Circuit Description

This device is a small sized microcomputer that instantly converts your regular TV into a smart TV with embedded wifi and BT, Running android 4.0 OS, supporting HD MPEG2,H.264,VC-1 video decoder and OpenGL ES 2.0 and Open VG.
The voltage of the device is DC 12V.

Multimedia playing function consists of local playing and internet playing;

a, Local playing function means that MCU reading and decode the files from TF card or USB device. The MCU employs 32.768KHz and 24MHz oscilators.

b, Internet playing means that the device is connected to Internet via cat5E cable or 2.4G wireless. MCU read and decode the files from Internet, then send the decoded signal to HDMI port.

This device employs RK903 RF module. This module employs 32.768KHz and 26MHz clocks. RK903 is the combo module for IEEE 802.11 b/g/n Wireless LAN with Bluetooth 4.0 . It comprises single chip IEEE 802.11 b/g/n MAC/Baseband/Radio with integrated Bluetooth 4.0. The Bluetooth 4.0 employs DTS and DSS mode.

For DTS mode, the module uses 40 channels and the separation is 2MHz.

For DSS mode, the module uses 79 channels and the separation is 1MHz.The hopping system is follow:

a. When power on, this device will loop scan the whole frequency until a connection command from the partner is received.
b. This device transmits a response signal.
c. The partner receives the response signal and recognizes it, then send a connection command to establish the connection.
d. each frequency is used equally on the average by each transmitter that each new transmission event begins on the next channel in the hopping sequence after the final channel used in the previous transmission event.
e. After the connection establish successfully, the data transmission is beginning. At the same time, the partner and this device will shift frequencies in synchronization per a same pseudo randomly ordered list of hopping frequencies, the hopping rate is 1600 times per second. This device conform to the criteria in FCC Public NoticeDA00-705.
f. The bandwidth of the this device, which is set to a fixed width by the software, match the hopping channel bandwidth of their corresponding partner. This device is a true frequency hopping system and does not have the capability to be coordinated with other FHSS systems in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

   There are 79 channels in total. The channels hopping from one channel to another channel during the pseudorandom selection process. The hopping interval is 12 millisecond. This system

frequency hops between 79 channels. If it is determined that one of the 79 hopping channels is found to be noisy or poor due to other RF interference, then a new channel is selected from the 78 unused channels and the one noisy channel is released to the unused group. This repeats whenever a noisy or poor channel is detected. For example, for the hop pattern of 2414MHz,2434MHz,2444MHz,2434MHz,2451MHz,2441MHz,2454MHz,2434MHz,2427MHz,2461MHz,2461MHz,2444MHz,2414MHz,2448MHz,2451MHz,2417MHz,2478MHz,2469MHz,2473MHz,2403MHz,etc. The sequential hops can not follow any order, is completely random.