

# The Essential Guide to Server RAM

A Basic Guide

## Introduction

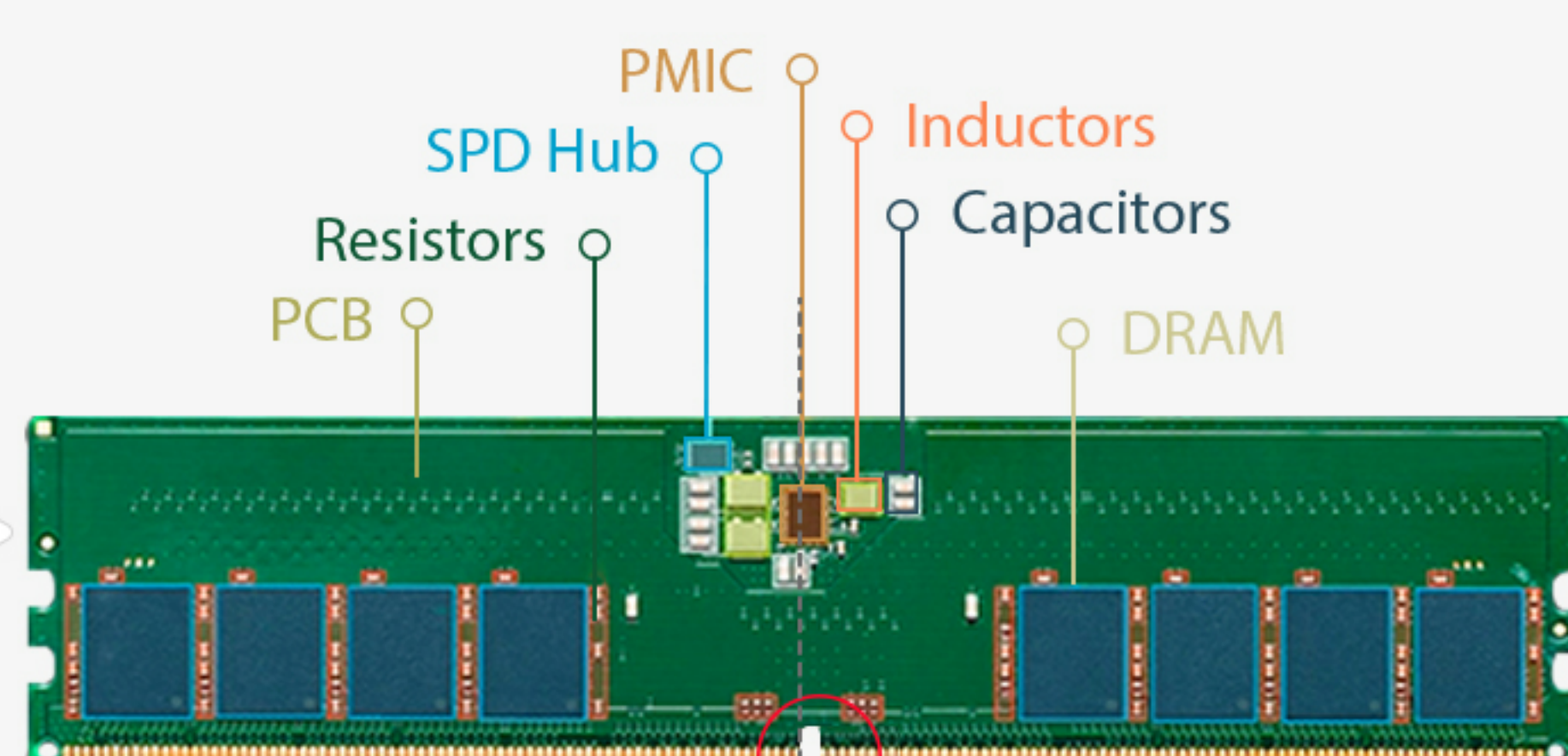
Server RAM is a crucial component of network servers. Simply put, RAM is the short-term memory of your server. It is where your server keeps track of the data and programs currently in use.

## What is DDR SDRAM?

DDR SDRAM is a double data rate (DDR) synchronous dynamic random-access memory (SDRAM) class of memory integrated circuits. Common types of DDR SDRAM on the market include DDR3, DDR4 and DDR5.

