

基于软件和逻辑联合仿真的 SOPC 验证技术研究

周 珊，王金波

（中国科学院 空间应用工程与技术中心，北京 100094）

摘 要：针对航天高可靠 SOPC 测试验证重要性，对 SOPC 仿真技术进行深入剖析研究，提炼出了一套切实可行的 SOPC 仿真技术。阐明了 SOPC 仿真技术的具体实现方法，分析了 SOPC 的具体验证方法，并把这套仿真验证技术成功地应用到了多个航天高可靠 SOPC 的测试中，发现了很多引起功能失效的重大问题，并对其中常见的问题给予归类总结。

关键词：SOPC 测试验证；SOPC 仿真技术；CPU 内核验证；仿真环境；软件和逻辑联合验证

SOPC Verification Technology Research Based on Software and Logical Combined Simulation

ZHOU Shan, WANG Jin-bo

（Technology and Engineering Center for Space Utilization, Chinese Academy of Sciences, Beijing 100094, China）

Abstract: For the significance of high reliable SOPC test verification on Spaceflight application, SOPC simulation technology is analyzed and researched, and a set of feasible SOPC simulation technology is extracted. The specific realization method of SOPC simulation technology is clarified. The specific verification method of SOPC is analyzed, the test verification method between SOPC software and logical combined test. And the simulation verification technology is applied successfully on several reliable SOPC tests, many significant functional disabled problems can be found, and the common problems are classified and summarized.

Key words: SOPC test verification; SOPC simulation technology; CPU kernel verification; simulation environment; test verification method between SOPC software and logical combined test

作者简介：

周 珊 女，（1983-），硕士，工程师。研究方向为高可靠软件，可编程逻辑测试。E-mail: zhoushan@csu.ac.cn.

王金波 男，（1978-），博士，副研究员。研究方向为高可靠软件。