

Synopsys and austriamicrosystems

DesignWare Hi-Speed USB 2.0 OTG PHY and Controller IP Shortens Project by up to Six Months



“We chose Synopsys because it was the only IP supplier that provided both a USB 2.0 PHY and controller as a complete solution, and because of the quality we saw in Synopsys DesignWare Libraries on previous projects.”

- Mario Manninger, Head of Engineering for the Communications business unit.

austriamicrosystems

Business

Supplier of chips for power management and portable music players

Issues

- Cut time to market
- Minimize risk
- Achieve high yield
- Save engineering labor

Solution

Synopsys DesignWare® Hi-Speed USB 2.0 OTG PHY and Controller IP

Benefits

- Saved three to six months time to market
- Met project schedule
- Reduced development costs
- Achieved high volume production with excellent yield



Overview

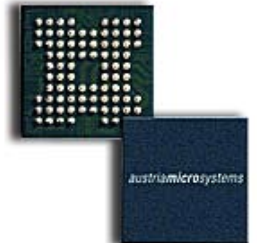
The Communications business unit of austriamicrosystems used the Synopsys DesignWare Hi-Speed USB 2.0 On-The-Go (OTG) PHY and Controller intellectual property (IP) solution for a critical block in the design of its leading-edge AS3525 portable audio processor chip family. The company chose Synopsys because of the quality that Synopsys IP displayed in previous projects and because only Synopsys provided the PHY and Controller in a complete solution. austriamicrosystems' confidence in Synopsys IP paid off when the design team saved up to six months while meeting all engineering and manufacturing goals. Now the AS3525 is powering leading edge players like the Samsung NEXUS and Pioneer inno.

Designing High Performance Analog Solutions

austriamicrosystems is a leading designer and manufacturer of high performance analog ICs, combining more than 25 years of analog design capabilities and system know-how with its own state-of-the-art manufacturing and test facilities. Its Communications business unit serves the power management and portable music player markets with products such as the AS3525 single-chip media player solution. Designed in 130nm CMOS technology, the AS3525 is the only high-performance chip family available that offers Hi-Speed OTG functionality.

“We were so pleased with our experience that we’re continuing to use Synopsys DesignWare IP in our designs, we definitely recommend DesignWare Hi-Speed USB 2.0 OTG PHY and Controller as well as Synopsys products generally.”

– Mario Manninger, Head of Engineering for the Communications business unit



Synopsys - The Risk-Free Choice for IP

When austriamicrosystems launched the design of the AS3525 in 2004, the engineering team faced a critical make-or-buy decision regarding one of the design’s key blocks, its USB 2.0 PHY and controller. By procuring the block as commercial IP instead of developing it internally, the firm stood to save substantial time to market. Choosing the wrong IP supplier, however, would entail significant risks. For one thing, almost all of the candidate vendors offered just a PHY or just a controller – leaving austriamicrosystems with the risky task of integrating the two blocks. In addition, yield could suffer with the wrong choice of IP.

Fortunately austriamicrosystems found an option that mitigated both risks – the Synopsys DesignWare Hi-Speed USB 2.0 OTG PHY and Controller. This IP includes all required logical, geometric, and physical design files to implement and manufacture USB 2.0 Hi-Speed OTG capability in a system-on-chip (SoC).

“Synopsys was the only IP supplier that provided a complete solution including both a USB 2.0 PHY and controller in a complete package,” says Mario Manninger, Head of Engineering for the Communications business unit. “Furthermore, we had come to trust Synopsys DesignWare Libraries because of the good experiences with them in previous projects. We especially appreciate the design and coding guidelines used

in Synopsys DesignWare Libraries and SoC design methodology, which we’re using internally. Synopsys always delivers top quality IP, and we were confident that we’d see that same quality in the DesignWare Hi-Speed USB 2.0 OTG PHY and Controller.”

Synopsys Support Matches its Products in Quality

With excellent support from Synopsys, austriamicrosystems incorporated the IP into the AS3525 design, completed the project on schedule, and met every one of its engineering goals.

“If we’d performed the OTG PHY and controller development ourselves, it would have cost us three to six months time to market and increased our engineering costs,” says Manninger. “Furthermore, since stability in production is vitally important to us, we monitor the yield related to different chip functions. We haven’t seen any yield loss as a result of using the high quality Synopsys DesignWare IP”

Powering North America’s Leading Satellite Radio Receivers

The AS3525 and its three derivative products have proven to be very successful for austriamicrosystems. Among its many customers is XM Satellite Radio, North America’s number one digital satellite radio provider, which incorporates the chipset into its portable satellite radio receivers.

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