Radar Characterisation and Identification System

PRODUCT DESCRIPTION

The Radar Characterisation and Identification System is an electronic warfare system used for characterization of radar system. The solution is an air cooled multi-board solution which uses hybrid VME-VXS backplane.

The system features ADC card for signal acquisition along with processing boards for signal processing.

KEY FEATURES

- Four channel data acquisition with High Speed Data Acquisition board
  - Programmable sampling rates upto
  - 1333 MspS with four channels
  - 2666 MspS with two channels
  - User selectable filter paths for each analog channel
- Signal processing in Quad Digital Signal Processing board
- High speed data transfer from High Speed Data Acquisition board to Quad Digital Signal Processing board
- Rugged air cooled chassis with redundant 500W power supply
  - Five slot backplane (two free slots for future expansion)
  - Environmental : MIL-STD-810F
  - EMI/EMC : MIL-STD-461E
- Windows API library support for SBC

SPECIFICATIONS

Hardware Architecture
- The system has the following components
- High Speed Data Acquisition Board
  - ADC : 1333 MspS @12-bit
  - ADC : 2666 MspS @8-bit
  - 4 channels
- Intel Core i7 based VME SBC
- Quad Digital Signal Processing board
  - Four ADSP-TS201 TigerSHARC processors
  - Two Virtex-6 SX315T FPGAs

Interfaces
- Four channel RF inputs
- Gigabit Ethernet on circular connector
- UART interfaces
- Power switch
- 230V AC power input on circular connector
Software / IP
- High Speed Data Acquisition Board
  - Microblaze, on Virtex-6 FPGA executing standalone software in interrupt mode
  - Linux is running on PowerPC of Virtex5 FPGA for interpreting commands
  - Windows based GUI application with supported APIs for sending commands to card through Ethernet and VME
  - API support for transferring captured data through Ethernet, VME or VXS link
  - Built-in self tests to check the health status of the card
- Quad Digital Signal Processing Board
  - Windows API library support for SBC
  - Demo application for DSP interfaces, SDRAM memory, FLASH memory, link port communication across DSP clusters and FPGA
- Intel Core i7 based VME Single Board computer
  - Windows 7 / XP Operating System
  - Windows API libraries for accessing High Speed Data Acquisition Board and Quad Digital Signal Processing Board
  - Windows GUI for configuration, control and access

Expansion slots
- Five slots on the hybrid backplane which accepts 6U boards
  - 3 VME slots (Two free slots for future expansion)
  - 2 VME-VXS slots

Additional information
- High Speed Data Acquisition Board
  - 256 point FFT calculation in real time in Virtex-6 FPGA to validate trigger in frequency domain
  - Programmable Pre-trigger and Post-trigger samples in steps of 4 samples
  - Two trigger modes supported: programmable internal and external trigger

MECHANICAL
- Rugged chassis with five slot VME-VXS hybrid backplane which accepts 6 U boards
- Custom built forced air cooled chassis

POWER CONSUMPTION
- The unit consumes 210W
- Input voltage is 230V AC

ENVIRONMENTAL
- Qualification : MIL-STD-810F
  EMI/EMC: MIL-STD-461E
- Temperature range : -20°C and +75°C (Storage)
  -10°C and +55°C (Operational)

PART NUMBER(S)

| CS1040 | Radar Characterisation and Identification System |