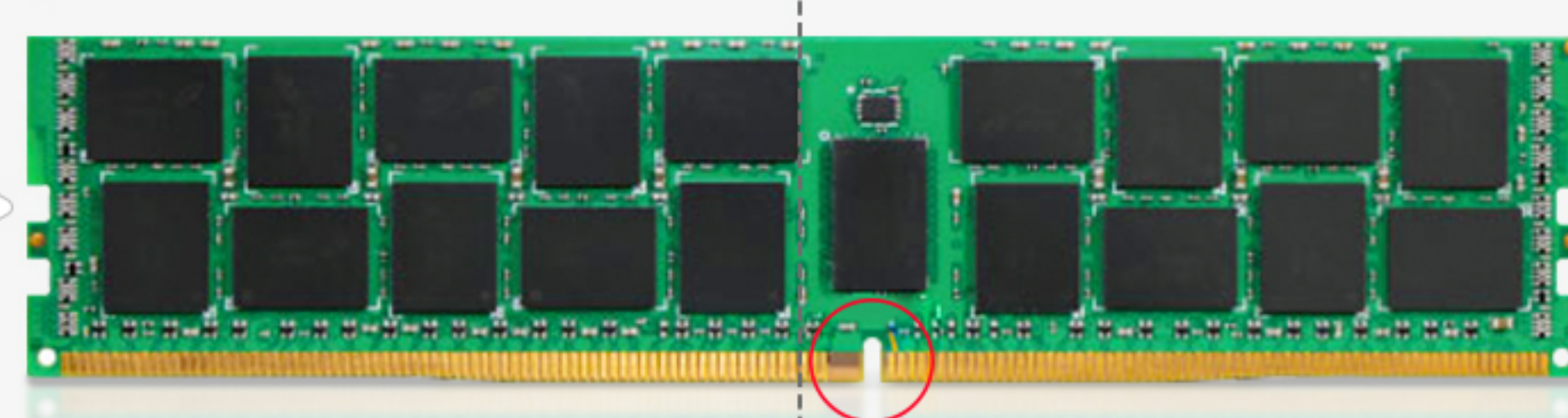
### DDR5

DDR5 was set to hit the market in 2019, but the standard was actually released in mid 2020. The world's first DDR5 SDRAM chip was officially launched by SK Hynix on October 6th, 2020.



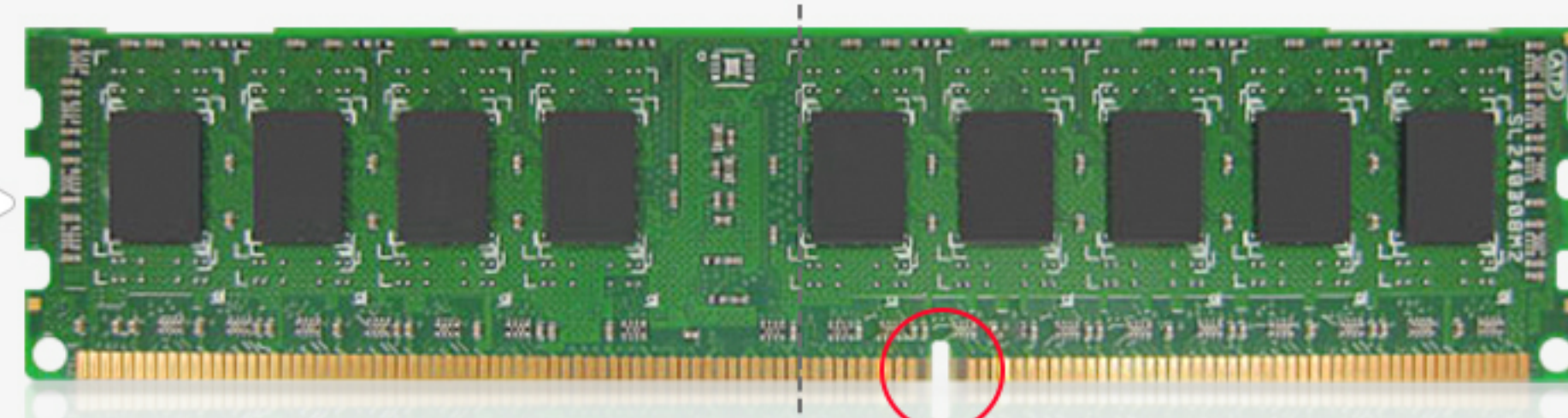
### DDR4

DDR4 hit the market in 2014 and overtook DDR3 in 2017 to claim the top spot in RAM market.



