

SIEMENS CORPORATE TECHNOLOGY: Master's/Diploma thesis

Development and implementation of a FPGA-based peer-to-peer protocol using a real-time Ethernet communication layer

Field: peer-to-peer technologies

Beginning date: march / april 2007

Duration: 6 months

Description:

In our group we are developing peer-to-peer protocols with focus on applications in embedded environments. Those application domains often require real-time capabilities of protocol stacks with need for hardware-optimized protocol implementations. To grant a solution that is cost-efficient and easy to maintain we plan to implement the peer-to-peer protocol stack on an FPGA. This stack will be used in is energy distribution. The stack should be verified in a protective or relay-interlocking use cases.

The diploma thesis covers the implementation and testing of the peer-to-peer algorithm on FPGA. The implementation of the network layer is not part of the thesis.

Work plan

Description	Time allotted
Familiarisation with the topic	1 m
Implementation of peer-to-peer protocol	2,5 m
Testing	1 m
Write thesis	1,5 m

Mandatory prior knowledge:

- FPGA & VHDL
- C/C++, Matlab
- Linux Shell Scripts
- Digital & RF communications

Beneficial prior knowledge:

- Shell scripts on Gumstixs
- Basic knowledge of peer-to-peer protocols (Chord, Gnutella, ...)

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Interested? Please contact us right away!