SDRAM

Synchronous DRAM (SDRAM) is DRAM that is synchronized to the base clock of the motherboard (also referred to as the system bus speed). If your system bus (and corresponding memory bus) were 100 MHz, you would want to install compatible 100 MHz SDRAM because that SDRAM receives its clock signal from the system bus on the motherboard.

Typical SDRAM clock rates are 66 MHz, 100 MHz, and 133 MHz; the physical RAM sticks are referred to as PC66, PC100, and PC133, respectively. Although you rarely see this type of RAM anymore, you can still purchase PC100 and PC133 versions. It is designed as a 168-pin DIMM. Dual in-line memory modules (DIMMs) have been in use for more than a decade. They are the successor to the single in-line memory module (SIMM). The main difference between the two is that DIMMs have separate electrical contacts on each side of the module (or stick), whereas SIMMs might have contacts on both sides, but they are redundant. SDRAM voltage is 3.3 volts.

Data transfer rates vary depending on the speed of the RAM, but SDRAM in general has a bus width of 64 bits (8 bytes). A 100 MHz SDRAM bus can, therefore, transfer 8 bytes of data, 100 million times per second, equaling 800 MB/s. Keep in mind that this data rate is a theoretical maximum, and actual data throughputs are less.

DDR2

Comparison of DDR2 Types

DDR2 Standard	I/O Clock Speed	Transfers per Second	Transfer Rate	Module Name
DDR2-400	200 MHz	400 Million	3,200 MB/s	PC2-3200
DDR2-533	266 MHz	533 Million	4,266 MB/s	PC2-4200
DDR2-667	333 MHz	667 Million	5,333 MB/s	PC2-5300
DDR2-800	400 MHz	800 Million	6,400 MB/s	PC2-6400
DDR2-1066	533 MHz	1.066 Billion	8,533 MB/s	PC2-8500

RDRAM (Rambus)

Rambus DRAM is another type of synchronous dynamic RAM designed by the Rambus Corporation and used primarily at the turn of the millennium. Because RDRAM was proprietary and not part of the JEDEC standard, many manufacturers would not support or license it. This and other factors led to the general demise of RDRAM; for PCs it’s difficult to find it today, but a few components and gaming consoles use it. The chances of you working with it

in a PC or seeing questions on the exam about it are unlikely A few examples of RDRAM (also known as RIMMs) are PC800 (single channel, 16-bits wide, 1600 MB/s bandwidth), the more advanced RIMM 3200 (dual channel, 32-bits wide, 3200 MB/s), and RIMM 6400 (dual channel, 32-bits wide, 6400 MB/s.)

> You can find a newer, different type of memory from Rambus in the Sony PlayStation 3 video game console, which uses 256 MB of extreme data rate (XDR) DRAM, providing 25.6 GB/s bandwidth. XDR version 2 can provide 80 GB/s. Rambus also released a Mobile XDR version for mobile devices that has a maximum of 17 GB/s of bandwidth. Rambus also makes its own version of DDR3 that can do either 800 or 1600 MT/s.