Board level solution

VME Pulse Processor Boards

PRODUCT DESCRIPTION

The VME Pulse Processor Boards are a three FPGA based processing solution consisting of two boards; Front IO and Rear IO board.

Front IO board is a dual FPGA based board in 6U form factor featuring VME64x interfaces for backplane communication. The Rear IO board is single FPGA based rear transition module with four optical links, RS422 and LVTTL interfaces on Micro-D connector.

KEY FEATURES

- Front IO board
  - Supports data transfer on the VME bus @ > 50 MBytes per second
  - Two independent banks of 36-bit QDR II interface, each having 2M x4x 36 bits
  - Two independent Banks 32-bit DDR, each having 128 MBytes size
- Rear IO board
  - One 10/100 Ethernet interface
  - Four optical serial links, each supporting 3.125 Gbps serial data rate
  - 16 RS422 Transmitter and 16 RS422 Receiver ports on Micro-D connectors
  - 32 LVTTL IO interfaces on Micro-D connector
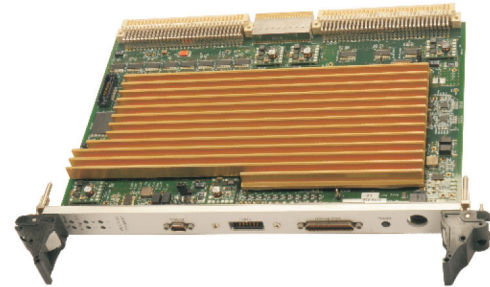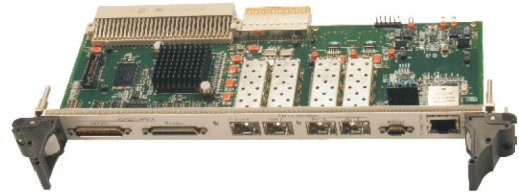
SPECIFICATIONS

FPGAs / Processor

- Front IO board: Xilinx Virtex-II Pro P40 and Xilinx Virtex 4 LX100 FPGA *for processing and communication* with the VME bus
- Rear IO board: Xilinx Virtex-II Pro FPGA for optical communication and discrete IO interface

Interfaces

- One 10/100 Ethernet interface accessible on Rear IO board
- 16 RS422 Transmitter and 16 RS422 Receiver Ports on Micro-D connectors
- 32 LVTTL IO intefaces on Micro-D connector
- Four RS232 interface, two on Front IO and the other two on Rear IO board
- Four optical serial links, each supporting 3.125 Gbps serial data rate
- JTAG interface connecting all three FPGAs and their configuration PROMs in single chain

Software / IP

- Diagnostic RTL for validation of board

Additional Information

- Independent Xilinx Platform flash used for auto-configuring each FPGAs at power-ON
- Two independent banks 36-bit QDR II interface @ 160 MHz, each having 2M x4x 36 bits
- Two independent banks 32-bit DDR, each having 128 MBytes size
- Supports standard PowerPC (405) processor interface on Virtex-II Pro

MECHANICAL

- The boards are air cooled 6U VME form factor (including Rear IO)

POWER INPUT

- Input voltage are 5V and 3.3V powered via the VME backplane

ENVIRONMENTAL

- Qualification
  - Thermal Cycle:
    - -40°C and +55°C for one hour; 2 Cycles; ±5°C /minute slope
    - -40°C to +70°C; Dwell time 30 min; 6 Cycles; 3 min change
  - Random Vibration: 20-2000Hz,0.02g^2/Hz,10 min each axis(X,Y)
- Temperature range : –40°C and +55°C (Operational)

PART NUMBER(S)

CH10B0	VME Pulse Processor Boards

The board is also available in 6U cPCI form factor

CH10A0	cPCI Pulse Processor Boards