

# Synopsys and Stretch

## Proven DesignWare IP for PCI Express Reduces Integration Risk and Speeds Time-to-Market



**“We were facing a very limited market window and the DesignWare IP for PCI Express enabled us to tape-out on schedule with timing closure, and achieve first-pass silicon success.”**

*- Phil Lowe, Director of ASIC, Stretch*

### Business

Stretch is a fabless semiconductor company providing software configurable processors for compute-intensive applications.

### Stretch Challenges

- Achieve time-to-market goals
- Acquire PCI Express® IP that had the right application interface for the existing architecture

### Solution

- DesignWare® digital controller and PHY IP for PCI Express

### Benefits

- Taped-out on time, with first pass silicon success
- Lowered integration risk with silicon-proven, high quality IP
- Achieved production test within a week using the on-chip diagnostic capability of the PHY IP

### Overview

Stretch's latest family of processors, the S6000 series, was designed specifically for high speed video and image processing. With these applications in mind, Stretch has developed two reference design kits using S6000 family software configurable processors, a PCIe® digital video recorder (DVR) and an Internet Protocol (IP) camera.

Targeting surveillance applications, these designs demonstrate the enormous video processing capabilities and flexibility of the Stretch devices. Both the IP Camera and DVR are production ready designs in their own right, but can also form the basis of highly differentiated customer products. Both designs feature the Stretch Intelligent Encoder Software Development kit and can dynamically adapt their processing algorithms in response to changes in the video streams.

**“Having high quality IP was important to us. We knew the DesignWare IP for PCI Express was a mature product that had numerous tape-outs. We had trust in the IP and support that Synopsys would provide us.”**

*- Phil Lowe, Director of ASIC, Stretch*

#### Leading IP Features

Stretch's latest S6000 family of chips provides the industry with a 3X performance increase over previous generations of Stretch's configurable processors. The S6000 family includes a unique combination of a high performance RISC processor and programmable fabric in a single chip, making it completely software programmable. Building upon the success of their S5000 family, Stretch needed an IP solution they could trust and fit well into their architecture. They selected the Synopsys' DesignWare digital controller IP and PHY IP for PCI Express to help them meet their time-to-market goals.

Synopsys provided Stretch with the market-leading PCI Express IP solution that was an ideal match for their existing architecture. Stretch was also impressed with the on-chip diagnostics of the PHY IP, which enabled them to get from initial silicon to production test within a week. Increasing performance and reducing area is a common expectation for most designs. Synopsys not only met those expectations but also delivered an IP solution with low power, high margin and high yield.

#### High Quality and Comprehensive Support

Faced with significant time to market pressures, Stretch needed a PCI Express IP solution that was of high quality and would work first time. Synopsys DesignWare IP for PCI Express was a mature product that was not only proven on test chips but also had numerous silicon tape-outs. When Stretch needed it, the Synopsys technical support team was always there to help address any integration issues.

For Stretch, it was no surprise that they were able to achieve first pass silicon success and meet their market window. With the S6000 released and gaining market traction, Stretch is looking at further developments that will build upon the success of this platform and benefit from use of Synopsys DesignWare IP.



**“We were quite impressed with the DesignWare PHY IP for PCI Express. Using the built-in diagnostics, we were able to verify that the PHY IP met all the requirements of the electrical specifications within a week of getting first silicon.”**

*- Phil Lowe, Director of ASIC, Stretch*

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Synopsys, Inc.  
700 East Middlefield Road  
Mountain View, CA 94043  
www.synopsys.com