

AI2505S05

Product Brief



FEATURE

● Platform Features

General

- Integrated voice-band, audio-band and base-band analog front-end
- Integrated full-featured power management unit

User interfaces

- 5-row x 5-column keypad controller with hardware scanner
- Supports multiple key presses for gaming
- Real-time clock (RTC) operating with a low-quiescent-current power supply
- General-purpose I/Os (GPIOs) available for auxiliary applications
- 2 sets of Pulse Width Modulation (PWM) output
- 24 external interrupt lines
- 1 external channel auxiliary 10-bit A/D converter

Security

- Supports security key and chip random ID

Connectivity

- 3 UARTs with hardware flow control and supports baud rate up to 921,600 bps
- FS/LS USB 1.1 device controller
- Multimedia card, secure digital Memory Card, host controller with flexible I/O voltage power
- Supports 4-bit SDIO interface for SDIO peripherals as well as WIFI connectivity
- DAI/PCM and I2S interface for audio applications
- I2C master interface for peripheral management including image sensors
- SPI master/slave interface for peripheral management.

Power management

- Li-ion battery charger
- 13 LDOs for the power supply of memory card, camera, Bluetooth, RF, SIM card and other diversified usage
- 1 open-drain output switches to supply/control the LED
- LDO type vibrator
- One NMOS switch to control keypad LED
- Thermal overload protection
- Under-voltage lock-out protection
- Over-voltage protection
- Different levels of power-down modes with sophisticated software control enables excellent power saving performance.

● GSM/GPRS RF Features

Receiver

- Dual single-ended LNAs support Quad band Quadrature RF mixer
- Fully integrated channel filter
- High dynamic range ADC
- 12dB PGA gain with 6dB gain step

FEATURE

Transmitter

- Transmitter outputs support quad bands.
- Highly precise and low noise RF transmitter for GSM/GPRS applications

Frequency synthesizer

- Programmable fractional-N synthesizer
- Integrated wide range RFVCO
- Integrated loop filter
- Fast settling time suitable for multi-slot GPRS applications

Digitally-Controlled Crystal Oscillator (DCXO)

- On-chip programmable capacitor array for coarse-tuning
- On-chip programmable capacitor array for fine-tuning
- Low power mode supports 32K crystal removal

● Bluetooth Features

Radio features

- Fully compliant with Bluetooth specification 4.0
- Low out-of-band spurious emissions support simultaneous operation with GPS and GSM/GPRS worldwide radio systems
- Low-IF architecture with high degree of linearity and high order channel filter
- Integrated T/R switch and Balun
- Fully integrated PA provides 7.5dBm output power
- -95dBm sensitivity with excellent interference rejection performance
- Hardware AGC dynamically adjusts receiver performance in changing environments

Baseband features

- Up to 4 simultaneous active ACL links
- Up to 4 simultaneous active BLE links
- Up to 1 simultaneous SCO or eSCO link with CVSD coding
- Supports eSCO
- BT Scatternet support: Up to 4 piconets simultaneously with background inquiry/page scan
- Supports sniff mode
- AFH and PTA collaborative support for WLAN/BT coexistence
- Idle mode and sleep mode enables ultra-low power consumption.
- Supports PCM interface and built-in programmable transcoders for linear voice with re-transmission
- Built-in hardware modem engine for access code correlation, header error correction, forward error correction, CRC, whitening and encryption
- Channel quality driven data rate adaptation
- Channel assessment for AFH

Platform features

- Embedded processor for Bluetooth protocol stack with built-in memory system
- Fully verified ROM based system with code patch for feature enhancement

● Multimedia Features

LCD controller

- Supports simultaneous connection to serial 2 lane LCD modules
- LCM formats supported: RGB565, RGB666, RGB888
- Supports LCD module with maximum resolution up to 320x240
- Per pixel alpha channel
- True color engine
- Supports hardware display rotation

FEATURE

- Capable of combining display memories with up to 4 blending layers

JPEG decoder

- Baseline JPEG decoding
- Supports various YUV formats, DC/AC Huffman tables and quantization tables

JPEG encoder

- ISO/IEC 10918-1 JPEG baseline mode
- ISO/IEC 10918-2 compliance
- Supports YUV420 and grayscale formats
- Supports EXIF/JFIF
- Standard DC and AC Huffman tables
- Provides 5 levels of encode quality
- Supports zeros shutter delay

MJPEG

- Decode spec: CIF@30fps
- Encode spec: QVGA@15fps

Audio CODEC

- Supports AAC codec decoding
- Wavetable synthesis with up to 64 tones
- Advanced wavetable synthesizer capable of generating simulated stereo
- Wavetable including GM full set of 128 instruments and 47 sets of percussions
- PCM playback and record
- Digital audio playback

