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Renesas Electronics Corporation

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M16C/80 Group

Data transmission procedures using clock asynchronous serial I/O

1.0 Abstract

The following article introduces data transmitting procedures using clock asynchronous serial I/O and its application example.

2.0 Introduction

The explanation of this issue is applied in the following condition.

Applicable MCU: M16C/80 Group

3.0 Description of the application example

This chapter describes a procedures of data transmitting using clock asynchronous serial I/O.

3.1 Setup procedures

The setup procedures for “3.0 Description of the application example” and the setting value will be shown to use UART1. The connection example is shown in Fig.3.1.

Refer to M16C/80 group datasheet for the details of each register.

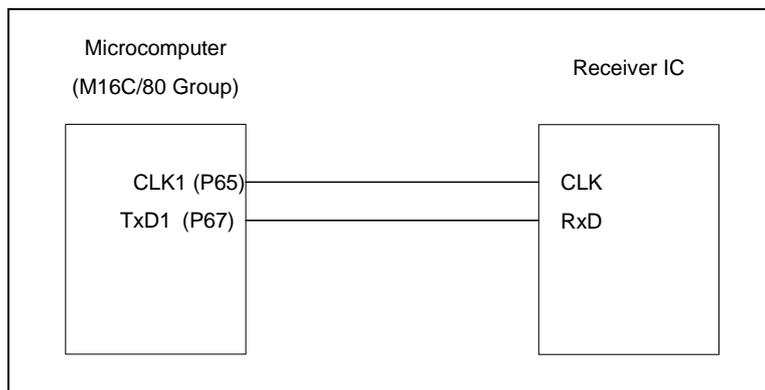
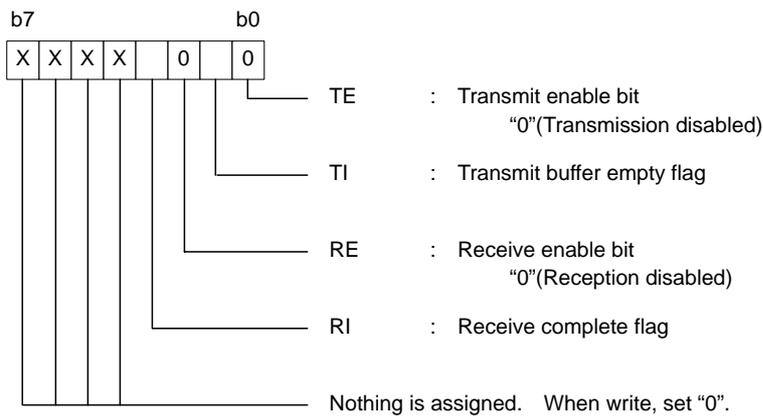


Fig. 3.1 An example of connection

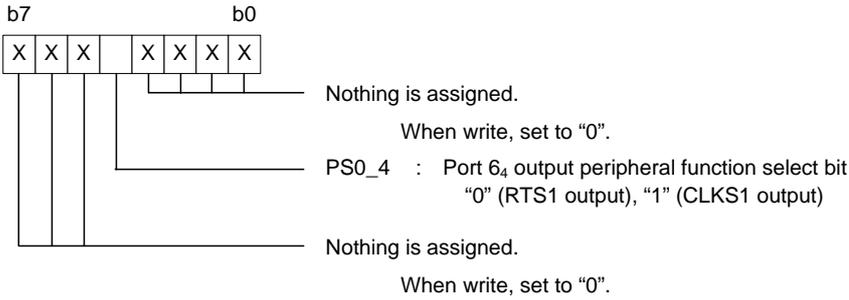
(1) Set UART1 transmit/receive control register (U1C1).

- Set transmission/reception to disabled.

