

AMD Athlon 64 4800+ X2 - Dual Core CPU

By *srlinuxx*

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On the 25th of April AMD announced loads of dual core stuff. Besides the launch of the dual core 8xx series Opteron it also announced the 2xx dual core Opteron and the dual core Athlon 64 X2. Today we're a step closer to the launch of Athlon 64 X2 but it's not here quite yet - you'll have to wait until June for that pleasure. If only there was a large international IT trade show that started at the end of May why, that would be the perfect venue to announce a new processor.

Until the official launch happens we won't be able to get our hands on a fully fledged Athlon 64 X2 PC, so what we have here is a technical preview based on an AMD press kit of an Asus A8N SLI Deluxe motherboard, an Athlon 64 X2 4800+ and 1GB of Corsair 3200XL Pro memory.

There are four processors in the Athlon 64 X2 family which share a number of features with each other, and with existing models of Athlon 64. Athlon 64 X2 continues to use socket 939, the fabrication process is 90nm (.09 micron) using SOI (Silicon on Insulator), the 128-bit memory controller is compatible with PC1600, PC2100, PC2700 and PC3200 DDR, although you'd be barking mad to use anything but top notch memory, and there's one bi-directional 1GHz Hyper Transport link. This gives an effective data bandwidth of 14.4GB/sec (8GB/sec x1 HyperTransport link + 6.4GB/sec memory bandwidth). X2 has 64KB of L1 instruction and 64KB of L1 data cache, just like Athlon 64.

The second core raises the transistor count to 233.2 million, but thanks to the 90nm fabrication process the die size is only 199 square millimetres. Compare that to the 130nm SOI Athlon 64 4000+ and Athlon 64 FX-55 which have cores that use 105.9 million transistors but which have an area of 193 square mm and you'll see what an effective die shrink can bring to the party.

The Athlon 64 X2 4800+ has a nominal operating voltage of 1.35-1.40V and a TDP (Thermal Design Power) of 110W which compares very favourably to the FX-55 at 104W and the 4000+ at 89W.

Add in support for SSE3 and a revised memory controller to help compatibility with a broader range of memory modules and what you've effectively got is a pair of the new Venice cores tied together with the dual Opteron crossbar.

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