Satcom Digital Modem (SDM)

Introduction

Space Applications Centre (SAC) of Indian Space Research Organization (ISRO) has developed a Satcom digital modem ASIC build on 180nM CMOS technology, which supports IESS waveform for various modulation schemes and different Forward Error Correction techniques namely Convolution, Reed-Solemn & Turbo to be used in SATCOM ground segment. SPI/UART interface allows user to configure the MODCOD for required applications. SDM can operated in full duplex mode up to 40 MSPS symbol rate. It has in-built PRBS Generator/ Analyser and digital Noise Generator to enable standalone built-in self-test.

Available Version

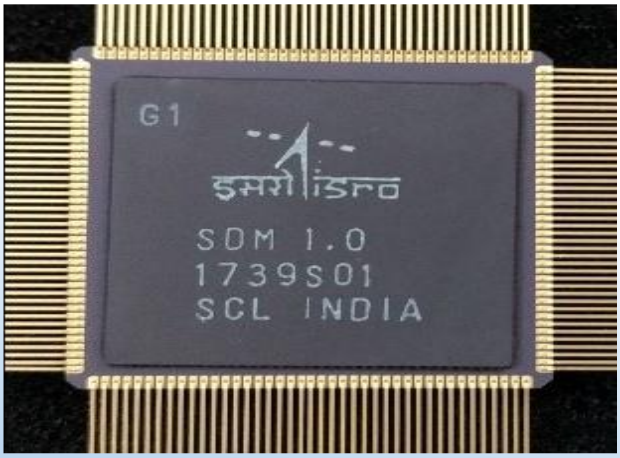
SDM	**164 pins**	**CQFP**	**Available (V1.0)**
SDM	**176 pins**	**LQFP**	**Available (V2.0)**

Introduction

SDM supports wide range of modulation/FEC/data range support, hence can be used in various MSS based SATCOM applications like. Reporting terminal, asset tracking, Satellite Mobile radio etc.

Introduction

Modem ASIC has been interfaced with ADC/DAC and successfully tested & evaluated noise performance for all combinations of modulation scheme & FEC for data rate ranging from 2.4kbps to 40Mbps. ASIC has undergone through temperature cycle ranging from (-10oC to 60o C).



SAC Technologies

Technical Specification

	Features
1	**0.18µ CMOS Digital Technology**
2	**Modulation Schemes** - BPSK/QPSK/8-PSK/16-QAM
3	**Data Rate** - 2.4kbps-40 Mbps
4	**FEC Coding** – Convolution, RS, Turbo
5	**RRC Filtering** - Roll off 20%, 25%, 35% & 40%
6	**Scrambler** - CCITT V.35, IESS-315
7	**ADC/DAC Interface** – 14 Bit digital I & Q (SDR/DDR)
8	**Interface** - Data: LVTTL, and M&C: SPI, UART
9	**Test Mode**- Normal, CW, OFF ,PRBS
10	**Supply** – 3.3V for I/O, 1.8V for core **Power** - 1.5 watt @ 100 MHz System clock 0.6 watt @ 20 MHz System clock

Technology Transfer

SAC/ISRO, offers to transfer this technology of the **Satcom Digital Modem (SDM)** developed by SAC to industries in India with adequate experience and facilities. Enterprises interested in obtaining knowhow may register and submit their proposal to Indian National Space Promotion & Authorization Centre (IN-SPACe), Ahmedabad.

https://www.inspace.gov.in

For more details, you may Contact:
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