

ARM[®] Cortex[®]-M
32-bit Microcontroller

NuMicro[™] Family
NuMaker-TRIO
User Manual

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Table of Contents

1 简介 3

2 硬件规格 4

2.1 单芯片板 5

2.2 传感器板 5

2.3 无线通信板 6

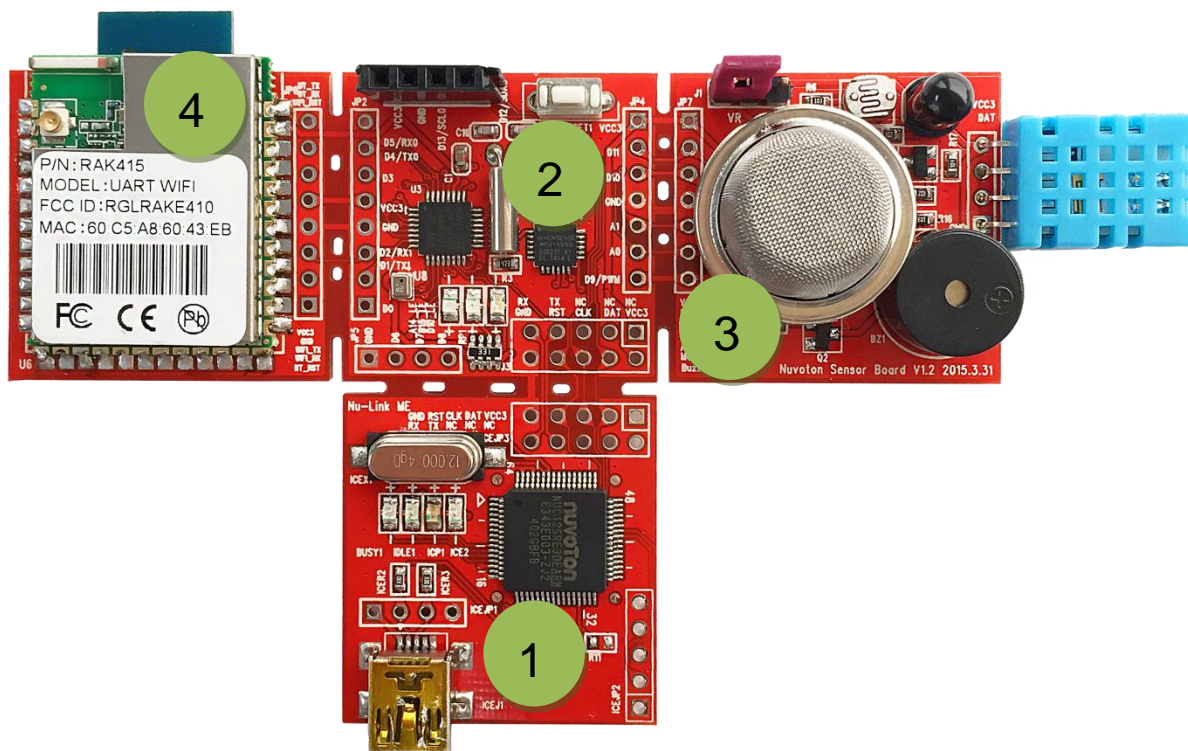
2.4 硬件连接图 6

2.5 硬件连接表 7

3 修订历史 8

1 简介

Nuvoton NuMaker TRIO 是一款基于Nuvoton Cortex®-M0 NANO102 MCU，适用于发展物联网应用的开发板。板子上面分成四个主要区块，分别说明如下。



第一部分为Nu-Link Adapter支持基于SWD讯号接口进行ICP(In-Circuit Programming)工程，用户可使用Nuvoton NuMicro ICP Programming Tool发展软件进行芯片固件更新，也适用于芯片固件量产。并且支持第三方开发工具，如Keil RVMDK、IAR EWARM与CooCox CoIDE。

第二部分为MCU主板，主要包含了Nuvoton Cortex®-M0 NANO102 MCU、RTC使用32768晶振、MPU6050 三轴加速规/三轴陀螺仪。

第三部分为感知器板，板上包含了火焰红外线感知器、光线亮度感知器、DHT11 温湿度感知器、MQ-7瓦斯感知器与一个Buzzer。

第四部份为无线传输板，板上主要包含了两种无线传输模块；一为双模蓝牙传输模块、一为Wi-Fi传输模块。两个模块都内含Nuvoton Cortex®-M0 NANO100 单芯片 处理无线传输部分的协议栈。

2 硬件规格

- MCU
 - Nuvoton Cortex®-M0 NANO102ZD2AN – 32位单芯片
 - 最高运行速度 32Mhz、内建32KB 闪存、8K 内存
 - 硬件实时时钟
 - 待机电流 <1uA
 - 支持 SPI / I2C / UART / ADC / PWM / GPIO 接口
- 感知器
 - MQ-7 CO 气体感知器
 - 火焰红外线感知器 (940nm)
 - GL5516 – 光敏电阻
 - MPU6050 – 3 轴加速规 与 3 轴 陀螺仪
 - DHT11 – 温湿度感知器
- 无线模块
 - RAK415 – 802.11b/g/n无线模块
 - ◆ 支持 TCP/IP Stack
 - ◆ 支持 OPEN、WEP、WPA、WPA2-PSK
 - ◆ 支持 SoftAP、Station 模式
 - ◆ 支持 UART AT Command
 - BB2710-29 – 双模蓝牙模块
 - ◆ 支持 SPP and GATT 协议
 - ◆ 支持 UART AT Command

