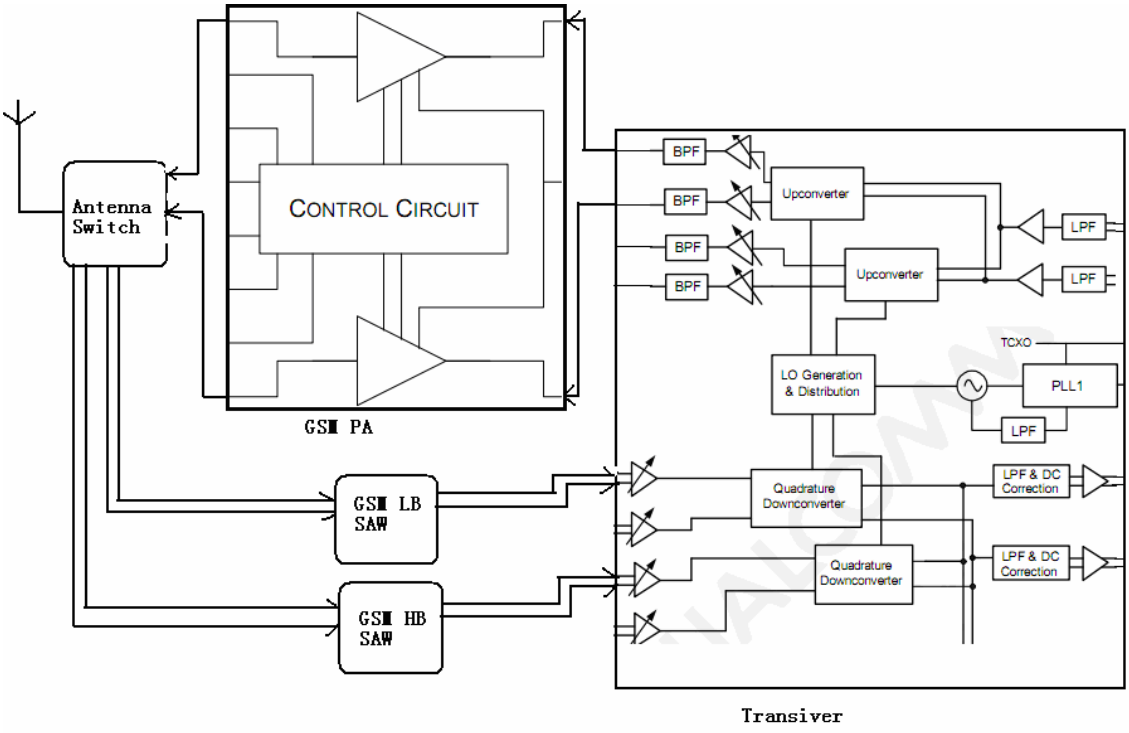
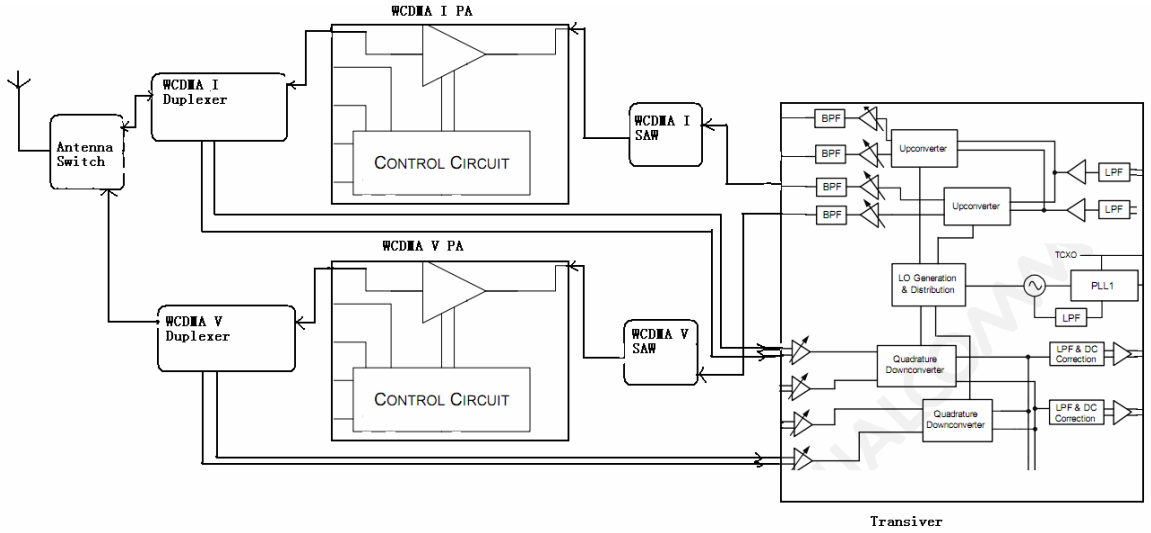
GSM four Band operation block



