MSPM0-UASRT Method

Experimental preparation

1. TI's MSPM0G3507 motherboard
2. 8-channel patrol module
3. Several Dupont cables

MSPM0G3507 board needs to download the UASRT communication source code provided in the document**

Experimental purpose

The content of this experiment is mainly to use the MSPM0G3507 master control to receive the data of the 8-channel patrol module through UASRT.

Experimental wiring

MSPM0G3507 connected to the serial port assistant
If the type-c port of the msp does not have the function of downloading programs, you need to use a USB to TTL module to connect to the computer. The wiring is described in the following table

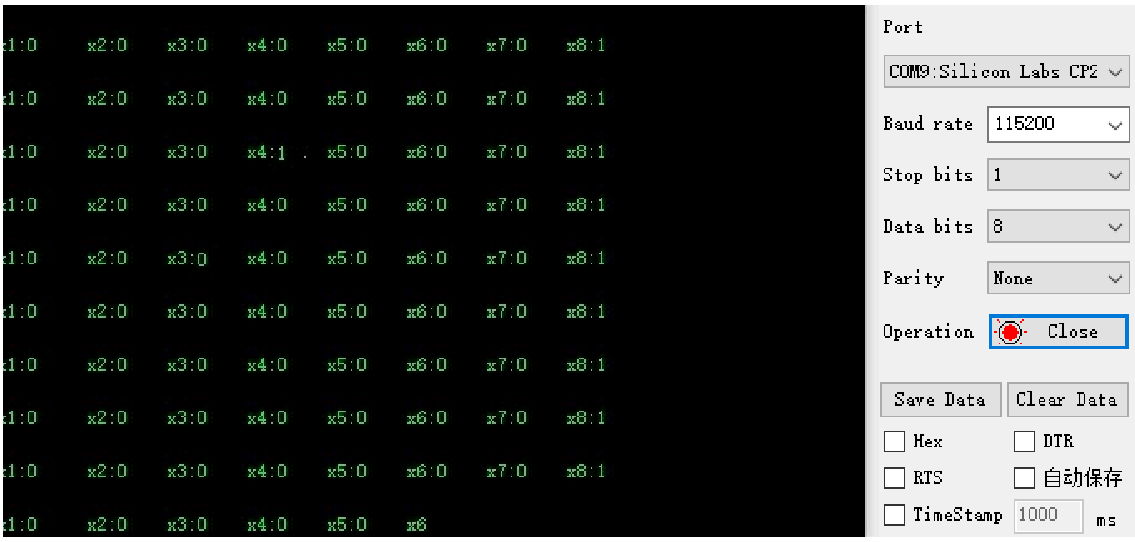
MSPM0G3507	usb to ttl
PA10	TX
PA11	RX
vcc	vcc
GND	GND
If the MSPM0G3507 MCU type has a download function, you can directly use the type-c to connect to the computer's serial port assistant	

MSPM0G3507	8-channel line patrol module
PA9	TX
PA8	RX
5v	5v

MSPM0G3507	8-channel line patrol module
GND	GND

Experimental steps and phenomena

1. After connecting the wires, open the serial port assistant and you can see the numerical data of the infrared module. Set the baud rate to 115200.
   As shown in the figure below



```
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:1  . x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6:0    x7:0    x8:1
x1:0    x2:0    x3:0    x4:0    x5:0    x6
```

Port: COM9:Silicon Labs CP2
Baud rate: 115200
Stop bits: 1
Data bits: 8
Parity: None
Operation: Close

MSPM0 developers need to build the environment before compiling and running the project
Environment building tutorial:
https://wiki.lckfb.com/zh-hans/dmx/beginner/install.html

Experimental source code

```
int main(void)
{
    //Development board initialization
    board_init();

        delay_ms(500);
        delay_ms(500);
        uart1_send_string("$0,0,1#");

    IR_usart_config();    // Serial port initialization
    printf("start\r\n");
    while(1)
    {
            //Parsing the data sent
            IRDataAnalysis();
            delay_ms(500);



    }
```

```
 }
```

uart1_send_string("$0,0,1#"); : The first number is the calibration mode (0: exit calibration mode 1: enter calibration mode) The second number is whether to receive analog data The third number is whether to receive numerical data.

This routine only provides parsing of numerical data. If you need to parse analog data, you can parse it yourself according to the protocol. The serial port parsing file of this project also has a function for parsing analog values. You can refer to the **Deal_Usart_AData** function.