



## IS1 - S-FPDP

### This course covers Serial-FPDP (VITA 17)

#### Objectives

- The course details the hardware implementation of S-FPDP and clarifies the operation of 8b10b encoder/decoder.
- Transfer sequences captured with the Absolut-Analysis equipment are studied to explain the frame formats and the flow control mechanism.
- The course describes the parameterizing of the Xilinx S-FPDP IP based on Multi Gigabit transceiver integrated in Virtex FPGAs.

*A more detailed course description is available on request at [info@ac6-training.com](mailto:info@ac6-training.com)*

#### Prerequisites

- Basic knowledge on serial buses.

#### Plan

#### INTRODUCTION

- Benefits of S-FPDP with regard to other high-speed interconnects
- Layered protocol
- Allowed bit-rates and distances
- Copper vs optic fiber media
- Point-to-point protocol
- Relationship with FibreChannel
- Introduction to FibreChannel low layers

#### CONVERTING PARALLEL-FPDP SIGNALING INTO S-FPDP SIGNALING

- Overview of P-FPDP
- Strobe signals
- Frame delimitation
- Flow control
- Data frame types

#### S-FPDP SYSTEM SPECIFICATIONS

- Basic systems, no feedback channel
- Flow control, related ordered sets, FIFO management
- Taking into account the cable length

- Bi-directional data flow
- Copy mode, multicast emulation, options for re-transmitting the clock
- Copy / loop mode, benefit of a feedback channel to enable flow control
- Error recovery
- Exercice : studying traces captured by the Absolut-Analysis equipment to understand the flow control mechanism

### LINK SPECIFICATIONS

- Typical S-FPDP process
- Understanding 8b10b coding scheme
- Runtime DC balance through disparity calculation
- Requirements for clocks
- Avoiding underrun and overrun, using an elastic buffer
- List of ordered sets
- Electrical characteristics
- Fiber frame types
- Exercice : studying traces captured by the Absolut-Analysis equipment

### XILINX S-FPFP IP

- MGT block diagram
- Parameterizing the MGT to support S-FPDP
- CoreGen
- Focus on the analog part of the transceiver

## Renseignements pratiques

**Duration : 2 days**  
**Cost : 1250 € HT**

