

## 光总线系统网络拓扑结构的可靠性分析

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基金项目: 国家自然科学基金青年科学基金资助项目

摘要:

光总线精确制导控制与测试系统具有技术难度大、系统性强、所处环境恶劣, 电磁兼容性要求高的特点。要有效地保障系统预定任务的顺利执行和完成, 提高战斗出勤率, 因此, IEEE-1394b 光纤总线系统必须是高可靠的、高稳定的。分析研究IEEE-1394b 光纤总线拓扑的可靠性实验研究, 是解决IEEE-1394b 光纤总线系统可靠性问题的重要内容之一。本论文提出了基于IEEE-1394b 协议的光总线网络拓扑结构的可靠性研究方案, 建立了环状拓扑可靠性分析模型, 并给出了实例分析。实验结果表明, 这种环状拓扑结构具有高的可靠性。

关键词: 光总线 IEEE-1394b 网络拓扑 环状拓扑 可靠性

## Reliability analysis of network topology in optical bus system

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**Abstract:**

The accuracy guidance weapon's control and test system with optical bus have the character of technical difficulties, systemic strong, in a poor environment and high electromagnetic compatibility. To effectively protect the system which is scheduled for the implementation and completion of tasks smoothly and to improve the fighting attendance, therefore, IEEE-1394b optical bus system must be highly reliable, high-stability. The reliability analysis of IEEE-1394b optical bus topology is an important part of the problem to solve the reliability of IEEE-1394b optical bus system. This paper presents the reliability of research programs of network topology based on IEEE-1394b protocol optical bus, establishes the reliability analysis model for ring topology and gives a case study. The experimental results show that the ring topology has high reliability.

**Keywords:** Optical bus IEEE-1394b Network topology Ring topology Reliability

投稿时间: 2010-01-25

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