OPERATIONAL DESCRIPTION

Model: Q6
Band: GSM850 PCS1900 WCDMA： B2/B5
LTE Band B2/B4/B5/B7

1. Scope

This document shows and provides the more detail information about the platform we used. The basic description for the Baseband and RF section are also included.

2. System Block Diagram

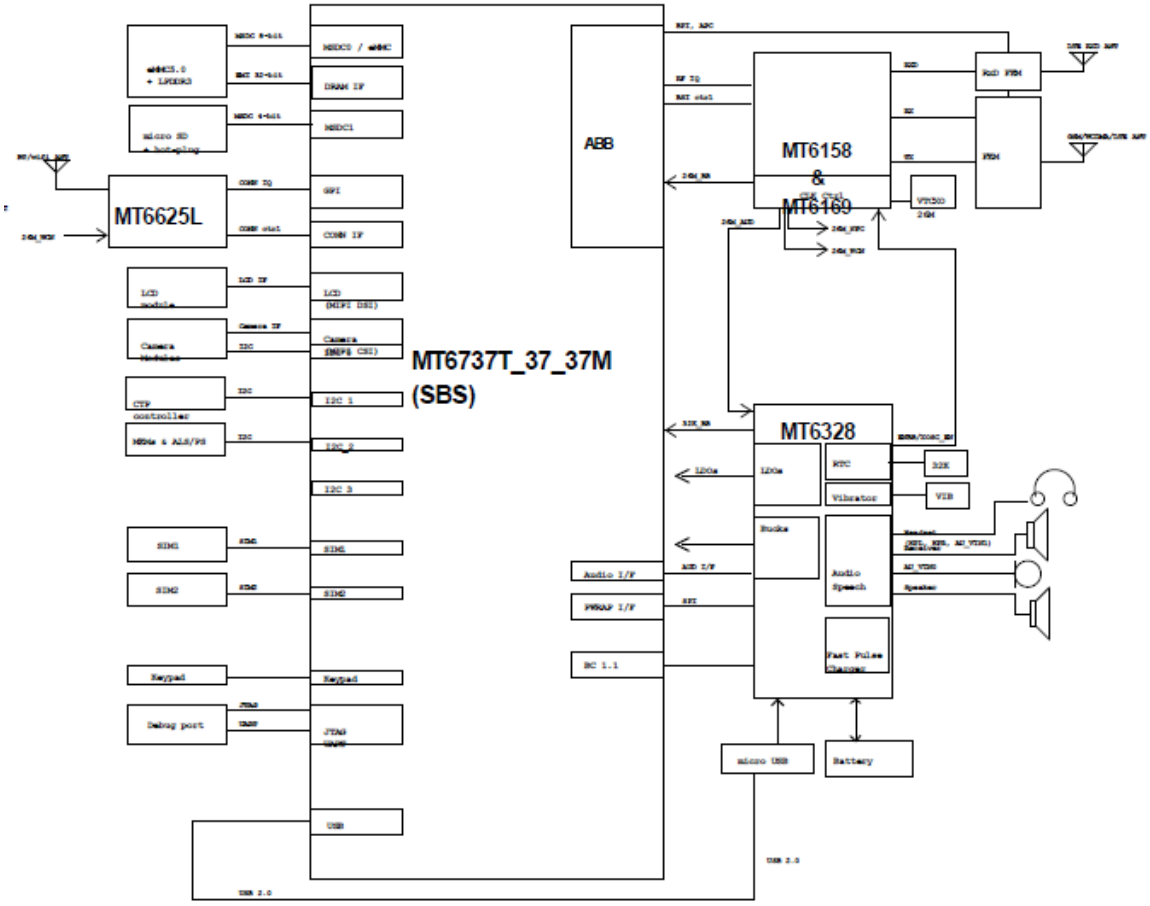

Figure 1 System Overview

3. Modem Features

- CPC（DTX in CELL_DCH,UL DRX DL DRX),HS-SCCH
- Compatible with GSM/GPRS Release 1999, DCS1800 and PCS1900 recommendations
- Dedicated GSM/GPRS signal processing engine for equalization, channel encoding/decoding for all traffic and control channels, GMSK modulation and encryption/decryption (A5/1, A5/2 and A5/3, GEA 1, GEA3 and GEA 3 algorithms)
- GMSK modulator with digital I and Q channel outputs
- Calibration mechanism of offset and gain mismatch for baseband A/D converters and D/A converters
- 10-bit D/A converter for Automatic Power Control
- Programmable radio Rx filter
- GSM system timing
- Complete in-phase and quadrature (I/Q) component interface between the Digital Signal Processor (DSP) and RF module
- Dedicated RF serial control interface and parallel control signals
- Programmable GSM/GPRS modem
- Packet switched data with CS1/CS2/CS3/CS4 coding schemes
- Multi-band support
- Complete voice band codec
- Integrated microphone bias
- GSM/GPRS quad vocoders for adaptive multirate (AMR), enhanced full rate (EFR), full rate (FR) and half rate (HR)
- Five auxiliary analog inputs to a 10-bit analog-to-digital converter (ADC) for measurement purposes
- Support SAIC(single antenna interference cancellation)

