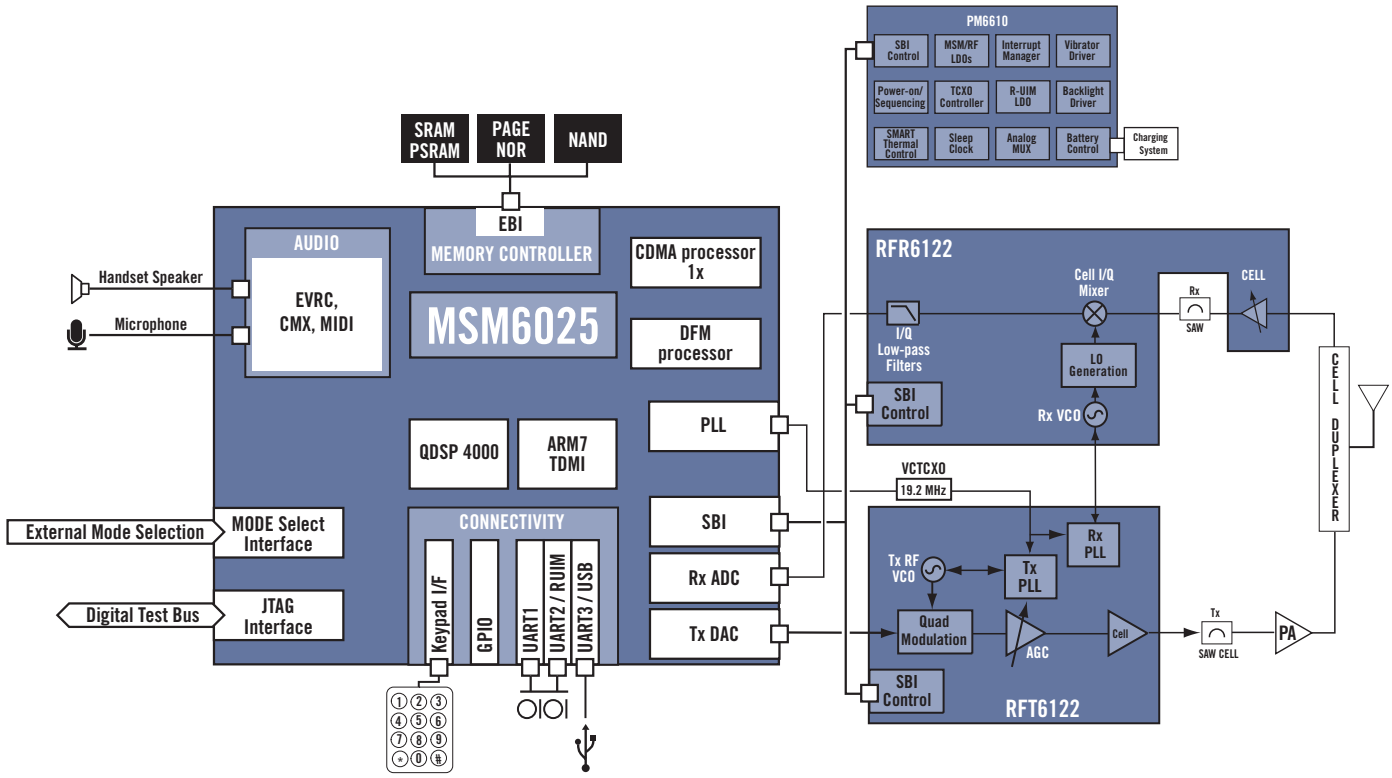
MSM6025™ AND RF CMOS SINGLE-BAND CHIPSET SOLUTION



MSM6025 Chipset Architecture Featuring QCT's RF CMOS Single-Band Solution

MSM6025 and RF CMOS Single-Band Chipset Solution

QUALCOMM's next-generation radio frequency (RF) products are the first CDMA2000® 1X radioOne® chipsets to use the highly cost-competitive Radio Frequency Complementary Metal Oxide Semiconductor (RF CMOS) process technology.

QUALCOMM's cost-competitive single-band solution includes the MSM6025™ Mobile Station Modem™ (MSM™) chipset, the RF CMOS RFR6122™ receive radio frequency integrated circuit (RFIC) and the RFT6122™ transmit RFIC chips, the power management PM6610™ device, and QUALCOMM's integrated system software — enabling more cost-effective CDMA2000 1X cellular band voice- and data-enabled handsets and devices that address the growing need for reliable, affordable wireless solutions, especially in emerging markets such as China, India and Latin America.

CMOS is a low-cost, high-volume digital process technology used for most of today's digital computer microchips. By migrating RF designs to a CMOS-based process technology, cell phones and other wireless handheld devices can leverage significant economies of scale to provide price-competitive, reliable wireless solutions.

radioOne Technology

As with all members of the MSM6xxx™ family of chipset solutions, the MSM6025 solution features QUALCOMM's radioOne Zero Intermediate Frequency (ZIF) architecture, which eliminates the need for intermediate frequency (IF) components. With radioOne technology, the MSM6025 chipset requires less printed-circuit-board area than previous generations and reduces time-to-market development and bill-of-materials (BOM) costs.

