

BASEBAND IDENTIFICATION AND DETECTION SYSTEM

BIDS

The “Baseband identification & Detection System (BIDS)” consists of Signal Processing Hardware housed in an industrial – Grade 19”

rack mountable PC. The application software on the PC provides the necessary GUI for signal analysis / display of the identified parameters. The IF Signal (455 KHz) is down – converted and analyzed in the digital domain and demodulation is carried out. The voice signal will be made available at audio port. Digital data will be made available at a data port and also will be stored in a file for storage and off line processing.

The signal analysis

- The IF signal at 455 KHz will be converted into Digital format and digital down- conversion is done.
- The DDC output is analyzed in spectral and temporal domains to identify the type of modulation.
- Based on the type of modulator, the demodulation is done and the baseband signal is obtained.
- Signal analysis is performed on the baseband signal and if required, baseband demodulation is carried out.
- In the case of digital data, the code type and the baud rate are obtained.

The analyzed parameters are displayed on the display unit. The signal analysis software will analyze for all the parameters such as type of modulation, bandwidth of the modulating signal, baud rate etc.

System Description

Signal Processing Module

Signal Processing Engine is built around a high end Digital Signal Processor based PC add-on card with the PCI interface incorporating a 64-bit 66 MHz PCI 2.25 interface and shared memory.

Demodulator Card

The PCI demodulator card is ICS make to extend Demodulated Analog Output and Data outputs. The Analog output interface can be programmed as balanced / unbalanced. It implements Digital to analog signal and filtering functions before delivering the analog signal to output port. It gives good audio dynamic range.

The card also extends data output ports:

- 32 bit Digital
- Two independent Serial channels
- Data FIFO
- Line Interfaces

NOTE : The specifications can be changed without notice due to technological advances.



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I F Processing Hardware

I.F processing module is a digital Receiver module. It can be directly interfaced with the DSP Engine. It includes high-end FPGA (Field programmable gate array) to provide 64 bit. 66 MHz PCI interface and also can be configured by the user for implementing signal preprocessing functions such as convolution, framing, pattern recognition or decompression etc. It contains 14-bit ADC and extends good signal-to-Noise Ratio and SFDR.

External Interfaces to BIDS

- IF input through BNC connector
- RS 232 interface to External Controller
- RS 232 interface to output digital data
- Demodulated Audio output through jack
- LCD Display

Specifications of Industrial Grade PC

- 19" Rack mount Industrial PC, Intel PIV, 2 GHz CPU, 512 MB RAM
- Min. 80 GB HDD & 1.44 MB, 3.5" FDD
- 48X CD writer cum reader
- Two Com ports
- Ethernet card 10/ 100 Mbps
- 250 watts power supply
- Keyboard
- LCD Display

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