```
File: uart1.c, Date: 4/30/2016, Time: 8:05:40 AM
/*********************************************************
This program was produced by the
CodeWizardAVR V2.05.3 Standard
Automatic Program Generator
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Project :
Version :
Date    : 4/23/2016
Author  : Reza
Company :
Comments:


Chip type              : ATmega64
Program type           : Application
AVR Core Clock frequency: 8.000000 MHz
Memory model           : Small
External RAM size       : 0
Data Stack size         : 1024
*********************************************************/

#include <mega64.h>
#include <delay.h>
#ifndef RXB8
#define RXB8 1
#endif

#ifndef TXB8
#define TXB8 0
#endif

#ifndef UPE
#define UPE 2
#endif

#ifndef DOR
#define DOR 3
#endif

#ifndef FE
#define FE 4
#endif

#ifndef UDRE
#define UDRE 5
#endif

#ifndef RXC
#define RXC 7
#endif

#define FRAMING_ERROR (1<<FE)
#define PARITY_ERROR (1<<UPE)
#define DATA_OVERRUN (1<<DOR)
#define DATA_REGISTER_EMPTY (1<<UDRE)
#define RX_COMPLETE (1<<RXC)

// Get a character from the USART1 Receiver
```

```c
#pragma used+
char getchar1(void)
{
char status,data;
while (1)
        {
        while (((status=UCSR1A) & RX_COMPLETE)==0);
        data=UDR1;
        if ((status & (FRAMING_ERROR | PARITY_ERROR | DATA_OVERRUN))==0)
           return data;
        }
}
#pragma used-

// Write a character to the USART1 Transmitter
#pragma used+
void putchar1(char c)
{
while ((UCSR1A & DATA_REGISTER_EMPTY)==0);
UDR1=c;
}
#pragma used-

void usartInit()
{
    // USART1 initialization
    // Communication Parameters: 8 Data, 1 Stop, No Parity
    // USART1 Receiver: On
    // USART1 Transmitter: On
    // USART1 Mode: Asynchronous
    // USART1 Baud Rate: 9600
    UCSR1A=0x00;
    UCSR1B=0x18;
    UCSR1C=0x06;
    UBRR1H=0x00;
    UBRR1L=0x33;
}
void GPIOInit()
{
     // Input/Output Ports initialization
    // Port A initialization
    // Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
    // State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
    PORTA=0x00;
    DDRA=0x00;

    // Port B initialization
    // Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
    // State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
    PORTB=0x00;
    DDRB=0x00;

    // Port C initialization
    // Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
    // State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
    PORTC=0x00;
    DDRC=0x00;

    // Port D initialization
```

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    // Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
    // State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
    PORTD=0x00;
    DDRD=0x00;

    // Port E initialization
    // Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
    // State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
    PORTE=0x00;
    DDRE=0x00;

    // Port F initialization
    // Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
    // State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
    PORTF=0x00;
    DDRF=0x00;

    // Port G initialization
    // Func4=In Func3=In Func2=In Func1=In Func0=In
    // State4=T State3=T State2=T State1=T State0=T
    PORTG=0x00;
    DDRG=0x00;
}
// Declare your global variables here

void main(void)
{
// Declare your local variables here
usartInit();
GPIOInit();
while (1)
{
    putchar1('M');
    putchar1('a');
    putchar1('h');
    putchar1('d');
    putchar1('i');
    putchar1('\n');
    delay_ms(500);
}
}
```