OPEARTIONAL DESCRIPTION

UMS312 is a highly integrated application processor with embedded TD-LTE, LTE FDD, TD SCDMA/HSPA(+), WCDMA/DC-HSDPA, CDMA2000 and GSM/GPRS/EDGE. It consists of One-core ARM® Cortex-A75MP core and Tri-core ARM® Cortex-A55MP as application processor, which includes a NEON multimedia processing engine, IMG 8300 as 3D graphics accelerator, multi-standard

multi-media accelerators and advanced audio subsystem. The specially optimized architecture of UMS312 can achieve high performance and low power for a lot of applications. Proprietary architectures and algorithms were developed for low power ASIC design and power management.

Unique techniques are used for noise suppression/cancellation, echo suppression/cancellation algorithm. Overall, UMS312 chip set presents a high cost-effective platform for six mode Android mobile devices.

The UMP510G device integrates all mobile handset power management, Audio codec, battery management and user interface support function in a single chip, it is optimized for 2G/3G/4G smartphone and other wireless products such as data Card and tablet PAD.

SR3595D is a highly integrated, single-die radio transceiver chip that supports 4G LTE with LTE-A for FDD-LTE, TDD-LTE, 3G WCDMA, HSDPA, HSUPA, GSM/EDGE as well as TD-SCDMA operation. Implemented in low cost bulk CMOS, it is optimized to meet the challenges of today's small form factor, power efficient, high performance cellular handsets. The SR3595D has total of 6 single-ended transmit ports, 12 primary and 11 diversity single-ended receive ports. The SR3595D provides connectivity multiple bands of operation. The SR3595D offers a cost competitive and small footprint radio solution for multi-mode, multi-band applications with the highest performance at the lowest power.

The linear transceiver architecture of SR3595D is utilized for 2.5G, 3G and 4G systems, offering excellent performance and design margins over 3GPP requirements. For 2.5G, a direct modulation scheme is used in the transmitter and performance of 2.5G receive and transmit chains is such that no additional RF filters are required to meet out-of-band noise specifications. The output driver stage for each transmitter chain is single-ended and matched to 50Ω.

The transceiver supports digital and Digital I/Q interfaces with simple 3-wire bus architecture to program the radio.

UMW2652 is a highly integrated 4-in-1 connectivity single chip which offers the lowest RBOM in the

industry for smart phone, PC, STB, OTT, IoT and automotive applications.

This chip includes 2.4 GHz and 5 GHz WLAN IEEE 802.11 a/b/g/n/ac 1x1 MU-MIMO 20/40/80 MHz

VHT R2 MAC/PHY/Radio, Bluetooth 5 with supporting high power mode, Direction Finding and Long

Range, multiple mode concurrent reception of GPS/Galileo/Glonass/Beidou(B1I & B1C) satellite systems and an FM receiver. Additionally, this radio-on-a-chip integrates power amplifiers, receive low

noise amplifiers and RF TR switch.

It supports SDIO 3.0 for Wi-Fi, high-speed 4-wire UART for Bluetooth and GNSS, I2C/UART for Android Context Hub.

Advanced Spreadtrum Green Wi-Fi power management features optimize Wi-Fi active and low power

states to extend operating lifetime for battery driven devices.

Spreadtrum Chorale provides high performance multiple radio coexistence and antenna sharing technology for Wi-Fi, Bluetooth, GNSS and LTE operating concurrently in compact system design.

EDR

Operation Frequency:	2402~2480 MHz
Modulatin Type:	GFSK,π/4-DQPSK,8-DPSK
Modulation Technology:	FHSS
Adaptive/non-adaptive	Adaptive equipment
Receiver categories	2
Number Of Channel	79CH
Antenna Designation:	PIFA Antenna
Antenna Gain(Peak)	1.1dBi

BLE

Operation Frequency:	2402~2480 MHz
Modulation Type:	GFSK
Adaptive/non-adaptive	Adaptive equipment
Receiver categories	2
Number Of Channel	Please see Note 2.
Antenna Designation:	PIFA Antenna
Antenna Gain(Peak)	1.1dBi

2.4G WIFI

Operation Frequency:	802.11b/g/n(20MHz): 2412~2472MHz 802.11n(40MHz):2422~2462MHz
Modulation Type:	IEEE 802.11b : DSSS (DBPSK, DQPSK, CCK) IEEE 802.11g/n (HT20/HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK)

Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps
	802.11g:54/48/36/24/18/12/9/6Mbps
	802.11n(20MHz) use 800 ns GI: 65.0/58.5/52.0/39.0/26.0/19.5/13.0/6.5 Mbps (MCS0~MCS7)
	802.11n(40MHz) use 800 ns GI: 13.5/27/40.5/54/81/108/121.5/135Mbps
Adaptive/non-adaptive	Adaptive equipment
Receiver categories	1
Number Of Channel	Please see Note 2.
Antenna Designation	PIFA Antenna
Antenna Gain(Peak)	1.1dBi

5.2G WIFI

Operation Frequency:	802.11a/ n(20/40)/ac(20/40/80): ☒5180MHz~5240MHz(20MHz) ☒5190MHz~5230MHz(40MHz) ☒5210MHz(80MHz)
Modulation Type:	802.11a: OFDM (BPSK / QPSK / 16QAM) 802.11n: OFDM (QPSK/BPSK/16QAM/64QAM) 802.11ac:OFDM (QPSK/BPSK/16QAM/64QAM/256QAM)
Bit Rate of Transmitter	802.11a: 6/9/12/18/24/36/48/54Mbps; 802.11n (20MHz): up to MCS0-7 802.11n (40MHz): up to MCS0-7 802.11ac (20MHz): up to MCS0-8 802.11ac (40MHz): up to MCS0-9 802.11ac (80MHz): up to MCS0-9
Number Of Channel	Please see Note 2.
Antenna Designation:	PIFA Antenna
Antenna Gain(Peak)	1.1dBi

5.8G WIFI

Operation Frequency:	5745-5825 MHz for 802.11a/n20/ac20; 5755-5795 MHz for 802.11n40/ac40; 5775MHz for 802.11 ac80;
Data Rate:	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS7; 802.11ac(VHT20/ VHT40/VHT80): NSS1, MCS0-MCS9, NSS2
Modulation	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM

Channel No.:	5 channels for 802.11a/n20/ac20 in the 5745-5825MHz band ; 2 channels for 802.11 n40/ac40 in the 5755-5795MHz band ; 1 channels for 802.11 ac80 in the 5775MHz band ;
Max E.I.R.P Power:	10.27dBm
Antenna Designation:	PIFA Antenna
Antenna Gain(Peak)	1.1dBi

2G

Frequency Bands:	Uplink:GSM/GPRS/ EGPRS 900:880~915MHz GSM/GPRS /EGPRS 1800:1710~1785 MHz
	Downlink:GSM/GPRS/EGPRS 900:925~960MHz GSM/GPRS/EGPRS 1800:1805~1880MHz
Modulation Mode:	GMSK/8-PSK
Antenna Description:	PIFA antenna (GSM900: -1.1dBi)/(DCS1800: 0.31dBi)

3G

Frequency Bands:	Uplink: WCDMA Band Ⅰ:1920~1980MHz WCDMA Band Ⅷ:880~915MHz
	Downlink: WCDMA Band Ⅰ:2110~2170MHz WCDMA Band Ⅷ:925~960MHz
Modulation Mode:	WCDMA(HSDPA/HSUPA):QPSK
Antenna Description:	PIFA antenna (Band Ⅰ: 0.72dBi, Band Ⅷ: -1.1dBi)

4G

Frequency Bands:	FDD Band I: Uplink: 1920 MHz to 1980MHz Downlink: 2110 MHz to 2170 MHz FDD Band III: Uplink:1710 MHz to 1785 MHz Downlink: 1805 MHz to 1880 MHz FDD Band VII: Uplink: 2500 MHz to 2570 MHz Downlink: 2620 MHz to 2690 MHz FDD Band VIII: Uplink: 880MHz to 915 MHz Downlink: 925 MHz to 960 MHz FDD Band XX: Uplink: 832 MHz to 862 MHz Downlink: 791 MHz to 821 MHz TDD Band XL: Uplink & Downlink: 2300 MHz to 2400 MHz
Modulation Mode:	QPSK, 16QAM
Antenna:	PIFA Antenna
Antenna Gain:	Band 1: 0.72dBi; Band 3: 0.31dBi; Band 7: 0.64dBi Band 8: -1.1dBi; Band 20: -1.3dBi; Band 40: 0.6dBi