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LPP0108 Operational Description

General Description

The LPP0108 Module utilizes the Texas Instruments Locosto digital signal processor/digital radio processor (DSP/DRP) integrated circuit, a Texas Instruments MSP430 microcontroller, and a Texas Instruments GPS chip solution. The DSP/DRP is highly integrated and provides all modem functions when combined with the TI Triton Lite analog and power management IC. RF amplification and routing is accomplished with a combined RF power amplifier/switch module. The GPS device is a self contained solution requiring minimal control interface. System sequencing and control is maintained by the MSP430.

Radio Interface

The Locosto DRP and RF amplifier/switch provide the complete RF front-end for the GSM/GPRS functions.

The receiver section encompasses the RF switch, RF band-select SAW filters and the DRP. The DRP is directly integrated to the DSP on the same IC. All down conversion and signal processing is done directly within the DRP.

The transmit section consists of a direct connection from DRP through the power amplifier/switch module to the RF connector port. All carrier generation and modulation is performed within the DRP.

The DSP/DRP uses a digitally controlled crystal (26 MHz) oscillator (DCXO) that integrates the reference oscillator and varactor functionality.

Baseband Interface

The Locosto DSP provides all digital interfaces and control of the system. The Triton Lite analog and power management chip controls all power domains and analog interfaces when the modem function is enabled. It utilizes input from a 32kHz crystal oscillator to provide real-time clock and synchronization for external interfaces. Triton also performs digital to analog translation and amplification for all audio interfaces.

GPS Interface

The GPS frontend section only requires a SAW filter, all other signal conditioning including the LNA, down conversion and signal processing is integrated onto the GPS IC.
The GPS chip solution uses a temperature controlled oscillator (TCXO) running at 16.368MHz.

MSP430 Microcontroller

A low power microcontroller is used as a system controller to sequence when the GPS and/or the GSM modem are enabled. The microcontroller is a self contained system requiring a minimum number of external components. The clock source for the microcontroller is a 32kHz crystal oscillator which is internally multiplied up to a desired frequency.