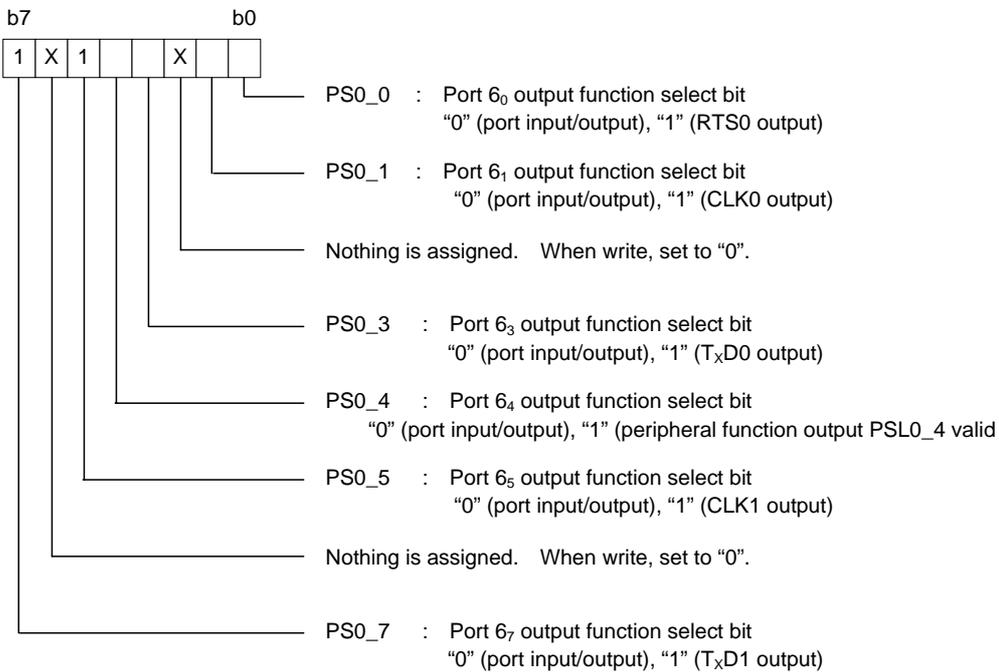


(7) Set function select register A0 (PS0) and function select register B0 (PSL0).

- Set function select register B0 (PSL0).



- Set function select register A0 (PS0).



(8) Set interrupt to enabled (I flag="1").

4.0 Program sample

```

/*****/
/*  FILE NAME : rej05b0265_src.c          */
/*  Ver       : 1.00                    */
/*  CPU       : M16C/80                 */
/*  FUNCTION  : The Clock asynchronous type serial I/O */
/*              transmitting procedure.   */
/*-----*/
/*  Copyright (C) 2003, Renesas Technology Corp.    */
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/*  All rights reserved.                           */
/*****/
/*****/
/*  include file                               */
/*****/
#include "sfr80144.h"          // SFR definition header

/*****/
/*  Function declaration                       */
/*****/
void  uart1s_int(void);

/*****/
/*  Global variable declaration               */
/*****/
char  snd_data1[8] = {0xff, 0x7f, 0x3f, 0x1f, 0x0f, 0x07, 0x03, 0x01};
char  snd_cnt1 = 0;

/*****/
/*  main function                             */
/*  UART1 transmit sample program            */
/*****/
void main(void)
{
    p1  = 0;
    p8  = 0;
    pd1 = 0xff;
    pd8 = 0x1f;

    u1c1 = 0;          // (1) transmit and receive disable
    u1mr = 0x05;      // (2) uart-8bit 1stop-bit internal-clock non-parity
    u1c0 = 0x10;      // (3) f1 cts/rts-disable
    ucon = 0;         // (4) interrupt-timing is transmit-buffer empty
    u1brg = 99;       // (5) Transmission speed setup

    s1tic = 0x03;     // (6) Interruption priority level=3

    psl0 = 0;         // (7) Function select register setup
    ps0  = 0xA0;      //          TxD1out, CLK1out

    asm("fset I");   // (8) interrupt enable

    u1c1 = 0x01;      // (9) transmit-enable receive-disable
    p1   = snd_data1[snd_cnt1]; //
    u1tb = snd_data1[snd_cnt1]; // (10) data transmit

    while(1)
    {
        p8_0 = !p8_0; // loop
    }
}

#pragma          INTERRUPT/B  uart1s_int
void uart1s_int(void)
{
    p8_1 = !p8_1;
}

```

```
snd_cnt1++;  
if(snd_cnt1 == 9)  
{  
    snd_cnt1 = 0;           // snd_cnt reset  
}  
p1 = snd_data1[snd_cnt1];  
u1tb = snd_data1[snd_cnt1]; // data transmit  
}
```

5.0 Reference

Datasheet

Refer to M16C/80 Group datasheet.

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6.0 Web-site and contact for support

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<http://www.renesas.com>

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REVISION HISTORY	M16C/80 Group Application Note Data transmission procedures using clock asynchronous serial I/O
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Rev.	Date	Description	
		Page	Summary
1.00	Oct 27, 2003	-	First edition issued

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