

# Synopsys and ChipWrights

ChipWrights achieves first-pass silicon success and meets aggressive schedule with high-quality DesignWare USB and Ethernet IP



*We did not have a very good experience with our last IP vendor and were not going to make the same mistake twice. With an aggressive project schedule, we wanted to go with the best and most reliable IP vendor in the industry, a blue-chip vendor, and that was definitely Synopsys.”*



**Cary Robins**  
President, ChipWrights

## Business

ChipWrights is a fabless semiconductor company that designs and develops breakthrough video processing technology for mobile imaging applications.

## Challenges

- ▶ Meet an aggressive project schedule that would typically be implemented with a larger team
- ▶ Minimize cost, power consumption and die size
- ▶ Obtain high-quality IP that would enable first-pass silicon success

## DesignWare® IP

- ▶ USB digital controller
- ▶ Ethernet digital controller
- ▶ ARM® AMBA® On-Chip Bus peripherals

## Benefits

- ▶ Achieved first-pass silicon success with proven, high-quality IP
- ▶ Saved up to four months on development schedule
- ▶ Reduced overall project cost and improved productivity with small internal engineering team
- ▶ Received first-rate support from sales and technical teams

## Overview

ChipWrights customers are comprised of OEMs throughout the world who are building a new generation of mobile imaging products. In their highly competitive race to market, these OEMs demand high-performance, low-power, scalable, and cost-effective image and video processing solutions. As a start-up company with a keen vision, superior technology and a proven ability to execute, ChipWrights uniquely delivers these solutions and helps its customers realize more profitable mobile consumer and commercial electronics products.

ChipWrights offers a family of products based on the CWvX™ architecture. Ranging from the general purpose parallel DSP to the high-performance multimedia system-on-chip (SoC), each design offers unmatched performance at low levels of power consumption and a wide variety of peripheral support. With small form factors, low heat dissipation and copious processing power, the CWvX family of DSPs are well suited to a wide variety of applications in the home, office, or on the go.



*A project of this magnitude is typically done with a much larger team so we had to leverage everything we could. We were able to have complete trust in the IP and we can't overstate the importance of that. Synopsys was there every step of the way and never let us down."*

**Cary Robins**

President, ChipWrights

### **Leading DesignWare IP solution**

ChipWrights was developing their next generation high-performance visual signal processor, which would be an alternative to fixed function devices in imaging applications. The CW5631 featured USB 2.0 On-the-Go (OTG) and Ethernet 10/100 interfaces, and AMBA on-chip bus peripherals such as Synchronous Serial Interface, I2C, and UARTs. According to ChipWrights, the CW5631 would be the best chip they have designed thus far in terms of performance, power consumption and cost. The CW5631 SoC is optimized to handle large volumes of streaming data, while providing a scalable and programmable platform that is ideal for portable or embedded digital media products.

ChipWrights previous experience with a different IP vendor proved to be disastrous. "The IP was of very poor quality and it never worked correctly in the chip," said Cary Robins, President of ChipWrights. This time ChipWrights set out to find a trusted IP supplier that had an established footprint in the industry. They selected Synopsys. "Synopsys has been in the IP business for a long time with products that are in volume production and silicon-proven in numerous tape-outs. They have the highest credibility in the industry," commented Robins.

Synopsys DesignWare USB 2.0 OTG, Ethernet 10/100 and AMBA IP solutions met ChipWrights area, power and performance needs. Furthermore, the IP was easy to use, enabling ChipWrights to configure the IP within a day and fully integrate it into the SoC within one week.

### **High quality and excellent support**

For the CW6531 chip, ChipWrights acquired high-quality USB, Ethernet and AMBA IP from Synopsys that enabled them to achieve first-pass silicon success for a very complex design. "We needed IP solutions that we could rely on to work the first time and not have to spend our valuable resources on verifying the functional code. Synopsys DesignWare IP was fully compliant to the standard specifications and functioned as expected," stated Robins. Using DesignWare IP allowed ChipWrights to save up to four months on their project schedule.

By working with an IP provider that has been in business for over a decade, ChipWrights always felt that Synopsys would be there to help address any possible issues they would encounter. "Synopsys' support is the best I've seen in a very long time. When we needed it, throughout every phase of the design flow, the Synopsys sales team brought experts in to address our questions and we really appreciated that effort," said Robins.

ChipWrights' CW5631 Digital Media SoC was successfully deployed into the market and has received wide customer adoption. With this success, ChipWrights is now looking into future product developments based on the CWvX architecture. When asked if they would be utilizing Synopsys DesignWare IP again, Robins replied, "definitely."

*"We had the IP configured quickly and fully integrated into the SoC within a week. We were able to save about four months of development time by using DesignWare IP."*



**Cary Robins**

President, ChipWrights

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03/09.CE.09-17084.