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A Motherboard Upgrade HOWTO

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When considering a motherboard upgrade, the first question to ask is if the upgrade makes financial sense. If you made a list of what goes into a local dealer's white box PC clone and then priced out what those component parts cost on their own, you usually would discover that the individual parts cost significantly more that the clone PC. If your PC has a lot of issues that need to be addressed and you aren't happy with much in your current PC, you may be better off buying a basic PC clone. Then, you simply could move the parts you consider to be of value over to the new system.

Another point to consider is that many name brand PCs--Dell, HP and others--are infamous for using not quite standard cases and/or power supplies. So, even if you are happy with your current case and/or power supply, you may need to replace them as part of a motherboard upgrade.

The first choice to be made concerned the CPU chip. Current motherboards are keyed to certain CPUs, so you cannot use an Intel CPU in a motherboard designed for an AMD CPU and vice versa. That explains why I picked the CPU first. Because of the things I wanted to re-use, I decided to go with an x86-compatible CPU. The current AMD CPUs seem to be offering slightly better bang-for-the-buck than the Intel CPUs, so I focused on AMD. When it comes to CPU speed, keep in mind that, as of this writing, the latest AMD Athlon CPU costs about seven times as much as the cheapest current AMD Sempron CPU. In the Intel world, the latest Pentium 4 costs about four times as much as the slowest current Celeron. The question here is, will you get a machine that is 7 or 4 times faster for your money? The answer is no. On most benchmarks, you are likely to see less than a doubling of speed. Although it's nice to have bragging rights at the local user group, you are paying an absurd premium for extra performance that isn't worth the money in any normal situation. Having settled on a low-end Sempron 2400+ CPU chip, which came with a heat sink and fan, I now was ready to look at motherboards.

I wanted a motherboard that didn't have on-board video. It may seem odd that I was willing to pay a little bit more not to get a certain feature in a motherboard. And, yes, a separate video card does add a few dollars to the total cost of the system, but it also bypasses some hassles. In my experience, on-board video motherboards tend to cut too many corners, resulting in lousy X performance and/or trouble with support under X. I ended up going with an Asus model A7V8X-X motherboard. It was about the least expensive motherboard that had everything I wanted--AGP slot and six expansion slots--and none of the stuff I didn't want--on-board video. The only small oddity with this Asus motherboard is the audio, which was not supported until the 2.6 series Linux kernels. This would be an issue, however, only if I planned to install an old Linux distribution.

Once the CPU and motherboard were decided, I was able to decide on the memory, which is a choice that depends on the CPU and motherboard components.

Full Story [3].

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