JLX12864G-33008-PC

带字库 IC 的编程说明书

（带铁框）

目 录

1．概述

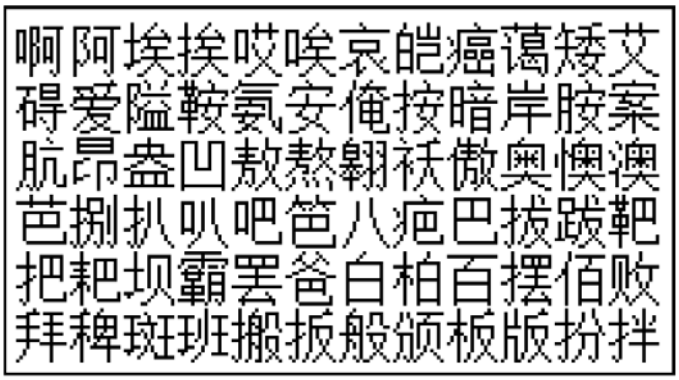
JLX12864G-33008-PC 型液晶显示模块既可以当成普通的图像型液晶显示模块使用(即显示普通图像型的单色图片功能)，又含有 JLX-GB2312 字库 IC，可以从字库 IC 中读出内置的字库的点阵数据写入到 LCD 驱动 IC 中，以达到显示汉字的目的。

此字库 IC 存储内容如下表所述：

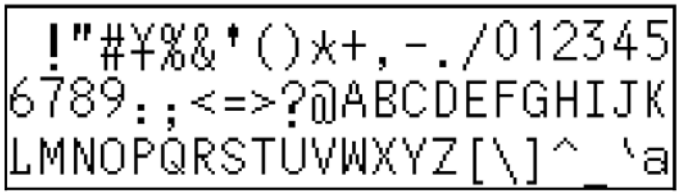
分类	字库内容	编码体系（字符集）	字符数
汉字及字符	15X16 点 GB2312 标准点阵字库	GB2312	6763+376
	8X16 点国标扩展字符 GB2312	GB2312	126
ASCII 字符	5X7 点 ASCII 字符	ASCII	96
	7X8 点 ASCII 字符	ASCII	96
	8X16 点 ASCII 字符	ASCII	96
	8X16 点 ASCII 粗体字符	ASCII	96
	16 点阵不等宽 ASCII 方头（Arial）字符	ASCII	96
	16 点阵不等宽 ASCII 白正（TimesNewRoman）字符	ASCII	96

2．字型样张：

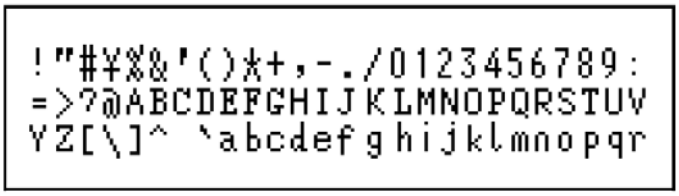
15X16 点 GB2312 汉字



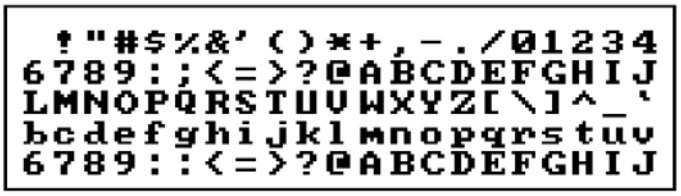
8x16 点国标扩展字符



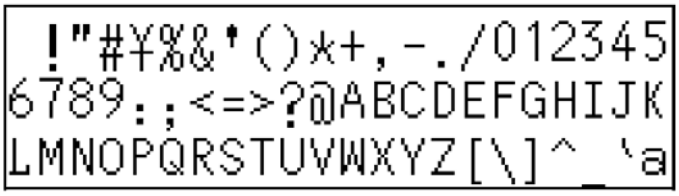
5x7 点 ASCII 字符



7x8 点 ASCII 字符

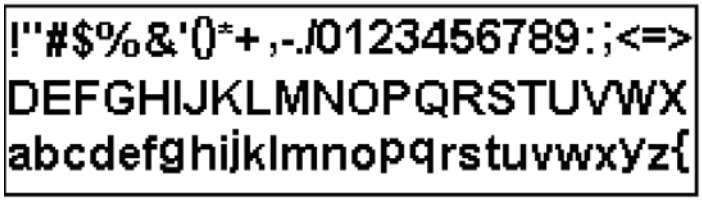


8x16 点 ASCII 字符

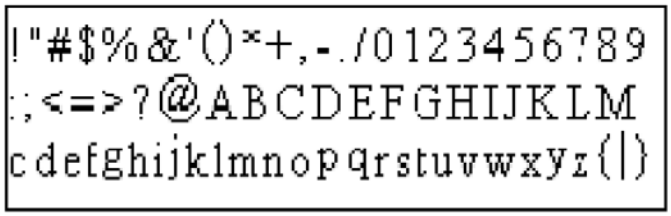


8x16 点 ASCII 粗体字符

16 点阵不等宽 ASCII 方头

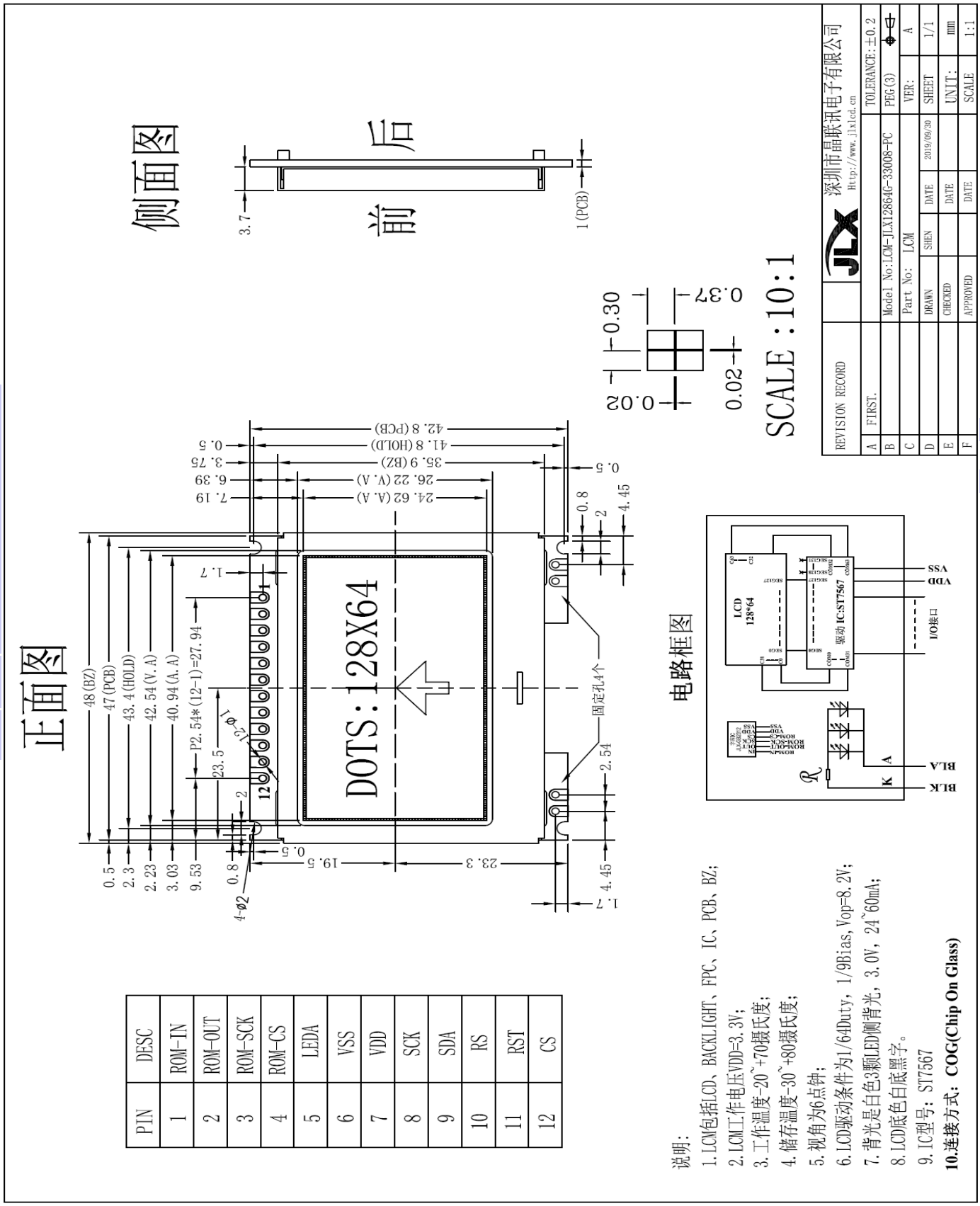


16 点阵不等宽 ASCII 白正



3. 外形尺寸及接口引脚功能

3.1 外形图：



PIN	DESC
1	ROM-IN
2	ROM-OUT
3	ROM-SCK
4	ROM-CS
5	LEDA
6	VSS
7	VDD
8	SCK
9	SDA
10	RS
11	RST
12	CS

说明:

