//C programming of LPC1768 SPI protocol

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#include<stdio.h>
#include <lpc17xx.h>

void UART1_init(void);

void UART1_init()
 {
          LPC_SC->PCONP |= (1 << 4);//enable power to UART1
          LPC_PINCON->PINSEL4 |=(2<<0)|(2<<2);//Pin P2.0 used as TXD1 and Pin P2.1 used as RXD1
          LPC_UART1->FCR= 0x07;//enable different FIFO
         LPC_UART1->LCR = 0x83;// 8 bits, no Parity, 1 Stop bit
        LPC_UART1->DLL = 0x12;//115200 Baud Rate @ 25.0 MHZ PCLK
        LPC_UART1->FDR = 0x21;//FR 1,507, DIVADDVAL=1, MULVAL=2
        LPC_UART1->DLM = 0x0;//High divisor latch = 0
       LPC_UART1->LCR = 0x03;// DLAB = 0
  }


int main (void)
          {
                    char a,b;
                    LPC_GPIO0->FIODIR=(1<<15)|(1<<16)|(1<<18);
                    LPC_GPIO0->FIODIR &=~(1<<17);
                    LPC_SC->PCLKSEL0 &=~(3<<16); //pclk = cclk
                    LPC_PINCON->PINSEL0 |= (3<<30);        //Pin P0.15 allocated to function SCK
                   LPC_PINCON->PINSEL1 |= (3<<0);          //Pin P0.16 allocated to function SSEL
                    LPC_PINCON->PINSEL1 |= (3<<2);         //Pin P0.17 allocated to function MISO
                  LPC_PINCON->PINSEL1 |= (3<<4);           //Pin P0.18 allocated to function MOSI
                 LPC_SC->PCONP |= (1 << 8); // enable power to spi clock //
                 LPC_SPI->SPCCR = 0x08;// Set Spi Clock, In master mode it should be equal to 8
                LPC_SPI->SPCR = 0x0020;//slave mode

                UART1_init();

                   while(1)
                   {
                             LPC_SPI->SPDR = a;
                            while(!(LPC_SPI->SPSR & (1<<7)));// wait till  SPI transmission
                             a=LPC_SPI->SPDR;
                             b = a | 0x30;
                             while(!(LPC_UART1->LSR & 0x20));//wait till UART1 transmission
                             LPC_UART1->THR=b;
                   }
              }
```