Ellisys helps Artimi win race against time

Client

Artimi
Cambridge, U.K.
Fabless
semiconductor firm
www.artimi.com

Challenge

To provide the lowest cost, lowest power, standards-compliant WiMedia-based Ultrawideband systems for third-party products.

Solution

Artimi uses an Ellisys Wireless USB Explorer 300 and an UWB Generator 320 to do integration and system testing of its newest chips.

Benefits

The company saves considerable engineering time and money. And results are far more rigorous than with the alternative: back-to-back prototype testing.

Quote

"The Ellisys test equipment has paid for itself 10 times over. It's robust and extremely useful, and we really haven't had any issues with it."

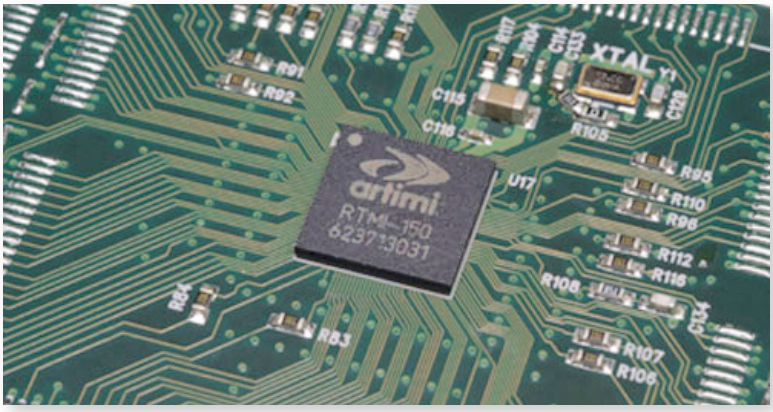
David Hibberd, Senior Test Engineer, Artimi

Like every fabless chipmaker looking to win big in Certified Wireless USB, Artimi is in a race against time.

The company achieved a major milestone in 2005 with the release of RTMI-100, the world's first complete Ultrawideband system with radio, PHY, MAC and IOC all on a single chip.

Now, Artimi is racing to finish its follow-up product, the RTMI-150. This complete Ultrawideband system on a chip draws low power but achieves high throughput, making it ideal for devices such as digital cameras, MP3 players, and cell phones.

And Artimi's test engineers are using an Ellisys Wireless USB Explorer 300 and an UWB Generator 320 to finish the job faster than ever.



The RTMI-150 is a low power, highly integrated, WiMedia MAC Controller.

Wireless and attenuation testing

Using this equipment, Artimi does both functional and integration testing, mainly with test beds set up for both over-the-air and attenuated link testing.

To simulate the effect of distance on the wireless connection, Artimi's engineers attach a variable attenuator to the SMA connector on the Ellisys analyzer. They transmit a known number of packets from the RTMI-150 and verify that everything is received properly. Then they increase the attenuation to simulate increasing the space between the two units, and repeat all tests at different data rates.

Throughout these tests, the two Ellisys units work hand-in-hand. Any errors recorded by the protocol analyzer can be exported to a script and played back by the generator. This enables engineers to quickly track down any issues, then run exactly the same test again.

And to test corner cases, the generator can play a script written from scratch by an engineer, or created by a software application.

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.

artimi

Artimi is a fabless semiconductor company leading the development of globally compatible single-chip WiMedia-based silicon solutions for low-power, high-bandwidth wireless connectivity based on UWB technologies. Artimi's dual-band products are complete system solutions, ideal for high-speed Certified Wireless USB applications in power-sensitive consumer, communication and PC peripherals.

