E | 933 MHz with 'RC (MIN) 8ns | |
| GDDR5X | -093 | 1067 MHz with 'RC (MIN) 10ns | |
| | -093E | 1067 MHz with 'RC (MIN) 8ns | |
| | -50 | 1.25 GHz | Data Rate |
| | -60 | 1.5 GHz | 5 Gb/s |
| GDDR6 | -70 | 1.75 GHz | 6 Gb/s |
| | -80 | 2.0 GHz | 7 Gb/s |
| | | | 8 Gb/s |
| | | | Data Rate |
| GDDR5X | -100 | 1.25 GHz | 10 Gb/s |
| | -110 | 1.375 GHz | 11 Gb/s |
| | -120 | 1.5 GHz | 12 Gb/s |
| | -140 | 1.75 GHz | 14 Gb/s |
| GDDR6 | -10 | 1.25 GHz | Data Rate |
| | -12 | 1.5 GHz | 10 Gb/s |
| | -13 | 1.625 GHz | 11 Gb/s |
| | -14 | 1.75 GHz | 12 Gb/s |
| | -14C | 1.75 GHz | 13 Gb/s |
| | -15 | 1.875 GHz | 14 Gb/s |
| | -16 | 2.0 GHz | 14 Gb/s |
| | -18 | 2.25 GHz | 15 Gb/s |
| | -20 | 2.5 GHz | 16 Gb/s |
| | -22 | 2.75 GHz | 18 Gb/s |
| | | | 20 Gb/s |
| | | | 22 Gb/s |

| DRAM Technology | Speed Grade Mark | MAX Clock Frequency | PC Targets CL-nRCD-nRP |
|-----------------|------------------|---------------------|------------------------|
| DDR4 SDRAM | -093E | 1067 MHz | 15-15-15 |
| | -093H | 1067 MHz | 18-15-15 |
| | -083 | 1200 MHz | 17-17-17 |
| | -083E | 1200 MHz | 16-16-16 |
| | -083H | 1200 MHz | 20-18-18 |
| | -083J | 1200 MHz | 19-17-17 |
| | -075 | 1333 MHz | 19-19-19 |
| | -075E | 1333 MHz | 18-18-18 |
| | -075H | 1333 MHz | 22-19-19 |
| | -068 | 1467 MHz | 21-21-21 |
| | -068E | 1467 MHz | 20-20-20 |
| | -068H | 1467 MHz | 24-21-21 |
| | -062E | 1600 MHz | 22-22-22 |
| | -062H | 1600 MHz | 26-22-22 |
| DDR3 SDRAM | -15E | 667 MHz | 9-9-9 |
| | -125 | 800 MHz | 11-11-11 |
| | -125E | 800 MHz | 10-10-10 |
| | -107 | 933 MHz | 13-13-13 |
| DDR2 SDRAM | -093 | 1067 MHz | 14-14-14 |
| | -3 | 333 MHz | 5-5-5 |
| | -25 | 400 MHz | 6-6-6 |
| | -25E | 400 MHz | 5-5-5 |
| DDR SDRAM | -187E | 533 MHz | 7-7-7 |
| | -75 | 133 MHz | 2.5-3-3 |
| | -6T | 167 MHz | 2.5-3-3 |
| SDRAM | -5B | 200 MHz | 3-3-3 |
| | -75 | 133 MHz | 3-3-3 |
| | -7E | 133 MHz | 2-2-2 |
| | -6A | 167 MHz | 3-3-3 |
| | -5 | 200 MHz | 3-3-3 |

