Example Sch+Code

AN

M2.1 UART with SCH.

[sch + code]

V1.0

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Contents

1. Introduction

1. This Application Note provides to customers how to use uart with source code and basic schematic.

2. UART Configution : 22.1184Mhz, 57600 bps

3. tip : When you test uart with our device, you'd better use window's hiper terminal for a TX-RX test.

Source Code

```
// File : uart.c

#include <gc89c520_tq32i.h>
#include <stdio.h>

unsigned char   received_data;
unsigned char transmit_ready;
unsigned char response;

void initialize();

void putchar(char ch)
{
      while(transmit_ready == 0);
      transmit_ready = 0;
      SBUF = ch;
}

void delay()
{
      char temp;
      for(temp=0;temp<20;temp++);
}

void uart_int(void) interrupt SIO_VECTOR
{
      if (TI)
      {
                  // Transmit Mode
                  TI = 0;
                  transmit_ready = 1;
      }
```

Source Code

```
	else if (RI)
	{
		// Receive Mode
		received_data = SBUF;
		RI = 0;

		if(received_data=='T')
		{
			response = 1;
		}
		else
		{
			SBUF = received_data; // Resend to Serial Port
			while(!TI);
			delay();
			TI=0;
		}
	}
}

void use_external_clock()
{
	//
	// Wait Crystal Amplifier stable
	//

	while (!(STATUS & 0x10));

	//
	// Declare External Clock
	//

	EXIF |= XTRG_;
}
```

Source Code

```
void init()
{
	response = 0;
	transmit_ready = 1;

	use_external_clock();

	//
	// Use TX Port
	//

	ALTSEL |= 0x04;

	//
	// Timer1 Mode2
	//

	TMOD  = 0x20;

	//
	// *Fosc = 22.1284MHz 57600 bps
	//

	PCON |= 0x80; // Timer1 baudrate double
	TH1 = 0xFE;

	//
	// Serial Reception enable
	//

	REN		= 1;				// Reception Enable

	//
	// UART Interrupt (Commnucation) Enable
	//

	ES	= 1;

	//
```

Source Code

```
void init()
{
	response = 0;
	transmit_ready = 1;

	use_external_clock();

	// Use TX Port
	//
	ALTSEL |= 0x04;

	// Timer1 Mode2
	//
	TMOD  = 0x20;

	// *Fosc = 22.1284MHz 57600 bps
	//
	PCON |= 0x80; // Timer1 baudrate double
	TH1 = 0xFE;

	// Serial Reception enable
	//
	REN		= 1;				// Reception Enable

	// UART Interrupt (Commnucation) Enable
	//
	ES	= 1;

	// All Interrupts Enable
	//
	EA =  1;

	// Timer1 Start
	//
	TR1 = 1;
}

void main()
{
```

Source Code

```
void main()
{
	init();

	printf("hello₩n");

	while(1)
	{
		if(response == 1)
		{
			response = 0;
		}
	};
}
```

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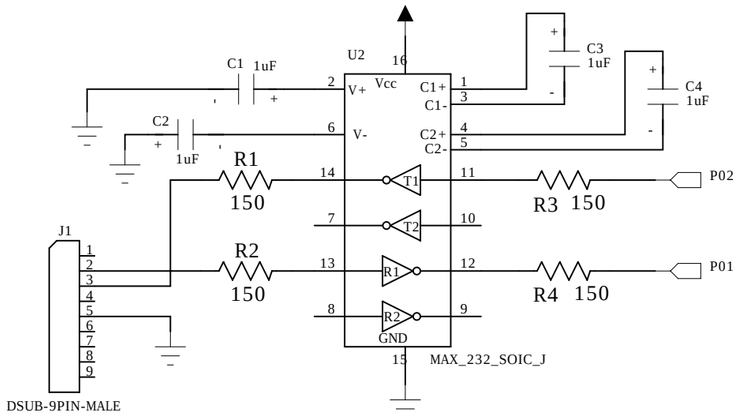
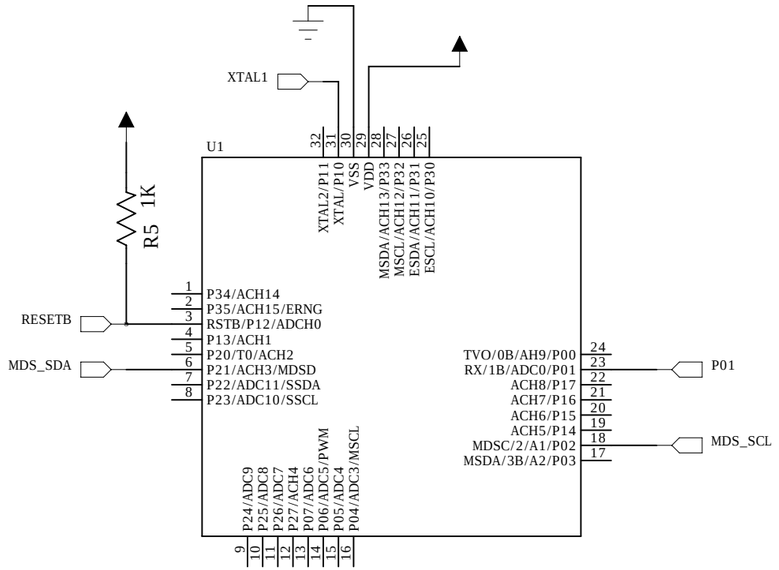
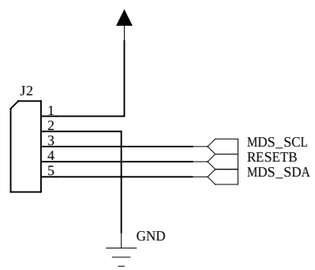
[RS 232]



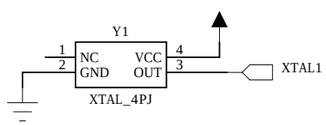
[M2.1 LQ32]



[ISP Download Connector]



[CLK 22.1184Mhz]



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