Operation Description

System Block Diagram
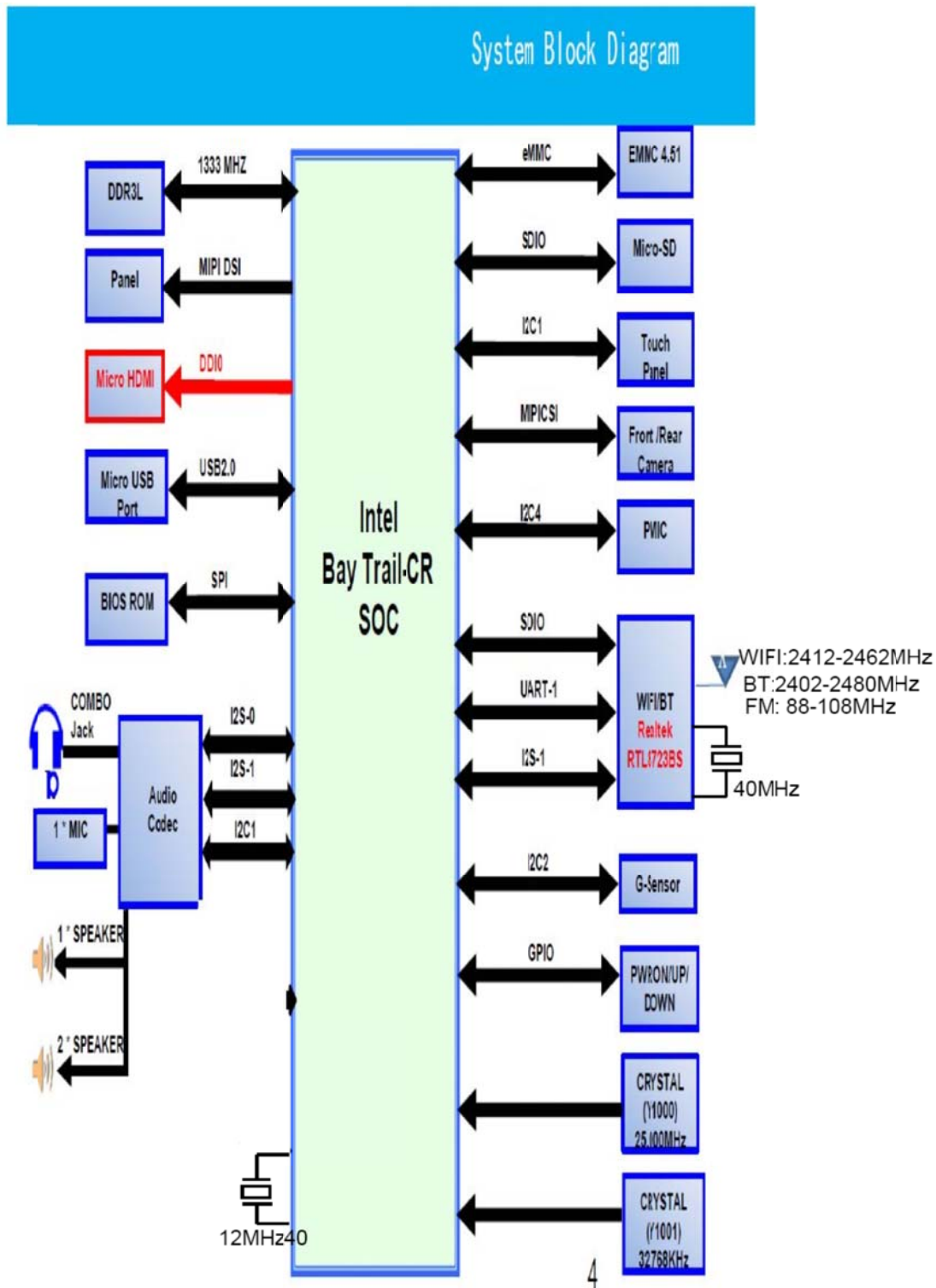

VNB11602IS is a Netbook which designed to provide distinct and different experiences for both study and entertainment.

VNB11602IS also ingrate WLAN/BT modular to provide wireless connection link services.

Circuit Description

1. Power Supply

The sample powered by DC 3.7V by battery or DC 5.0V adapters from AC 120V/60Hz.

