Tzero creates chipset for wireless HDTV with Ellisys test equipment

Client

Tzero Technologies
Sunnyvale, CA
Wireless high-definition video chipmaker
www.tzerotech.com

Challenge

To develop the world's leading chipset for streaming HDTV signals without wires.

Solution

To verify the compliance of its UWB chipset and to debug potential issues, Tzero used an Ellisys WiMedia Explorer 300 Analyzer and an Ellisys WiMedia Explorer 300 Generator.

Benefits

Tzero was able to get its Wireless for HDMI system reference design and prototype to market months faster, thanks to the Ellisys wireless test equipment.

Quote

"Anything that can accelerate our product launches and time to market is important. The Ellisys test equipment is invaluable to us in our product development. I find it very helpful as an independent third party to see what is really going on."

Patrick Worfolk, Director,
MAC Algorithms and Protocols,
Tzero Technologies

Ellisys is a leading supplier of cutting-edge USB, Wireless USB and Ultrawideband Protocol Analyzers. The company's products help hardware, software and test engineers save development effort, improve quality, and accelerate time to market. Ellisys protocol analyzers range from simple and cost-effective tools to high-end fully-featured equipment.

Tzero is a fabless semiconductor startup in Silicon Valley with a unique chipset for streaming high-definition video signals without wires.

Early in 2007, the 65-person company completed its first-generation Ultrawideband chipset, reference design, and working prototype.

And Tzero used wireless test equipment from Ellisys to save time, make sure it complied with WiMedia specifications, and to squeeze optimum performance from its designs.

Setting the bar high

Tzero took the unusual step of building a working prototype based on its first reference design. The Wireless for HDMI system — complete with transmitter and receiver — replaces the HDMI cable running from a DVD player or set-top box to a High Definition TV.

When they hit the stores, these devices will help consumers mount large-screen HDTVs without having to tear up their walls to hide the cables between devices. Eventually this wireless technology could be built into HDTV sets, set-top boxes, and DVD players.

"We want to be out to market first with the best product, and set the bar high, so that anyone else will be playing catch-up with us," says Patrick Worfolk, Director of MAC Algorithms and Protocols for Tzero.

"We're actively talking with the big manufacturers throughout the world, and our dream is for every flat-panel HDTV to have a Tzero chipset in it."

Seeking better performance

Worfolk's challenge is to design clever software that squeezes every bit of throughput from an Ultrawideband network, while remaining highly compliant with the WiMedia standards.

To meet that challenge, by the fall of 2006 he needed a wireless test setup. At the time, Ellisys was the only vendor with a wireless protocol analyzer and packet generator.

"I've been very happy with the Ellisys guys. We've been giving them feature requests and bug reports, and they've turned them around, often in 24 hours. That's fabulous!"

Worfolk bought an Ellisys WiMedia Explorer 300 Analyzer and an Ellisys WiMedia Explorer 300 Generator. His two-person MAC team have used it ever since for debugging and compliance testing their UWB chipsets.

"Having a third-party device that sniffs the packets going back and forth is very valuable," says Worfolk. "It's one thing to believe that our software is doing something. It's another thing to observe the actual packets, and the timing between packets going out over the air with an Ellisys."

Tzero is constantly seeking better performance from its prototypes.

Tzero's wireless adapter replaces the cables running from a DVD player or set-top box to a HD TV to help consumers mount large-screen HDTVs neatly.

"Just being compliant isn't enough to be a good product," he notes. "A good product is a whole lot more than that. In our case, we may be able to get a better picture, a better range, or better all-round performance than a competitor."

Ongoing enhancements

Tzero put the wireless test equipment to work right out of the box. And Ellisys has continued to release free software upgrades with advanced features since then.

"I've seen incredible growth in their capabilities since I first got them in November," says Worfolk. For example, he appreciates how the wireless protocol analyzer is even easier to use today.

"The way information is displayed has been substantially enhanced," he says, especially with the InstantTiming window. He used that all-in-one view to look at the beaconing signals that enable various UWB devices to peacefully share bandwidth.

He also appreciates the frame generator's powerful coding language, which now provides more flexible programming, including non-deterministic outcomes.

"It went from a very linear scripting language to a more enhanced language with a number of control structures that allow for much easier creation of tests."

Always active in the WiMedia events, Ellisys has developed several tools to help with Compliance and Interoperability testing at these workshops.

These include a complete, automated WiMedia test suite using a generator and analyzer to verify the performance of any device under test.

And the Beacon Period Viewer is now used at every interoperability session to see exactly what's going over the air between devices, check whether devices see each other, and quickly debug any errors.

"If we can't test before certification events, we're going in blind. If we can run the tests at home, we know in advance how well we're going to do. So you can imagine the comfort level the Ellisys equipment gives us," says Worfolk.

Saving time in testing

Time is critical in getting any new technology to market—and the Ellisys test equipment saved Tzero precious time getting ready to showcase its technology.

All in all, Worfolk estimates the Ellisys equipment helped Tzero shave two months off its time to market. Along the way, he found its team quite responsive to his requests.

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Now that he's hard at work on a second-generation chipset, Worfolk is happy to have the Ellisys wireless test equipment right where he wants it: close at hand in his lab.