GBDA90 Dongle Circuit Operation Principle Description

GBDA90 is a Bluetooth stereo dongle that support the iPod nano 1G、2G、3G, the main IC is BC57E687B made by CSR.BC57E687B contains two functions: Baseband and RF band. Base band deals with Audio process, power management, memory, clock circuit, etc. RF band deals with radio signal process.
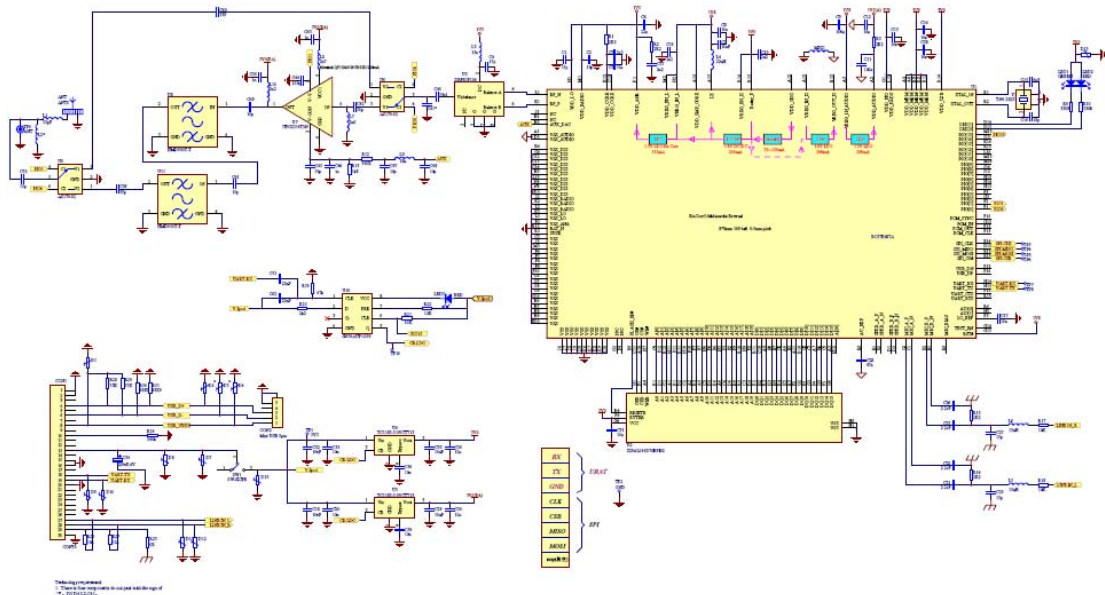
Dongle circuit: fig 1

Fig 1: Whole sch

Base band circuit:

Audio part (fig 2, fig 3) contains Audio Match Circuit.

Audio Match Circuit receives simulation audio signal from iPod connector, and adjust the signal, and then to main IC.
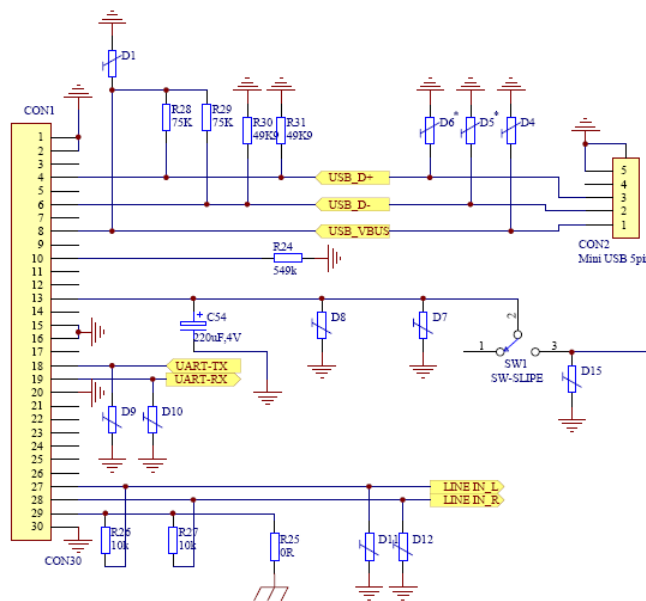

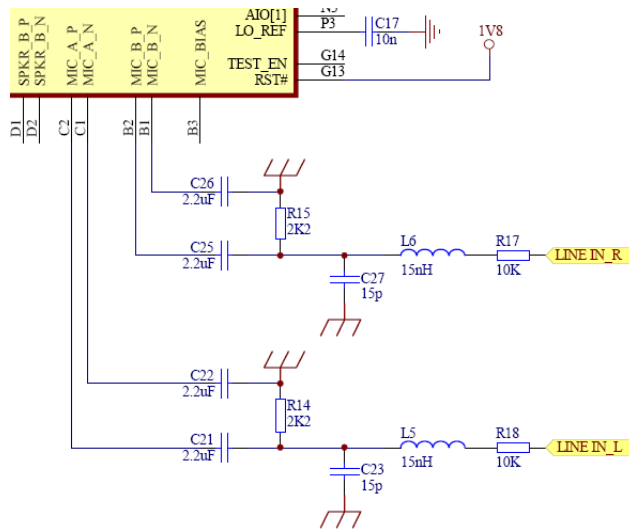Fig2: Audio output form the 27th and 28th pins of iPod connector

