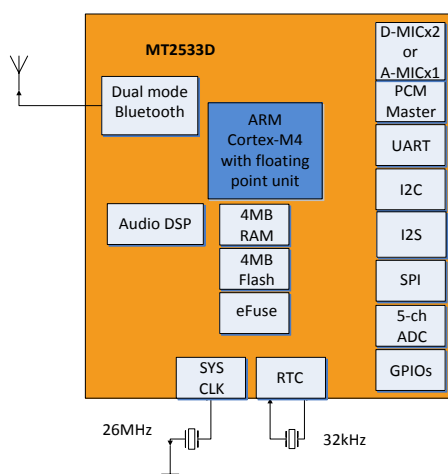


PRODUCT OVERVIEW

MediaTek MT2533D is a highly integrated system in package (SiP) with a microcontroller unit (MCU), an audio DSP processor, and a dual mode Bluetooth. The MCU is an ARM Cortex-M4 with floating point, integrated with 4MB PSRAM and 4MB flash memory. MT2533D also supports interfaces such as UART, I2C, SPI, I2S, PWM, SDIO, MSDC, USB, PCMI, ADC and dual digital MIC.

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 modes to achieve an improved and extended battery life while maintaining high performance
- Fast wakeup of 7μs from sleep mode to active mode

TARGET APPLICATIONS

- Bluetooth headset
- Bluetooth hands-free application for car system

FEATURES

Platform

- 208MHz ARM® Cortex®-M4 with FPU and MPU
- Hardware DFS from 1.6MHz to 208MHz
- 17 DMA channels
- Crypto engine AES 128/192/256 bits
- True random number generator
- Ambient temperature from -40°C to 85°C

Memory

- 160kB SRAMs with zero-wait state and 208MHz maximum frequency
- 32kB L1 cache with zero-wait state and 208MHz maximum frequency
- 4MB flash with sleep current down to 100nA and 78MHz maximum frequency
- 4MB pseudo SRAM with sleep current down to 10µA and 104MHz maximum frequency

Connectivity

- USB 2.0, 3 UARTs, 3 I2Cs, I2S, 6 PWMs, 4 SPI masters, SPI slave, SDIO v2.0 and 5-channel ADC
- Supports 38 GPIO ports

Bluetooth

- Bluetooth specification 4.2
- Dual mode (Bluetooth and Bluetooth LE)
- Integrated T/R switch, Balun and PA
- PA provides 7.5dBm output power

- -93dBm and -96.5dBm of Bluetooth and Bluetooth LE receiver sensitivity, respectively
- Up to 7 simultaneous active ACL links
- Up to 1 simultaneous SCO or eSCO link with CVSD/mSBC coding

Audio

- AAC/SBC for Bluetooth audio
- CVSD/mSBC for Bluetooth speech
- PCM playback: 8-48kHz sample rate
- PCM record: 8kHz and 16kHz sample rate
- Dual-mic noise suppression and acoustic echo cancellation
- Beamforming

Display

- Hardware 2D accelerator supports 4-layers overlay, alpha blending, font drawing, 7 types rotation bitblit and display rotation. It also supports ARGB8888, RGB888, RGB565, and ARGB6666 pixel formats.
- DBI serial interface with the capability of 320 x 320 30fps
- Supports 1-lane MIPI DSI interface with the capability of 480x320 30fps.

Camera

- MediaTek camera serial interface
- VGA 30fps with YUV422 or RGB565

Technology and Package

- Highly integrated SiP technology.
- MT2533D: 6.2 x 5.8 x 1.05mm 172-ball TFBGA with 0.4mm pitch