16 Channel Reconfigurable Optical Switch

PRODUCT DESCRIPTION

The 16 channel reconfigurable optical switch is an integrated high speed processing & communication platform. The 16 Channel Reconfigurable Optical Switch is used to interconnect a number of servers. The board can be cascaded with multiple boards for cluster computing applications.

Each switch board can interface with server over SAMTEC connectors which has 64-bit parallel interface. Each switch can also be connected to 16 other switches (via the SFP transceivers). The Virtex-5 LXT FPGA is the central component of the switch board.

The switch has an Arithmetic Engine which can perform arithmetic and logical operation on the data coming from multiple systems. The server will give the instructions to the switch as to what has to be done with the data.

One or more server boards in a computing cluster can assign a task to the switch. The task may include data transfer, integer/floating point operations, status enquiry or inter-cluster data transfer.

This board is field proven and used in supercomputer for weather forecasting application.

It finds application in the following areas:

- Big data management
- High performance/cluster computing
- Floating point processing
- High speed networking

KEY FEATURES

- Sixteen SFP ports for high speed optical communication
- Each optical channel is full-duplex and delivers a throughput of 3.125 Gbps
- FPGA based floating point processing
- Arithmetic Engine for arithmetic & logical processing
- Four SAMTEC connectors for interfacing with servers
- Each parallel interface delivers a throughput of 512 Mbps

SPECIFICATIONS

FPGAs

- Virtex-5 LX110T FPGA for processing

Interfaces

- 16 SFP modules for optical communication running Aurora protocol @ 3.125 Gbps
- 4 ports for server connections
- RS232, I2C interface
- JTAG interface
Software / IP
- Custom application ported on the Virtex-5 FPGA

Additional Information
- 128 Mbit SPI Flash
- Four DPRAM of 128 KByte each
- 32 MByte SDRAM

MECHANICAL
- Air cooled board in custom form factor
- Board weight < 800 grams

POWER CONSUMPTION
- Power consumption < 25W
- Powered from 20-pin ATX connector

ENVIRONMENTAL
- Temperature range: To be used in controlled temperature environment

PART NUMBER(S)
- CB10H0  16 Channel Reconfigurable Optical Switch