基于 FPGA 的多协议数据交换模块设计与仿真

摘　　要

由于计算机网络技术的飞速发展，互联网已不再是对象之间的连接，无论是工业环境还是生活环境，万物互联已经成为世界发展的趋势，连接方法根据称为传输方法的各种形式而变得复杂。实现万物互联的方式应该是许多不同协议数据的交换（即多协议数据交换）。我们需要设计一个可以灵活配置的数据交换终端，来解决不同场景中使用的数据协议本质上是不同的这一矛盾点。 本文设计了一种基于 FPGA 的多协议数据交换模块，以灵活地应用于多种多协议数据交换场景。

关键词：多协议数据转换；SPI；I^2C；UART

Abstract

Due to the rapid development of computer network technology, it is no longer a connection between objects. Whether it is an industrial environment or a living environment,the interconnection of all things has become the trend of the world development. The way to realize the interconnection of all things should be the exchange of many different protocol data (ie multi-protocol data exchange). We need to design a data exchange terminal that can be flexibly configured to solve the contradiction that the data protocols used in different scenarios are essentially different. This paper designs a multi-protocol data exchange module based on FPGA to be flexibly applied to any multi-protocol data exchange scenario.

Key Words: Multi-protocol data conversion； SPI； I^2C； UART