

IoT物联网

# 万物互联工程实例

广和通大学计划项目组

2023Q2



# 目录

1、[硬件说明](#)

2、[电路搭建](#)

3、[STM32工程创建](#)

4、[L610与STM32串口收发](#)

5、[STM32解析L610数据](#)

6、[STM32连华为云工程演示](#)

7、[万物互联工程实例技术资料链接](#)

1

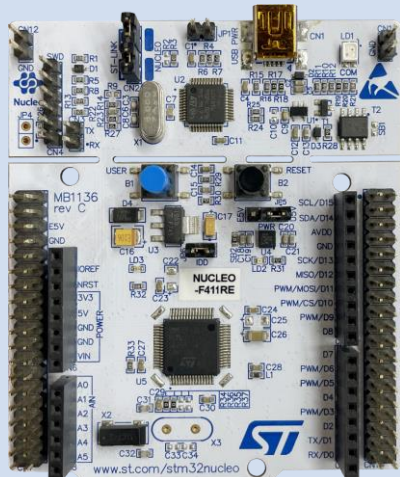
硬件说明

# 硬件说明

模块端  
ADP-L610-  
Arduino\_V3.0.2



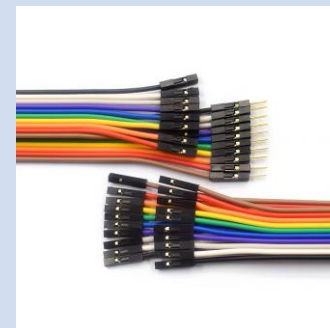
MCU  
STM32F411



串口监测工具  
USB转TTL



杜邦线若干

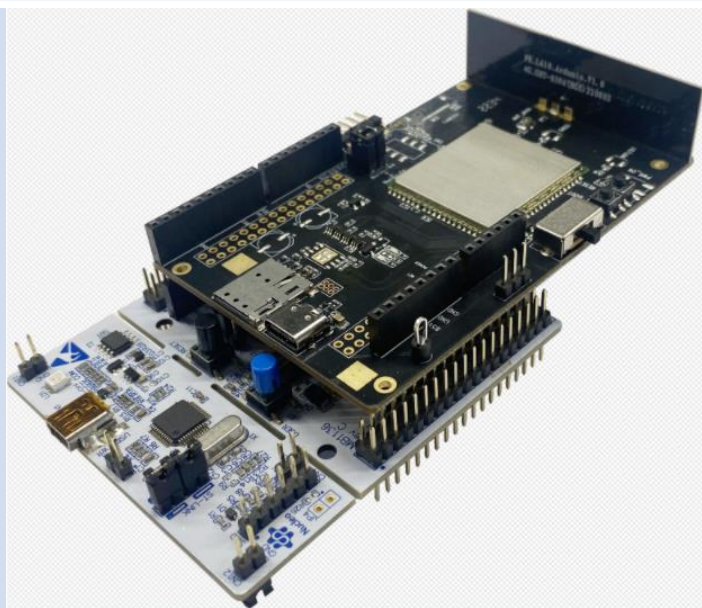


2

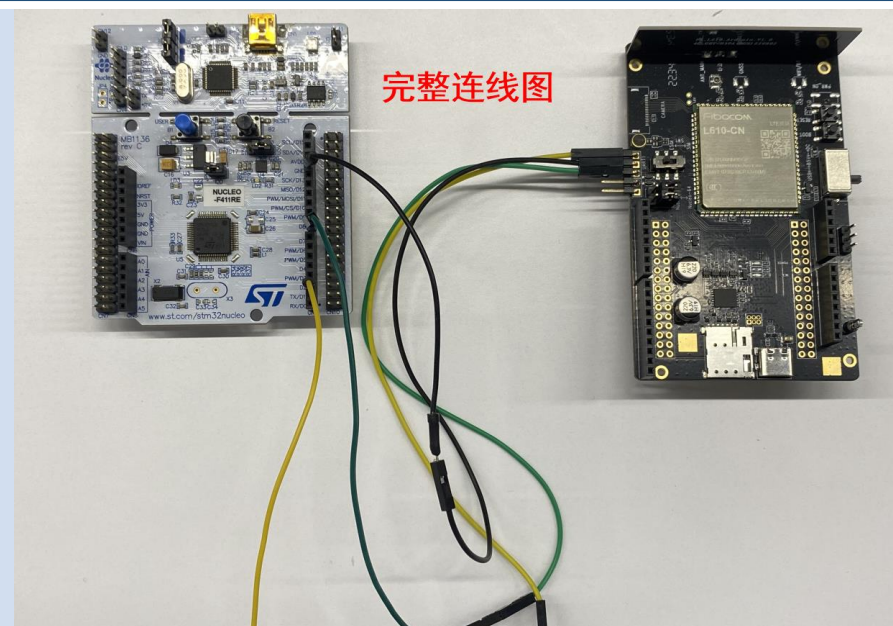
电路搭建

# L610与STM32的电路搭建

## 方法一：Arduino接口对接



## 方法二：杜邦线连接



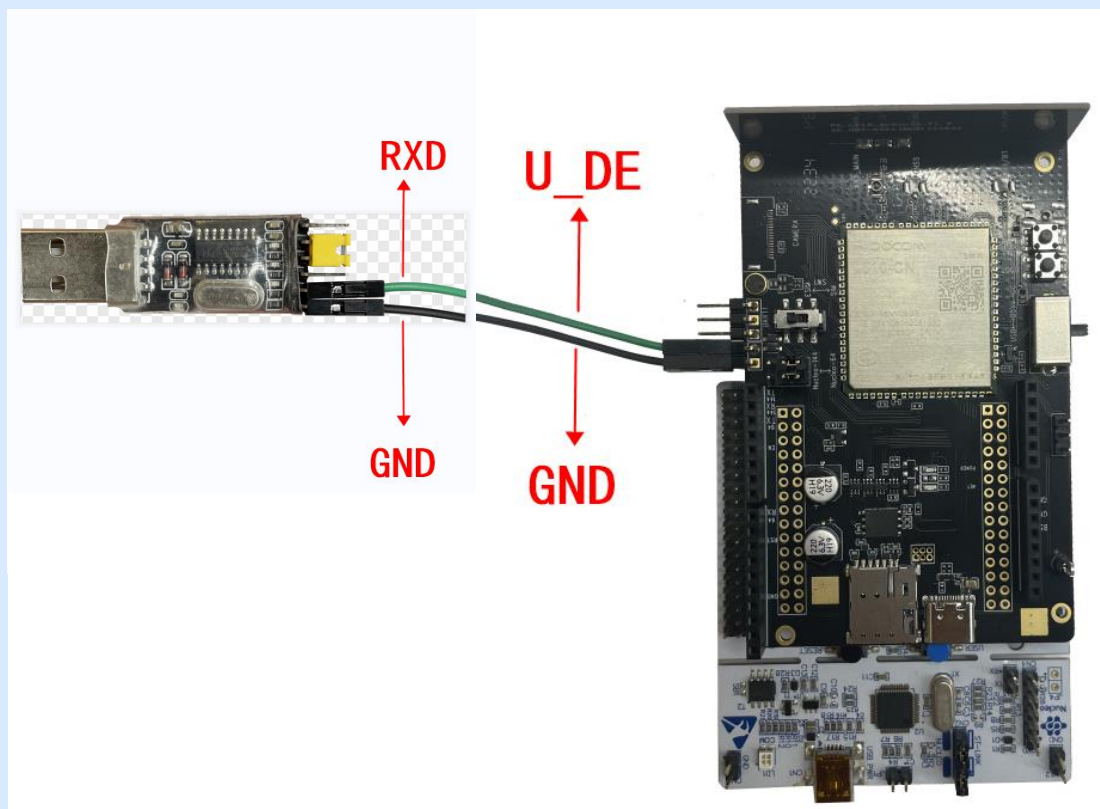
# L610与STM32的电路搭建

电路搭建方法二的接口说明：

