LM19264D

液晶显示模块应用参考

深圳市拓普微科技开发有限公司

版本	描述	日期	编者
0.1	新版本	2006-01-19	杨军

目 录

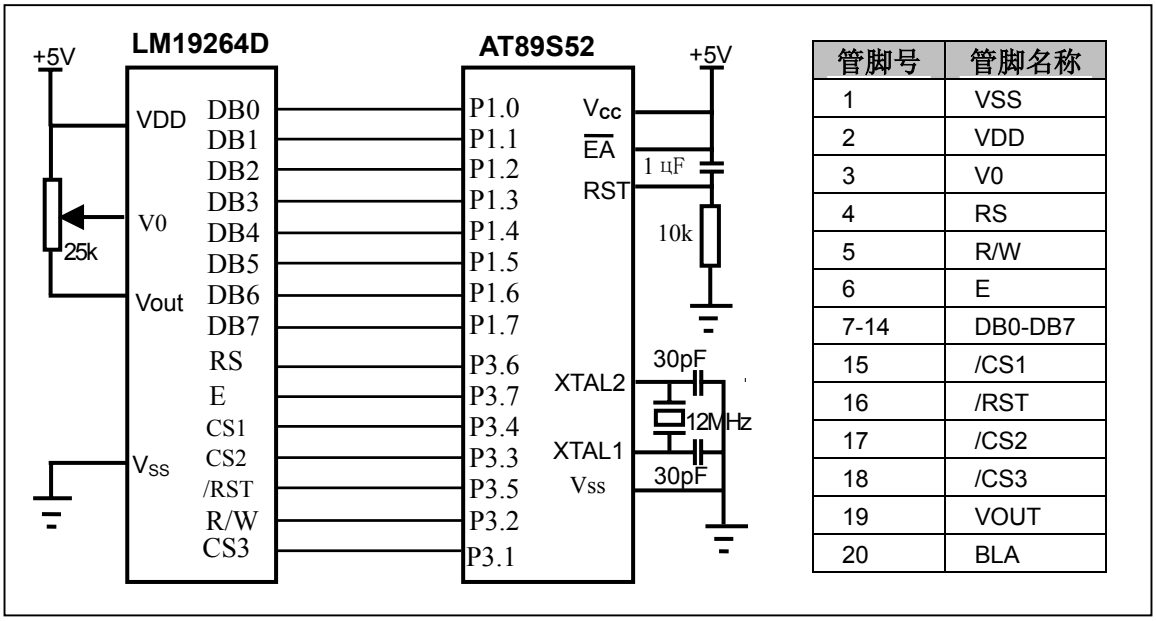
1、概述

LM19264D 是本公司生产的全点阵图型液晶显示模块，是 LM19264 系列中的一种。采用的控制驱动器是 S6B0108。其显示分辨率为 192×64 点。适配 M6800 操作时序电路。主要技术参数和显示特性:

电源:单电源供电+5V，内置 LCD 负压电路
显示内容:192(列)×64(行)
显示颜色:黄绿底兰字
外形尺寸：130.0×65.0×14.1MAX
驱动方式:1/64 Duty,1/9 Bias

2、硬件接口

LM19264D 与单片机的联接我们采用的是 8 位并行接口，下面是 LM19264D 的管脚定义和与单片机连接的硬件接口图。



管脚号	管脚名称
1	VSS
2	VDD
3	V0
4	RS
5	R/W
6	E
7-14	DB0-DB7
15	/CS1
16	/RST
17	/CS2
18	/CS3
19	VOUT
20	BLA

3、软件特性

3.1 控制器接口信号说明

RS，R/W 和 E 信号的配合选择决定控制界面的 4 种模式：

RS	R/W	E	DB0-DB7	功能说明
L	L	H→L	输入态	MPU 写指令到指令暂存器（IR）
L	H	H	输出态	读出忙标志（BF）及地址记数器（AC）的状态
H	L	H→L	输入显示数据	MPU 写入数据到数据暂存器（DR）
H	H	H	输出显示数据	MPU 从数据暂存器（DR）中读出数据

3.2 控制器接指令系统

指令名称	控制状态		指令代码								功能
	RS	R/W	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	
显示开/关	0	0	0	0	1	1	1	1	1	D	DB0=1（03FH）：开显示 DB0=0（03EH）：关显示
起始行设置	0	0	1	1	L5	L4	L3	L2	L1	L0	0C0H~0FFH 对应显示存储器的 0~64 行
页地址设置	0	0	1	0	1	1	1	P2	P1	P0	0B8H~0BFH将DDRAM分为8个页面0~7
列地址设置	0	0	0	1	C5	C4	C3	C2	C1	C0	40H~7FH对应0~63个列单元地址
读取状态字	0	1	BUSY	0	ON/OFF	RESET	0	0	0	0	BUSY=1表示忙不接受计算机访问 BUSY=0 准备接受访问
											ON/OFF 表示当前显示状态 ON/OFF=1显示关 ON/OFF=0开
											R：RESET复位状态 RESET=1正复位 RESET=0正工作
写显示数据	1	0	数据								写显示数据
读显示数据	1	1	数据								读显示数据