1. LCM包括LCD、BACKLIGHT、FPC、IC、PCB、BZ;
2. LCM工作电压VDD=3.3V;
3. 工作温度-20~+70摄氏度;
4. 储存温度-30~+80摄氏度;
5. 视角为6点钟;
6. LCD驱动条件为1/64Duty，1/9Bias,Vop=8.2V;
7. 背光是白色3颗LED侧背光，3.0V，24~60mA;
8. LCD底色白底黑字。
9. IC型号：ST7567
10. **连接方式：COG(Chip On Glass)**

图 1. 外形尺寸

3.2 模块的接口引脚功能

引 线 号	符 号	名 称	功 能	
1	ROM_IN	字库 IC 接口 SI	串行数据输入	详见字库 IC:JLX-GB2312 说明书： ROM_IN 对应字库 IC 接口 SI，ROM_OUT 对应 SO， ROM_SCK 对应 SCLK，ROM_CS 对应 CS#
2	ROM_OUT	字库 IC 接口 SO	串行数据输出	
3	ROM_SCK	字库 IC 接口 SCLK	串行时钟输入	
4	ROM_CS	字库 IC 接口 CS#	片选输入	
5	LDEA	背光电源	背光电源正极、同 VDD 电压（5V 或 3.3V）	
6	VSS	接地	0V	
7	VDD	电源电路	5V，或 3.3V 可选	
8	SCK	I/O	串行时钟	
9	SDA	I/O	串行数据	
10	RS	寄存选择信号	H：数据存储器 0：指令存储（IC 资料上缩写为“A0”）	
11	RST	复位	低电平复位，复位完成后，回到高电平，液晶模块开始工作	
12	CS	片选	低电平片选	

表 1：模块串行接口引脚功能

4. 工作电路框图：

见图 2，模块由 LCD 驱动 IC ST7567、字库 IC、背光组成。

电路框图

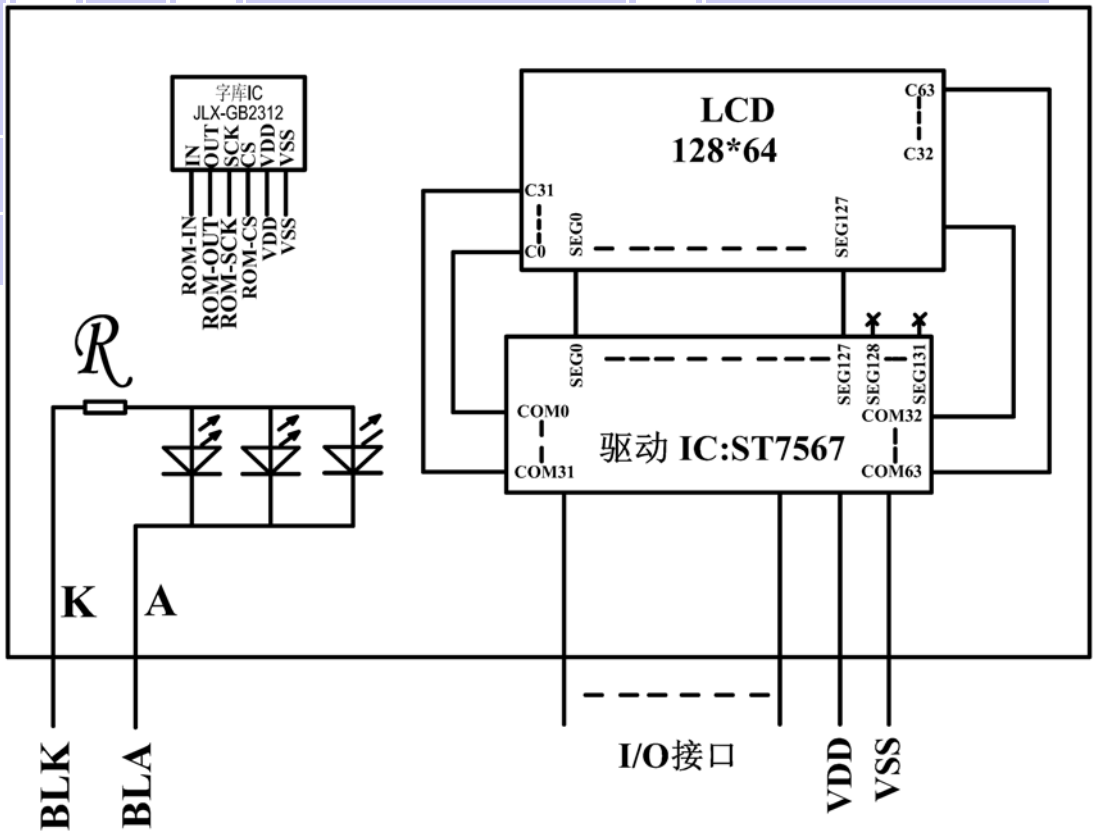


图 2:JLX12864G-33008 图像点阵型液晶模块的电路框图

5. 指令：

5.1 字库 IC（JLX-GB2312）指令表

Instruction Set

Instruction	Description	Instruction Code(One-Byte)		Address Bytes	Dummy Bytes	Data Bytes
READ	Read Data Bytes	0000 0011	03 h	3	-	1 to ∞
FAST_READ	Read Data Bytes at Higher Speed	0000 1011	0B h	3	1	1 to ∞

所有对本芯片的操作只有 2 个，那就是 Read Data Bytes (READ "一般读取")和 Read Data Bytes at Higher Speed (FAST_READ "快速读取点阵数据")。

