



Innovation is never over

TEMPTED BY PRICE REDUCTIONS, I recently decided to treat myself to an early Christmas present: the Voyetra Turtle Beach AudioTron (www.audiotron.net) that I reviewed a few months ago (**Reference 1**). I was happily surprised to find that on the very day the unit

showed up on my front porch, the company coincidentally released its much improved version 2 firmware. This upgrade neatly addresses the main criticisms that I noted in my review: the lack of a configuration option other than the tiny LCD and front-panel rotating knob and an inability to access digital-audio content stored outside my LAN.

My write-up suggested that the company provide a composite video output to drive a television and perhaps an optional wireless keyboard. In retrospect, I can't believe that I didn't think of the equally elegant and much lower cost option that Voyetra Turtle Beach implemented—a built-in configuration-and-status Web server that you can access from any other computer on the local network or (via a firewall “hole”) elsewhere on the Internet. My firewall, print server, and wireless base station all have built-in Web servers, so I don't know why this AudioTron possibility had slipped my mind.

AudioTron can now also tap into MP3 digital-audio streams coming from Shoutcast (www.shoutcast.com) and Icecast (www.icecast.org) servers elsewhere on the Internet, and streaming WMA (Windows Media Audio) support is forthcoming. These capabilities handle most Internet radio stations; RealAudio is the only remaining format “hole.” They all exist as stand-alone features, without the need for a powered-on PC as an “intermediary” on your LAN. AudioTron requires only a HomePNA connection or, in my case, the Ethernet cable running

from the router in my home office to my living room.

This isn't just a tale about a cool, capable toy, though. It's also an example of that overly used catch phrase, “paradigm shift.” And it's an opportunity to revitalize home audio, a segment of the electronics industry that has, for all intents and purposes, gone stale these past few years. You no longer have to deal with lousy over-the-air reception of local radio stations and, in fact, can listen to music and talk from all

the home media server's CD-ROM drive, rip its contents to WMA or some other high-quality, low bit-rate format, then put it away for safekeeping. And for playback, who needs a centralized multichannel amplifier, driving analog audio across dozens of feet of lossy, noise-attracting speaker wire? Instead, put the Class D amplifiers inside the speakers and send digital signals from the now-amplifierless receiver to the speakers via power-inclusive FireWire or USB connections (**Reference 2**). Or, if there happens to be a power plug near each speaker, dispense with the cumbersome wires and beam the digital bit streams to the speakers via a range, power-, and cost-appropriate wireless technology, such as Bluetooth or 802.11.

The elementary stereo architecture—a tuner driving a preampli-

COMPLACENCY IS CONTRARY TO MOORE'S LAW.



fier, driving a power amplifier, driving speakers—has remained essentially unchanged for decades. Yet Internet radio, digital wired and wireless interconnect, and Class D amplifiers are on the verge of radically transforming it. What kinds of systems do you work on? And when was the last time you had an idea about how you could make fundamental and revolutionary changes to them, based on evolving customer needs, on advancing technology capabilities, or both?

Time stands still for no one, and complacency is contrary to Moore's Law. Build a better mousetrap before your competitors beat you to it.

Time stands still for no one, and complacency is contrary to Moore's Law. Build a better mousetrap before your competitors beat you to it.

REFERENCES

1. Dipert, Brian, “Audio receivers tune in to binary broadcasts,” *EDN*, April 26, 2001, pg 48.

2. Israelsohn, Joshua, “Listening to Class D,” *EDN*, Aug 30, 2001, pg 61.

Contact me at bdipert@pacbell.net.