



CADENCE AND HUAWEI TECHNOLOGIES

Huawei Achieves 50% Productivity Boost in RF PCB Post Processing using Cadence Allegro Platform and Services

“The automatic ground via placement function of the Cadence Allegro RF PCB module offers the most powerful support to RF PCB design, and significantly improves post processing efficiency. We achieved a 50% improvement in this area, and increased our overall design efficiency by 15%.”

Yuan Wenxin, Engineer, Wireless Interconnection Design Dept, Huawei

CORPORATE PROFILE

- Huawei specializes in research, development, and production of customized network solutions for telecom carriers

DESIGN CHALLENGE

- Create a next-generation basestation that incorporates extensive new technologies and significant mixed-signal design challenges
- Reduce design cycle and improve productivity

CADENCE SOLUTION

- Provided custom radio frequency (RF) printed circuit board (PCB) module for Cadence Allegro® system interconnect design platform
- Created an environment that allowed Huawei to complete their entire PCB design within the Allegro platform

CADENCE PRODUCTS AND SERVICES

- Cadence Allegro system interconnect design platform
- Custom module to address RF PCB design needs

ENRICHING LIFE THROUGH COMMUNICATION

Established in 1988, Huawei Technologies provides customized network solutions for telecom carriers around the world. Specializing in the research and development and production and marketing of communications equipment, Huawei holds leading positions in the global market in the areas of 3G, next generation network (NGN), switching, xDSL, optical network, and data communications. The company's vision is to enrich life through communication.

The team in the Wireless Interconnection Design Department was embarking on the design of a next-generation basestation that included several pieces of new technology. The mixed-signal PCB design posed several business and technical challenges. On the business side, the team needed to reduce their design cycle to meet their time-to-market goal. From a technical point of view, this design was

very complex and there was a need to manage much more data than they had in the past. Until this point, the team had been using the Cadence Allegro system interconnect design platform for their digital PCB design needs, and another tool to deal with mixed-signal issues. They wanted to consolidate their design environment, using one solution to address all of their PCB design needs.

COMPLEX RF PCB DESIGN PRESENTS EFFICIENCY CHALLENGES

The design that the Huawei Technologies team was working on included digital circuits, RF circuits, and a power amplifier on one PCB. “We wanted to find a way to improve our efficiency with this design,” said Yuan Wenxin, an engineer in the Wireless Interconnection Design Department at Huawei Technologies. “We approached Cadence to see if there was a way to use the Allegro platform and services for all of our needs. This would

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allow us to avoid time-consuming tasks like database transferring, and hopefully reduce our overall design time."

CADENCE ALLEGRO RF PCB MODULE DELIVERS UNIFIED MIXED-SIGNAL SOLUTION

Cadence answered the call from the Huawei team by deploying their Allegro RF PCB service. This service includes a custom RF PCB module and a flexible shape editor (FSE) module that work in conjunction with the existing Allegro PCB Editor to address the specific requirements of RF PCB design, effectively creating a complete, unified mixed-signal RF PCB solution.

The Huawei team achieved instant flexibility using the new service from Cadence. "The FSE module enhances the existing Allegro shape editing functions," said Wenxin. "It provided us with powerful and flexible functions for copper editing, adjustment, and resizing. This capability was very helpful in our design and modification of the RF circuit, and particularly useful for the power amplifier circuit."

HUAWEI DESIGN TEAM ACHIEVES SIGNIFICANT EFFICIENCY IMPROVEMENTS USING CADENCE ALLEGRO PLATFORM

By working with the Cadence Allegro services team, the Huawei wireless interconnection design team was able to meet both its technical and time-to-market goals.

"The automatic ground via placement function of the Cadence Allegro RF PCB module offers the most powerful support to RF PCB design, and significantly improves post processing efficiency," continued Wenxin. "We achieved a 50% improvement in this area, and increased our overall design efficiency by 15%."

HUAWEI IS POSITIONED FOR FUTURE SUCCESS IN RF PCB DESIGN

As a leader in the wireless industry, Huawei is constantly seeking to improve their technology and their design process. They were able to achieve both during this project. "The fact that we now have a unified design platform for our

complex mixed-signal projects is a great step forward," continued Wenxin. "It saves time, errors, and headaches. We no longer have to transfer our database from tool to tool, hoping for accurate communication. It's all just much smoother."

It was important that the RF PCB enhancements to the Allegro platform were integrated with the existing PCB editor to shorten the learning curve. "The Allegro RF PCB modules are easy to use, easy to learn, and simple to operate," said Wenxin. "Moreover, they keep the original style of the Allegro platform. This service is an important enhancement to address the specific challenge of RF and mixed-signal design."

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