Read Data Bytes（一般读取）：

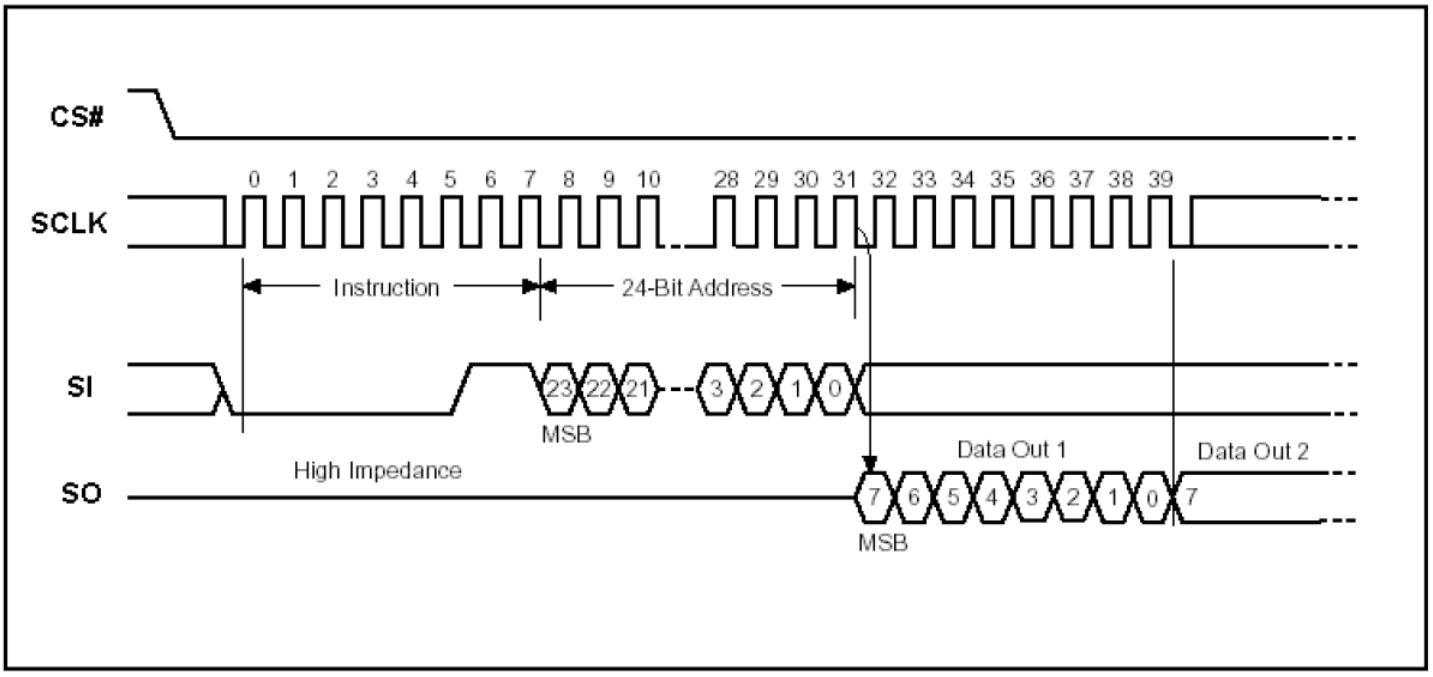
Read Data Bytes 需要用指令码来执行每一次操作。READ 指令的时序如下(图)：

■首先把片选信号（CS#）变为低，紧跟着的是 1 个字节的命令字（03 h）和 3 个字节的地址和通过串行数据输入引脚（SI）移位输入，每一位在串行时钟（SCLK）上升沿被锁存。

■然后该地址的字节数据通过串行数据输出引脚（SO）移位输出，每一位在串行时钟（SCLK）下降沿被移出。

■读取字节数据后，则把片选信号（CS#）变为高，结束本次操作。
如果片选信号（CS#）继续保持为低，则下一个地址的字节数据继续通过串行数据输出引脚（SO）移位输出。

图：Read Data Bytes (READ) Instruction Sequence and Data-out sequence:



Read Data Bytes at Higher speed（快速读取）：

Read Data Bytes at Higher Speed 需要用指令码来执行操作。READ_FAST 指令的时序如下(图)：

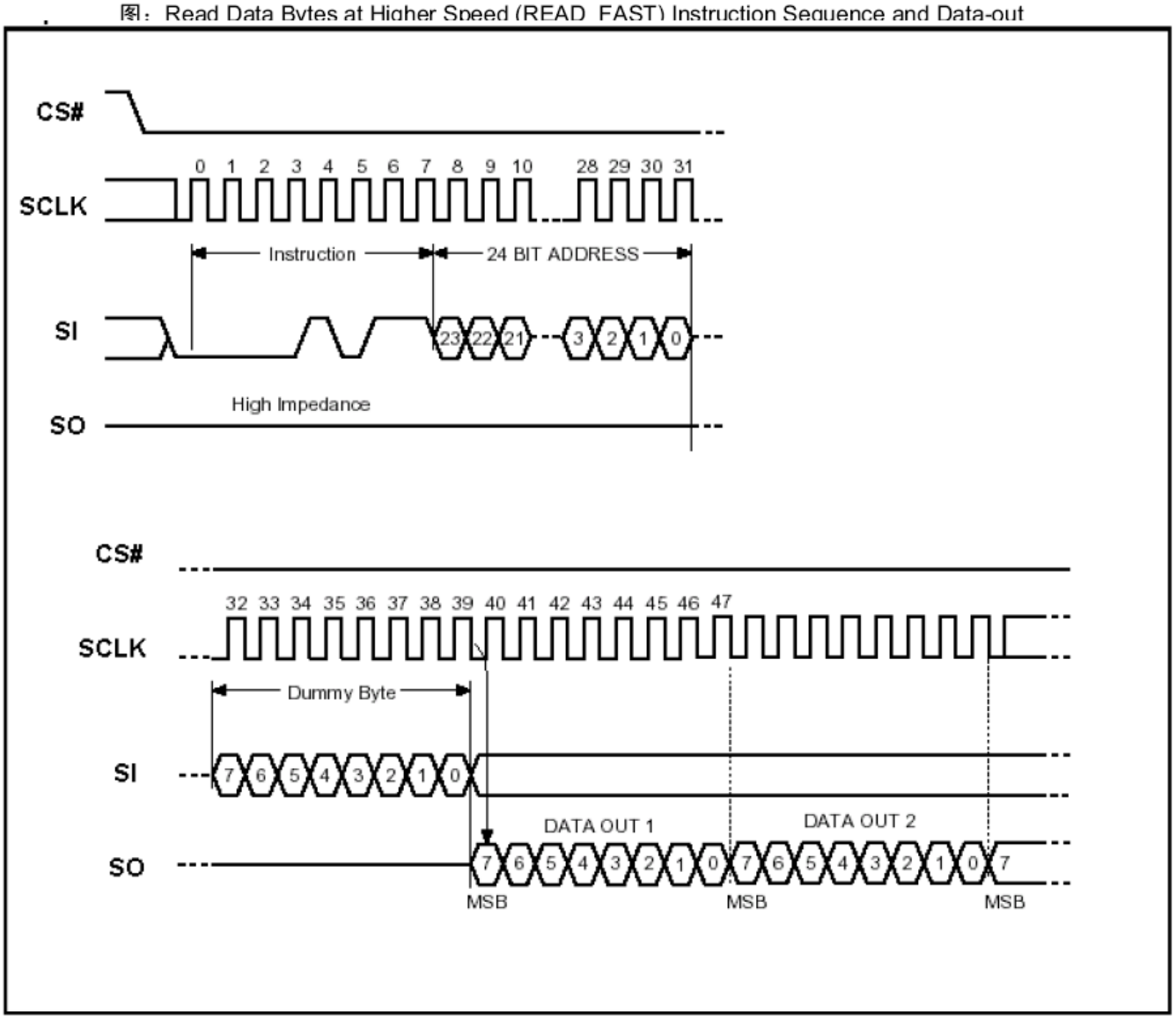
■首先把片选信号（CS#）变为低，紧跟着的是 1 个字节的命令字（0B h）和 3 个字节的地址以及一个字节 Dummy Byte 通过串行数据输入引脚（SI）移位输入，每一位在串行时钟（SCLK）上升沿被锁存。

■然后该地址的字节数据通过串行数据输出引脚（SO）移位输出，每一位在串行时钟（SCLK）下降沿被移出。

■如果片选信号（CS#）继续保持为低，则下一个地址的字节数据继续通过串行数据输出引脚（SO）移位输出。例：读取一个 15x16 点阵汉字需要 32Byte，则连续 32 个字节读取后结束一个汉字的点阵数据读取操作。

