

Synopsys and Ricoh

Ricoh Delivers Software 5 Months in Advance for New Multi-Function Printer with Synopsys Virtualizer



Using Platform Architect™ MCO & Virtualizer™, we can build a virtual platform sooner, enabling architecture exploration, early software development and hardware performance verification at the highest level of the design phase for our SoC design.”



Satoshi Aoki

Embedded Platform Development Department at Ricoh Company, Ltd.

Business

Ricoh is a global technology company specializing in office imaging equipment, production print solutions, document management systems and IT services. Headquartered in Tokyo, Ricoh Group operates in more than 200 countries and regions.

Challenges

- ▶ Deliver on time software for the next generation multi-function printer
- ▶ Improve software quality and performance
- ▶ Increase software developer debugging turnaround

Synopsys Solution

- ▶ Synopsys Virtualizer™
- ▶ Synopsys ARM TLM Library
- ▶ CoStart Enablement Services

Benefits

- ▶ Started software development 5 months ahead of the original schedule
- ▶ Reduced debugging turnaround time by 50%
- ▶ Reduced overall design and development effort by over 3 months
- ▶ Overall increased quality of developed software
- ▶ Provided a software development solution integrated within Ricoh's overall design and development environment

Overview

Ricoh used Synopsys' Virtual Prototyping solutions to develop the software for a complex system on chip (SoC) targeted towards their next generation multi-function printer (MFP). The new design was based on a single chip derived from three previous distinct chips, creating complexities never faced before.

Based on a multicore ARM®-based architecture, Ricoh's goal was to design unique and competitive products and sought design and development tools to enable an agile design methodology capable of reacting to changes within their product specifications. In addition to their overall design goals, Ricoh desired independence from ASIC vendors to implement their own IP in both hardware and software, requiring a tight coordination between the teams involved in each stage of the development.

The use of Synopsys' Virtualizer™ resulted in the ability to start software development earlier, increase debugging turnaround and software quality, and integrate the virtual prototyping approach with architecture design and verification flows.

Starting Early – Faster Debugging Turnaround

Ricoh knew that to meet their complex SoC design and software development goals, they needed to focus on multiple levels of the engineering effort. For

