AimValley

Project Example
Single Pair Ethernet

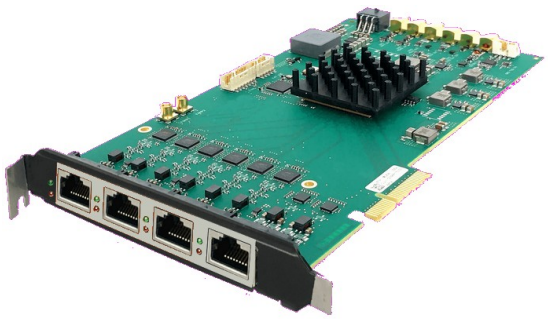
Customer
Single Pair Ethernet (SPE) provides a low cost infrastructure for automotive, industrial, and IoT applications. Instead of the traditional 8-wire twisted pair connection, SPE uses a thin 2-wire cable and small connector, reducing weight and costs while retaining support for both data and power transfer.
Because it is based on Ethernet it directly works with the ubiquitously available equipment and installed network infrastructure. It eliminates any expensive protocol conversions that were needed previously to connect legacy industry equipment.

Our customer, a leading provider of factory and lab test equipment, was looking to add SPE test capability to their system. They asked AimValley to do the design of the SPE hardware module. The customer enters the automotive and industry 4.0 markets with SPE test solutions.

Customer Objectives
Using AimValley as a partner, experienced in complex system design and an expert on Ethernet, synchronization and SPE board designs, the new test module was delivered in a shorter interval. This significantly decreased risks and allowed the customer to focus on the development of new test applications and the user interfaces for the SPE test module.

AimValley Solution
- Application Software Development based on AimValley Software IP (AimOS), AimValley's assembly of hardened software blocks for packet based solutions.
- Architecture, Development & Project Management.
- Grassroots project: first release in less than 6 months.

Key Technologies
- Mobile fronthaul based on CPRI
- SNMP for network management
- Network Software Stack – AimOS
- Distributed control and management system, involving 100s of nodes.
- Efficient collection of optical link performance data from 1000s of optical links.



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Results and Added Value

Efficient
Using our expertise on SPE technology and FPGA based solutions, the design was completed on time and without any risk of re-do or non-compliance. Our first-time-right execution resulted in a quick time-to-market.

Successful
The highly configurable design was quickly integrated into the existing test solutions, supporting many different synchronization test scenarios. The new module is 100% compatible with the system backplane and stays well within allocated power budget.

Partnership
The SPE module design team worked closely with the customer's product architecture and software teams to ensure full compatibility with the system backplane and electrical interfaces.

Innovation
During the definition phase AimValley created a flexible clock and PLL architecture taking advantage of our extensive knowledge of synchronization technologies and solutions.

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