接口	ADP-L610- Arduino_V3.0.2	Nucleo-64
地	UART1/GND	CN6/PIN7/GND
UART-RX (面向ADP-L610-Arduino接收)	UART1/RX	CN5/PIN1/D8(PA9)
UART-TX (面向ADP-L610-Arduino发送)	UART1/TX	CN9/PIN3/D2(PA10)

# 串口监测的电路搭建

三代开发板配备有串口监测管脚，需要结合USB转TTL工具（可在网上的电子商城中购买，搜索关键词“USB转TTL”），可以监测L610与MCU之间的数据通信





3

STM32工程创建

# STM32工程创建

工程创建软件工具：**STM32CubeMX**（芯片配置工具）



# STM32工程创建

## 工程创建步骤

---

▷ 芯片选取

---

▷ 晶振配置

---

▷ 串口配置

---

▷ 生成工程

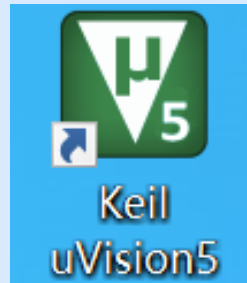
---

4

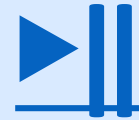
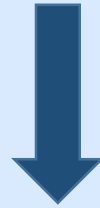
L610与STM32串口收发