如果不需要继续读取数据，则把片选信号（CS#）变为高，结束本次操作。

图：Read Data Bytes at Higher Speed (READ_FAST) Instruction Sequence and Data-out



5.2 LCD 驱动 IC 指令表详见“JLX12864G-33008-PN”的中文说明书

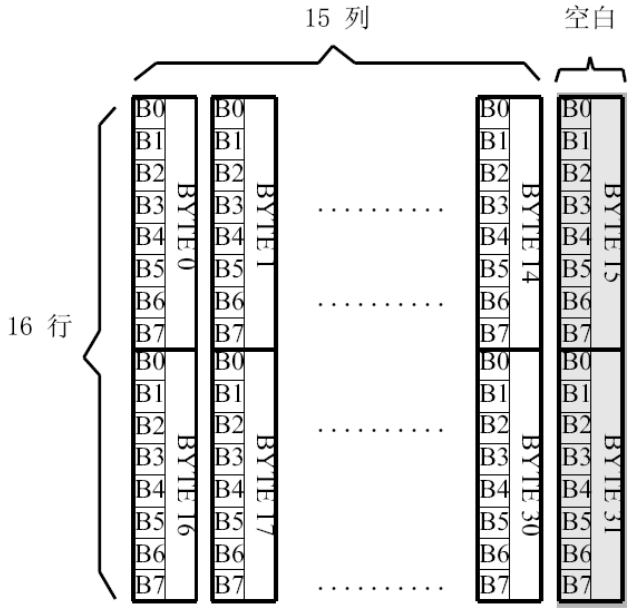
6 字库调用方法

6.1 汉字点阵排列格式

每个汉字在芯片中是以汉字点阵字模的形式存储的，每个点用一个二进制位表示，存 1 的点，当显时可以在屏幕上显示亮点，存 0 的点，则在屏幕上不显示。点阵排列格式为竖置横排：即一个字节的高表示下面的点，低位表示上面的点（如果用户按 16bit 总线宽度读取点阵数据，请注意高低字节的序）排满一行后再排下一行。这样把点阵信息用来直接在显示器上按上述规则显示，则将出现对应的汉字。

