Radar Digital Signal Processing System

PRODUCT DESCRIPTION

The airborne Radar Digital Signal Processing System is a compact signal acquisition and processing system. The system receives signals, digitizes them and sends the digital signals to the FPGA for processing. The FPGA then sends the data to the processor boards for further processing. The processor board controls other subsystems. The system is used in airborne defense electronics.

KEY FEATURES

- Real-time OS, VxWorks 6.7
- Ruggedisation level 4 at system level
- Single block chassis to handle extreme stress levels and efficient heat dissipation
- Four 16-bit AC-coupled ADC channels sampling @ 240 Msps
- Four 16-bit DAC channels 250 Msps
- 2 dual active redundant MIL-STD-1553B
- Optical – two sFPDP interface @ 2.5 Gbps

SPECIFICATIONS

Hardware Architecture
The VPX primary fabric uses Gen 1 PCIe @ 2.5 Gbps. The system encloses three 6U VPX standard conduction cooled cards

- XMC Carrier card to hold ‘XMC Based ADC + DAC XMC card’
  - Virtex-6 FPGA
  - Analog to Digital Convertor (ADC)
  - Digital to Analog Convertor (DAC)
  - Sampling @240 Msps, 16-bits
- XMC Carrier card to hold ‘XMC card sFPDP card’
- Processor board with four on board PowerPC dual-core processors
  - Four MPC8640D dual core processors @ 1 GHz each

Interfaces
- MIL-DTL-38999 connectors to interface with the external world
  - 7 analog Interfaces
  - 2 dual active redundant MIL-STD-1553B
  - Optical – two sFPDP interface @ 2.5 Gbps
  - 2 Gigabit Ethernet interfaces
  - 7 RS422 links
  - GPIO interface
  - 4 UART interfaces
  - LVTTI, LVDS
Software / IP
- Operating system: VxWorks version 6.7
- Linux OS on ‘XMC ADC + DAC card’

Expansion Slots
- XMC slots for ‘XMC Based ADC+ DAC card’ and sFPDP cards

MECHANICAL
- Single block conduction cooled chassis
- Three slot 6 U VPX backplane accommodates conduction cooled VPX boards
- The system weighs 4.5 kg (10 kg with cables)

POWER CONSUMPTION
- The unit consumes 175W
- Input voltage is 28V

ENVIRONMENTAL
- Qualification (Level 4) : MIL-STD-810D
  MIL-STD-461E
- Temperature range : −50°C and +100°C (Storage)
  −40°C and +75°C (Operational)

PART NUMBER(S)

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