



ICs for Communications

BLUETOOTH BlueMoonTM I

BlueMoonTM Reference Design Application

BlueMoon I	
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Previous Version:	Revision –
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Several	Update of HW and FW versions for Bluetooth Core Specification 1.1

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1 Reference Design Application

In this document, the BlueMoon™ I baseband controllers PMB 6752 (V1.4) and PMB 6754 (V1.4) together with the Bluetooth ProBlue FW 3.4.4 and the RF IC PMB 6615 are described. These ICs together with the firmware provide the BLUETOOTH Radio (RF), Baseband (BB), Link Manager (LM), and Host Controller Interface (HCI) / HCI-UART functionality according to the BLUETOOTH core specification V1.1.

The BlueMoon™ I controllers PMB 6752 and PMB 6754 and RF IC PMB 6615 form a family of devices for the baseband and radio part of a BLUETOOTH™ system. BLUETOOTH wireless technology is an open industry standard for short range wireless communication with both data and voice transmission capability (up to 723 kbit/s data asymmetrically or up to 3 voice calls simultaneously). The devices are designed for use in cordless voice applications (base and mobile station) or for data applications like interconnection between mobile phones (GSM etc.) and laptops, palmtops, and PCs. The chipset is highly integrated and realizes most of the system functions needed in such an equipment.

The BlueMoon™ I controllers PMB 6752 and PMB 6754 interface to the RF IC PMB 6615 as transceiver for 2.4GHz ISM frequency band thus realizing a power class 2 Bluetooth device. Optionally, the PAs PMB 4823 or PMB 6827 can be added in order to realize a power class 1 Bluetooth device which is supported by the BlueMoon™ I controllers PMB 6752 and PMB 6754 and firmware ProBlue. Together with the BLUETOOTH software ProBlue incorporating Baseband (BB), Link Manager (LM), and Host Controller Interface (HCI) functionality a system with BLUETOOTH wireless technology can be developed.

The BlueMoon™ I controllers PMB 6752 and PMB 6754 are fabricated in an advanced CMOS technology. The IC PMB 6752 is available in an LFBGA-81 package. As a package variant the IC PMB 6754 is available in a TQFP-100 package. The BlueMoon™ I RF IC PMB 6615 is fabricated in an advanced BiCMOS technology and is available in an TSSOP-38 package.

Further information on BlueMoon™ I is available under www.infineon.com/bluetooth.

1.1 Functional Block Diagram

1.2 System Integration

The BlueMoon™ I system using PMB 6752 or PMB 6754 and PMB 6615 realizing BLUETOOTH wireless technology is shown in the following figure.

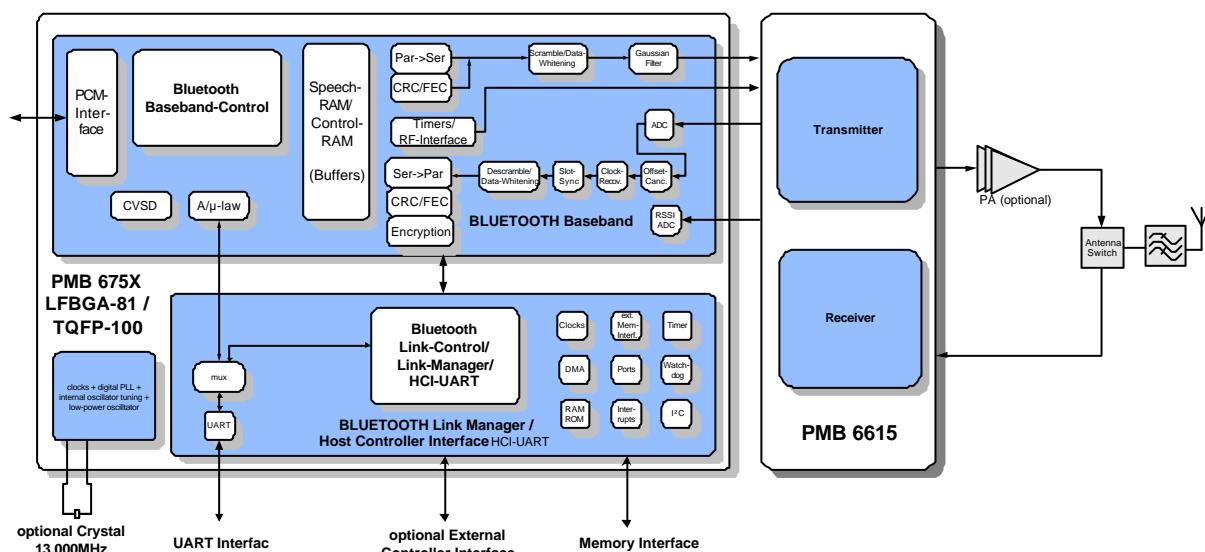


Figure 1-1: Block diagram of the BlueMoon™ I system

1.2.1 PMB 6752 / PMB 6754 – BlueMoon™ I BLUETOOTH Controller

The BlueMoon™ I BLUETOOTH Controllers PMB 6752 and PMB 6754 are developed for use in BLUETOOTH data applications with the UART as physical HCI interface. The ICs have on one side the interface to the RF transceivers PMB 6615 / 6625 and the optional PAs PMB 4823 and PMB 6827. On the other side the IC provides the UART interface for full duplex data communication and the PCM interface for voice connection.

1.1.1 ProBlue FW

The ProBlue FW provides BLUETOOTH Baseband (BB), Link Manager (LM), and Host Controller Interface (HCI) functionality. For the physical UART interface the logical HCI-UART is provided.

1.1.2 PMB 6615 – BLUETOOTH RF Transceiver

The PMB 6615 is an RF transceiver circuit with a very high level of integration for BLUETOOTH's 2.4GHz frequency band. The receiver is highly integrated without needing an external SAW filter; the LNA is also on chip. The complete receiver needs no external adjustment. A VCO and the PLL are integrated, too. The IC can be programmed by a 3-wire bus interface. Two low drop voltage regulators are integrated in order to achieve a sufficiently stable supply voltage for the transceiver circuit and especially for the on-chip VCO and the following buffer stages.