



AMICCOM SOC Reference code for UART RC_SOC_19

Document Title

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Revision History

Rev. No.	History	Date	REV.BY
0.0	Initial issue.	May. 6, 2014	Jones
0.1	Add A8106, A8325 & A9108 in support list	Mar.17, 2015	Jones
0.2	PM mode wake up issue	Aug. 20, 2015	Jones
0.3	Add notice in Timer2, UART.	Aug. 17, 2015	Jones
0.4	Add Baud rate supporting table	Jan. 22, 2018	Jarvis
0.5	Add Post Script in Note2	Mar. 09, 2018	Jarvis
0.6	Delete support list	Apr. 27, 2018	Jarvis

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1. 概敘：

本文系描述如何利用AMICCOM SOC UART 送收資料。

1.1 AMICCOM SOC MCU TIMER概述

AMICCOM SOC 包含一個全雙工的標準8051 UART介面Rxd(P3.0), Txd(P3.1).

1.2 BAUD RATE SUPPORTING TABLE

Crystal	16MHz	Timer1				
Baud Rate(bps)	T1M	SMOD	COUNTER	TH1/TL1	Actual(bps)	Error(<2%)
2400	1	1	104	152	2404	0.17%
4800	1	1	52	204	4808	0.17%
9600	1	1	26	230	9615	0.16%
19200	1	1	13	243	19231	0.16%
38400	--	--	--	--	--	x

Crystal	8MHz	Timer1				
Baud Rate(bps)	T1M	SMOD	COUNTER	TH1/TL1	Actual(bps)	Error(<2%)
2400	1	1	52	204	2404	0.17%
4800	1	1	26	230	4808	0.17%
9600	1	1	13	243	9615	0.16%
19200	--	--	--	--	--	x
38400	--	--	--	--	--	x

Crystal	12.8MHz	Timer1				
Baud Rate(bps)	T1M	SMOD	COUNTER	TH1/TL1	Actual(bps)	Error(<2%)
2400	1	1	83	173	2410	0.42%
4800	1	1	42	214	4762	-0.79%
9600	1	1	21	235	9524	-0.79%
19200	--	--	--	--	--	x
38400	--	--	--	--	--	x

Crystal	6.4MHz	Timer1				
Baud Rate(bps)	T1M	SMOD	COUNTER	TH1/TL1	Actual(bps)	Error(<2%)
2400	1	1	42	214	2381	-0.79%
4800	1	1	21	235	4762	-0.79%
9600	--	--	--	--	--	x
19200	--	--	--	--	--	x
38400	--	--	--	--	--	x

Crystal	19.2MHz	Timer1				
Baud Rate(bps)	T1M	SMOD	COUNTER	TH1/TL1	Actual(bps)	Error(<2%)
2400	1	1	125	131	2400	0.00%
4800	1	1	63	193	4762	-0.79%
9600	1	1	31	225	9677	0.80%
19200	--	--	--	--	--	x
38400	--	--	--	--	--	x

Crystal	16MHz	Timer2			
Baud Rate(bps)	COUNTER	TH2	TL2	Actual(bps)	Error(<2%)
2400	208	255	48	2404	0.17%
4800	104	255	152	4808	0.17%
9600	52	255	204	9615	0.16%
19200	26	255	230	19231	0.16%
38400	13	255	243	38462	0.16%

Crystal	8MHz	Timer2			
Baud Rate(bps)	COUNTER	TH2	TL2	Actual(bps)	Error(<2%)
2400	104	255	152	2404	0.17%
4800	52	255	204	4808	0.17%
9600	26	255	230	9615	0.16%
19200	13	255	243	19231	0.16%
38400	--	--	--	--	x

Crystal	12.8MHz	Timer2			
Baud Rate(bps)	COUNTER	TH2	TL2	Actual(bps)	Error(<2%)
2400	167	255	89	2395	-0.21%
4800	83	255	173	4819	0.40%
9600	42	255	214	9524	-0.79%
19200	21	255	235	19048	-0.79%
38400	--	--	--	--	x

Crystal	6.4MHz	Timer2			
Baud Rate(bps)	COUNTER	TH2	TL2	Actual(bps)	Error(<2%)
2400	83	255	173	2410	0.42%
4800	42	255	214	4762	-0.79%
9600	21	255	235	9524	-0.79%
19200	--	--	--	--	x
38400	--	--	--	--	x

Crystal	19.2MHz	Timer2			
Baud Rate(bps)	COUNTER	TH2	TL2	Actual(bps)	Error(<2%)
2400	250	255	6	2400	0.00%
4800	125	255	131	4800	0.00%
9600	63	255	193	9524	-0.79%
19200	31	255	225	19355	0.81%
38400	--	--	--	--	x

Note:

1. 當在PM mode(PM1, PM2) 下用UART 喚醒時, 需要注意下列事項:

- A. UART baud rate大於300Hz(不含300Hz) 時傳送的第一個Byte須為“0xFF”藉以喚醒MCU.
- B. 此第一個Byte“0xFF”不會被UART 接收. 裡例如: PM mode(PM1, PM2) 下UART 收到:
0xFF, 0x01, 0x02, 0x03 ...
這時0xFF不會被UART收進去, 0x01, 0x02, 0x03 ...則會被UART收進去.
- C. 當UART baud rate小於300Hz(含300Hz) 這時0xFF會被UART收進去.

2. 下列IC當UART使用Timer2 產生Baud rate, 如果有寫入SFR的時會讓Baud rate計算錯誤. 因此建議當UART使用Timer2 產生Baud rate時, 不要有寫入SFR的動作 .

P.S. A8100, A8101, A8102, A8105, A8106, A8107, A8108, A8113, A8137, A8153, A8301, A9101, A9108 ,A9109 & A9112.

2. 程式範例

程式說明, 本範例程式利用AMICCOM SOC UART傳收資料, 使用者可以將 Txd與Rxd短路, 讓Txd資料直接傳到Rxd測試UART,

/*****

```
//initHW
```

```
P0 = 0xFF;
```

```
P1 = 0xFF;
```

```
P2 = 0xFF;
```

```
P3 = 0xFF;
```

```
P0OE=0xFF;
```

```
P1OE=0xFF;
```

```
P3OE=0xFE;
```

```
IOSEL = UART0_SEL; //enable UARTIOS=1
```

```
CKCON = 0x00; //TM1=system clock/12
```

```
SCON = UART0_MODE1;
```

```
PCON = 0x00; // SMOD = 0
```

```
TMOD = TIMER1_8BITSAUTO;
```

```
TH1 = (256-4);
```

```
TL1 = (256-4);
```

```
REN = ENABLE;
```

```
TR1 = ENABLE;
```

```
ES = ENABLE;
```

```
EA = ENABLE;
```

```
TXBuf = 0xAA;
```

```
while(1)
```

```
{
```



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```
SBUF = TXBuf;  
while(1);  
}
```

```
/******
```

```
**  ISR_UART
```

```
******/
```

```
void ISR_UART (void) interrupt 4
```

```
{
```

```
    P0_0 = ~P0_0;
```

```
    if(TI)
```

```
    {
```

```
        TI = 0;
```

```
    }
```

```
    else
```

```
    {
```

```
        RI = 0;
```

```
        TXBuf++;
```

```
        SBUF = TXBuf;
```

```
    }
```

```
}
```

```
/******
```