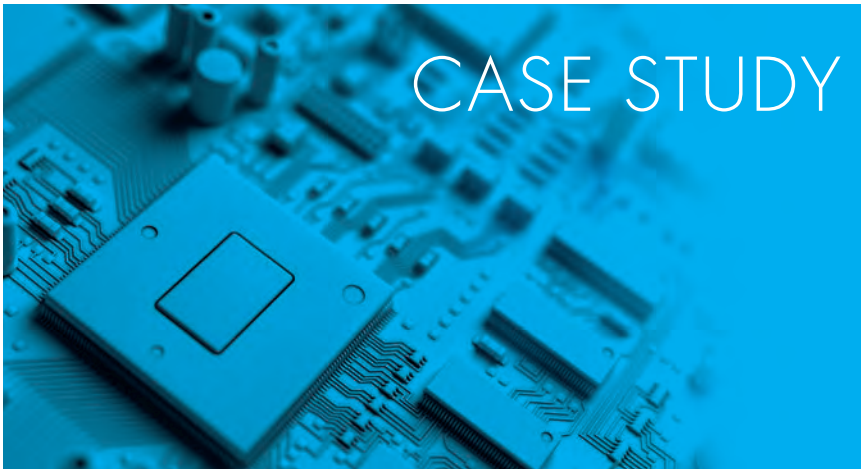
Beagle™ USB 5000 v2 SuperSpeed Protocol Analyzer – Ultimate Edition

Cosemi Technologies, Inc.



Company:
Cosemi Technologies, Inc.

CHALLENGE

Cosemi manufactures specialized optical USB 2.0 and USB 3.0 cables for their customers' devices. An integral part of their production process includes quality control testing. After initially performing functional testing to validate cable performance, their team determined that this test methodology was not meeting their requirements and they needed a way to test cables at the protocol level.

SOLUTION

Using the Beagle USB 5000 v2 SuperSpeed Protocol Analyzer – Ultimate Edition allows their production team to quickly test their USB cables against their customers' devices on the production line while uncovering data errors and their sources in real time.

BENEFIT

The Beagle USB 5000 v2 SuperSpeed Protocol Analyzer provides enhanced visibility into USB 2.0 and USB 3.0 traffic, allowing their team to catch marginal cables without having to run through various test scenarios required by functional testing.

Cosemi Technologies creates high-performing optical USB cables for their customers' unique and advanced applications, which requires thorough test capabilities to ensure interoperability. Prior to the Beagle USB 5000 v2 SuperSpeed Protocol Analyzer, they performed functional testing on their cables to validate performance, however, this proved to be insufficient for their requirements and did not provide a way to thoroughly check for all potential issues. Using the Beagle USB 5000 v2 analyzer allows their production team to quickly verify the quality of their cables by closely monitoring USB 2.0 and USB 3.0 data packets transmitting across the cable.



Background/Problem

Cosemi Technologies is a manufacturer of optical interconnect products comprising of USB, HDMI, and DisplayPort standards supporting high-speed audio/visual data. Many of their customers' devices and applications are unique and require specialized optical cables that support higher bandwidth over longer distances. Due to the importance of interoperability between devices, it is vital for their development team to perform quality control testing to verify that their cables are performing appropriately under a variety of circumstances.

Initially, to assess cable performance, their team would perform various functional tests to verify that the cables could successfully transmit audio and video data without experiencing any intermittent drops. However, this method of testing did not provide visibility into underlying issues within the USB cable that stem from missing data frames or corrupt data packets at a protocol level. Additionally, determining the root cause of these errors without having a clear view of the USB bus was time-consuming and inefficient.

Technical Approach

Cosemi successfully uses the Beagle USB 5000 v2 Protocol Analyzer – Ultimate Edition to perform quality control testing on their specialized cables at various production sites, as well as for support and lab testing purposes. This Beagle USB 5000 v2 analyzer can simultaneously monitor USB 2.0 and USB 3.0 data up to 5 Gbps. Cosemi designs cables supporting various bit rates, so having the ability to monitor data at both of these speeds is crucial for their operation. Within their test setup, they have configured the Beagle USB 5000 v2 analyzer to perpetually monitor existing USB 2.0 or USB 3.0 traffic transmitting between their own cable and the customer's device. To customize their production line testing process, their team utilized the Beagle Software API to create a Python script to turn off USB 3.0 data and force USB 2.0 mode when needed.

"It's been a rewarding experience working with Total Phase to drive forward USB 2.0 and USB 3.0 test methodology for active interconnects. We look forward to continuing this collaboration for next generation USB standards."

—Devang Parekh, Director of Engineering, R&D

With the Beagle USB 5000 v2 analyzer, the team is able capture all USB communication on the bus in both directions, and extract the bit error rate into a file for easy review and debugging. By doing so, it accelerates their ability to detect edge cases and intermittent issues due to frame dropout. Additionally, this tool allows the team to efficiently retest the same cable multiple times. Instead of having to reinsert the same cable for each different test, they are able to toggle the machine on and off, streamlining this process. Overall, since using the Beagle USB 5000 v2 analyzer, this team has improved the productivity of their testing operation.

Conclusion

Having the ability to monitor and debug USB data is critical for many companies, including Cosemi Technologies. This company specializes in creating tailored optical cables for their customers' devices and depends on the Beagle USB 5000 v2 SuperSpeed Protocol Analyzer to oversee their USB developments at their production sites. Since using this tool, they have experienced enhanced quality control testing that allows them easily uncover unknown errors within their product. Instead of relying on functional testing, they are able to catch marginal cables and quickly determine the root causes of any errors at the protocol level in real time.

Product Brief

The Beagle USB 5000 v2 SuperSpeed Protocol Analyzer – Ultimate Edition is a world-class USB 3.2 Gen 1 bus monitor that provides real-time interactive capture and analysis of Superspeed USB (up to 5 Gbps) and USB 2.0 traffic. By adding a SuperSpeed USB downlink, multi-analyzer synchronization, and advanced match/action trigger and filter system to the platform, we have created a blazing fast, advanced tool that is loaded with interactive and flexible features for even the most experienced USB developer. Free Data Center Software and cross-platform support for Windows, Linux, and Mac OS X make the Beagle USB 5000 v2 SuperSpeed Protocol Analyzer – Ultimate Edition a user-friendly and versatile tool for any engineer working with USB.



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