RFR6122 Device Description

The RFR6122 device is the radioOne Zero Intermediate Frequency (ZIF) fully integrated receive RFIC. The device provides an integrated low-noise amplifier (LNA), a single mixer and baseband filtering to provide full RF-to-baseband downconversion for the CDMA cellular band. Included on the chip are an integrated UHF voltage-controlled oscillator (VCO) and a local oscillator (LO) generation block, which produce all the LO signals required for CDMA cellular frequency band of operation. The Rx phase locked loop (PLL) resides on the RFT6122 companion IC. Extension of standby time is achieved by selective circuit power-down, gain control and bias current. These features, along with all of the radioOne chipset functionalities, are controlled by the QUALCOMM MSM via the serial bus interface (SBI). Package type is a 32-pin 5 mm x 5 mm Quad Flat No-Lead (QFN32).

RFR6122 Device Features

- Compatibility with QUALCOMM's radioOne ZIF chipset, which eliminates the entire IF, reducing component count and space
- Full down conversion — RF to baseband
- Supports full international CDMA2000 1X cellular band
- Dedicated single-band CDMA cellular receiver
- Integrated LNA and UHF VCO, which minimizes component count and board area
- Rx LO generation and distribution circuits
- QUALCOMM's efficient three-line SBI
- Power reduction feature control extends handset standby time
- Low power dissipation
- Available in a small, thermally efficient package (5 mm x 5 mm QFN32)

RFT6122 Device Description

The RFT6122 is a direct conversion fully integrated transmit RFIC that integrates all the upconversion and modulation functionality necessary for CDMA phones operating in the cellular band, including an I/Q modulator, a variable gain amplifier, amplifier driver stage, transmit UHF VCO, and receive and transmit PLL's. The baseband I/Q input from the MSM directly modulates the cellular carrier derived from the LO generation circuit. The RFT6122 chip, tailored specifically for single-band cellular transmit operation, is offered in a 5 mm x 5 mm 32-pin Quad Flat No-Lead (QFN32) package.

RFT6122 Device Features

- Full direct upconversion — baseband to RF
- Supports full-international CDMA2000 1X cellular band
- Transmit path circuitry includes:
  - Baseband amplifier
  - One set of quadrature modulators/upconverters
  - RF AGC amplifier
  - Driver amplifier with on-chip RF matching
- Integration of LO generation circuit
- Entire transmit synthesizer on chip (transmitter PLL and VCO)
- On-chip receiver PLL to control UHF VCO
- Greater than 85 dB transmit power control range
- Power reduction feature via MSM control extends handset talk time
  - Optimized for low DC power consumption versus RF output level
  - Transmit puncturing
  - Selective circuit power-down
- QUALCOMM's efficient three-line SBI
- Low-power supply voltage
- Available in small, thermally efficient package (5 mm x 5 mm QFN32)

PM6610 Device Description

The PM6610 device is a member of QUALCOMM's powerOne™ family of advanced power management chips. This family of chipsets provides battery management, charging functions, voltage regulation for the various MSM power regimes and radioOne RF chips, and other MSM-supported peripheral features.

The powerOne family offers unparalleled integration of power management functions for CDMA terminals. The PM6610 device will support all of the advanced features of QUALCOMM's entry-level MSMs, providing wireless manufacturers and operators with cost-effective solutions for 3G products and services. All voltages generated for the MSM and radioOne RF chips are optimized for handset system control with the MSM's system software. The PM6610 chip is offered in a 5 mm x 5 mm 32-pin Quad Flat No-Lead (QFN32) package.

PM6610 Key Features

- Complete battery management, voltage regulation, general housekeeping and user-interface functions
- Support for QUALCOMM's radioOne ZIF RF CMOS chipset
- Battery charger (Support for Li and LiP batteries)
- TCXO control to provide maximum standby-time performance
- MSM power-on sequencing and control
- Linear voltage regulation for peripheral features such as R-UIM
- Interrupt manager monitors and reports through real-time and interrupt status signals
- On-chip smart thermal control system for over-temperature protection
- Vibration motor and LED drivers
- QUALCOMM's efficient three-line SBI
- Available in a small package (5 mm x 5 mm QFN32)

QUALCOMM's Complete Solution — Our Commitment to Our Partners

QUALCOMM CDMA Technologies is enabling the future of communications. We work closely with our manufacturer and operator partners to develop solutions that meet market needs today and provide the technology foundation for the wireless communications of tomorrow. Our world-class CDMA engineers create detailed reference designs to accelerate testing and deployment for our partners. And our chipsets and system software are fully integrated and able to bring advanced features and functionality to today's wireless devices. With QUALCOMM CDMA Technologies, manufacturers and operators can offer sophisticated wireless solutions that succeed in the global marketplace.

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