# L610与STM32串口收发

软件工具：Keil



代码编写烧录演示



5

STM32解析L610数据

## 解析 步骤



▷ 添加数据接收buffer

▷ 开始解析数据

▷ 根据解析做出下一步动作

▷ 生成工程

6

STM32连华为云工程演示



# STM32连华为云收发数据代码讲解

The screenshot displays the Keil uVision IDE interface for a project named 'urat1'. The main window shows the source code for 'main.c', which includes initialization of peripherals, a 5-second delay, and a loop for checking version information. The build output window shows a successful compilation of the project.

```
117 /* Initialize all configured peripherals */
118 MX_GPIO_Init();
119 MX_USART1_UART_Init();
120 /* USER CODE BEGIN 2 */
121 HAL_UART_Receive_IT(&huart1, &Res, 1);
122
123 //模块初始化, 等待5秒
124 printf("模块初始化\r\n");
125 HAL_Delay(5000);
126
127 //查询版本信息
128 printf("ATI\r\n");
129 HAL_Delay(1000);
130 strx=strstr((const char*)RxBuffer, (const char*)"Fibocom");
131 while(strx==NULL)
132 {
133     Clear_Buffer();
134     printf("查询信息失败");
135     HAL_Delay(1000);
136     printf("ATI\r\n");
137     HAL_Delay(1000);
138     strx=strstr((const char*)RxBuffer, (const char*)"Fibocom");
139 }
140 Clear_Buffer();
141 printf("版本信息正确");
142 HAL_Delay(1000);
```

Build Output

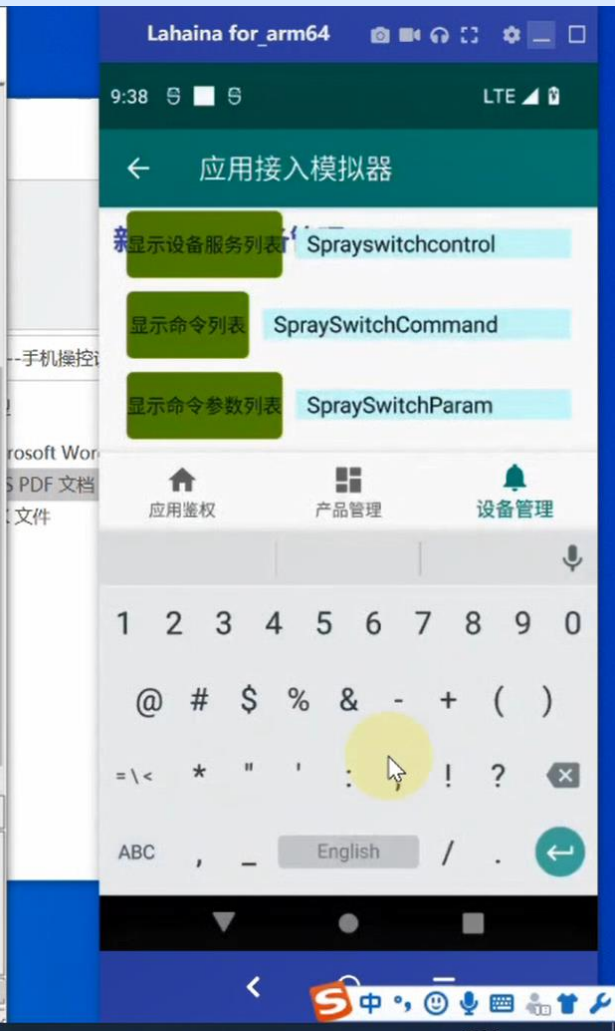
```
Build started: Project: urat1
*** Using Compiler 'V5.06 update 6 (build 750)', folder: 'D:\ruanjian\Keil_v5\ARM\ARMCC\Bin'
Build target 'urat1'
"urat1\urat1.axf" - 0 Error(s), 0 Warning(s).
Build Time Elapsed: 00:00:00
```