Audio interface and audio front-end

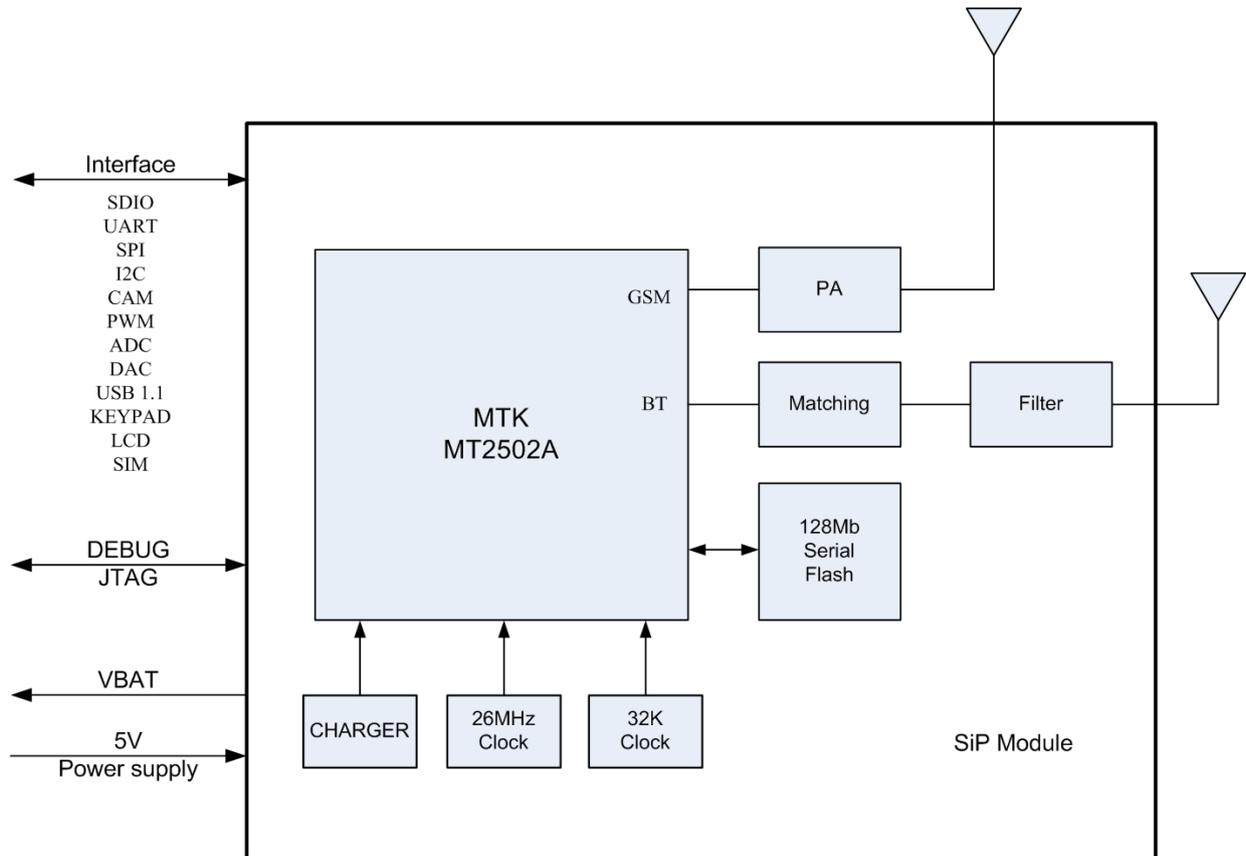
- Supports I2S interface
- High-resolution D/A converters for stereo audio playback
- Voice band A/D converter support
- Stereo to mono conversion

- **Small footprint : 17 mm X 15 mm X 1.8 mm**
- **130 pin, LGA package**
- **26MHz & 32KHz X'tal included**
- **Contains 128Mb flash memory**
- **RoHS & Halogen free compliant / Lead free**
- **Simple connection and work.**

AI2502S05

Product Brief

AI2502S05 Block Diagram



AcSiP Technology Corp. introduces a low-cost and low-power consumption IoT SiP module. The module is an operating system designed for Wearables and Internet of Things (IoT) devices that can connect to other smart devices or directly to cloud applications and services.

The AI2502S05 development platform also provides Wi-Fi and GNSS support using the optional companion Wi-Fi (CW01S) and GNSS (CW03S) modules.

Technical Specifications

Model Name	AI2502S05
Chipset	MT2502A
Core	ARM7 EJ-STM
Clock Speed	260MHz
Flash	16MB
RAM	4MB

Operation Conditions	
Temperature	Operating : -20°C ~ 70°C Storage : -40°C ~ 85°C
Humidity	Operating : 10 ~ 95% (Non-Condensing) Storage : 5 ~ 95% (Non-Condensing)
Dimension	17mm X 15mm X 1.8mm (Max.)
Package	LGA

Typical application

