Building the Perfect Beast (Part 2)

BY STEPHEN MURPHY

Last month I described my personal odyssey sailing the seas of early personal computers and those that would ultimately become known as PC-compatibles. Though not quite an epic, the tale started with soldering iron in hand, building my first computer in the early '80s (a Timex-Sinclair ZX81), and went right up to the introduction of 64-bit Windows XP. Though I do not claim to be heroic by drawing the analogy, I have no doubt that some of the computers with which I battled through my journey possessed traits similar to the fabled antagonists in the *Illiad*.

The good news is that one no longer needs to be manically obsessed or semi-masochistic to conquer the configuration of a cutting-edge workstation capable of handling a multitude of high-resolution audio tracks and/or uncompressed HD video. My latest beast, based around two of AMD's latest-generation dual-core 64-bit Opteron processors, was by far the smoothest configuration process yet.

THE COURSE OF EXAMPLE

With the goal of keeping neophyte do-it-yourself configuration projects from turning into SIY (screw-it-yourself) projects, for the rest of this series I'll detail a general roadmap to the components and configuration of a high-performance Windows XP-based audio workstation.

First off, a disclaimer: Though this series endeavors to show that, by virtue of a stable Windows OS, a mature peripherals industry, and plenty of online resources, nearly everyone can configure a computer from the ground up, there are always exceptions. For people prone to throwing things when frustrated – or for those with larger budgets, less spare time and/or no interest in putting one together – there are many fine online retail outfits that specialize in audio workstation configuration.

The shopping list of components needed for building the basic computer box is as follows:

1. CPU(s) with heatsink and fan.
2. Motherboard.
3. RAM.

continued on page 24 ➤

➤ *Studio Sense from page 7*

4. Video display card.
5. Power supply.
6. Computer case.

Given the above generic list, picking specific models from the hundreds available may seem intimidating to those new to this endeavor. In fact, based on the number of questions and comments I've received on the subject, not knowing which components to buy is one of the leading reasons people shy away from the configuration process. The reality is, once you have chosen a processor brand (Intel or AMD) and model, you are given a narrow path to follow for many of the remaining components. For example, your choice of processor(s) dictates a range of usable motherboards; motherboard requirements dictate compatible RAM, case, power supply and case choice ranges.

The choice path is narrowed significantly when building a high-performance system based around the latest processors. This is both because a high-performance computer often requires not-so-common high-end parts, and the very latest processors are only going to be supported by a limited range of motherboards.

Since it can be assumed that your new computer is being principally configured for use with a particular audio application, it is essential to check the manufacturer's website for system requirements and component recommendations. Also spend time on the application's online forum. This is a fantastic way to get first-hand hardware recommendations, whether by posting direct questions or by searching existing posts and forum members' system configurations (often found in their signatures).

The Example of Course

The best way to illustrate how narrow the hardware configuration path becomes is by using of my new system as an example.

In the run-up to building a new computer for my Steinberg Nuendo audio system, I started gathering notes from the Nuendo online forum. This was extremely helpful because computer system info is a semi-requirement in all forum members' signatures, and the forum has a subforum dedicated to computer configuration and troubleshooting.

Based on the manufacturer's and members' recommendations, I decided that my system was going to be built around two of AMD's new dual-core 64-bit Opteron 280 processors (that's four 2.4 GHz processors total).

From the AMD website, I found that there were only a few motherboards supporting multiple dual-core Opterons. Two were from Tyan, models S2885 and S2895. Thanks to the Nuendo forum, I already new that the S2885 had compatibility issues with the Universal Audio UAD-1 plug-in card, so basically my mobo choice was made for me.

From there, everything else fell into place: the Tyan site lists several manufacturers and specific models of compatible RAM, power supplies, CPU fans and heat sinks, and cases (the Tyan 2895 is a particularly large mobo).

As you can see, the path to successful configuration is pretty much handed to you on a platter. You basically cannot go wrong picking any of the components from the lists provided by the CPU and motherboard manufacturers.

Next month comes the fun part – putting it all together, building a RAID and tweaking XP for audio.

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