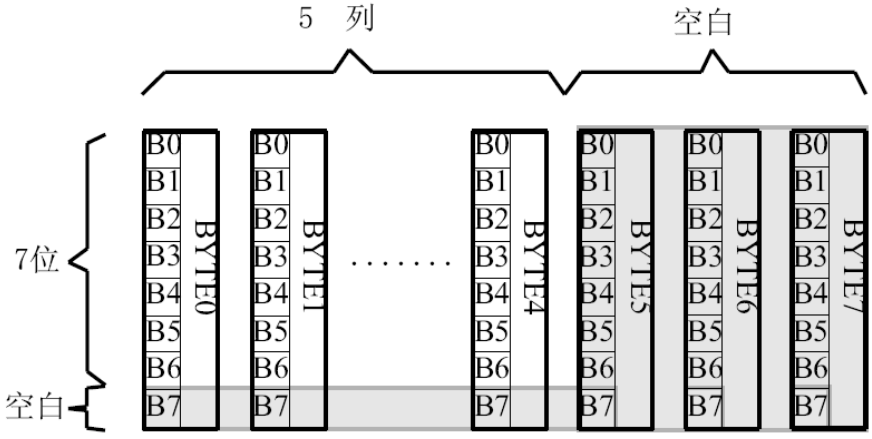
6.1.1 15X16 点汉字排列格式

15X16 点汉字的信息需要 32 个字节（BYTE 0 - BYTE 31）来表示。该 15X16 点汉字的点阵数据竖置横排的，其具体排列结构如下图：



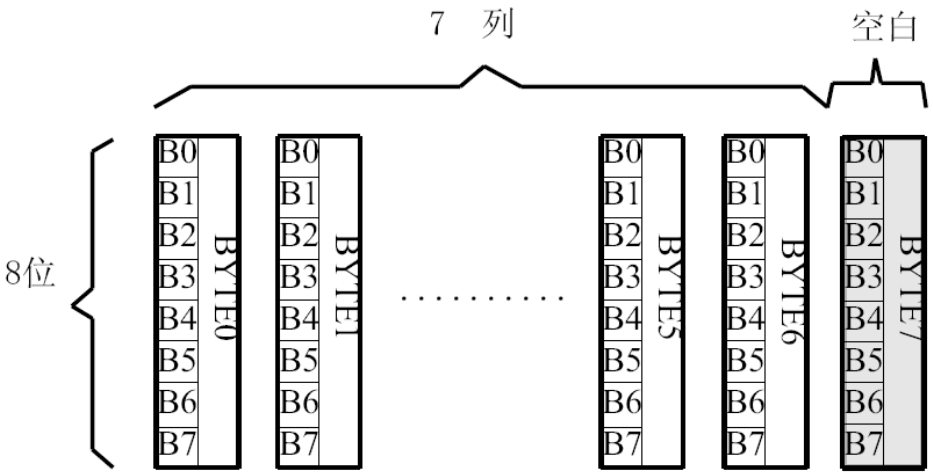
6.1.2 5X7 点 ASCII 字符排列格式

5X7 点 ASCII 的信息需要 8 个字节（BYTE 0 - BYTE7）来表示。该 ASCII 点阵数据是竖置横排的其具体排列结构如下图：



6.1.3 7X8 点 ASCII 字符排列格式

7X8 点 ASCII 的信息需要 8 个字节（BYTE 0 - BYTE7）来表示。该 ASCII 点阵数据是竖置横排的
其具体排列结构如下图：

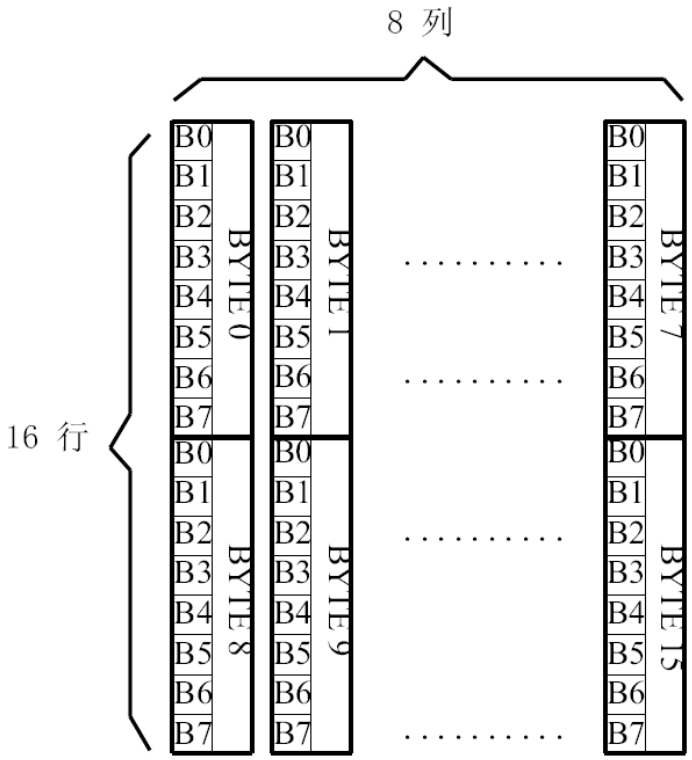


6.1.4 8X16 点字符排列格式

适用于此种排列格式的字体有：
8X16 点 ASCII 字符

8X16 点 ASCII 粗体字符
8X16 点国标扩展字符

8X16 点字符信息需要 16 个字节（BYTE 0 - BYTE15）来表示。该点阵数据是竖置横排的，其具体排
结构如下图：

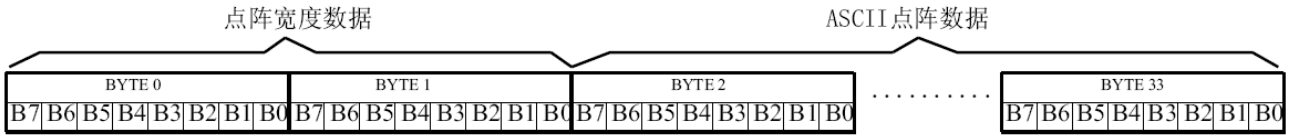


6.1.5 16 点阵不等宽 ASCII 方头（Arial）、白正（Times New Roman）字符排列格式

16 点阵不等宽字符的信息需要 34 个字节（BYTE 0 - BYTE33）来表示。

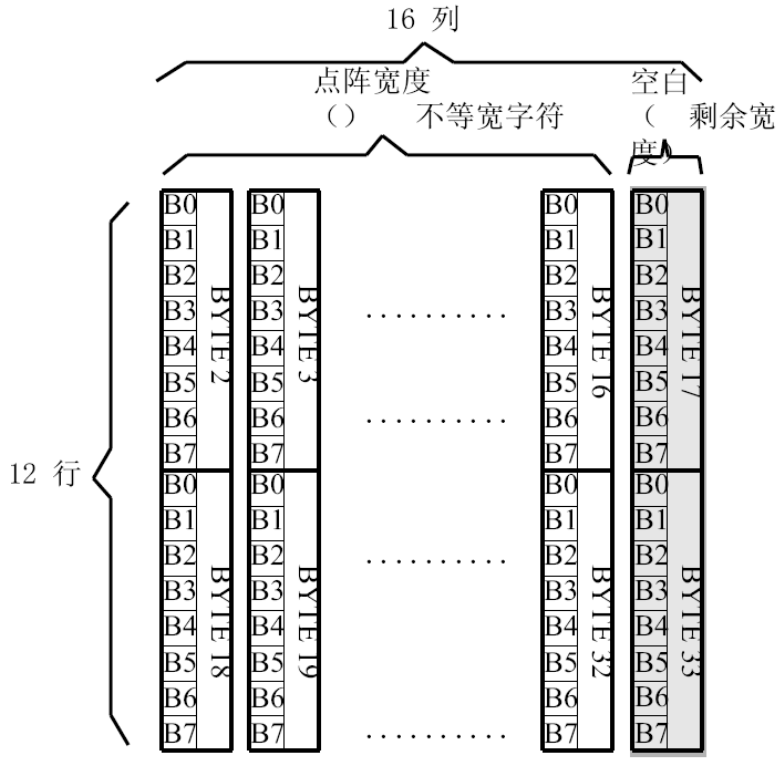
■ 存储格式

由于字符是不等宽的，因此在存储格式中 BYTE0~ BYTE1 存放点阵宽度数据，BYTE2-33 存放竖置横排点阵数据。具体格式见下图：



■ 存储结构

不等宽字符的点阵存储宽度是以 BYTE 为单位取整的，根据不同字符宽度会出现相应的空白区。根 BYTE0~ BYTE1 所存放点阵的实际宽度数据，可以对还原下一个字的显示或排版留作参考。



例如：ASCII 方头字符 B

0-33BYTE 的点阵数据是: 00 0C 00 F8 F8 18 18 18 18 18 F8 F0 00 00 00 00 00 00 00 7F 7F 63 63 63 63 63 67 3E 1C 00 00 00 00 00

其中：

BYTE0~ BYTE1: 00 0C 为 ASCII 方头字符 B 的点阵宽度数据，即：12 位宽度。字符后面有 4 位空白区，可以在排版下一个字时考虑到这一点，将下一个字的起始位置前移。

BYTE2-33: 00 F8 F8 18 18 18 18 18 F8 F0 00 00 00 00 00 00 00 7F 7F 63 63 63 63 63 67 3E 1C 00 00 00 00 00 为 ASCII 方头字符 B 的点阵数据。

6.2 汉字点阵字库地址表

	字库内容	编码体系	码位范围	字符数	起始地址	结束地址	参考算法
1	15X16 点 GB2312 标准点阵字库	GB2312	A1A1-F7FE	6763+376	00000	3B7BF	6.3.1.1
2	7X8 点 ASCII 字符	ASCII	20~7F 96		66C0	69BF	6.3.2.2
3	8X16 点国标扩展字符	GB2312	AAA1-ABC0	126	3B7D0	3BFBF	6.3.1.2
4	8X16 点 ASCII 字符	ASCII	20~7F	96	3B7C0	3BFBF	6.3.2.3
5	5X7 点 ASCII 字符 ASCII		20~7F	96	3BFC0	3C2BF	6.3.2.1
6	16 点阵不等宽 ASCII 方头（Arial）字符	ASCII	20~7F	96	3C2C0	3CF7F	6.3.2.4
7	8X16 点 ASCII 粗体字符 ASCII		20~7F	96	3CF80	3D57F	6.3.2.5
8	16 点阵不等宽 ASCII 白正（TimesNewRoman）字符	ASCII	20~7F	96	3D580	3E23F	6.3.2.6

6.3.1 汉字字符的地址计算

6.3.1.1 15X16 点 GB2312 标准点阵字库

参数说明：

GBCode表示汉字内码。
MSB 表示汉字内码GBCode 的高8bits。
LSB 表示汉字内码GBCode 的低8bits。
Address 表示汉字或ASCII字符点阵在芯片中的字节地址。
BaseAdd：说明点阵数据在字库芯片中的起始地址。

计算方法：

```
BaseAdd=0;
if(MSB ==0xA9 && LSB >=0xA1)
    Address =   (282 + (LSB - 0xA1 ))*32+BaseAdd;
else if(MSB >=0xA1 && MSB <= 0xA3 && LSB >=0xA1)
    Address =( (MSB - 0xA1) * 94 + (LSB - 0xA1))*32+ BaseAdd;
else if(MSB >=0xB0 && MSB <= 0xF7 && LSB >=0xA1)
    Address = ((MSB - 0xB0) * 94 + (LSB - 0xA1)+ 846)*32+ BaseAdd;
```

6.3.1.2 8X16 点国标扩展字符

说明：

BaseAdd：说明本套字库在字库芯片中的起始字节地址。
FontCode：表示字符内码（16bits）

ByteAddress：表示字符点阵在芯片中的字节地址。
计算方法：

```
BaseAdd=0x3b7d0
if (FontCode>= 0xAAA1) and (FontCode<=0xAAFE ) then
    ByteAddress = (FontCode-0xAAA1 ) * 16+BaseAdd
Else if(FontCode>= 0xABA1) and (FontCode<=0xABC0 ) then
    ByteAddress = (FontCode-0xABA1 + 95) * 16+BaseAdd
```

6.3.2 ASCII 字符的地址计算

6.3.2.1 5X7 点 ASCII 字符

参数说明：

ASCIICode：表示 ASCII 码（8bits）
BaseAdd：说明该套字库在芯片中的起始地址。
Address：ASCII 字符点阵在芯片中的字节地址。
计算方法：

```
BaseAdd=0x3bfc0
```

```
if (ASCIICode >= 0x20) and (ASCIICode <= 0x7E) then
    Address = (ASCIICode -0x20 ) * 8+BaseAdd
```

6.3.2.2 7X8 点 ASCII 字符

参数说明：

ASCIICode：表示 ASCII 码（8bits）
BaseAdd：说明该套字库在芯片中的起始地址。
Address：ASCII 字符点阵在芯片中的字节地址。
计算方法：

```
BaseAdd=0x66c0
if (ASCIICode >= 0x20) and (ASCIICode <= 0x7E) then
            Address = (ASCIICode -0x20 ) * 8+BaseAdd
```

6.3.2.3 8X16 点 ASCII 字符

说明：

ASCIICode：表示 ASCII 码（8bits）
BaseAdd：说明该套字库在芯片中的起始地址。
Address：ASCII 字符点阵在芯片中的字节地址。
计算方法：

```
BaseAdd=0x3b7c0
if (ASCIICode >= 0x20) and (ASCIICode <= 0x7E) then
    Address = (ASCIICode -0x20 ) * 16+BaseAdd
```

6.3.2.4 16 点阵不等宽 ASCII 方头（Arial）字符

说明：

ASCIICode：表示 ASCII 码（8bits）
BaseAdd：说明该套字库在芯片中的起始地址。
Address：ASCII 字符点阵在芯片中的字节地址。
计算方法：

BaseAdd=0x3c2c0

```
if (ASCIICode >= 0x20) and (ASCIICode <= 0x7E) then
    Address = (ASCIICode -0x20 ) * 34 + BaseAdd
```

6.3.2.5 8X16 点 ASCII 粗体字符

说明：

ASCIICode：表示 ASCII 码（8bits）
BaseAdd：说明该套字库在芯片中的起始地址。
Address：ASCII 字符点阵在芯片中的字节地址。
计算方法：

