Frequency Hopping and Burst Intercept Monitoring System (FHBIMS)

PRODUCT DESCRIPTION

The Frequency Hopping and Burst Intercept Monitoring Systems (FHBIMS) is a wideband receiver system. CoreEL has implemented frequency detection and analysis in this system using customer supplied algorithms. The system level solution involved system architecture, design and development of processing electronics unit for signal acquisition, demodulation and recording of IF inputs from tune /synthesizers.

KEY FEATURES

- 5 channel IF signal acquisition, down conversion and forward for either record or demodulation
  - Frequency range: 20 MHz to 3000 MHz
  - Hop rate: <= 512 hops/sec
- Monitoring of Fixed Frequency (FF), Frequency Hopping (FH) and burst signals
- Quad MPC8640 processor board for demodulation and decode
- 20 TB disk storage subsystem with record and replay module
  - Capable of recording IF data
  - Replay and feed the data to either Quad MPC8640 Processor Board or system controller PC
- GUI based application software running on host PC for real time analysis
- GUI based detection and analysis software on host PC for offline analysis

SPECIFICATIONS

Hardware Architecture
Hardware consists of the following boards and a power supply module on a 3-slot VPX backplane:

- Signal Acquisition and Processing Module
- Quad MPC8640 Processor Board
- P4040 Computing Board

Interfaces

- 5 analog input channels
- 10 GigE over SFP+ interface
- 3 GigE interfaces
- Serial RapidIO backplane fabric

Software / IP

- VxWorks OS on
  - Quad MPC8640 Processor Board
  - P4040 Computing Board
System level solution

- Linux OS on Signal Acquisition and Processing Module
  - GUI based application software running on host PC
    - Control, configuration, monitoring of FHBIMS
    - Display: RFPAN, IFPAN, Waterfall
    - Play audio data signals in real-time
    - Store audio and IF data on local disk
  - GUI based detection and analysis software on Host PC
    - Offline data analysis from recorder for de-hopping, signal parameter estimation
    - Time- frequency display of detected signals
    - Constellation graph for detecting digital modulation scheme
    - IFPAN spectrum for detecting analog modulation scheme
    - Demodulation of digital data & audio playback

Expansion Slots
- Upto 8 analog input channels

MECHANICAL
- Custom built forced air cooled chassis
- Three slot 6U VPX chassis
- The system weighs 27 kg (without cables)

POWER CONSUMPTION
- FHBIMS consumes 350W
- Input voltage is 220V AC

ENVIRONMENTAL
- Qualification : JSS 55555
  MIL-STD-461E
- Temperature range : −20°C and +70°C (Storage)
  −10°C and +55°C (Operational)

PART NUMBER(S)

| CS1020 | Frequency Hopping and Burst Intercept Monitoring System (FHBIMS) |