2. CPU

VNB11602IS choose Intel Bay Trail-CR SOC as CPU; can provide DDR3, eMMC, SDID, touch panel, Camera, PMIC, BIOS RAM, Speaker, HDMI, USB connection, G-Sensor and so on; ingrate 12 MHz, 25MHz and 32.768 KHz Crystal oscillator;

3. **WLAN/Bluetooth and FM function**

VNB11602IS can provide high power wireless connection to network;

The RF modular RTL8723BS is a small size and low profile of WLAN+BT combo module, Integrated 40MHz Crystal; it can be easily manufactured on SMT process and highly suitable for tablet PC, ultra book, mobile device and consumer products. It provides GSPI/SDIO interface for WiFi to connect with host processor and high speed UART interface for BT. It also has a PCM interface for audio data transmission with direct link to external audio codec via BT controller.

The WiFi throughput can go up to 150Mbps in theory by using 1x1 802.11n b/g/n SISO technology and Bluetooth can support BT3.0 and BT4.0.

Features

● Operate at ISM frequency bands (2.4GHz)

● GSPI/SDIO for WLAN and UART for Bluetooth

● IEEE standards support: IEEE 802.11b, IEEE 802.11g, and IEEE 802.11n

● Fully qualified for Bluetooth 3.0

● Fully qualified for Bluetooth 4.0 Dual mode

● Full –speed Bluetooth operation with Piconet and Scatternet support.

● Enterprise level security which can apply WPA/WPA2 certification for WiFi.

● WLAN 1 transmitter and 1 receiver allow data rates supporting up to 150 Mbps downstream and 150 Mbps upstream PHY rates

●For WiFi/BT, it uses fixed path for WiFi and BT, which means one antenna assigned for WiFi and the other is assigned for BT.

● Support Bluetooth adaptive power management mechanism

● Full-featured software utility for easy configuration and management

● Low Halogen compliance

WLAN

● Single-band(2.4GHz) single stream 802.11 b/g/n MAC/BB/RF

● Support IEEE 802.11 b/g/n, only support 20MHz bandwidth

● 802.11 d/h/k complaint

● Security: WFA WPA/WPA2 personal,WPS2.0,WAPI(Hardware)

● QoS: WFA WMM,WMM PS

● Supported 802.11n optional features: STBC, A-MPDU, Bik-Ack, RIFS, MCS Feedback,20/40MHz coexistence(PCO),unscheduled PSMP

● Supports 802.112 Protected Managed Frames

● Supports WiFi Direct (WFA P-2-P standard) and Wi-Fi Mirscast (WiFi Display)

● Supports HotSpot 2.0 Passpoint

● Interface: SDIO 2.0(4-bit & 1-bit,up to 50MHz),SPI (48Mbps)

● Integrated PA with max 21dBm output power

● Typical -77.5dBm 2.4GHz receiver sensitivity at 11g 54Mbps mode

● Per packet TX power control

● The product support following modulation type
   IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK)
   IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK)
   IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK)
   IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK)

Bluetooth

● Bluetooth specification 3.0 compliance
● Bluetooth 4.0 Low Energy(LE)
● Integrated PA with 10dBm(class 1) transmit power and Balun
● RX sensitivity:GFSK-95dBm,DQPSK -94dBm,8-PSK -88dBm
● HCI over high speed(4Mbps) UART(H4),and SDIO 2.0
● Best-in-class BT/Wi-Fi coexistence performance
● Up to 4 piconets simultaneously with background inquire/page scan
● Support Scatternet
● Packet loss concealment (PLC) function for better voice quality
● Low-power scan function to reduce the power consumption in scan modes
   The wireless module also complies with BT v4.0+EDR function, which supports following

VNB11602IS will disable Classics Bluetooth function by software and only open Bluetooth Lower Energy function although Bluetooth modular RTL8723BS support Classics Bluetooth and Lower Energy Bluetooth due to marketing purposes. End-user will only use Lower Energy Bluetooth function in US market.

Modulation type:

The WLAN and Bluetooth share same transmitter antenna, and the maximum gain of antenna is 2.0dBi;

4. G-Sensor circuit

The G sensor cannot use as power reduction instead of proximity sensor.

5. USB

VNB11602IS supports 2 USB port, USB port can connect USB WLAN dongle or others;

6. CAMERA Circuit

The camera connects to Intel Bay Trail-CR SOC through Camera interface.

7. LCD Backlight Circuit

LCD backlight is provided by modular Intel Bay Trail-CR SOC. It will output voltage can drive two strings, each string of eight LED.

8. Speaker/MIC

VNB11602IS support speaker/MIC function;

9. HDMI

VNB11602IS support HDMI functions; connects to Intel Bay Trail-CR SOC through HDMI interface.

Manufacturing tolerance

GFSK - LE (Average)			
Frequency (MHz)	2402	2440	2480
Target (dBm)	-6.0	-6.0	-6.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11b (Average)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	15.0	15.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11g (Average)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Frequency (MHz)	2422	2437	2452
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0