Nor Flash 的测试程序

经常看见网上有兄弟们问有没有 Nor Flash 的测试程序,我也是从一点不懂开始学的,自己写了这个程序.希望对大家有帮助.

板子的配置和我前一篇的bootloader全程详解中的一样,先来看看 flash 的写操作,flash 型号是 StrataFlash Memory (J3) NOR Flash

写 Flash 需要用到以下的命令:

1.Read Array

2.Read Status Register

3.Clear Status Register

4.Write to Buffer

5.Block Erase

6.Clear Block Lock-Bits

具体如何操作 请看代码分析或者手册

写 Flash “Byte/Word Program Flowchart”为 2 个总线周期

流程如下:

Start-> Write 40H, Address-> Read Status Register-> SR.7 =?-> Full Status Check if Desired-> Byte/Word Program Complete

其中 Write 40H, Address 的指令如下:

Word/Byte Program SCS/BCS 2 (周期 1Write X 0x40 or 0x10)(周期 2Write PA PD) 1,12,13

PA = Address of memory location to be programmed.

PD = Data to be programmed at location PA. Data is latched on the rising edge of WE#.

下面是代码解释:

```
#define U32 unsigned int
#define U16 unsigned short
```

```
#define S32 int
#define S16 short int
#define U8 unsigned char
#define S8 char
//My Addr
#define MY_FLASHADDR 0x08040000//写入的目标地址
#define RAM_STARTADDR 0x30180000//数据在 Ram 中的开始得志
#define RAM_READOUT_STARTADDR 0x31000000//验证的地址
#define TIME_WAIT_FLASH 100//Flash 命令执行后,等待的时间
////////////////////////////////////////////////////////////////
void IntelFlashWrite(void);
void delay(int);// /Flash 命令执行后,等待
void panic(int i);
void clearstatusreg(void);//出错后要清除状态寄存器
////////////////////////////////////////////////////////////////
int main()
{
IntelFlashWrite();
return 0;
}
void IntelFlashWrite()
{
U16 temp; //16 位数据线,所以用 U16
U16 readfromflash,readfromram;
int i = 0;
int count = 0;
*(U16*)MY_FLASHADDR = 0x60;// 清除 Block Lock-Bits
delay(TIME_WAIT_FLASH);//等一下
```

```
*(U16*)MY_FLASHADDR = 0xD0;// 清除 Block Lock-Bits,周期 2 操作
delay(TIME_WAIT_FLASH);
*(U16*)MY_FLASHADDR = 0x20; //块擦除,虽然手册里没说要块擦除.但是我们的片子如果不擦除的话,有时候会写不进去.
delay(TIME_WAIT_FLASH);
*(U16*)MY_FLASHADDR = 0xD0; //块擦除,周期 2 操作
delay(TIME_WAIT_FLASH);
for(i = 0;i<=0x20000;i+=2,count = 0)//128k 为一个 block
{
readfromram = *(U16*)(RAM_STARTADDR+i);//从 ram 中把数据读出来
*(U16*)(MY_FLASHADDR+i) = 0x40;//写操作,周期 1
delay(TIME_WAIT_FLASH);//等等
*(U16*)(MY_FLASHADDR+i) = readfromram;// 写操作,周期 2
temp = *(U16*)(MY_FLASHADDR+i);//After the program sequence is written, the device automatically outputs SRD when read
while(((temp&0x80) == 0)&&(count<1000))
{
temp = *(U16*)(MY_FLASHADDR+i);
count++;
}//读 1000 次状态寄存器,超过 1000 次,就终止.
if(count>=1000)//over time
{
count = 0;
while(1);
}
else//读出状态寄存器
{
*(U16*)(MY_FLASHADDR+i) = 0xFF;//发出 readarray 命令
```

```
delay(10);
readfromflash = *(U16*)(RAM_STARTADDR+i);//从 Flash 读出刚才写入的数据
if(readfromflash!=readfromram)//相等就好了
{
count = 0;
temp = 0;
readfromram = 0;
readfromflash = 0;
while(1);
}
}
if((temp&0x8) == 0x8)//Programming to Voltage Error Detect
{
while(1);
}
if((temp&0x2) == 0x2)//Device Protect Detect
{
while(1);
}
if((temp&0x10) == 0x10)//Programming Error
{
while(1);
}
count = 0;
temp = 0;
readfromram = 0;
readfromflash = 0;
}
```

```
while(1);//写完了


}
void delay(int i)
{
volatile int j = 0;
volatile int q;
for(;j<=i;j++)
q = j*j;
}
void clearstatusreg()
{
*(U16*)MY_FLASHADDR = 0x50;
}
```