# STM32连华为云工程演示

```
SSCOM V5.13.1 串口/网络数据调试器,作者:大虾丁丁,2618058@qq.com. QQ群: 52502449(最新版本)
通讯端口 串口设置 显示 发送 多字符串 小工具 帮助 联系作者 大虾论坛

+MIPCALL: 0
OK
[09:35:03.990]收←◆还未获取到IP
[09:35:04.987]收←◆AT+MIPCALL=1
AT+MIPCALL=1
OK
+MIPCALL: 10.1.175.11
[09:35:05.982]收←◆获取IP成功
[09:35:06.979]收←◆AT+HMCON=0,60,"a16110f598.iot.mqtt.s.on-north-4.myhuaweicloud.com",8883,"6110e20e0ad1ed0286438504_humidifier001","123456789",0
AT+HMCON=0,60,"a16110f598.iot.mqtt.s.on-north-4.myhuaweicloud.com",8883,"6110e20e0ad1ed0286438504_humidifier001","123456789",0
[09:35:08.552]收←◆
+HMCON OK
[09:35:08.980]收←◆连接成功
[09:35:09.976]收←◆AT+HMPUB=1,"$oc/devices/6110e20e0ad1ed0286438504_humidifier001/sys/properties/report",76,"{\services\":[{\service_id\":"SpraySwitchControl"}]"}
AT+HMPUB=1,"$oc/devices/6110e20e0ad1ed0286438504_humidifier001/sys/properties/report",76,"{\services\":[{\service_id\":"SpraySwitchControl"}]"}
[09:35:10.104]收←◆
+HMPUB OK
[09:35:10.570]收←◆
+HMREC: "$oc/devices/6110e20e0ad1ed0286438504_humidifier001/sys/commands/request_id=2e603d06-5163-4abe-b755-3a48dfbac611",104,"{\paras":{"SpraySwitchParam":1},"service_id":"SpraySwitchControl","command_name":"SpraySwitchCommand"}"
[09:35:10.989]收←◆上报成功
[09:38:02.877]收←◆电力属性获取成功
[09:38:03.376]收←◆AT+HMPUB=1,"$oc/devices/6110e20e0ad1ed0286438504_humidifier001/sys/commands/response/request_id=38457484-c03c-4e6f-b16c-7599d96944e8",102,"{\paras\":"SpraySwitchParam":1,"service_id":"SpraySwitchControl","command_name":"SpraySwitchCommand"}"
[09:38:03.901]收←◆收到信息: switch=1

清除窗口 打开文件 发送文件 停止 请发送区 最前 English 保存参数 扩展
端口号 COM61 Silicon Labs CP210x HEX显示 保存数据 接收数据到文件 HEX发送 定时发送: 1000 ms/次 加回车换行
关闭串口 更多串口设置 加时间戳和分包显示 超时时间: 20 ms 第1 字节 至 末尾 加校验 None
RTS DTR 波特率: 115200
为了更好地发展SSCOM软件 请您注册嘉立创结尾客户
【升级到V5.13.1】★含高性价比4G模块值得一试 ★RT-Thread中国人的开源免费操作系统 ★新一代WiFi芯片兼容8266支持RT-Thread ★80M远距离WiFi可自组网
```



7

万物互联工程实例技术资料  
链接

# 万物互联工程实例技术资料链接

兆易: [https://bbs.elecfans.com/jishu\\_2328405\\_1\\_1.html](https://bbs.elecfans.com/jishu_2328405_1_1.html)

STM32: [https://bbs.elecfans.com/jishu\\_2327768\\_1\\_1.html](https://bbs.elecfans.com/jishu_2327768_1_1.html)

龙芯: [https://bbs.elecfans.com/jishu\\_2327769\\_1\\_1.html](https://bbs.elecfans.com/jishu_2327769_1_1.html)

沁恒微电子: [https://bbs.elecfans.com/jishu\\_2329533\\_1\\_1.html](https://bbs.elecfans.com/jishu_2329533_1_1.html)

灵动微电子: [https://bbs.elecfans.com/jishu\\_2326143\\_1\\_1.html](https://bbs.elecfans.com/jishu_2326143_1_1.html)

# 完美无线体验

广和通致力于将可靠、便捷、安全、智能的无线通信解决方案普及至每一个物联网应用场景，为用户带来完美无线体验，丰富智慧生活。

We are committed to enabling industries with reliable, accessible, secure, and intelligent IoT wireless solutions and wireless module products to maximize their value, providing a perfect wireless experience to people and enriching smart life of the whole society.

**Copyright©2023 Fibocom Wireless Inc. All Rights Reserved.**  
The information in this document may contain predictive statements including, without limitation, statements regarding the future financial and operating results, future product portfolio, new technology, etc. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied in the predictive statements. Therefore, such information is provided for reference purpose only and constitutes neither an offer nor an acceptance. Fibocom may change the information at any time without notice.

深圳市广和通无线股份有限公司



📞 0755-26733555

🏢 深圳市南山区西丽街道打石一路深圳国际创新谷六栋A座10-14层

🌐 [www.fibocom.com](http://www.fibocom.com)

**Fibocom** 广和通