注：详细的指令系统请参考驱动器 S6B0108

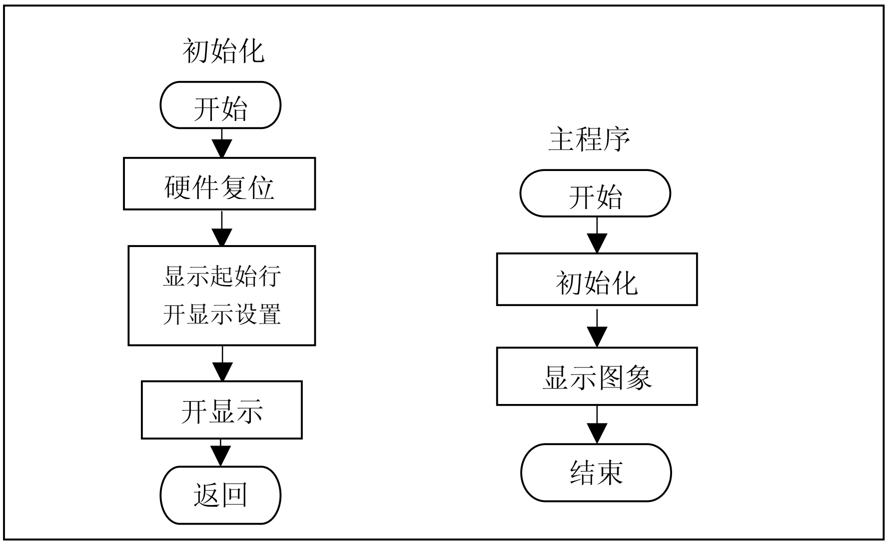
4、显示数据存储器的地址

页地址	数据			
0	D0 : D7	192×64 点		
1	D0 : D7			
2	D0 : D7			
3	D0 : D7			
4	D0 : D7			
5	D0 : D7			
6	D0 : D7			
7	D0 : D7			
列地址		00H→3FH	00H→3FH	00H→3FH
驱动		/CS1=0	/CS2=0	/CS3=0

注：显示存储器起始行地址 Z=0
显示存储器的空间分成 3 部分分别由**/CS1、/CS2、/CS3** 控制低电平有效

5、应用举例

5.1 程序流程图。



5.2 参考程序

```
//------------------------------------------------
//显示内容“公司名称中文与英文”
//------------------------------------------------
#include <reg52.h>
#include <intrins.h>
#define uchar unsigned char     //0~255
#define uint unsigned int       //0~65535

#define LCD_BUS P1              //MCU P1<------> LCM
sbit CS1=P3^4;
sbit CS2=P3^3;
sbit CS3=P3^1;
sbit _RST=P3^5;                 //Lcm 复位
sbit E=P3^7;                    //使能信号
sbit RS=P3^6;                   //数据或指令选择
sbit R_W=P3^2;                  //读写指令

uchar code BMP[]={
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
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0x08,0x28,0x48,0x18,0x00,0x40,0x40,0xFC,0x40,0x40,
0xFC,0x00,0x00,0xF8,0x00,0x00,0xFC,0x00,0x10,0x10,
0xD0,0x50,0x50,0x54,0xF8,0x50,0x50,0xD0,0x18,0x10,
0x00,0x20,0x20,0xFC,0x20,0xA0,0x08,0xC8,0x38,0x08,
0x08,0x08,0x08,0x00,0x80,0xB0,0xD0,0x94,0xF8,0x90,
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0xB8,0xA0,0xBC,0xA0,0xB8,0xC0,0x3C,0xE0,0x20,0x00,
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```

```
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0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00
};
//----------------------------------------------
//延时子程序
//----------------------------------------------
void Delay(uint t)
{
  uint i;
  uint j;
  for(j=0;j<t;j++)
     for(i=0;i<109;i++)
          _nop_();
}
//----------------------------------------------
//写命令到 LCD
//----------------------------------------------
void CmdWrite(uchar cmdcode)
{
  RS=0;
  R_W=0;
  LCD_BUS=cmdcode;
  E=1;
  E=0;
}
//----------------------------------------------
//写数据到 LCD
//----------------------------------------------
void DataWrite(uchar dispdata)
  {
     RS=1;
     R_W=0;
     LCD_BUS=dispdata;
     E=1;
     E=0;
  }
//----------------------------------------------
//屏幕选择
//----------------------------------------------
  void ChipSelect(uchar chipnumber)
  {
     switch(chipnumber)
     {
          case 0: CS1=0;CS2=1;CS3=1;break;
          case 1: CS1=1;CS2=0;CS3=1;break;
          case 2: CS1=1;CS2=1;CS3=0;break;
          default:break;
     }
  }
//----------------------------------------------
//清除内存
//----------------------------------------------
  void ClearScr()
  {
     uchar i,j,k;
     for(k=0;k<8;k++)
     {
          for(j=0;j<3;j++)
          {
             ChipSelect(j);
             CmdWrite(0xb8+k);
             CmdWrite(0x40);
             for(i=0;i<64;i++)
                    DataWrite(0x00);
          }
     }
  }
//----------------------------------------------
//显示一幅图片
//----------------------------------------------
  void Disp_Bmp(uchar code *img)
  {
     uchar i,j,k;
     uint n=0;
     for(k=0;k<8;k++)
     {
          for(j=0;j<3;j++)
          {
               ChipSelect(j);
               CmdWrite(0xb8+k);
               CmdWrite(0x40);
               for(i=0;i<64;i++)
                    DataWrite(img[n++]);
          }
     }
  }
//----------------------------------------------
//初始化 LCD 屏
//----------------------------------------------
  void LCD_Initial()
  {
     _RST =0;
     Delay(300);
     _RST =1;
     Delay(100);
     CS1=0;CS2=0;CS3=0;
     CmdWrite(0x3f);
     CmdWrite(0xc0);
     CS1=1;CS2=1;CS3=1;
  }
//----------------------------------------------
//主程序
//----------------------------------------------
main()
  {
     CS1=1;CS2=1;CS3=1;
     E=0;
     LCD_BUS=0xff;
     LCD_Initial();
     ClearScr();
     Disp_Bmp(BMP);
     while(1)
     {};
  }                                     //end of program
```