

Operational description and technical overview for B831

GSM mobile phone B831 is composed of four parts, which are radio frequency parts, the CPU part, the interface part and 433.91 Transceiver

RF section

RF part of the module consists of three parts, ADG3232GC6T2LF, AX508, and SAW Filters. The RF signal is include receive signal and sends signal. Modules receiving the signal from the antenna then separate the send and receive signals by the internal antenna switch of R18 AX508. The received signals input the pin 9 of ANT, then feet out into the receiver front-end circuit from the pin6 and pin7 of R18. The working status of R18 is controlled by the CPU signals PAEN, BANDSW_DCS, VAPC, and VCXOEN. After the RF antenna switch inside the R18, two analog switches U102, U103 also will be used to separate the 850/900 and 1800 /1900 signals. Four Saw filter U2, U506, U507, U3 will be pass before the 850, 900, 1800, 1900 signals enter into the ADG3232GC6T2LF. After the processing of ADG3232GC6T2LF, signals will into the CPU. About the sending signals which processed by the CPU will be send into the ADG3232GC6T2LF, then feet into the power amplifier AX508 by the pin10 and pin11 of ADG3232GC6T2LF, the amplified signal sent by the antenna from the AX508.

CPU part

Based on a dual-processor architecture, PMB7880 integrate both an ARM7EJ-S core and 2 digital signal processor cores. ARM7EJ-S is the main processor that is responsible for running 2G and 2.5G protocol software. Digital signal processors handle the MODEM algorithms as well as advanced audio functions. Except for some mixed-signal circuitries, the other building blocks in PMB7880 are connected to either the microcontroller or one of the digital signal processor. The interface of PMB7880 control radio consists of Baseband Serial Interface (BSI), Baseband Parallel Interface (BPI), Automatic Power Control (APC) and Automatic Frequency Control (AFC) together with APC-DAC and AFC-DAC. PMB7880 also consist of the following subsystems:

- Microcontroller Unit (MCU) Subsystem
- Digital Signal Processor (DSP) Subsystem
- MCU/DSP Interface
- Microcontroller Peripherals
- Microcontroller Coprocessors
- DSP Peripherals
- Voice Front End
- Audio Front End
- Baseband Front End
- Timing Generator
- Power, Reset and Clock subsystem
- Power-on sequences, switches and SIM level shifters.

Interface Section

The interface of B831 includes the GPIO, UART, SIM Interface, POWER, AUDIO, RF Pad. The pins of AUDIO, GPIO, FM,SIM Interface are directly connect to the TP1. Between the RF antenna pad and the pin 11 of SKY77518 are connected by the capacitor C7. The POWER pins are directly power supply the R18, TP1.

433.91 Transceiver

RF unit and MCU unit. CC1101 single chip FSK transceiver is used to perform all RF functions, Centre frequency is 433.91MHz. MCU(STC11L04E) is used to handle CC1101. and output power is 10dBm. Meanwhile, information was transmitted by antenna.