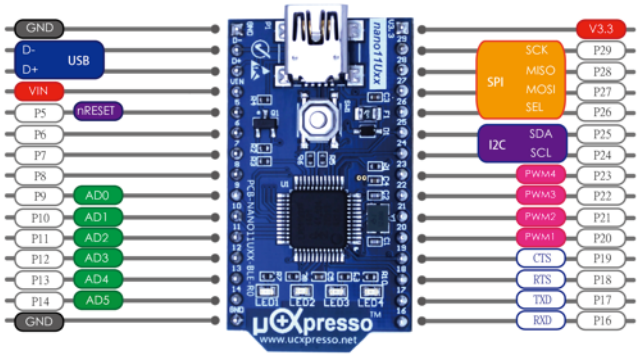
nano11U37-BLE

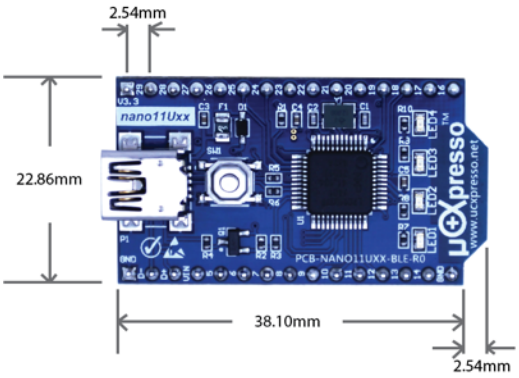
Pin Configurations



Overview

The nano11U37-BLE is small RTOS module and includes the Bluetooth Low Energy (BLE) features. This module platform provides the Real-Time and Multi-Tasking to handle the BLE transceiver in the background and works with your applications together. The nano11U37-BLE also provides the uCXpresso C/C++ framework to easy to make your RTOS & BLE applications in the Object-Oriented concept, and works on the free charge of LPCXpresso IDE (Eclipse).

Dimension:



uCXpresso.BLE RTOS C++ Framework

- Kernel : FreeRTOS v8.x and later
- Driver Class Library : CPin , CBus, SPI, I2C, CAdc, Serial, bleSerial, bleProximity, bleBattery ...
- RTOS Class Library : CThread, CSemaphore, CMutex, CMailBox, Gabrage Collector ...
- Advanced Memory Management.

Specification

NXP LPC11U37	Bluetooth Low Energy (BT 4.0)
● ARM Cortex-M0 / 48MHz ● 128K Flash Code Size (User's code size 120KB) ● 8K RAM Size ● 4K EEPROM (100000~1000000 write cycles) ● Full Speed USB CDC/MSC Supported ● GPIO x 24, Flex Interrupt x 8 ● ADC x 6 (10 bits) ● PWM x 4 ● SPI x 1 (Max 25Mb/s) ● I2C x 1 ● UART x 1 (with RTS/CTS)	● Full Bluetooth v4.0 low energy compliant ● 0、-6、-12 and -18dBm programmable Tx Power ● 1Mb on air data rate ● -87dBm RX sensitivity at 1Mbps ● Excellent co-existence performance ● LL, L2CAP, GAP, SM, ATT and GATT mandatory ● GATT Client and GATT ● Full Bluetooth Qualified
On Board Temperature Sensor	

On Board Voltage Monitor

Power-On Reset (POR)

Temperature range - 20 ° C to +60 ° C.

Three ways to provide the power:

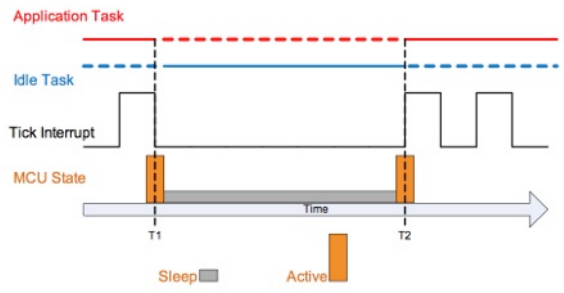
	PIN	Voltage Range	Power Consumption
Mini USB		DC 5.0V	Active : 20mA / Power Save: <4mA
VIN	P4	DC 5.0~9.0V	Active : 20mA / Power Save: <4mA @DC5V
V3.3	P30	DC 3.3V (2.0~3.6V)	Active : 15~20mA / Power Save: <1mA [1]

Note: It depends on your hardware design. As the result, If the power source lower than 1mA, you should choice the model nano11U37-BLE-3.3 (3.3V only ver.), and take advantage of the Tickless Low Power Feature.

Multiple BLE Operating Simultaneously

Service	Characteristic	UUID	AIR	Size	Descriptions
Device Name			Adv.	16	
UART		713D0000-503E-4C75-BA94-3148F18D941E	Adv.		
	Vendor Name	713D0001-503E-4C75-BA94-3148F18D941E	D > H	20	
	TXD	713D0002-503E-4C75-BA94-3148F18D941E	D > H	20	Notify
	RXD	713D0003-503E-4C75-BA94-3148F18D941E	D < H	20	Write
	ACK	713D0004-503E-4C75-BA94-3148F18D941E	D < H	1	ACK for TXD Data
	Version	713D0005-503E-4C75-BA94-3148F18D941E	D > H	4	F/W Version
Battery		180F			
	Battery Level	2A19	D > H	1	0~100 (%)
Health Therm.		1809	Adv.		
	Temp. Measure.	2A1C	D > H	4	Read or Indicate
	Temp. Type	2A1D	D > H	1	Read
	Measure. Interval	2A21	D > H	2	Read
Tx Power		1804	Adv.		
	Tx Power Level	2A07	D > H	1	Read, +20 ~ -100
Immediate Alert		1802	Adv.		
	Alert Level	2A06	<>	1	Read & Write
Link Lose		1803			
	Alert Level	2A06	<>	1	Read & Write
Device Info.		180A			
	H/W Rev	2A27	D > H	2	Read
Reserve For ODM					

Low Power Strategies (Tickless Techonlogy)



The Tickless Technology stops the periodic main clock (Enter to Deep-Sleep or Power-Down mode) during idle periods (periods when there are no application tasks that are able to execute), then makes a correcting adjustment to the RTOS tick count value when the main clock is restarted. Repeats the ON and OFF to save the power and keep the system in Activity.