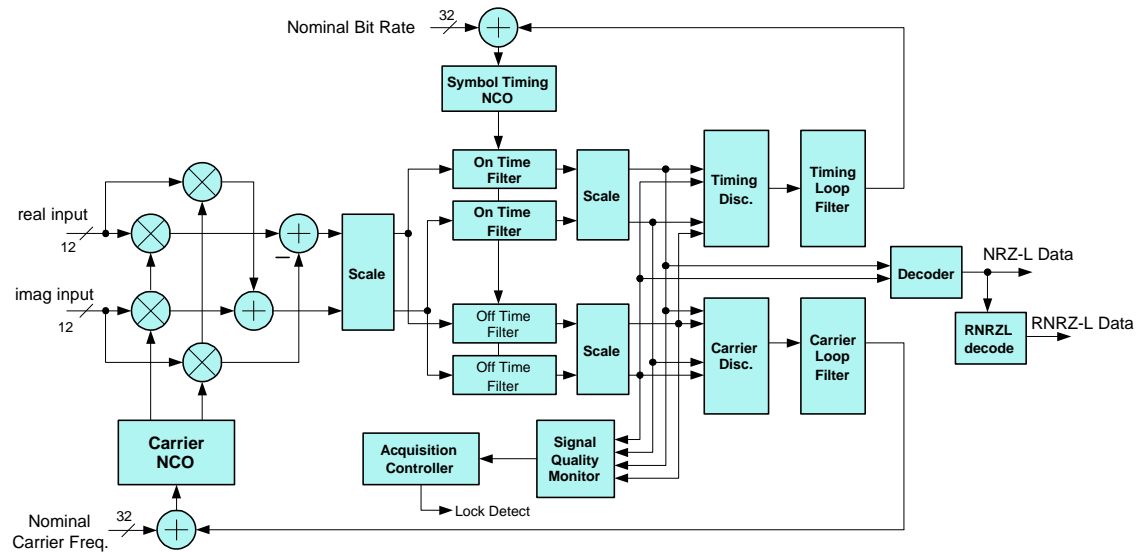


ARTM SOQPSK-TG Shaped Offset QPSK Demodulator

Feb. 2009



Features

- Compliant with Advanced Range Telemetry (ARTM) tier 1 SOQPSK-TG
- Continuously variable bit rate to 25 Mbps.
- Continuously variable carrier frequency to 50 MHz. IF sampling may be used for higher frequencies..
- Accepts baseband or passband input.
- Digital Stability.
- Provides NRZ-L and RNRZ-L outputs..
- Efficient symbol-by-symbol detection.
- Programmable carrier and timing loop bandwidth.
- Fully automated acquisition controller.
- Digital dynamic range of 40 dB.

This demodulator efficiently processes the SOQPSK waveform, which provides high spectral efficiency, and 0 dB peak-to-average power ratio. The symbol tracking and carrier tracking algorithms are implemented with efficient digital techniques which permit programming any bit rate up to 25 M bps and any carrier frequency within the digital range. The acquisition controller continuously monitors the signal quality and manages the tracking loops to insure minimum time for reacquisition in the event the signal is lost.

FPGA Resource Utilization (Altera Cyclone III)

	Logic Cells	ROM (bits)	DSP Elements
Demodulator	5921	122,880	34

Measured Performance