BaseAdd=0x3cf80

```
if (ASCIICode >= 0x20) and (ASCIICode <= 0x7E) then
    Address = (ASCIICode -0x20 ) * 16+BaseAdd
```

6.3.2.6 16 点阵不等宽 ASCII 白正（Times New Roman）字符

说明：

ASCIICode：表示 ASCII 码（8bits）
BaseAdd：说明该套字库在芯片中的起始地址。
Address：ASCII 字符点阵在芯片中的字节地址。
计算方法：

BaseAdd=0x3d580

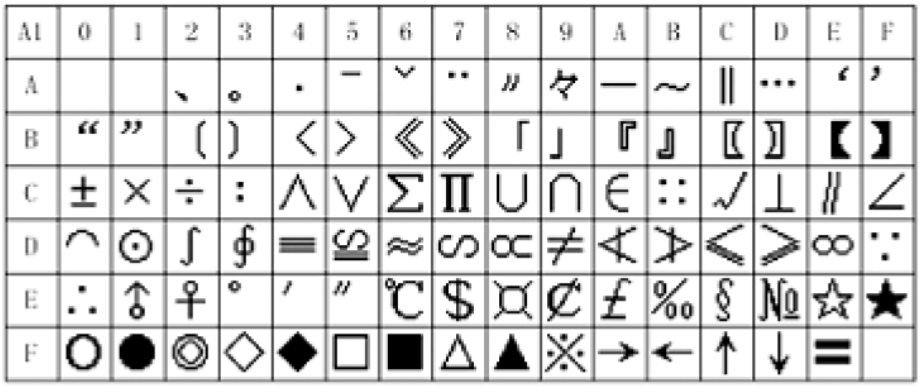
```
if (ASCIICode >= 0x20) and (ASCIICode <= 0x7E) then
    Address = (ASCIICode -0x20 ) * 34 + BaseAdd
```