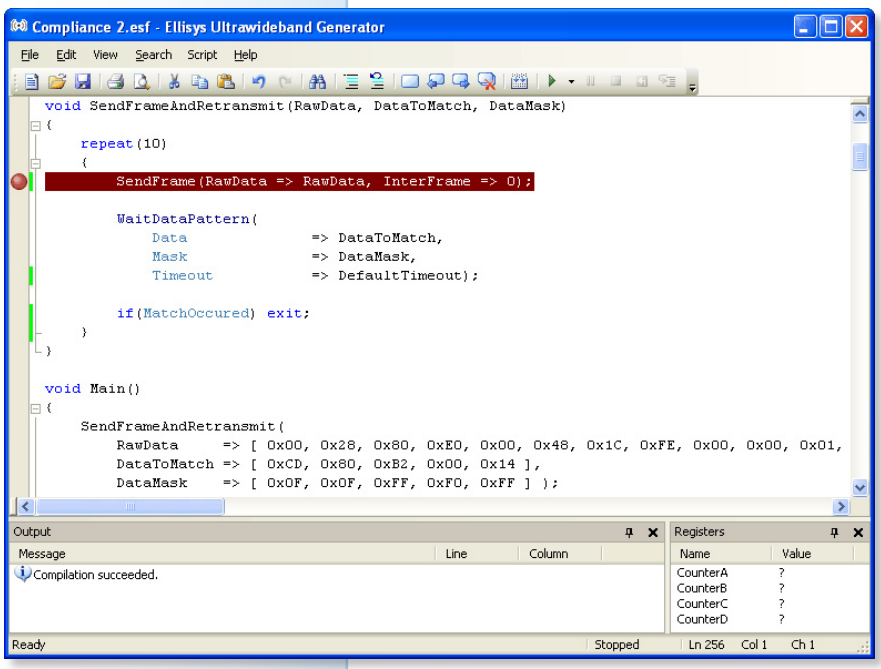
"A nice thing about the Ellisys 300 is that you can connect it to a laptop to make a portable test unit… it's quite nice to be able to move the unit from one desk to another."

Ellisys does powerful UWB traffic generation

The Artimi engineers already had some USB test equipment from another vendor, but in spring of 2006 they bought the Ellisys units to do more.

The Ellisys analyzer has an intuitive graphical interface that displays easy-to-understand, high-level information, yet gives instant access to the lowest levels of the underlying protocol.

"A nice thing about the Ellisys 300 is that it's bus-powered from USB, so you can connect it to a laptop to make a portable test unit," says Senior Test Engineer David Hibberd.



Any wireless USB traffic recorded by the protocol analyzer can be exported to a script and played back by the Ellisys traffic generator for further testing.

The UWB Generator 320 was the first wireless USB traffic generator on the market, with powerful features such as the ability to send a frame repeatedly within a loop, do conditional branching, and wait on complex external events before continuing a script. All these enable the Ellisys traffic generator to react to other devices.

"That is the feature that really stands out," says Hibberd. "Obviously, it's nice to have such powerful traffic generation, with the ability to capture data that we send to it, and then send it back to its device."

Easy to learn and use

Artimi's engineers found the Ellisys gear easy to learn and use.

"The presentation is certainly very clear and easy to follow. It didn't take us at all long to get up to speed with the Ellisys units," says Hibberd.

And they found the Ellisys software provided informative results.

"The Summary view is most useful for our type of testing, since it gives an immediate representation of whether you received everything. It has a summary of all the data you've sent, so you can see any dropped packets or any errors."

Any errors can be searched very easily, and displayed in the InstantTiming window to understand if they are related to time.

Hibberd still uses his test equipment from both vendors, which gives him an added measure of reliability.

"There were no disagreements between the two devices," he says. "And having both Ellisys and the other gave us a further degree of confidence in our test results."

No more back-to-back testing

What would Artimi have done without the Ellisys gear to help?

"Without it, we would have probably done more back-to-back testing," says Hibberd. But simply connecting two prototypes together is much less reliable. "Obviously that wouldn't have given us as much analysis as the Ellisys software. It's always nice to have a third party verify that what you're doing is correct."

Without Ellisys, Artimi would have also needed to write its own software.

"We would have had to put in more of our own counters and software to verify that what we transmitted was correct. And when you consider the man-hours to do software, that would have probably increased our development time."

Not to mention the added costs for all that coding. In short, the Ellisys equipment is saving the company time and money, and helping Artimi get ahead of the pack in the race to market.

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