

Designing with Ethernet MAC controllers

Ref : 004553A

Duration : 2 days

OBJECTIVES

- Know the different Xilinx solutions about Ethernet connections
- Understand Ethernet basis, protocol and OSI model
- Identify the different Ethernet core used alone or in a SoC
- Select the appropriate core
- Develop software to control the peripheral
- Integrate core using EDK

RELATED COURSES

- Ethernet Bus (003367A)
- Design with the Viretx-5 family (004555A)

PARTNERS

- This training course is approved by XILINX

PREREQUISITES

- C and VHDL Language
- Successful design using ISE and EDK

TRAINING MATERIALS

Software Configuration :

- Xilinx ISE 8.2 SP1 + IpUpdate 1
- Xilinx EDK 8.2
- Mentor Graphics Modelsim with swift model option

Recommended Hardware Configuration :

- Intel Core 2 or equivalent
- Windows XP
- 1 GB Free disk after software installation
- At least 1Go RAM
- Minimum Display resolution : 1024 x 768
- On Site training : video projector



Contact

Tel : 05 62 13 52 32
Fax : 05 61 06 72 60
training@mvd-fpga.com

Course also available
customized

Next sessions, see : <http://www.mvd-training.com/en/schedule.html>

TOPICS

1st day

- Ethernet basis
 - Introduction
 - Network standard
 - OSI model
 - Ethernet framing
 - MAC
- Network protocol, Ethernet interface and hardware
 - Network protocol
 - Ethernet interface
 - Hardware
 - Lab 1 : Ethernet frame analyze
- Physical layer
 - Auto-negotiation
 - 8b/10b coding
 - Ordering sets
 - MII, GMII, RGMII interface
 - MDIO interface
 - TBI interface
 - SGMII interface
 - XGMII, XGXS, XAUI interface
 - Signaling
- Local link interface
 - Gigabit Ethernet PCS/PMA
 - Transmitting MAC user interface
 - Receiving MAC user interface
 - Flow control

- Manage interface
- Lab 2 : VLAN and Jumbo frame
- Ethernet MAC Xilinx solutions
 - Xilinx EMAC
 - Coregenerator
 - EDK

2nd day

- Lab 3 : Implementation
- EMAC and EMAC lite
 - EMAC lite core
 - OPB Emac core
 - PLB Emac core
 - Software development
 - Lab 4 : Loopback mode EMAC
- GEMAC
 - GEMAC core introduction
 - Clock management
- TEMAC
 - Hard TEMAC
 - PLB TEMAC
 - Software support
 - Lab 5 : Loopback mode TEMAC
- 10G EMAC
 - Introduction
 - XGMII, XAUI, XSBI interface
 - 10G EMAC core
 - Lab 6 : 10G EMAC frame analyze

DOCUMENTATION

Training manuals will be given to attendees during training in print.