Quad Digital Signal Processing Board

PRODUCT DESCRIPTION

The Quad Digital Signal Processing Board (QuadDSP) is a superior processing platform combining two Virtex-6 SXT FPGAs and four TigerSHARC DSP processors. The board is of 6U dimension with a VME-VXS hybrid interface for backplane communication. Quad DSP board comes loaded with embedded applications. Windows API Library is available on host PC for user access over Ethernet or VME interface.

The board is for signal processing in electronic warfare application. It is used in Radar Characterisation and Identification System. It can also be used for other defense applications.

KEY FEATURES

- Four DSP arranged as two identical DSP clusters on board enabling flawless parallel processing
  - Each cluster is 64-bits wide operating at 100 MHz
  - Processing element in each cluster includes two TigerSHARC DSP processor and a Virtex-6 FPGA
- 16 link ports extend from the DSPs (1 per DSP) to the FPGAs operating @ 250 MHz
- 16 link ports (3 per DSP) dedicated for inter-processor communication operating @ 250 MHz

SPECIFICATIONS

FPGAs / Processor
- Two Virtex-6 SX315T FPGAs
- Four ADSP-ST201 Tiger SHARC DSP processors

Interfaces
- 2.5 Gbps, 4 Lane RocketIO interface for each FPGA on VXS connector for high speed data transmission through backplane
- Optical interface from each FPGA with data rate support up to 2.5 Gbps accessible on board front panel
- One Gigabit Ethernet port on front connected to both the FPGAs via Ethernet switch
- 4 GPIO LEDs and 1 power good LED on front panel
- 32 debug IOs on the front panel for ease of debugging

Software
- Windows API library support on host PC
- Demo Application for DSP interfaces, SDRAM memory, FLASH memory, link port communication across DSP clusters and FPGA
Additional Information

- Power-ON self configuration of each FPGA through 64 MB NOR-flash
- 2 GB DDR3 memory on each FPGA to boost the processing capacity
- DSP Cluster Shared memory
  - Two 256 MByte banks SDRAM (one per cluster) available to DSPs
  - Two banks of 8 MByte Flash memory for booting DSPs and FPGAs (one bank per cluster)

MECHANICAL

- Air cooled 6 U board with VME-VXS backplane interface

POWER INPUT

- The board consumes 80W
- Input voltage is 5V, 3.3V

ENVIRONMENTAL

- Qualification
  - Thermal cycling
  - Random vibration test: Resonance 5-8Hz, +/-6mm; Displacement 8-500 Hz, 1.5g
- Temperature range: −20°C and +70°C (Storage)
  - −10°C and +55°C (Operational)

PART NUMBER(S)

| CB1070 | Quad Digital Signal Processing Board |