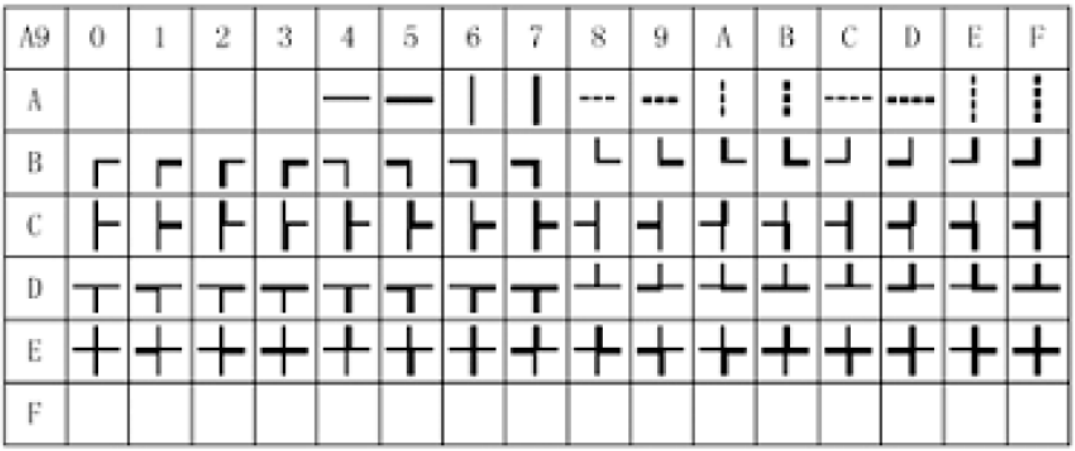
6.4 附录

6.4.1 GB2312 1 区（376 字符）

GB2312 标准点阵字符 1 区对应码位的 A1A1~A9EF 共计 376 个字符；

GB2312 1 区

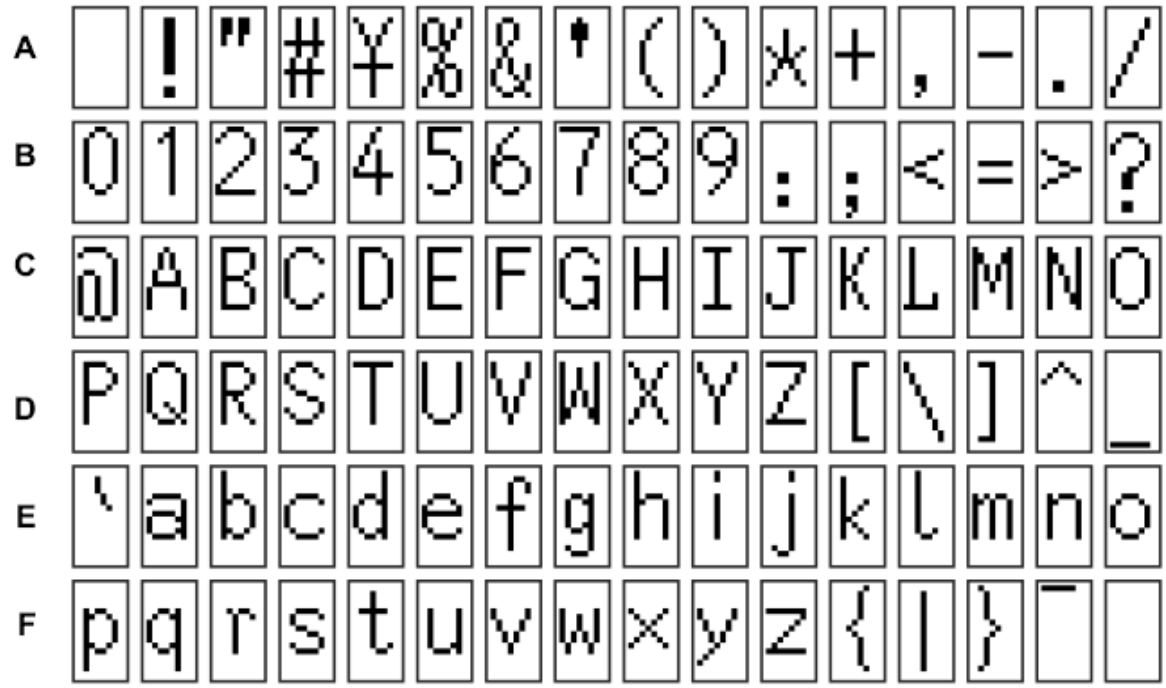




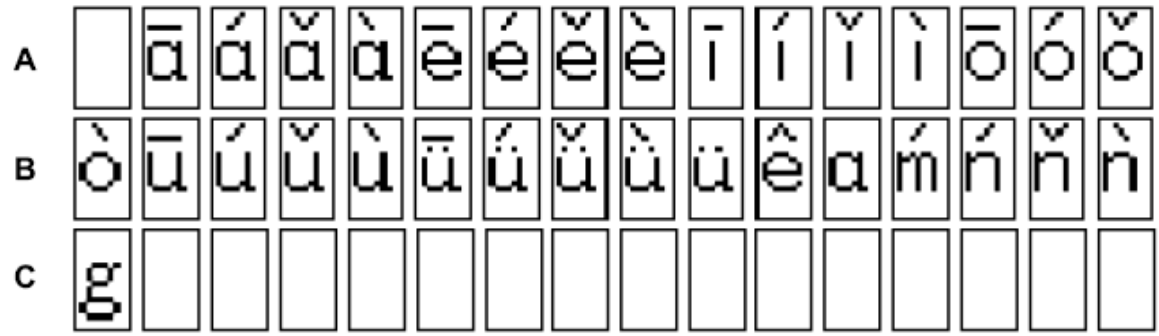
6.4.2 8×16点国标扩展字符

内码组成为 AAA1~ABC0 共计 126 个字符

AA 0 1 2 3 4 56789ABC D E F

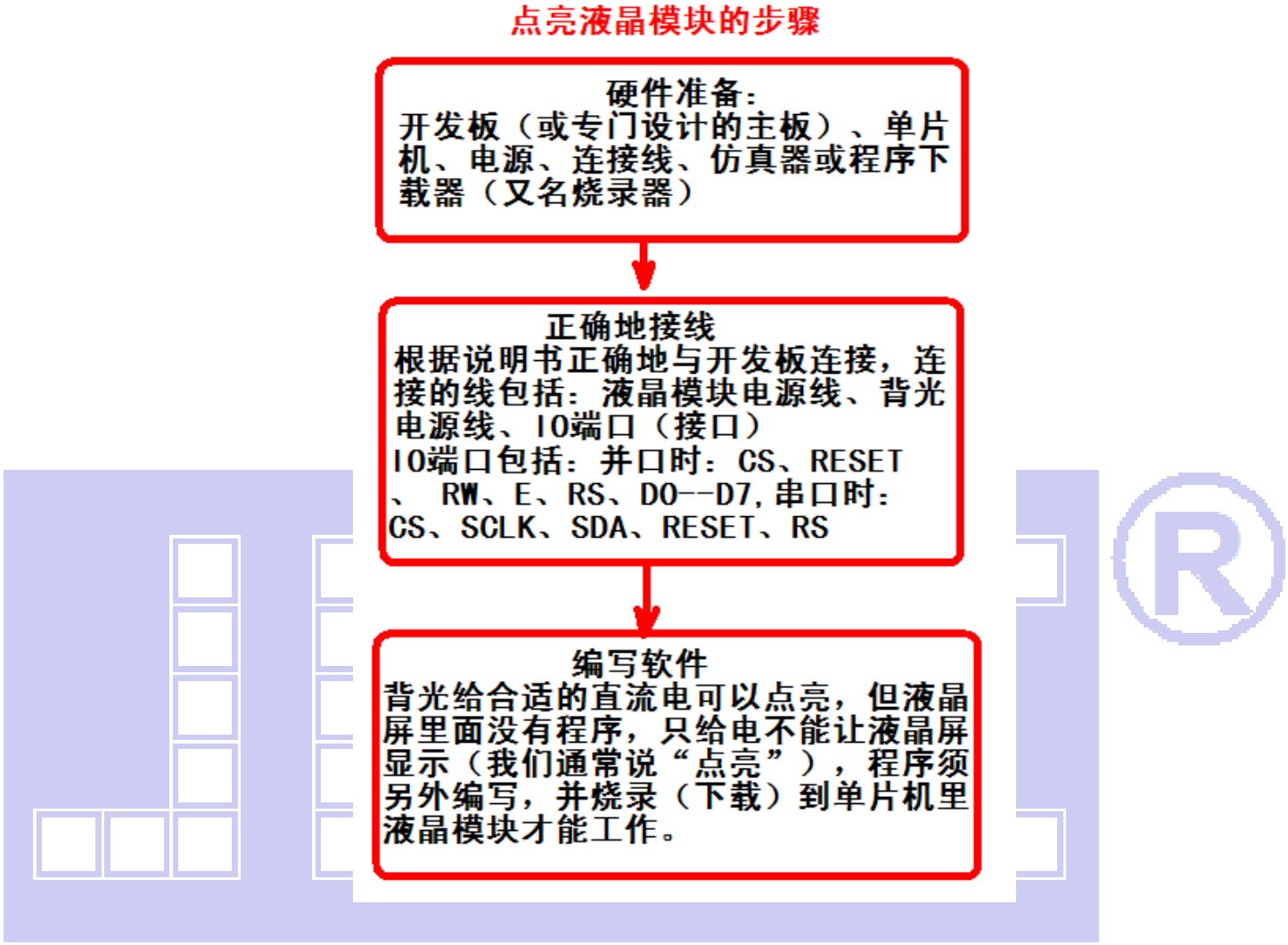


AB 0 1 2 3 4 56789ABC D E F



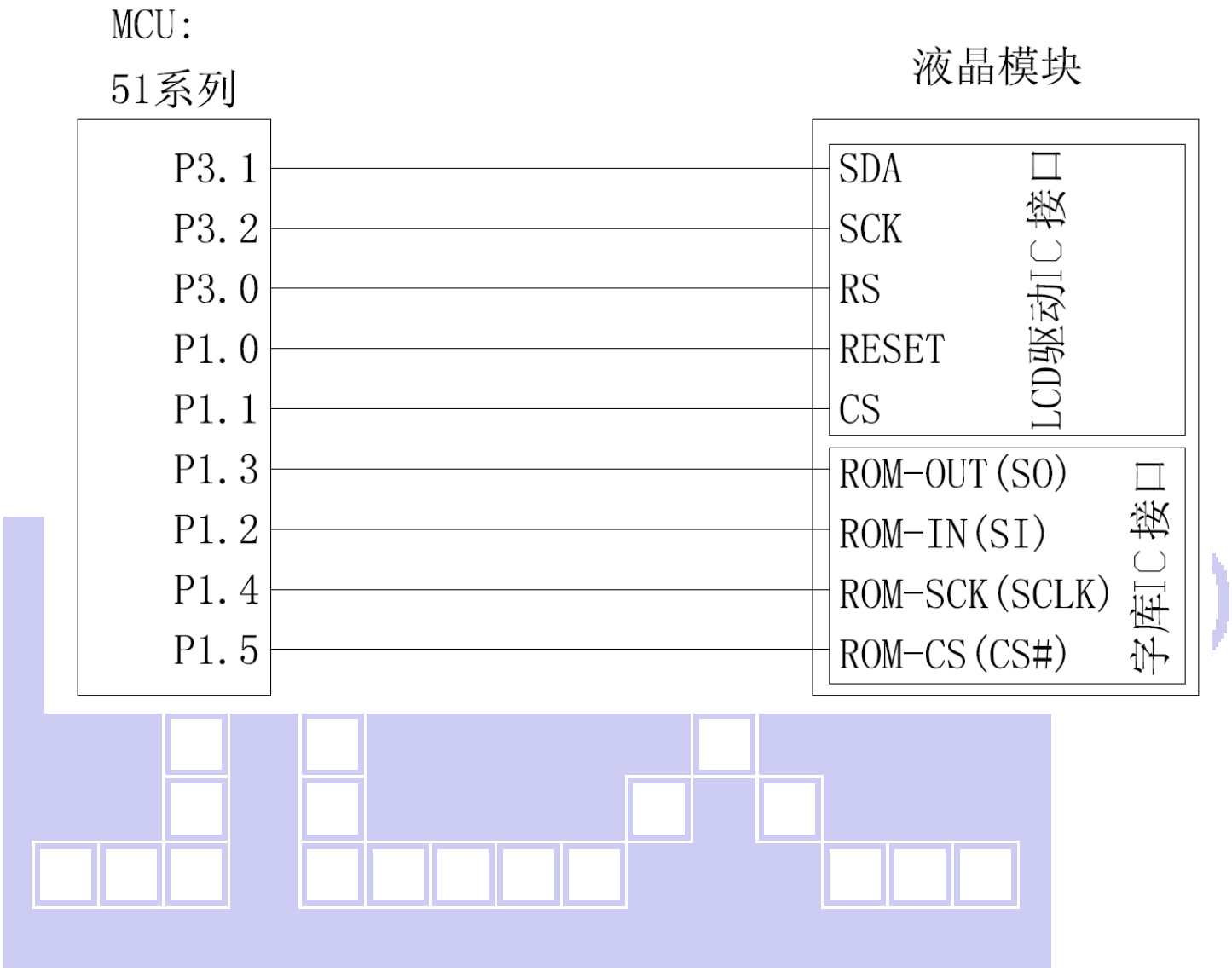
7. 硬件设计及例程：

7.1 用户所编的显示程序，开始必须进行初始化，否则模块无法正常显示，过程请参考程序



7.1.1 硬件接口：

下图为串行方式的硬件接口：



7.2 程序:

