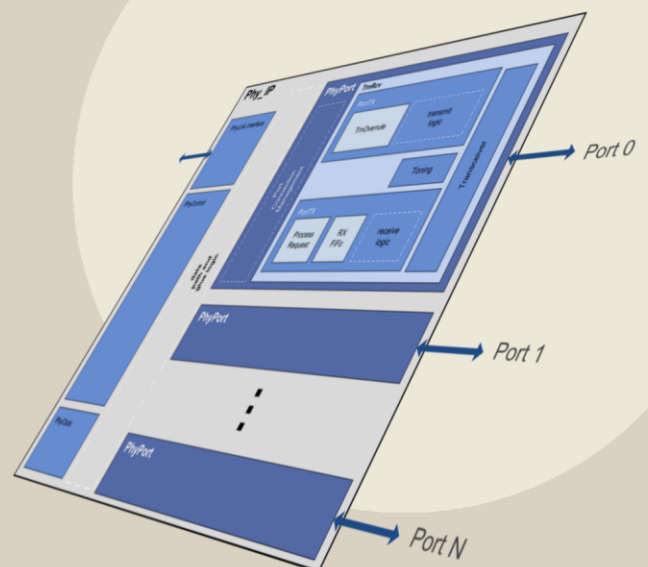




1394 IP SOLUTIONS

FIREGATE



PRODUCT OVERVIEW:

With its latest product development efforts, DapTechnology again sets an example for industry leadership and a keen technology vision. When completed, **FireGate™** is going to complement DapTechnology's successful series of intellectual property (IP) solutions. Not only will DapTechnology offer its industry-proven Link layer IP solution **FireLink®** but also add the complex PHY layer boasting transmission speeds up to S3200 to its product portfolio. And when paired, FireLink & FireGate can be combined into one single FPGA as **FireCore™**, i.e. a fully integrated field programmable system-on-the-chip (SOC) solution that clearly aims to take the integration of 1394b to the next level.

Transmission speeds beyond 800 Mb/s for FireWire have become a real requirement. The need originates mainly from bandwidth rich applications in the video and audio arena. Even with the current industry standard of 800 Mb/s, there are restrictions in the amount of video data that can be transmitted, especially when dealing with high-resolution, uncompressed video streams. While quite common and generally accepted in the consumer video arena (MPEG or DV video compression) in practically all industrial, medical, scientific and avionics applications, lossy compression algorithms are not usable and the size of video data streams is constantly increasing. Likewise, the number of simultaneously transmitted streams is rising as well for typical applications.

Over the years DapTechnology has established itself as an industry leader for FireWire related IP solutions. The company has gained experience with the specifics of FireWire PHY technology during the development of the InvisiPHY® technology which resulted in the unique FireStealth® analyzer and related IP solutions. Leveraging on this experience Dap launched the development of a Beta-only FireWire PHY solution called **FireGate™** and successfully established means to utilize the Transceivers inside modern FPGAs. Such an approach has resulted not only in high speed abilities (800Mb/s (S800), 1600Mb/s (S1600) or 3200Mb/s (S3200)) but also in quite interesting expansion capabilities as required for aerospace and industrial applications.

Key Features

- IEEE 1394b-2008
- Supports S800b, S1600b and S3200b
- Complete IP solution that can be paired with standard LLC silicon or FireLink®
- Flexible number of PHY ports
- Future support for SAE AS5643 and Mil1394 enhancements
- Supported by Xilinx Virtex-5, Spartan6 (S1600) and soon Virtex-6 (pending) FPGAs

ADDED MIL1394 FEATURES:

FireGate™ also offers unique possibilities to optimize standard 1394 features for their use in typical A & D applications. Since off-the-shelf silicon solutions are not specifically addressing this industry's unique requirements, "work-around" specifications (SAE AS5643) have been developed. FireGate™ on the other hand offers the possibility to address critical issues from the onset and will allow for the development of solutions perfectly suited for mission critical and even space-borne applications. Especially in combination with the Mil1394 enhancements offered by FireLink® highly optimized solutions can be created.

Please contact DapTechnology directly for the Mil1394SOC Whitepaper (NDA required).

Mil1394



DESIGN FEATURES AND BENEFITS:

There are several advantages when using FPGAs to implement a PHY. Some of these are:

Single-chip solution: The PHY IP can be combined with Link Layer IPs, creating smaller, compact solutions. Additional components can be added to create a System-On-Chip (SOC) solution.

Flexible number of ports: Commercially available PHY chips have a fixed number of ports. Small peripherals can benefit from having only one or two ports. Host adapter would likely benefit from 3 or more ports and a hub could even have more than that. For a PHY based on FPGA technology, the user can customize the number of ports as required.

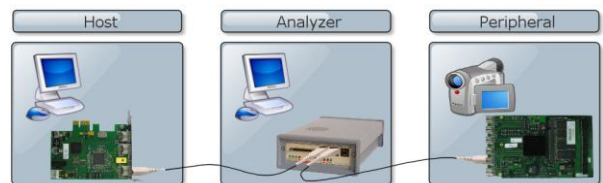
Optional debug and test features: Optionally the user can include debug and test features like BERT (Bit Error Rate Test) Low level data monitoring and recording

Field-upgradable: The used FPGAs are field upgradable thus allowing to add new features or fix bugs, even if the device already in the field.

Cost effective ASICS: Once a design is finalized an IP solution offers a very cost effective path to rendering a custom ASIC.

REFERENCE SYSTEM:

Dap is developing a complete S3200 system, including a 4-lane PCI-express host adapter, an S3200 FireWire analyzer and a peripherals development board which can be used by the customer to develop their products.



SPECIFICATION:

Specification details will be made available soon.

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