

PRODUCT OVERVIEW

MediaTek MT2523 product family (MT2523D/MT2523G) is based around a highly integrated system in package (SiP) that contains a micro controller unit, low power GNSS (MT2523G), dual mode Bluetooth, and a power management unit (PMU). The micro controller unit is an [ARM Cortex-M4 with floating point MCU](#), integrated with 4MB PSRAM and 4MB flash memory. MT2523 also supports interfaces such as UART, I2C, SPI, I2S, PWM, SDIO, MSDC, USB, PCMIF, ADC and dual digital MIC.

The GNSS companion chip is a multi-GNSS RF SOC to achieve the industry’s highest level of sensitivity, accuracy and Time-to-First-Fix (TTFF) with the lowest power consumption. It supports various location and navigation applications, including autonomous GPS, GLONASS, GALILEO, BEIDOU, SBAS ranging (WAAS, EGNOS, GAGAN, and MSAS), QZSS, DGPS (RTCM) and Assisted GPS (A-GPS). It also includes up to 12 multi-tone active interference cancellers.

The Bluetooth subsystem supports Bluetooth 2.1 and Bluetooth 4.2 Low Energy dual modes. It contains the Bluetooth radio, baseband and link controller.

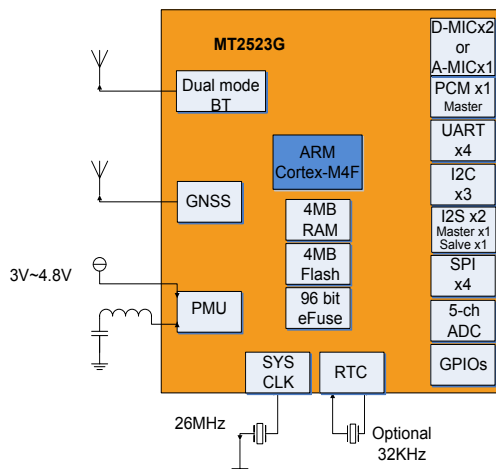
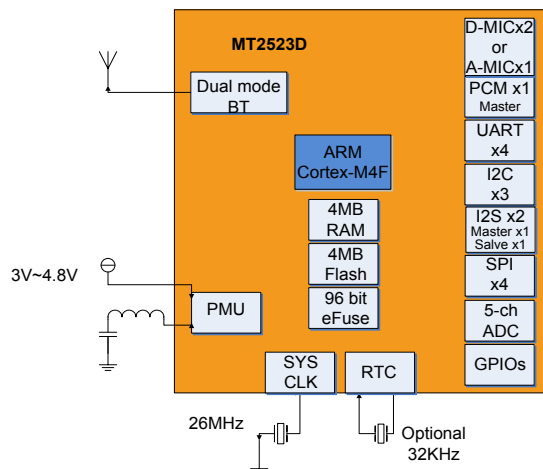
The display component supports MIPI-DSI and serial interfaces. It includes 2D capabilities of true color, per pixel alpha channel and anti-aliasing fonts, plus 1-bit index color to save memory and computing power. The camera component supports DDR mode with a maximum clock rate of 48MHz, up to VGA.

BENEFITS

- High integration with RF, MCU and Memory.
- Low power mode with RTC.
- Supports multiple frequency and voltage modes to achieve an improved and extended battery life while maintaining high performance.
- Fast switching time from sleep mode to active mode under 10µs.

TARGET APPLICATIONS

- Tracker
- Smart Watch
- Smart Gadget
- Robot
- Sensor Gateway/Node



FEATURES

Platform

- ARM Cortex M4 with floating point MCU.
- Embedded 4MB + 160kB SRAM and 4MB flash.
- 25 DMA channels.
- Low power RTC mode with 32kHz crystal support.
- Dual mode Bluetooth or Bluetooth low Energy (LE), large TX power and excellent RX sensitivity, to support the best coverage.
- Supports high battery voltage (4.8V) to extend the battery life.
- Multiple frequency and voltage modes for low power and computing power balance: High speed (1.3V, 208MHz), Full speed (1.1V, 104MHz), Low speed (0.9V, 26MHz).
- Low power crystal oscillator clock sources down to 40μA.

Connectivity

- UART, I2C, SPI, I2S, PWM, SDIO, MSDC, USB, PCMIF, ADC, dual digital MIC.

GNSS (2523G only)

- GPS/GLONASS/GALILEO/BEIDOU.
- Supports multi-GNSS including QZSS, SBAS ranging.
- Supports WAAS/EGNOS/MSAS/GAGAN.
- 12 multi-tone active interference cancellers (ISSCC2011 award).
- RTCM ready.
- Indoor and outdoor multi-path detection and compensation.

- Supports FCC E911 compliance and A-GPS.
- Maximum fixed update rate up to 10 Hz.

Bluetooth

- Bluetooth specification 2.1+EDR.
- Bluetooth 4.2 LE.
- Integrated BALUN and PA.
- Scatternet support: Up to 7 piconets simultaneously with background inquiry or page scan.
- Up to 7 simultaneous active ACL links.
- Supports SCO and eSCO links with re-transmission.
- Channel quality driven data rate adaptation.
- Channel assessment for AFH.

Display

- DBI interface: Simultaneous connection to 2 serial LCD modules and maximum resolution up to 320 x 320 pixels.
- DSI interface: Supports command modes, ultra-low power mode and maximum resolution up to 480x320(HVGA), 30fps.

Technology and Package

- Highly integrated 55nm ultra low power technology.
- 6.2mm x 5.8mm 165-ball VFBGA package with SiP Serial Flash and PSRAM for MT2523D.
- 9.2mm x 6mm 242-ball VFBGA package with SiP Serial Flash, PSRAM and GNSS for MT2523G