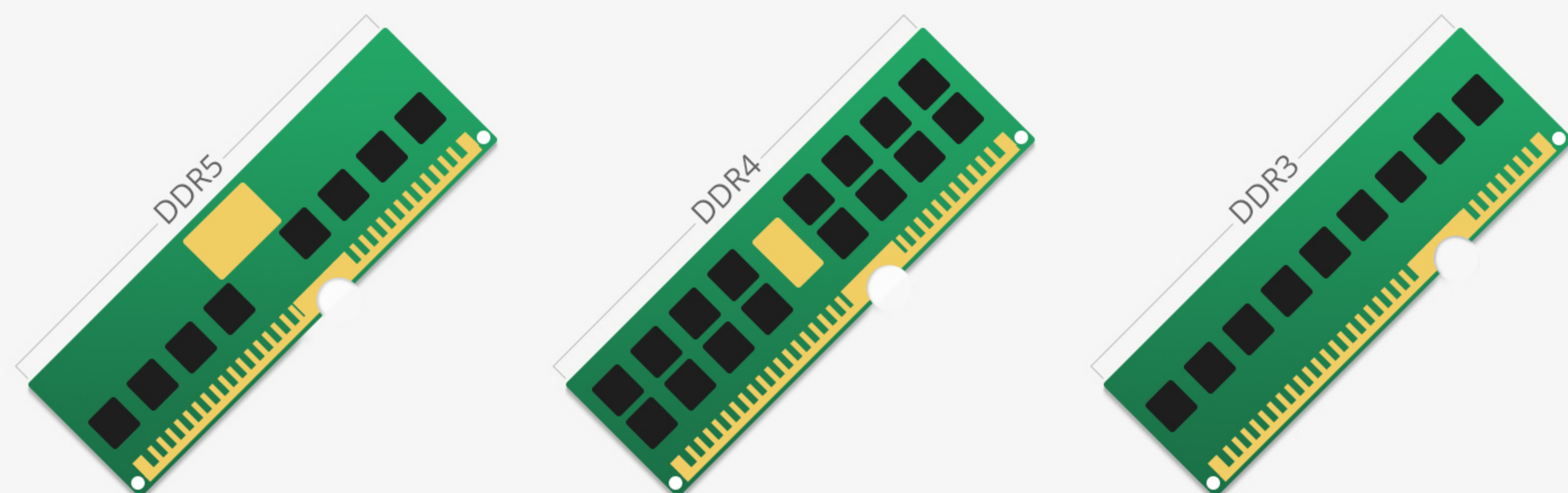
### DDR3

DDR3 SDRAM has been in use since 2007. It is the higher-speed successor to DDR and DDR2.