The quad-band GSM/EDGE Rx paths start from the front-end circuits(Rx SAW and antenna switch module).The four differential inputs are amplified with gain-stepped LNA circuits.Gain control is provided through software and serial interfaces.The LNA outputs drive the RF ports of quadrature RF to baseband downconverters.The downconverted baseband outputs are multiplexed and routed to lowpass filters whose passband and stopband characteristics supplement MSM device processing.

The transmit path begains with differential baseband signals(I and Q)from the MSM device.These analog input signals are buffered,filtered by low-pass filters and then applied to the quadrature upconverter mixers.The upconverter outputs are amplified by multiple variable gain stages that provide transmit AGC control.SSBI control from the MSM is used to generate the gain range control signal.The AGC outputs are applied to the high-band and low-band driver amplifiers. From the drive amplifiers,each band's PA amplified the Tx signal through 3 stage.Then the antenna transmits the Tx signal to the sky.

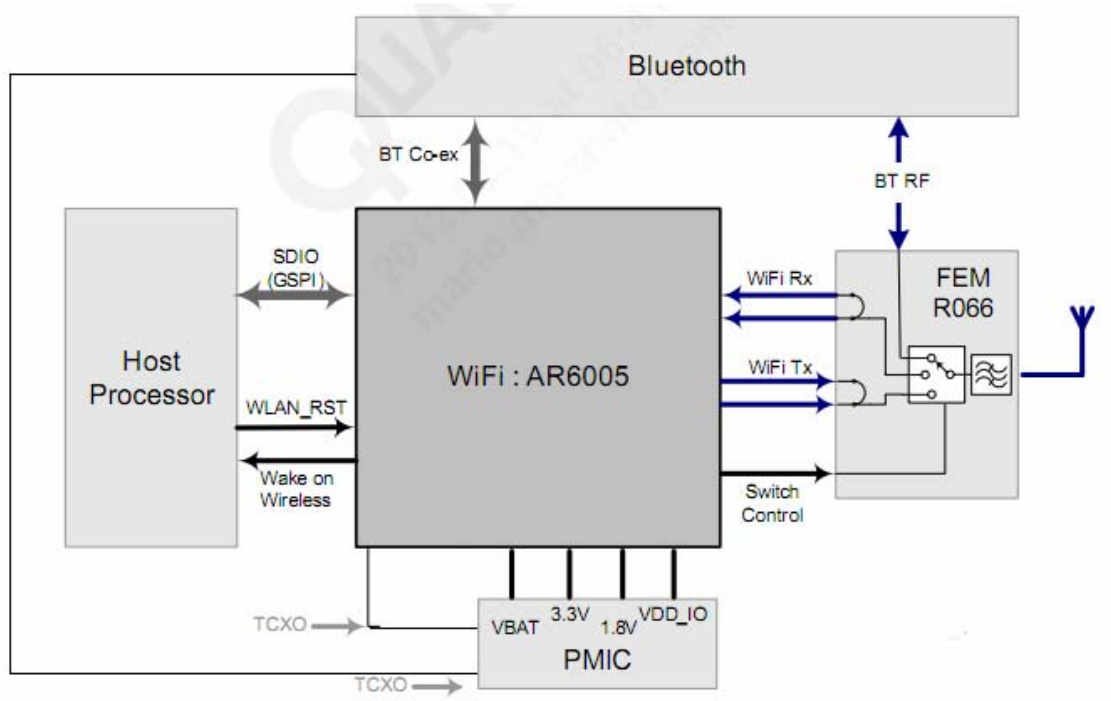
WCDMA I/V operation block



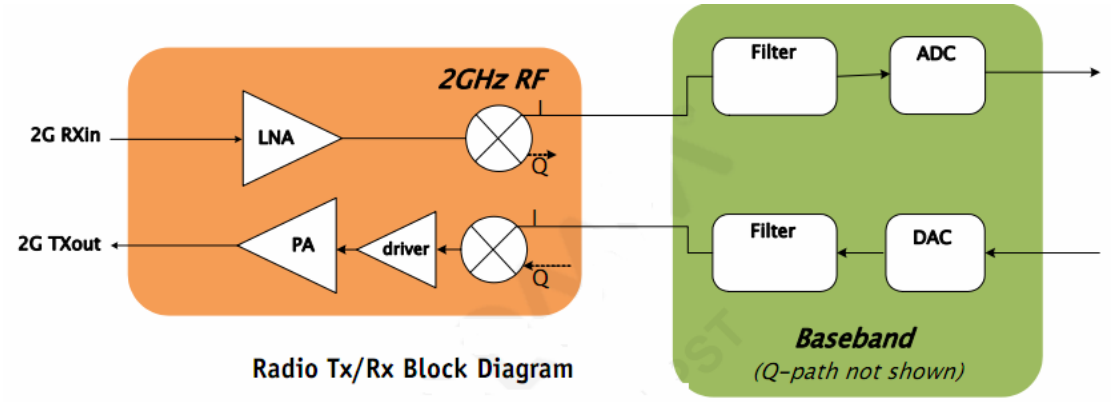
An antenna switch selects the RF operating band,and band-specific duplexer filter the incoming Rx signal while simultaneously routing the transmit signal to the antenna.Each primary receive signal is routed from its duplexer to its QTR LNA,then to downconvert's circuitry.The quadrature downconverter translates the LNA's RF signal directly to baseband,producing two analog output components:in-phase(I) and quadrature(Q).