4. Baseband(MT6737)

Camera Interface

- Support 8 MP Image capture
- Support Video snapshot(up to 8M sensor),which enables user capture full size image while recording video
- Image capture resolution:Up to 13M

Video Codec

- Support MPEG4 decoding, compliant with ISO/IEC 14496-simple profile.HVGA 30fps.
- Support MPEG4 ASP B frame decoding Support H263 decoding, compliant with ITU H.263 profile 0. HVGA 30fps.
- Support Flash video format.

Audio Codec

- Wavetable synthesis with up to 64 tones
- Two differential microphone input with a 0~20 dB boost gain stage
- A programmable gain amplifier in front of ADC
- An analog stereo mixer with programmable gains to mix signals coming from DAC and the stereo line inputs (analog bypass path)
- A stereo programmable gain amplifier for headphone outputs
- Programmable sampling frequencies (Fs) for ADC and DAC: 8, 11.025, 12, 16, 22.05, 24, 32, 44.1, and 48 kHz
- 16-bit linear PCM voice data, programmable DAC/ADC, data buffer sizes from 1 to 160, support DMA
- Both ARM and DSP can control the audio codec

5. Connection Features

FM Features

- Supporting frequency range of 76MHz ~ 108MHz
- 2-bits ΣΔ ADC
- DDFS for 100kHZ IF-signal down-conversion
- CORDIC - based FM detector
- Stereo decoder with weak signal processing
- Stereo Mono blending and auto selectivity
- Noise blanking
- De-emphasis filter can be configured with τ=50μs (Europe and Japan) and τ=75μs
- Soft/Hardware audio mute function
- Signal level detection for FM signal quality information
- AGC control feedback
- Frequency offset cancellation

Bluetooth Features

- Compliant with Bluetooth4.0 +EDR specification
- Bluetooth Piconet and Scatternet support
- Receiver with -88dBm sensitivity
- Support BT-WIFI Co-existence with 3-wire/2-wire handshake
- Support AFH
- Low power consumption

Hardware Version: V2.1
Software Version: UNIQ_CELL_1+16_Q6_C8EM_3M2_20200327

BLE
Operation Frequency:2402~2480 MHz
Modulation Type: GFSK
Antenna Designation: PIFA Antenna
Antenna Gain(Peak):1.49dBi

BT4.0+EDR
Operation Frequency:2402~2480 MHz
Modulation Type:GFSK/π/4-DQPSK/8DPSK
Antenna Designation:PIFA Antenna
Antenna Gain(Peak):1.49dBi

2.4GWIFI
Operation Frequency:
802.11b/g/n 20: 2412~2462 MHz
802.11n(40MHz):2422~2452MHz
Modulation Type:
802.11b(DSSS):CCK,DQPSK,DBPSK
802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM
802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM
Antenna Designation: PIFA Antenna
Antenna Gain(Peak):1.49dBi

GSM/WCDMA
Tx Frequency:
GSM/GPRS/EDGE:
850: 824 MHz ~ 849MHz
1900: 1850 MHz ~ 1910MHz
WCDMA:
Band V: 824 MHz ~ 849 MHz

Band II: 1850 MHz ~ 1910 MHz
Rx Frequency:
GSM/GPRS/EDGE:
850: 869 MHz ~ 894 MHz
1900: 1930 MHz ~ 1990MHz
WCDMA:
Band V: 869 MHz ~ 894 MHz
Band II: 1930 MHz ~ 1990 MHz
Antenna: PIFA Antenna
Antenna gain:
GSM 850: 1.77dBi ,PCS 1900: 2.11dBi
WCDMA 850: 1.77dBi, WCDMA1900: 2.12dBi,

LTE
LTE Band 2:1850.7~1909.3MHz
LTE Band 4:1710.7~1754.3MHz
LTE Band 5:824.7~848.3MHz
LTE Band 7:2502.5~2567.5MHz
LTE:QPSK/16QAM
Antenna: PIFA Antenna
Antenna gain:
LTE Band 2: 2.05dBi LTE Band 4: 2.23dBi
LTE Band 5: 1.95dBi LTE Band 7: 1.85dBi