2.1 单芯片板

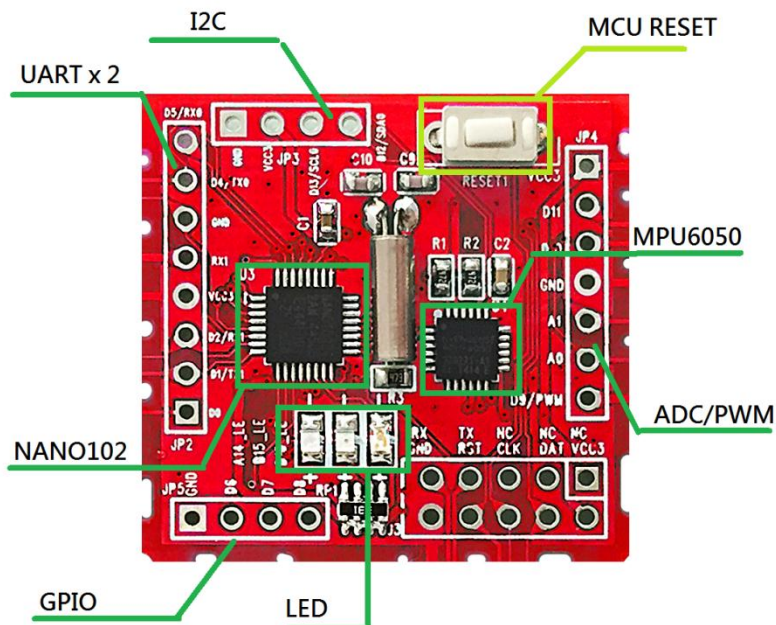


Figure 2-1 单芯片板

2.2 传感器板

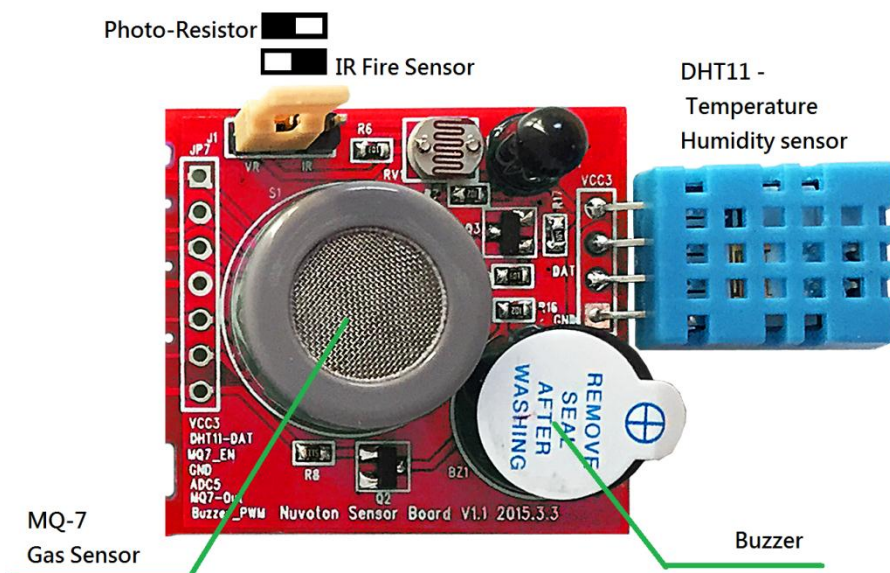
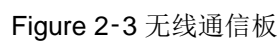
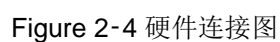


Figure 2-2 传感器板

2.4 硬件连接图



2.4 硬件连接图



2.5 硬件连接表

Peripheral / Sensor	Nano GPIO Func	TRIO Function	TRIO Arduino
JP5	PB12	Key1	D8
JP5	PB13	Key2	D7
JP5	PB14	Key3	D6
LED	PB15	Red LEDn	
BT Module	PC4	BT RESETn	D0
WiFi Module	PC6	WiFi RESETn	D3
WiFi Module	PC7/RX1	WiFi TX	D2 / RX1
WiFi Module	PC8/TX1	WiFi RX	D1 / TX1
MPU6050 / BMP280 / JP3	PC10/SCL1	I2C_SCL	D13/SCL0
MPU6050 / BMP280 / JP3	PC11/SDA1	I2C_DAT	D12/SDA0
WiFi Module	PC12	WiFi Sleep	
MPU6050	PC13	MPU6050 INT	
PWM	PD9	PWM_Buzzer	D9
LED	PD10	Blue LED	
DHT11	PD11	DHT11 DATA	D11
MQ7	PD12	MQ7 Power Enable	D10
IR fire / Photo-resistor	PA4	ADC4	A0
MQ7	PA5	ADC5 / MQ7_sensor	A1
BT Module	PA12 / TX0	BT RX	D4 / TX0
BT Module	PA13 / RX0	BT TX	D5 / RX0
LED	PA14	Green LED	

TABLE 2-1 硬件连接表

3 修订历史

Date	Revision	Description
2015.04.15	1.00	1. Initially issued.

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