The Tx RF paths share on-chip analog baseband circuits.In the transiver,each band category,low and high,has a dedicated baseband-to-RF upconverter and its own set of RF gain stages that provide transmit AGC control.Each band's PA amplified the Tx signal through 3 stage.Then the antenna transmits the Tx signal to the sky.

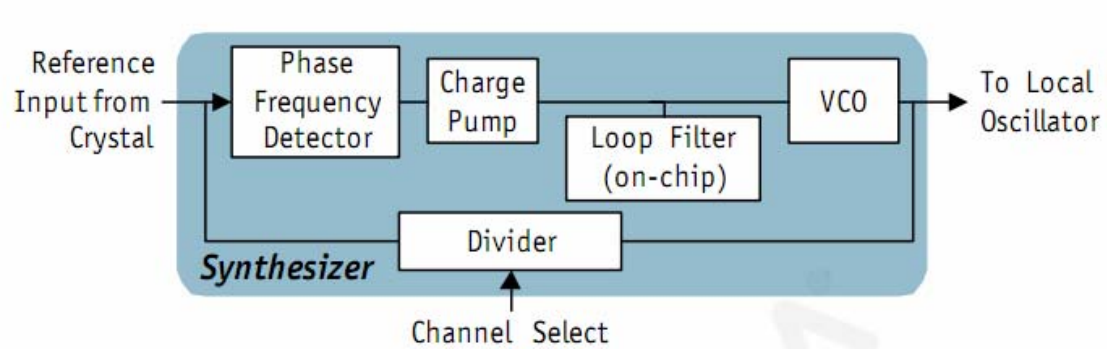
WIFI/BT operation block



The WIFI device receives digital clock and the BT device receives analog clock from PMIC.In nomal operation,3.3V,1.8V,and 1.3V power supplies are provided from the PMIC.The WIFI device has a high-speed UART which is intended to connect to an external BT chip through its HCI interface.This UART can directly transfer data between the BT and the host.The coexistence between BT and WIFI is linked through the controlled GPIO of the BT active,the BT status and WLAN active.



The WIFI and the BT devices have the similar Tx/Rx functional module.For example ,the receive is comprised of an LNA,a direct conversion mixer,and a baseband programmable gain filter.This receiver is implemented using the direct conversion topology.The mixer down convert the signal to baseband in-phase and quadrature-phase signals.The I/Q signals are low-pass filtered and amplified by the baseband programmable gain filter controlled by digital logic.The baseband I/Q signals are sent to the ADC.



The transmitter is comprised of a programmable reconstruction filter,a direct convertion mixer,a preamplifier and a PA .This transmitter is implemented using the direct conversion topology.The transmit output power is adjusted by a digitally programmable control loop at the start of each packet and the Tx signal is amplified by the PA to the sky.