

## Overview

- S2C's rapid SoC prototyping solutions significantly reduced Huahong's overall design cycle enabling them to get to market ahead of their competition.
- Huahong was very impressed with the stability of the S2C's rapid SoC prototyping solutions eliminating the previous in-house prototype solutions stability problems.
- The quick response of S2C's support team helped in the success of IC Card & SIM Card project.

Using S2C's rapid SoC prototyping solutions, Huahong was able to verify and optimize its IC Card Chip & SIM Card development process. When needed, S2C's pre- and post-sales support team was able to assist Huahong to quickly port their design to S2C's FPGA prototype environment and to build their FPGA prototype verification environment.

## Challenge

"Non-contact IC card is a cost-effective contactless chip for middle and smart card applications. This is a complex system that includes RF circuits, control logic, EEPROM interface and EEPROM. SIM Card is a high-end contact card chip based on an ARM CPU. It integrates RAM, Flash, as program and data memory, timer, interrupt controller, system control, DES and security control. How to fully verify

## About Huahong



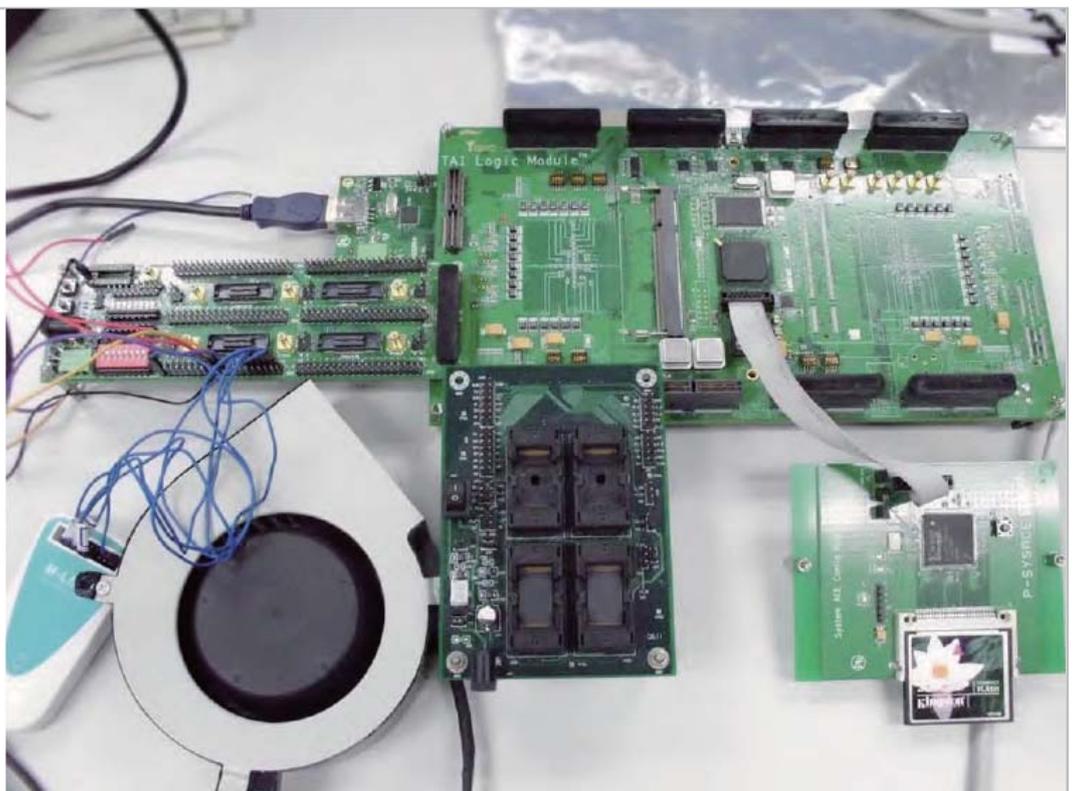
Shanghai Huahong Integrated Circuit Co., Ltd. (SHHIC), subordinate to China Electronics Corporation (CEC), is a Chinese smart card and information security chip solution supplier.

As the main structure of China 909 Project, SHHIC can provide contactless IC card chip, contact CPU card chip, dual interface card chip, USBKEY chip, multi-media chip and solutions of RFID, public transportation one-card-express, social security, financial security, telecoms, mobile payment and high-end identification etc. SHHIC annual shipment amounts to over 400 million chips and total shipment 1 billion chips.

SHHIC has now become China top IC Chip Supplier to provide the most complete product family of top annual shipment and ranks the TOP 10 China IC Chip Supplier for 9 years.

these functions and make sure the security was robust became a big challenge" said Ye Guoping, Senior Architecture Engineer. "We required a highly flexible,

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reusable and stable prototyping system for the IC & SIM card projects.”

“In the past, we developed our own prototype system for hardware validation. Using these in-house developed prototypes, it was difficult for us to locate the problem when the design didn’t work well. We were not sure whether the problem was caused by the prototype hardware or the design itself.” Said Ye Guoping.

## Solution

“By using S2C’s rapid SoC prototyping solutions, the troubles I mentioned at the part of Challenge disappeared. In addition to providing the prototyping boards, S2C also provide the prototyping software, Prodigy Player Pro. With the S2C prototyping system, we can detect the status of the FPGA board in a few minutes. This allows us to focus our time on debugging our designs.” Said Ye Guoping.

“Moving the design from our own FPGA boards to a new SoC prototyping solution (S2C’s TAI Logic Module) is always difficult, but with the S2C’s AE team’s help, we were able to accomplish this in a few days. Much to our relief, the board is very stable.” Said Ye Guoping.

## Results

By implementing S2C’s rapid SoC prototyping solutions, Huahong can reliably build a IC Card or SIM Card SoC prototype in one or two days rather than weeks or months as before.

“Now our design runs at 120MHz and occupies about 40% of the resources of a Single Virtex 5 LX330 Prodigy Logic Module. The high stability of the prototype helps us to fully verify the design.” Said Ye Guoping. “Now we can focus on the validation of the design, protocol and software development instead of having the additional worry of creating a stable prototype environment. S2C’s solutions and technical support really helped us to reduce the design cycles and risks. Our IC & SIM cards chips can get to the market earlier. As the Architecture and system grow, we are looking forward to utilizing the Single Virtex6 760 Prodigy Logic Module and Verification IP on our future projects.”



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