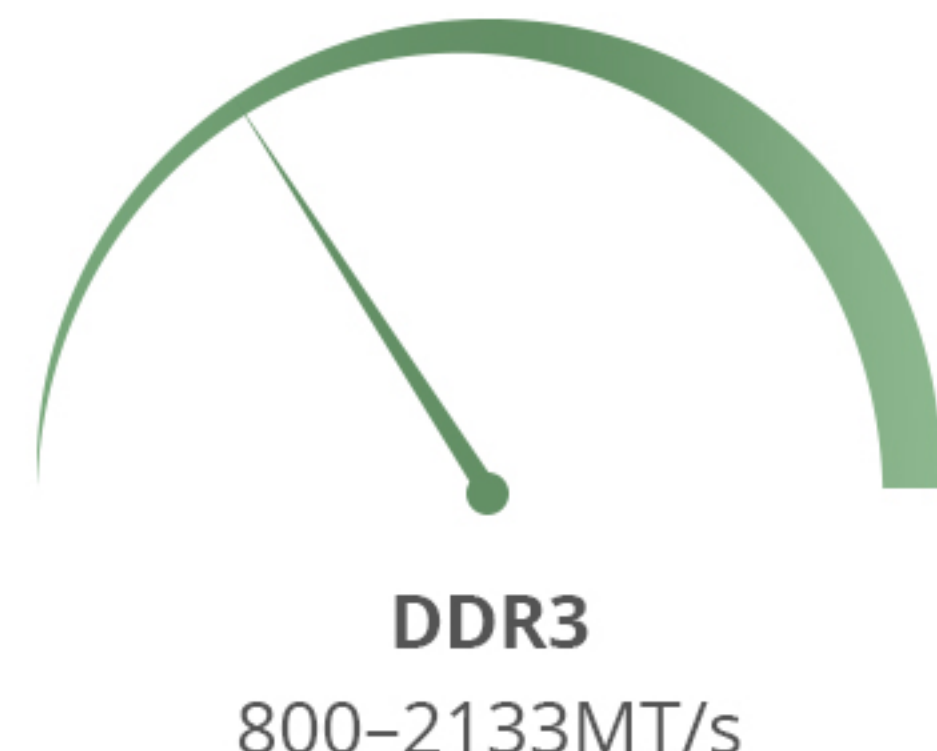
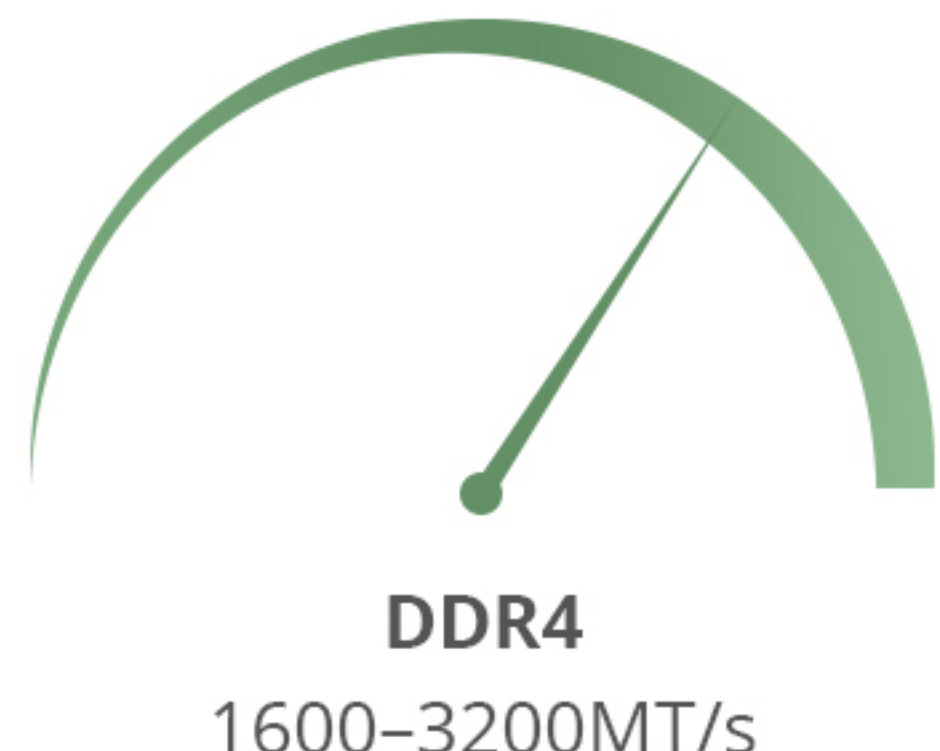
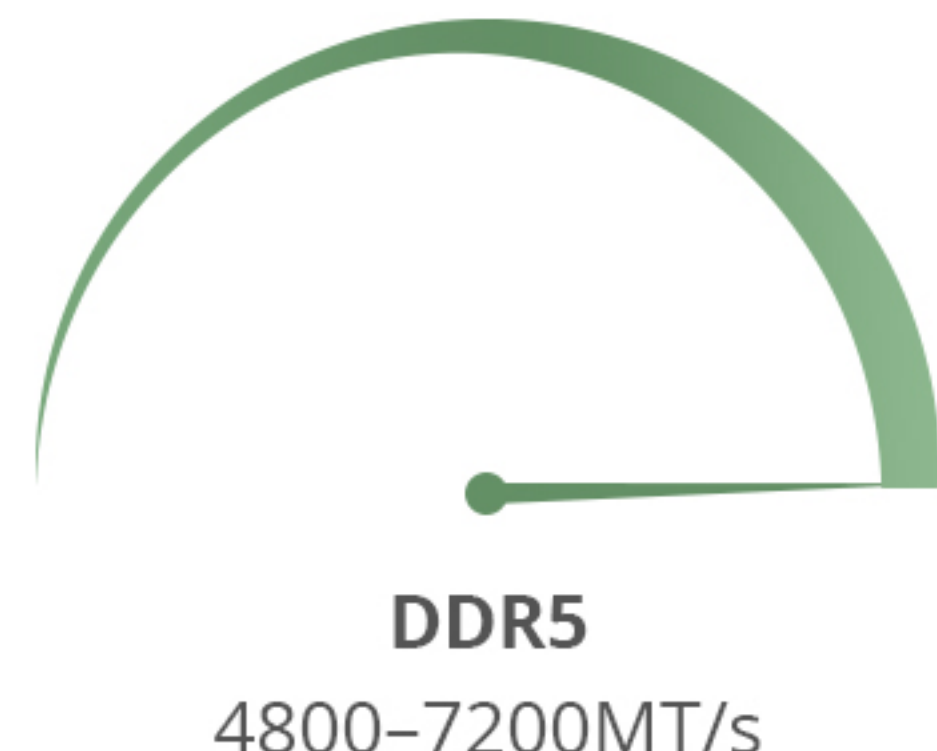


## DDR3 vs. DDR4 vs. DDR5

Each new generation of DDR SDRAM comes with more advanced features and better performance over the older generation.



