BLUETOOTH THEORY OF OPERATION

Bluetooth discrete solution is provided by the BTHFMTXRDS4.4D (N6005) ASIC. It provides a fully digital link for communication between a master unit (the phone) and one or more slave units (e.g. a wireless headset). Data and control interface for a low power RF module is provided by the ASIC. The Bluetooth solution used supports Bluetooth Specification 3.0 + EDR (Enhanced Data Rate) - Power Class 1 operation but output power can also be limited to Class 2 if necessary via vendor specific command.

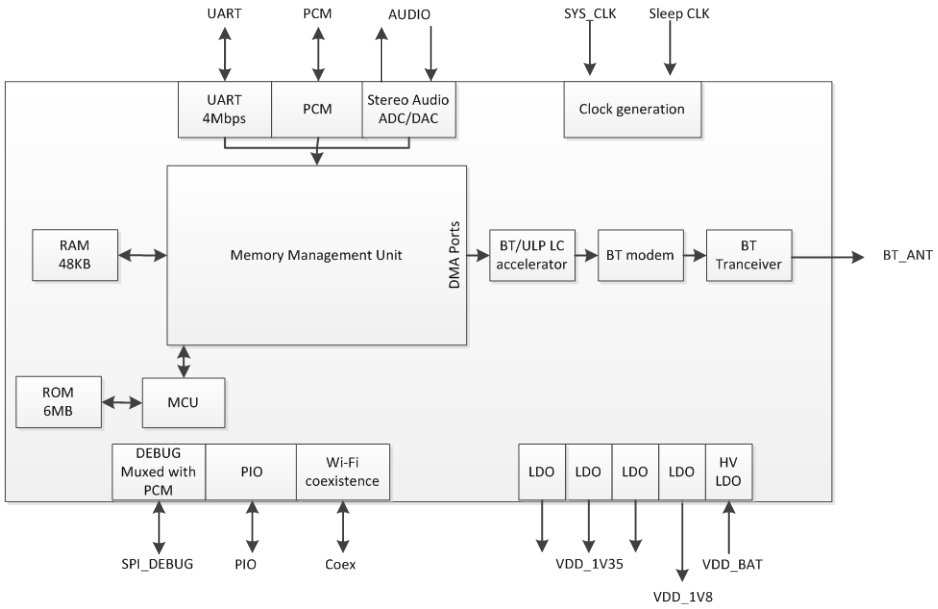

Figure1. BTHFMTXRDS4.4 diagram

The Bluetooth Solution is powered from the phone power supply by connection to Vbat and the interface lines are powered from the VIO supply from the phone and internally via a regulator. For audio application, the Bluetooth solution incoporates a PCM/I2S (Pulse Code modulation) interface and consists of four lines: PCM_CLK, PCM_SYNC, PCM_IN and PCM_OUT and these are programmable to support PCM or I2S codecs.

In addition a UART (universal asynchronous receiver/transmitter) is used for data communication and controls. Four HW signals are used for data exchange between the host phone engine and the Bluetooth solution: UART_TX, UART_RX, UART_CTS and UART_RTS.

UART_RX/TX are used as transmit/receive data channels and the UART_RTS and CTS signals are used for byte wise; packet wise flow control with packet framing capability.

The lines UART_WAKEUP, BT_WAKEUP, CLK_REQ/BT_WAKEUP are used for the sleep mode handling between the phone engine and the Bluetooth Solution.