

Synopsys and Parrot

Parrot Achieves First-Pass Silicon Success with Synopsys DesignWare Audio Analog Codec and USB 2.0 IP



To put it simply, we chose Synopsys IP because of the high-quality products that they deliver. We appreciate that the IP, documentation, and support are very controlled and organized. The quality of Synopsys' IP exceeded our expectations and enabled us to achieve first-pass silicon success.”

Pierre Danzas
ASIC Sourcing Manager, Parrot

Business

Parrot, a global leader in wireless devices for mobile phones, stands on the cutting edge of innovation. Parrot was founded in 1994 to create high-quality, user-friendly wireless devices for easy living. Parrot has developed an extensive range of hands-free systems, including wireless multimedia products geared towards audiovisual applications.

Challenges

- ▶ Reduce integration risk when using both analog and digital IP on a single custom ASIC
- ▶ Reduce product costs by deploying a single ASIC with both analog and digital IP, instead of two ASICs
- ▶ Ensure fast time to market in the competitive consumer space

Synopsys Solution

- ▶ DesignWare® Audio Analog Codec
- ▶ DesignWare USB 2.0 PHY and Controller

Benefits

- ▶ Achieved first-pass silicon success and accelerated time to market by at least 12 staff-months of effort
- ▶ Reduced integration risk with silicon-proven DesignWare IP
- ▶ Received excellent technical support from an experienced support team that helped accelerate and ease the integration process

Overview

Parrot's Zik Bluetooth headphones (<http://www.parrot.com/zik/>) cater to the discerning consumer who requires the highest sound quality. With active noise cancellation, a proprietary Parrot Concert Hall Effect, built-in equalizer, touch and motion detection control, and four built-in microphones for enhanced noise cancellation, Zik headphones provide a heightened listening experience. Sleek and sophisticated on the outside, Zik headphones deliver a technological punch on the inside.

Parrot's Zik noise-cancelling headphones include Parrot's proprietary P6i ASIC. While based on the previous-generation P6 ASIC, the P6i generation needed to incorporate both analog and digital functionality on a single chip. Integrating both analog and digital in a single device would allow Parrot to reduce their costs both in the current Zik product and also in future consumer, business, and automotive applications that use the same ASIC. And Parrot needed to move quickly to address fast-paced and ever-changing consumer needs.

To support these goals, Parrot required a reliable solution that would provide analog and digital functionality on a single chip, minimize integration effort, and function as expected the first time.

High-Quality DesignWare IP

Parrot needed to focus their engineering efforts on developing and implementing the unique consumer experience that their product brings. For other critical components, they decided to use third-party IP. After evaluating several options based on the ability to implement both analog and digital IP on a single chip, as well as a track record of successful silicon, Parrot selected Synopsys' Audio Analog Codec IP and USB 2.0 IP. Parrot chose Synopsys IP due to its maturity and IP performance, as well as previous excellent experiences and support from Synopsys.

"Only Synopsys Audio Analog Codecs offered the technology that allowed us to integrate both analog and digital IP on a single chip," said Pierre Danzas, ASIC Sourcing Manager, Parrot. "The codec offered excellent signal-to-noise ratio and a high sampling frequency that is rare on the market."

Expert and Responsive Support

Parrot integrated the DesignWare IP into their design with no major issues, saving an estimated 12 months in development time compared to developing the IP in-house. The accuracy and completeness of Synopsys' product documentation helped Parrot efficiently integrate the DesignWare IP into their ASIC design. "Everything was delivered at once," said Danzas. "We had no need for back and forth discussions with Synopsys to collect documentation, reports, or other items necessary for smooth IP integration." When assistance was needed, Synopsys' responsive technical support team was ready to provide timely and knowledgeable help, further easing the integration process on their path to first-pass silicon success.

"We truly appreciated the quality of Synopsys' IP, documentation, and technical support," said Danzas. "We will consider DesignWare IP for future projects, and have confidence that Synopsys will continue to meet our IP and support requirements."



Parrot Zik Bluetooth Noise-Cancelling Headphones using Synopsys Audio Analog Codec and USB IP

"Synopsys' high-quality Audio Analog Codec and USB 2.0 IP saved us at least twelve months in development time, compared to building the IP in-house."

Pierre Danzas
ASIC Sourcing Manager, Parrot

