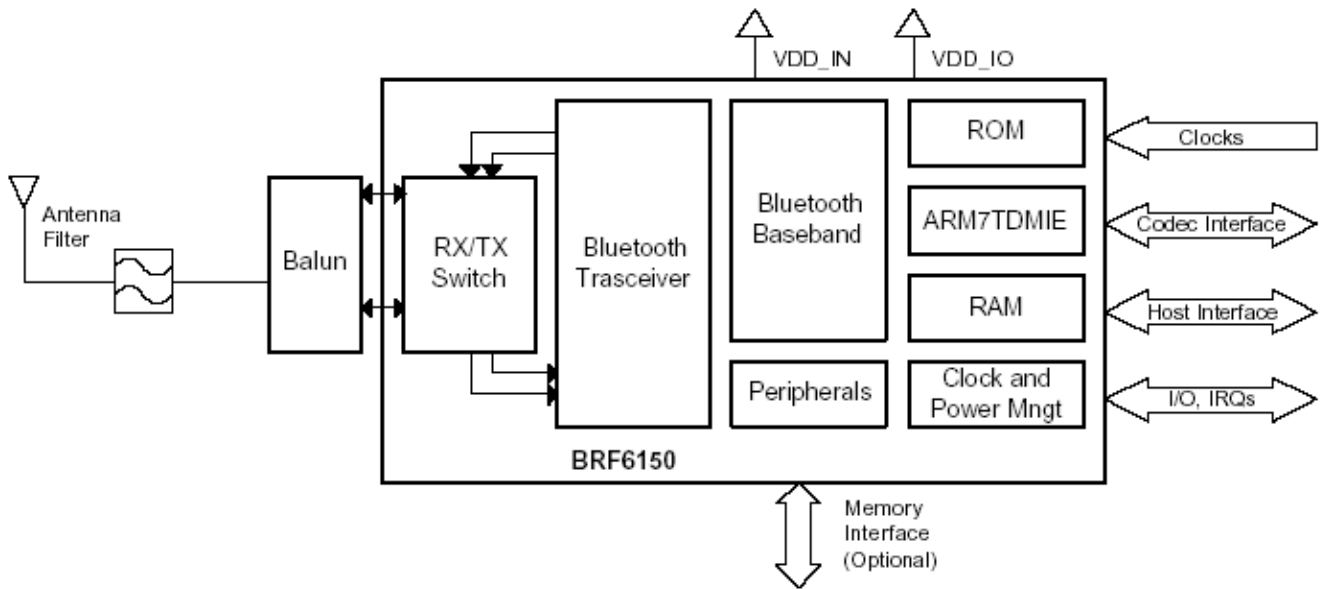


**Block Diagram**



The BRF6150 chip is a single-chip CMOS (H035) Bluetooth device that forms a complete standalone Bluetooth wireless communication system. This device implements an advanced solution for the Bluetooth protocol with easy interfacing to a host system. The BRF6150 comprises:

- . Digital Radio Processor (DRP)
- . Embedded Bluetooth point-to-multipoint hardware core for execution of the Bluetooth protocol according to Bluetooth Specification 1.1 and 1.2
- . On-chip ROM
- . On-chip RAM
- . Embedded ARM7TDMIE Microprocessor

**Transmitter**

The transmitter is based on an all-digital sigma-delta PLL with a digitally controlled oscillator (DCO) at 2.4GHz as the RF frequency clock. The modulation is achieved by directly modulating the digital PLL within a closed loop. The power amplifier is digitally controlled.

**PROPRIETARY NOTE**

THIS DOCUMENT CONTAINS INFORMATION CONFIDENTIAL AND PROPRIETARY TO HIGH TECH COMPUTER CORP. AND SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS OBTAINED WITHOUT THE EXPRESSED WRITTEN CONSENT OF HIGH TECH COMPUTER CORP.

*HTC CONFIDENTIAL*

### **Receiver**

The receiver uses near-zero-IF architecture to convert the RF signal to baseband data. The external Balun is followed by an internal RF switch and a differential LNTA (low-noise trans -conductance amplifier). The LNTA amplifies the input and converts it to a current-mode signal. The LNTA feeds the sampling capacitors in the MTDSM (MultiTap Direct Sampling Mixer). The MTDSM performs anti-aliasing filtering and down-conversion by sampling the RF signal. The local oscillator used by the MTDSM is created by the same frequency synthesizer used for the transmitter. The IF sampled signal output of the MTDSM is then filtered to suppress in-band interference. After this filtering, the signal is quantized by a sigma-delta ADC and passed through decimation FIR (DFIR) to further reduce the level of interference. The demodulator then digitally down converts the signal to zero IF, performs digital filtering, suppresses the image, and recovers the data bit by an adaptive decision mechanism.

### **PROPRIETARY NOTE**

THIS DOCUMENT CONTAINS INFORMATION CONFIDENTIAL AND PROPRIETARY TO HIGH TECH COMPUTER CORP. AND SHALL NOT BE REPRODUCED OR TRANSFERRED TO OTHER DOCUMENTS OR DISCLOSED TO OTHERS OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS OBTAINED WITHOUT THE EXPRESSED WRITTEN CONSENT OF HIGH TECH COMPUTER CORP.

*HTC CONFIDENTIAL*