FOXCONN® *Network System Group*

USER MANUAL

Model Name : T77N159

Bluetooth Module

Contents

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Section One: Introduction

This module is with CSR BlueCore5-Multimedia External solution. It is a single-chip radio and baseband IC for Bluetooth 2.4GHz systems. When used with the CSR Bluetooth stack, it provides a fully compliant Bluetooth v2.1 + EDR specification system for data and voice.

BlueCore5-Multimedia External contains the Kalimba DSP co-processor with double the MIPS of BlueCore3-Multimedia External, supporting enhanced audio applications.

1.1   Features
1.1.1 Bluetooth Function
- Bluetooth radio firmware is upgradeable for bug fixes, initial version compatible with Bluetooth specification version 2.1
- Fully compliant to Bluetooth SIG (BQB) compatibility testing.
- A standard UART interface for communicating with other serial devices.
- Bluetooth Profile Support
   Handset
   Handfree
   OPP(Object Push Profile)
   PBAP(Phone Book Access Profile)
- Supports Power Management
- A fully compliant Bluetooth v2.1 + EDR
- Class 2 RF output power (max -6 dBm)
- -90dBm Receive Sensitivity (1Mbps)
- Enhanced Audibility and Noise Cancellation
- 16-bit Internal Stereo Codec: 95dB SNR for DAC
- Support 2 chains of MIC input and 2 chains of Speaker out
- Multi-configurable I2S, PCM or SPDIF Interface
- Integrated 1.5V and 1.8V Linear Regulators and Switched-mode Regulator
- Low power 1.5V Operation, 3.3V I/O
- Supports 8Mbit of External Flash Memory
- FW programming via SPI interface
- FW upgrade via UART interface
- Support for IEEE 802.11 Coexistence

1.2   Hardware Requirements

Radio Technology	FHSS
Operating Frequency	2402 ~ 2480MHz ISM band
Channel Numbers	79 channels with 1MHz BW
Transmitter Output Power	-10~-6dBm output power for class2 operation
Receiver Sensitivity	<0.1% BER @ -90dBm,1Mbps <7.0E-005 BER@ -90dBm,2Mbps <7.0E-005 BER@ -82dBm,3Mbps
Maximum Receiver Signal	-20dBm
Initial Carrier Offset	+/-75KHz
Operating Voltage	3.3V+/-10%
Operating Temperature	–10°C to 70°C
Storage Temperature	–40°C to 85°C
Power consumption	About 50mA max. at 3.3V when handset mode
Host Interface	UART
Audio Interface	Support 2 chains of MIC input and 2 chains of Speaker out
PCB dimension	20.3mm*17.5mm*2.3mm

Section Two: Bluetooth User

This module is used a standard UART interface for communicating with other serial devices.

BlueCore5 Multimedia External UART interface provides a simple mechanism for communicating with other serial devices using the RS232 protocol.

When BlueCore5 Multimedia External is connected to another digital device, UART_RX and UART_TX transfer data between the two devices. UART configuration parameters, such as baud rate and packet format, are set using BlueCore5 Multimedia External firmware.

Note:

To communicate with the UART at its maximum data rate using a standard PC, an accelerated serial port adapter card is required for the PC.

Parameter		Possible Values
Baud rate	Minimum	1200 baud (≤2%Error)
		9600 baud (≤1%Error)
	Maximum	4Mbaud (≤1%Error)
Flow control		RTS/CTS or None
Parity		None, Odd or Even
Number of stop bits		1 or 2
Bits per byte		8

Table 1: Possible UART Settings

The UART interface can reset BlueCore5 Multimedia External on reception of a break signal. A break is identified by a continuous logic low (0V) on the UART_RX terminal, as shown in Figure2. If tBRK is longer than the value,defined by the PS Key PSKEY_HOSTIO_UART_RESET_TIMEOUT, (0x1a4), a reset occurs. This feature allows a host to initialise the system to a known state. Also, BlueCore5 Multimedia External can emit a break character that may be used to wake the host.

UART RX t_{BRK}

Figure 2: Break Signal

Note:

The DFU boot loader must be loaded into the Flash device before the UART or USB interfaces can be used. This initial flash programming can be done via the SPI.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.   These limits are designed to provide reasonable protection against harmful interference in a residential installation.   This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.   However, there is no guarantee that interference will not occur in a particular installation.   If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

-   Reorient or relocate the receiving antenna.
-   Increase the separation between the equipment and receiver.
-   Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-   Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device is intended only for OEM integrators under the following conditions:

The transmitter module may not be co-located with any other transmitter or antenna,
As long as the condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).
IMPORTANT NOTE: In the event that the condition can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.
End Product Labeling
The final end product must be labeled in a visible area with the following: "Contains FCC ID: MCLT77N159".
Manual Information To the End User
The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.
The end user manual shall include all required regulatory information/warning as show in this manual.

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