DDR2 FAQ

Q: Where did the DDR2 standard come from?
A: Most memory standards, including DDR2, are developed by JEDEC – Joint Electronic Device Engineering Council – which is a consortium of industry leading companies that includes Intel, AMD, Samsung, Micron and Corsair. Design engineers from each member company meet periodically to develop new standards for the industry. Completed standards are published and adopted by companies industry-wide.

Q: What companies are supporting DDR2?
A: Here is a partial list of companies expected to announce products supporting DDR2 in the first half of 2004: Intel, VIA, nVidia, Asus, MSI, Abit, Gigabyte, Supermicro, Tyan, Samsung, Micron, Hynix, Elpida, Infineon, Dell, HP, IBM, Gateway, and Corsair.

Q: Is DDR2 faster than DDR?
A: DDR2 starts where DDR stops. In other words, DDR2 will be introduced at speed grades that are already the limit of DDR. Future DDR2 speeds will significantly outperform the fastest DDR speeds.

Q: Why is DDR2 faster?
A: DDR2 incorporates new features at the chip level that give it better signal integrity, thereby enabling higher clock speeds. These include Off-Chip Driver calibration (OCD) and On-Die Termination (ODT). DDR2 also incorporates a larger 4-bit prefetch, additive latency, and enhanced registers.

Q: Is DDR2 backward compatible?
A: No. DDR2 memory sockets can only support DDR2 DIMMs, and vice versa. DDR2 DIMMs have a different number of pins (they come in a new 240-pin module) and have a notch in a different position to prevent inadvertently plugging modules into an incompatible slot.

Q: Can I plug DDR2 modules into my 875P motherboard?
A: No, DDR2 modules are not interchangeable with DDR1. The DDR2 standard is not backward compatible.

Q: How big are DDR2 modules?
A: DDR2 modules have 240 pins, versus 184 pins on a DDR module. But both modules are the same length, 5.25". DDR2 modules have smaller and tighter spaced pins. The height of DDR2 modules varies, but they will typically be less than 1.3" tall.

Q: What motherboards can support DDR2?
A: Check the specs of the motherboard for memory support. The first motherboards that support DDR2 are not expected to become available until March/April 2004.

Q: What size modules will DDR2 come in?
A: This is no different than DDR. Corsair will offer unbuffered DDR2 modules in 256MB, 512MB and 1GB densities. Matched pairs of modules will also be available. Corsair will also offer registered DDR2 modules for servers in 512MB, 1GB and 2GB sizes.

Q: Does DDR2 have the same bus width as DDR?

A: Yes, DDR2 retains the same 64-bit wide data bus used in DDR. Most DDR2 chipsets, like the latest DDR chipsets, are expected to support dual channel memory, giving an effective 128-bit wide data bus.

Q: Is it true DDR2 uses less power than DDR?
A: Yes. DDR2 uses a 1.8V supply for core and I/O voltage, compared to 2.5V for DDR. That's a 28% reduction in supply voltage! DDR2 has other power saving features like smaller page sizes and an active power down mode. The faster clock speeds supported by DDR2 offset some of these gains in power efficiency, but in general DDR2 modules will use less power than DDR modules.

Q: Do DDR2 chips look different than DDR chips?
A: Yes and No. Most DDR modules are built with TSOP style chips which have pins sticking out the sides. DDR chips also come in a less common FBGA package which is physically smaller, and uses a grid of tiny solder balls on bottom to make electrical contact with the board. The FBGA package is the standard for all DDR2 chips.

Q: What are the advantages of FBGA style chips?
A: FBGA is a smaller package with requires less real estate on the memory module. That means more chips can fit onto a shorter module. The greatest benefit of FBGA is that it has less electrical noise than TSOP chips, which results in improved signal integrity.

Q: What's the difference between a rank and a bank?
A: They're really the same thing. According to JEDEC's new definitions, a bank is a block of memory within a RAM chip while a rank is a block of memory on a module. So what used to be called two-sided or two-bank modules will now be called two-rank modules.

Q: What is Corsair doing in DDR2?
A: Corsair has been involved with DDR2 development through the JEDEC association for many months. Since Corsair helps write the standards we will be among the first companies to market with DDR2 memory modules—both unbuffered desktop modules and registered server parts.

Q: Isn't DDR2 already used on graphics cards?
A: Yes, DDR2 memory technology has been in use for over a year on high end graphics accelerator cards. However, the DDR2 RAM in graphics cards is based on a different standard than the DDR2 memory used in DRAM memory modules for motherboards.

About Corsair Memory
Corsair Memory, a member of JEDEC, has been a leader in the design and manufacture of high speed modules for over a decade. We have earned our reputation as being the first to market with leading-edge products supporting new computing platforms and technologies. Corsair supplies memory for applications ranging from mission-critical servers to ultra-high performance gaming systems. The performance and reliability of Corsair memory products makes them ideal for the high bandwidth internet infrastructure. More information on Corsair is available at www.corsairmemory.com.