AVR 单片机的 DS1302 操作程序

来源：蓝冰的笔记

```
//mega16 7.3728MHz 石英晶体 iccavr6.31a
//相关定义：
#define uint unsigned int
#define uchar unsigned char
#define DS1302_RST 0 //pc0
#define DS1302_SDA 1 //pc1
#define DS1302_SCLK 6 //pc6
//ds1302 相关
//DS1302_RST=1
#define Set_DS1302_RST() PORTC|=1<<DS1302_RST
//DS1302_RST=0
#define Clr_DS1302_RST() PORTC&=~(1<<DS1302_RST)
//DS1302_SDA=1
#define Set_DS1302_SDA() PORTC|=1<<DS1302_SDA
//DS1302_SDA=0
#define Clr_DS1302_SDA() PORTC&=~(1<<DS1302_SDA)
//DS1302_SCLK=1
#define Set_DS1302_SCLK() PORTC|=1<<DS1302_SCLK
//DS1302_SCLK=0
#define Clr_DS1302_SCLK() PORTC&=~(1<<DS1302_SCLK)
//DS1302 的 SDA 置为输出脚
#define Set_DS1302_DDRSDA() DDRC|=1<<DS1302_SDA
//DS1302 的 SDA 置为输入脚
#define Clr_DS1302_DDRSDA() DDRC&=~(1<<DS1302_SDA)
#define DS1302_SEC_Reg 0x80
#define DS1302_MIN_Reg 0x82
#define DS1302_HR_Reg 0x84
#define DS1302_DATE_Reg 0x86
#define DS1302_MONTH_Reg 0x88
#define DS1302_DAY_Reg 0x8a
#define DS1302_YEAR_Reg 0x8c
#define DS1302_CONTROL_Reg 0x8e
#define DS1302_CHARGER_Reg 0x90
#define DS1302_CLKBURST_Reg 0xbe
//全局变量
//为了方便，我把个位和十位分开了
uchar year1=0x88;
uchar year0=0x88;
uchar month1=0x88;
uchar month0=0x88;
uchar date0=0x88;
uchar date1=0x88;
uchar day=0x88;
uchar hour1=0x88;
uchar hour0=0x88;
uchar minute1=0x88;
uchar minute0=0x88;
```

```
uchar second1=0x88;
uchar second0=0x88;
//自程序开始
void DS1302_Write(uchar reg,uchar data)
{
uchar i;
Set_DS1302_DDRSDA();
Clr_DS1302_RST();
asm("nop");
asm("nop");
Clr_DS1302_SCLK();
asm("nop");
asm("nop");
Set_DS1302_RST();
asm("nop");
asm("nop");
for(i=8;i>0;i--)
{
if(reg&0x01) Set_DS1302_SDA();
else Clr_DS1302_SDA();
asm("nop");
asm("nop");
Set_DS1302_SCLK();
asm("nop");
asm("nop");
Clr_DS1302_SCLK();
asm("nop");
asm("nop");
reg>>=1;
}
for(i=8;i>0;i--)
{
if(data&0x01) Set_DS1302_SDA();
else Clr_DS1302_SDA();
asm("nop");
asm("nop");
Set_DS1302_SCLK();
asm("nop");
asm("nop");
Clr_DS1302_SCLK();
asm("nop");
asm("nop");
data>>=1;
}
Clr_DS1302_RST();
asm("nop");
asm("nop");
Clr_DS1302_DDRSDA();
}
uchar DS1302_Read(uchar reg)
{
uchar data=0,i;
reg+=1;//读标志
```

```
Set_DS1302_DDRSDA();
Clr_DS1302_RST();
asm("nop");
asm("nop");
Clr_DS1302_SCLK();
asm("nop");
asm("nop");
Set_DS1302_RST();
asm("nop");
asm("nop");
for(i=8;i>0;i--)
{

if(reg&0x01) Set_DS1302_SDA();
else Clr_DS1302_SDA();
asm("nop");
asm("nop");
Set_DS1302_SCLK();
asm("nop");
asm("nop");
Clr_DS1302_SCLK();
asm("nop");
asm("nop");
reg>>=1;
}
Clr_DS1302_DDRSDA();
for(i=8;i>0;i--)
{
data>>=1;
if((PINC&(1<<DS1302_SDA))==(1<<DS1302_SDA)) data|=0x80;
Set_DS1302_SCLK();
asm("nop");
asm("nop");
Clr_DS1302_SCLK();
asm("nop");
asm("nop");
}
Clr_DS1302_RST();
asm("nop");
asm("nop");
return(data);
}
uchar Check_DS1302(void)
{
   DS1302_Write(DS1302_CONTROL_Reg,0x80);
   if(DS1302_Read(DS1302_CONTROL_Reg)==0x80) return 1;
   return 0;
}
void DS1302_Init(void)
{
DS1302_Write(DS1302_CONTROL_Reg,0x00);//关闭写保护
DS1302_Write(DS1302_SEC_Reg,0x80);//暂停
DS1302_Write(DS1302_CHARGER_Reg,0xa9);//涓流充电
```

```
DS1302_Write(DS1302_YEAR_Reg,0x04); //年
DS1302_Write(DS1302_MONTH_Reg,0x12); //月
DS1302_Write(DS1302_DATE_Reg,0x09); //日
DS1302_Write(DS1302_DAY_Reg,0x04); //周
DS1302_Write(DS1302_HR_Reg,0x10); //时
DS1302_Write(DS1302_MIN_Reg,0x25); //分
DS1302_Write(DS1302_SEC_Reg,0x00); //秒

DS1302_Write(DS1302_CONTROL_Reg,0x80);//打开写保护
}
void ReadTime(void)
{
uchar data;
data=DS1302_Read(DS1302_YEAR_Reg);//年
year0=data&0x0f;
year1=data>>4;
data=DS1302_Read(DS1302_MONTH_Reg);//月
month0=data&0x0f;
month1=(data>>4)&0x01;
data=DS1302_Read(DS1302_DATE_Reg);//日
date0=data&0x0f;
date1=(data>>4)&0x03;
data=DS1302_Read(DS1302_DAY_Reg);//周
day=data&0x07;
data=DS1302_Read(DS1302_HR_Reg);//时
hour0=data&0x0f;
hour1=(data>>4)&0x03;
data=DS1302_Read(DS1302_MIN_Reg);//分
minute0=data&0x0f;
minute1=(data>>4)&0x07;
data=DS1302_Read(DS1302_SEC_Reg);//秒
second0=data&0x0f;
second1=(data>>4)&0x07;
}
```