

Hardware- Processing the Intelligence

Dual Channel Memory for Superhawk & Thunderbird...

For maximum system computational performance, please install DDR memory in pairs for systems based on i865 or nForce2 chipsets such as Workgroup Server, Superhawk or Thunderbird. These chipsets support single as well as dual channel memory operations. The improvement of system computational performance is significant with Dual Channel.

Evolution to DDR 400 Memory...

As we experienced when migrating from DDR266 to 333, the migration from DDR333 to 400 is not a straight-forward event as suggested by newspaper advertisements. In the current range of systems, only motherboards with i865 (Springdale) and i875 (Canterwood) chipsets support DDR400 memory. On the other hand, not all DDR400 memory labelled as DDR400 run on these 2 chipsets as DDR400. They run as DDR333. This is a quality control issue. For example, some DDR400 modules run on i865 platforms with stability up to 2 pieces only. To fully populate an i865 platform, the BIOS- DRAM Frequency has to be set to 333MHz. Alternatively use at least 2 pieces of top quality DDR 400. Compucon has used high quality DDR400 256MB and 512MB for performance grade systems and future proofing purposes. There is a price premium involved, but the premium will pay off easily in terms of avoiding incompatibility and providing a higher re-use value of the memory at a later date.

Sweet Spots for AMD System Upgrade...

Chipset/ Platform	865 (Q104)	Grantsdale (Q204)
System Bus	400/533/800 MHz	533/800 MHz
DDR SDRAM	266/333/400 DC ECC	DC DDR & DDR2
AGP Interface	8x	No
PCI Express x 16	No	Yes
Serial ATA	Yes (2)	Yes (4)

depending on the type of applications (visit knowledge base in Compucon website. We consider this upgrade to be a Sweet Spot. For upgrades to faster Athlon, we will add an extra ventilation fan to the case that will bring case temperature down by about 2C and this will help the longevity of the processor. Noise level will go up though. If the highest performance is required, consider Thunderbird Workstation based on nForce2 chipset and add an extra piece of DDR memory so that the system will work at Dual Channel memory transfer mode.

CPU Benchmarking References...

Many customers have asked which CPU is faster and by how much. There is no direct answer but there are specific answers for the type of applications and the hardware configuration of the entire computer system. We have found good information from Tom's Hardware Guide that provides performance benchmarking results for both Intel (P4 and Celeron) and AMD (Athlon and Duron) processors for 6 different categories of applications. Applications include gaming, multimedia processing and office/Internet applications. The tests were conducted by THG in September (not by Compucon) and were recent enough to include P4 3.06GHz and Athlon XP 3000+. You will see that P4 1.8GHz is only

marginally faster than Celeron 2GHz for office applications, for example. They are a useful source of reference information. Please visit www.compucon.co.nz that is open to the public.

Pentium 4 Extreme Edition at 3.40GHz

Two new microprocessors with Socket 478 will emerge in the first quarter of 2004. The first processor will be the Intel Pentium 4 Extreme Edition at 3.40GHz with 2MB of L3 cache; the second one will be the Intel Pentium 4 processor at 3.40GHz with 512KB of L2 cache. Both chips will be produced using Intel's 0.13-micron technology and will feature 800MHz Quad Pumped Bus being compatible with existing i865 and i875 platforms. At the same time, Intel is projected to roll out its Pentium 4 processor with SSE3 technology (Prescott) processor at 2.80GHz with 1MB of L2, 533MHz Quad Pumped Bus. In the second quarter Intel will likely unveil a version of this 90nm CPU for LGA775 platform as well. A lot of developments in this space!

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