Fig3: Audio input of Bluecore

Power management: fig4, fig5

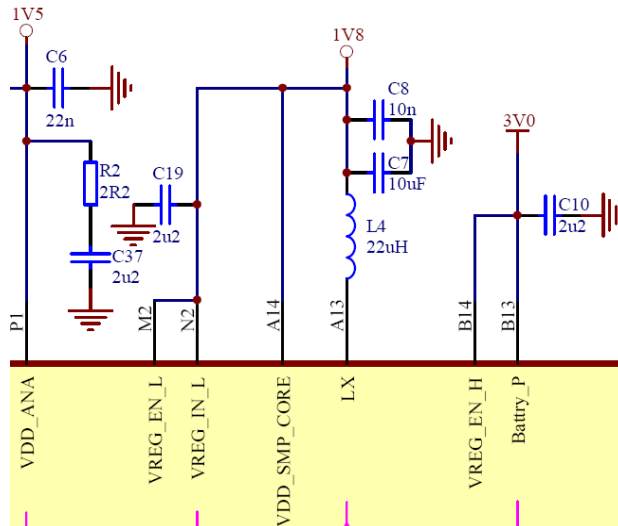Internal DC-DC generates (out from LX) to power Bluetooth IC.

Fig 4: Power manage

Memory: fig 5

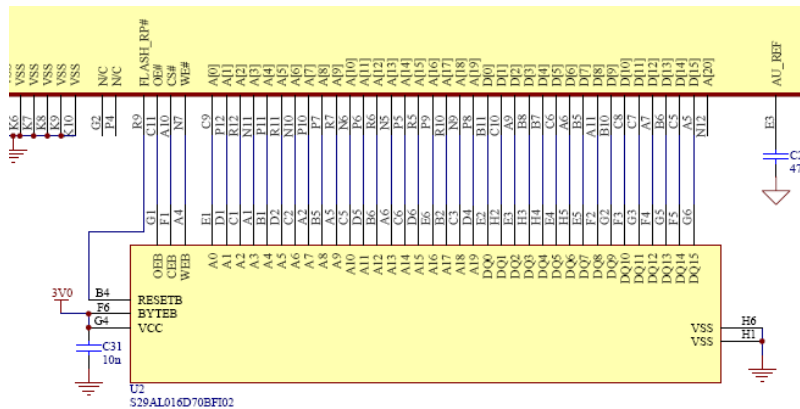Use 8Mbit Flash to store programming files.

Fig 5: Flash memory

Clock circuit: Fig 6
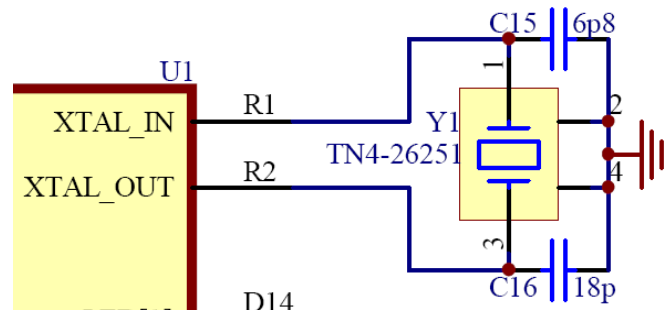
16MHz crystal generates main clock.

Fig 6: Clock circuit
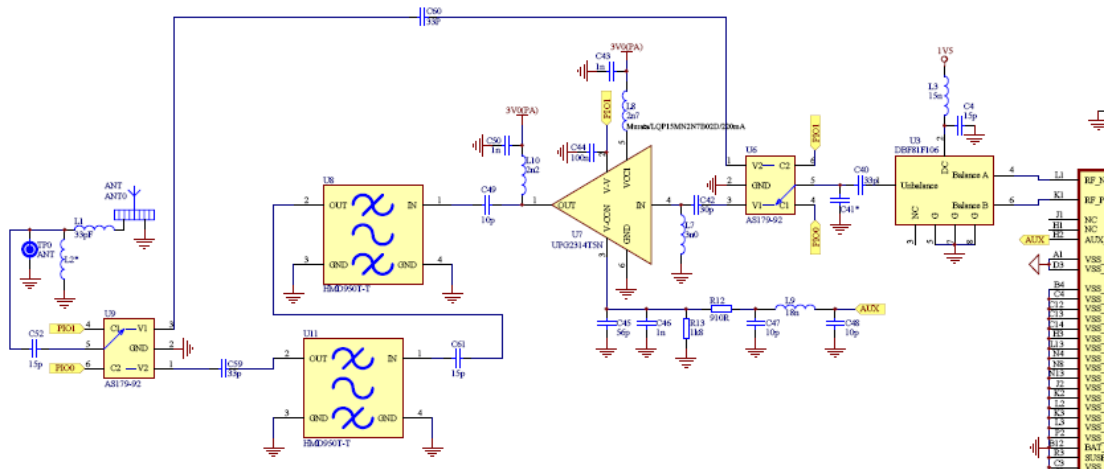
RF band:

RF signal process: Fig 7

Fig 7: RF band

Main IC outputs RF signal. It passes through a balun filter, the power amplifier and the band pass filters. The electric switcher complied the switch between output and input. Antenna type is PIFA.