### Transfer Rates



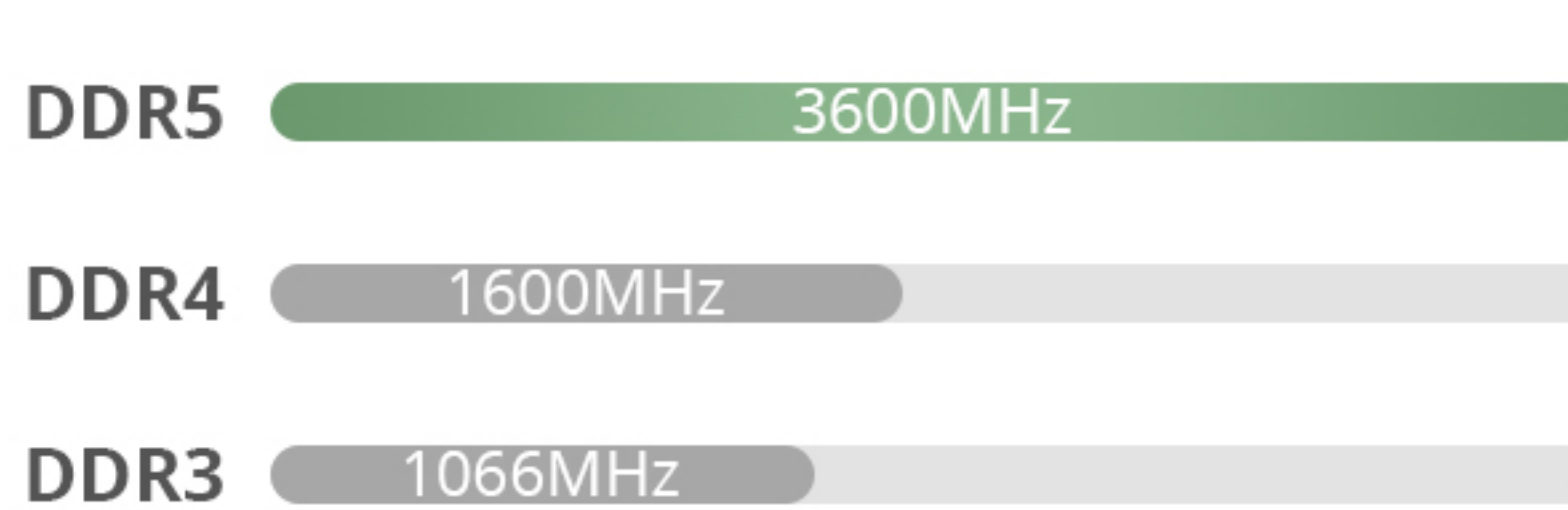
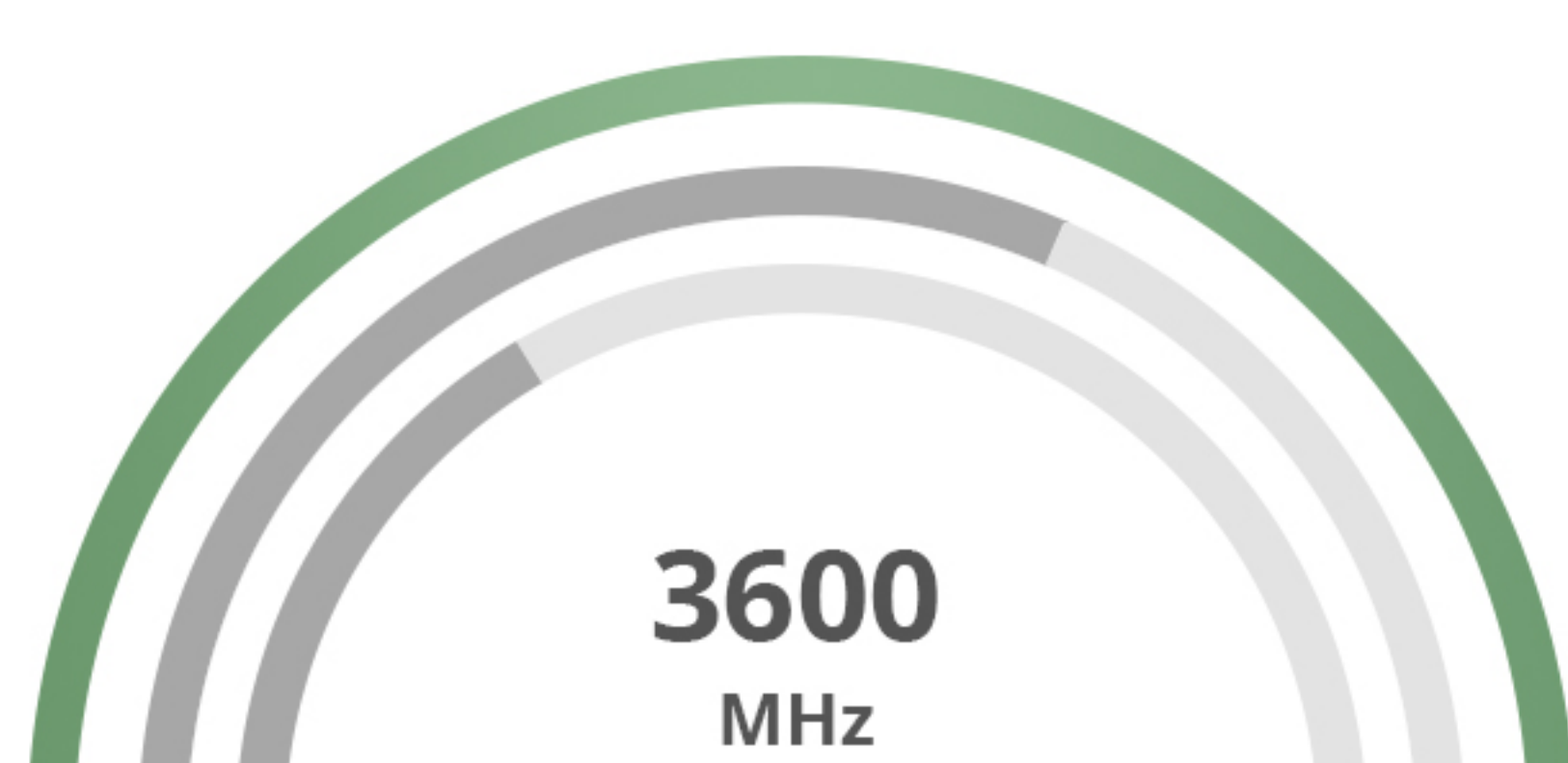
### Memory Density



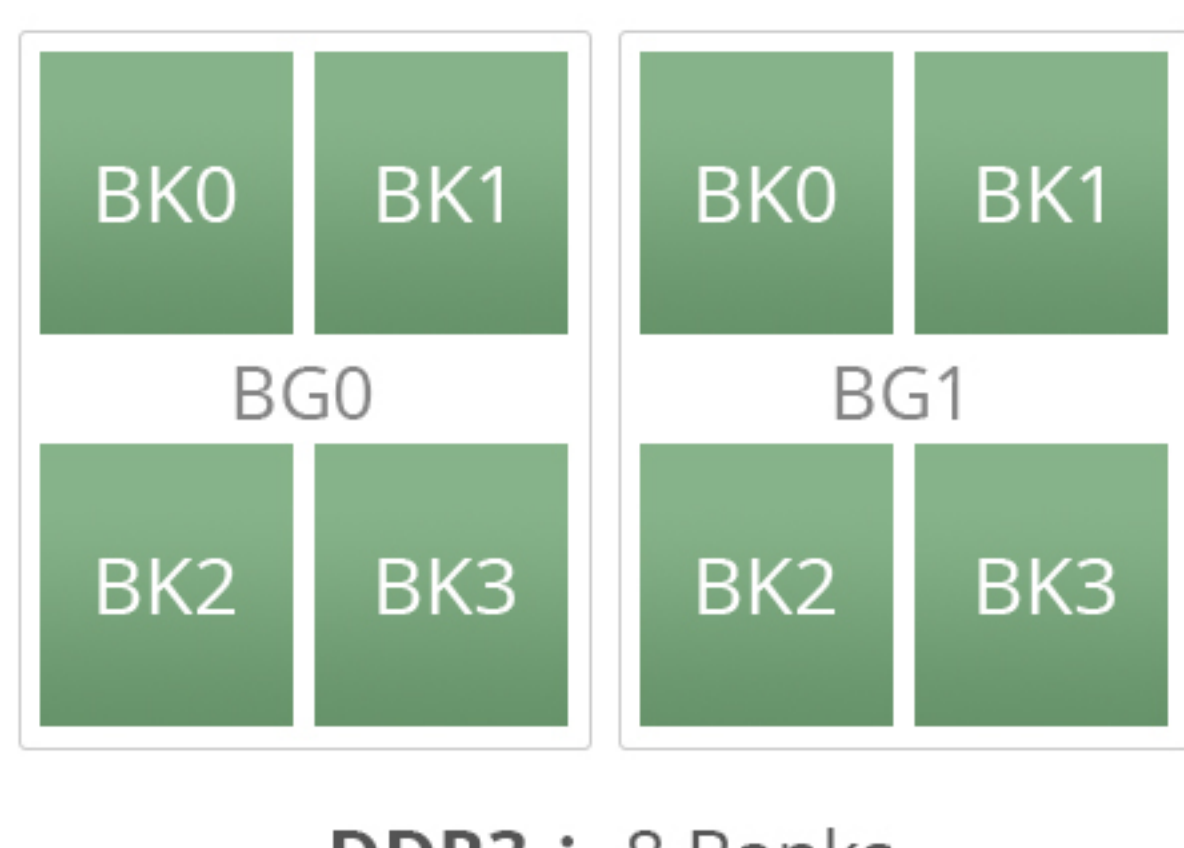
### Power Efficiency



### Clock Rates

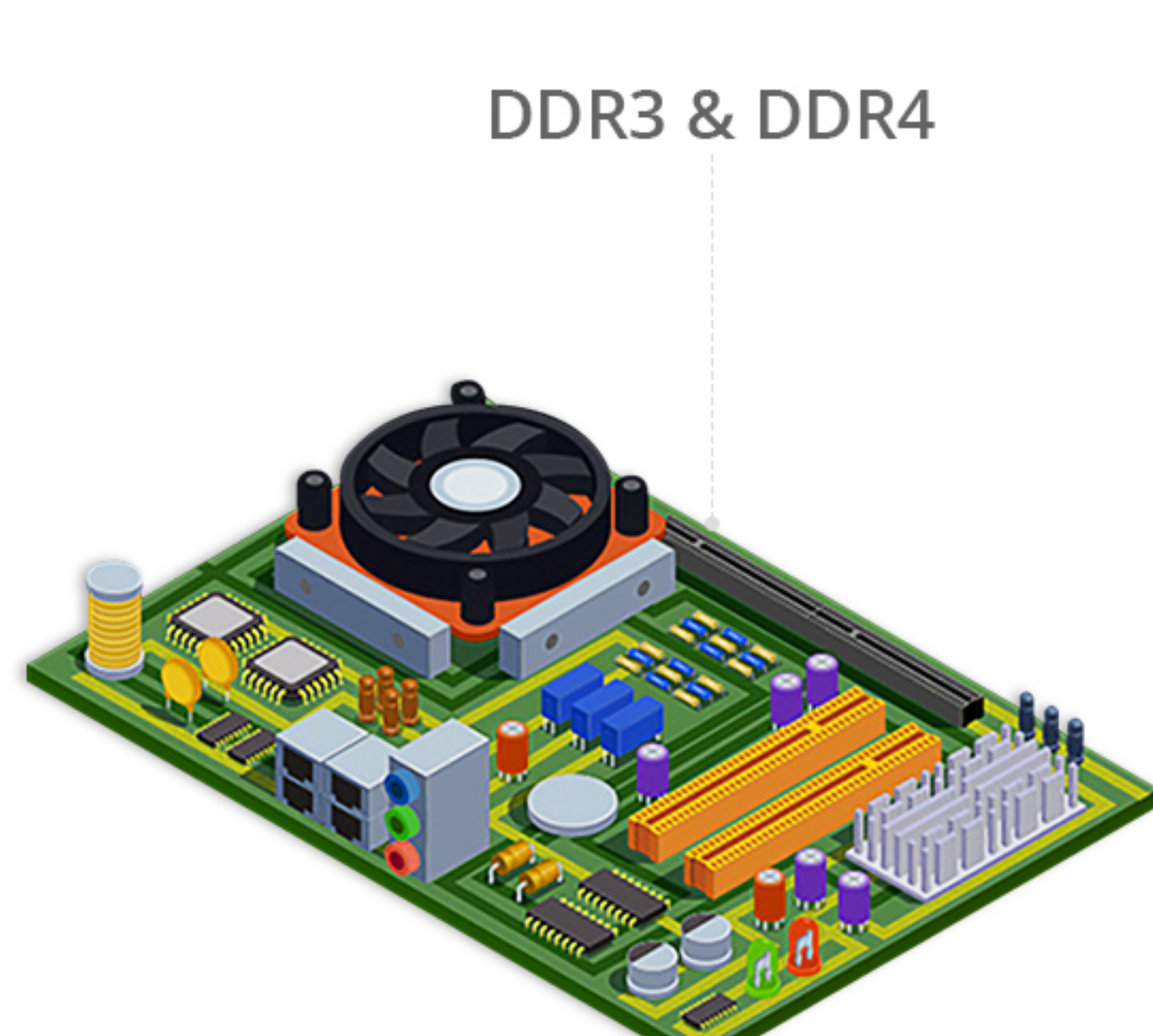


### Bank Group

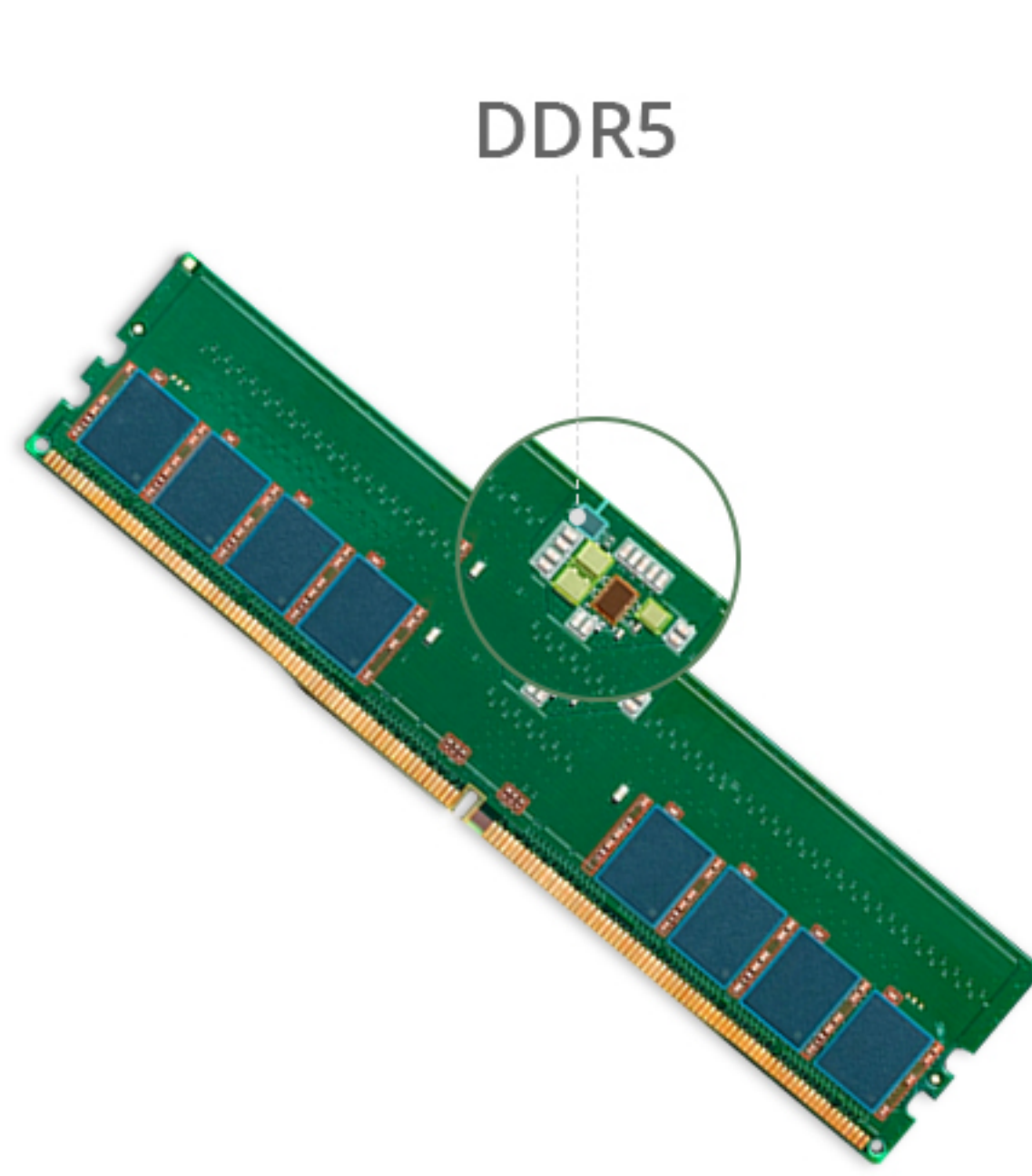


### Power Management

The power management of DDR5 DIMMs has been transferred from motherboard to RAM. DDR5 comes with PMIC for effective system load management.



On motherboard



On RAM