点亮液晶模块的编程步骤


```
/* Test program for JLX12864G-33008-PC-S，串行接口，带中文字库 IC
   驱动 IC 是:ST7567(or competible),字库 IC:JLX-GB2312
   晶联讯电子：网址  http://www.jlxlcd.cn;
*/
#include <reg51.H>
#include <intrins.h>

sbit lcd_sclk=P3^2;  //接口定义:lcd_sclk 就是 LCD 的 sclk
sbit lcd_sid=P3^1;   //接口定义:lcd_sid 就是 LCD 的 sid
sbit lcd_rs=P3^0;    //接口定义:lcd_rs 就是 LCD 的 rs
sbit lcd_reset=P1^0; //接口定义:lcd_reset 就是 LCD 的 reset
sbit lcd_cs1=P1^1;   //接口定义:lcd_cs1 就是 LCD 的 cs1

sbit Rom_IN=P1^2;    //字库 IC 接口定义:Rom_IN 就是字库 IC 的 SI
sbit Rom_OUT=P1^3;   //字库 IC 接口定义:Rom_OUT 就是字库 IC 的 SO
sbit Rom_SCK=P1^4;   //字库 IC 接口定义:Rom_SCK 就是字库 IC 的 SCK
```

```
sbit Rom_CS=P1^5;    //字库 IC 接口定义 Rom_CS 就是字库 IC 的 CS#

sbit key=P2^0;        //定义一个按键

#define uchar unsigned char
#define uint unsigned int
#define ulong unsigned long

uchar code bmp1[];
uchar code bmp2[];
uchar code bmp3[];

uchar code cheng1[];
uchar code gong1[];
uchar code zhuang1[];
uchar code tai1[];
uchar code shi1[];
uchar code yong1[];

void delay_us(int i);

uchar code jiong1[]={/*--  文字:  囧  --*/
/*--  宋体 12;  此字体下对应的点阵为:宽 x 高=16x16   --*/
0x00,0xFE,0x82,0x42,0xA2,0x9E,0x8A,0x82,0x86,0x8A,0xB2,0x62,0x02,0xFE,0x00,0x00,
0x00,0x7F,0x40,0x40,0x7F,0x40,0x40,0x40,0x40,0x40,0x7F,0x40,0x40,0x7F,0x00,0x00};

uchar code lei1[]={/*--  文字:  畾  --*/
/*--  宋体 12;  此字体下对应的点阵为:宽 x 高=16x16   --*/
0x80,0x80,0x80,0xBF,0xA5,0xA5,0xA5,0x3F,0xA5,0xA5,0xA5,0xBF,0x80,0x80,0x80,0x00,
0x7F,0x24,0x24,0x3F,0x24,0x24,0x7F,0x00,0x7F,0x24,0x24,0x3F,0x24,0x24,0x7F,0x00};


/*写指令到 LCD 模块*/
void transfer_command_lcd(int data1)
{
      char i;
      lcd_cs1=0;
      lcd_rs=0;
      for(i=0;i<8;i++)
      {
            lcd_sclk=0;
            delay_us(1);
            if(data1&0x80) lcd_sid=1;
            else lcd_sid=0;
            lcd_sclk=1;
            delay_us(1);
            data1=data1<<=1;
```

```
    }
    lcd_cs1=1;
}

/*写数据到 LCD 模块*/
void transfer_data_lcd(int data1)
{
    char i;
    lcd_cs1=0;
    lcd_rs=1;
    for(i=0;i<8;i++)
    {
        lcd_sclk=0;
        if(data1&0x80) lcd_sid=1;
        else lcd_sid=0;
        lcd_sclk=1;
        data1=data1<<=1;
    }
    lcd_cs1=1;
}

/*延时*/
void delay(int i)
{
    int j,k;
    for(j=0;j<i;j++)
    for(k=0;k<500;k++);
}

/*短延时*/
void delay_us(int i)
{
    int j,k;
    for(j=0;j<i;j++)
    for(k=0;k<2;k++);
}

/*等待一个按键，我的主板是用 P2.0 与 GND 之间接一个按键*/
void waitkey()
{
 repeat:
    if (P2&0x01) goto repeat;
    else delay(60);
    if (P2&0x01) goto repeat;
    else
```

```
    delay(400);
}


/*LCD 模块初始化*/
void initial_lcd()
{
    lcd_reset=0;                    /*低电平复位*/
    delay(20);
    lcd_reset=1;              /*复位完毕*/
    delay(20);
     transfer_command_lcd(0xe2);  /*软复位*/
     delay(5);
     transfer_command_lcd(0x2c);  /*升压步聚 1*/
     delay(5);
     transfer_command_lcd(0x2e);  /*升压步聚 2*/
     delay(5);
     transfer_command_lcd(0x2f);  /*升压步聚 3*/
     delay(5);
     transfer_command_lcd(0x24);  /*粗调对比度，可设置范围 0x20～0x27*/
     transfer_command_lcd(0x81);  /*微调对比度*/
     transfer_command_lcd(0x0d);  /*微调对比度的值，可设置范围 0x00～0x3f*/
     transfer_command_lcd(0xa2);  /*1/9 偏压比（bias）*/
     transfer_command_lcd(0xc8);  /*行扫描顺序：从上到下*/
     transfer_command_lcd(0xa0);  /*列扫描顺序：从左到右*/
     transfer_command_lcd(0x40);  /*起始行：第一行开始*/
     transfer_command_lcd(0xaf);  /*开显示*/
}

void lcd_address(uint page,uint column)
{
     column=column-1;
     transfer_command_lcd(0xb0+page-1);   /*设置页地址*/
     transfer_command_lcd(0x10+(column>>4&0x0f)); /*设置列地址的高 4 位*/
     transfer_command_lcd(column&0x0f);      /*设置列地址的低 4 位*/
}


/*全屏清屏*/
void clear_screen()
{
     unsigned char i,j;
     for(i=0;i<9;i++)
     {
          lcd_address(1+i,1);
          for(j=0;j<224;j++)
          {
               transfer_data_lcd(0x00);
```

```
            }
        }
        lcd_cs1=1;
}

//===显示测试画面：例如全显示，隔行显示，隔列显示，雪花显示=====
void test_display(uchar data1,uchar data2)
{
        int i,j;
        for(j=0;j<8;j++)
        {
            lcd_address(j+1,1);
            for(i=0;i<128;i++)
            {
                transfer_data_lcd(data1);
                transfer_data_lcd(data2);
            }
        }
}

/*显示 128x64 点阵图像*/
void display_128x64(uchar *dp)
{
        uint i,j;
        for(j=0;j<8;j++)
        {
            lcd_address(j+1,1);
            for (i=0;i<128;i++)
            {
                transfer_data_lcd(*dp);                    /*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
                dp++;
            }
        }
}

/*显示 32x32 点阵图像、汉字、生僻字或 32x32 点阵的其他图标*/
void display_graphic_32x32(uchar page,uchar column,uchar *dp)
{
        uchar i,j;
        for(j=0;j<4;j++)
        {
            lcd_address(page+j,column);
            for (i=0;i<31;i++)
            {
                transfer_data_lcd(*dp);            /*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
                dp++;
```

```
            }
        }
}

/*显示 16x16 点阵图像、汉字、生僻字或 16x16 点阵的其他图标,reverse=1 反显*/
void display_graphic_16x16(uint page,uint column,uchar reverse,uchar *dp)
{
    uint i,j;
    for(j=0;j<2;j++)
    {
        lcd_address(page+j,column);
        for (i=0;i<16;i++)
        {
            if(reverse==1)
                transfer_data_lcd(~*dp);        /*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
            else
                transfer_data_lcd(*dp);         /*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
            dp++;
        }
    }
}

/*显示 8x16 点阵图像、ASCII, 或 8x16 点阵的自造字符、其他图标,reverse=1 反显*/
void display_graphic_8x16(uint page,uchar column,uchar reverse,uchar *dp)
{
    uint i,j;
    for(j=0;j<2;j++)
    {
        lcd_address(page+j,column);
        for (i=0;i<8;i++)
        {
            if(reverse==1)
                transfer_data_lcd(~*dp);        /*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
            else
                transfer_data_lcd(*dp);         /*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
            dp++;
        }
    }
}

/*显示 5*7 点阵图像、ASCII, 或 5x7 点阵的自造字符、其他图标*/
void display_graphic_5x7(uint page,uchar column,uchar reverse,uchar *dp)
{
    uint col_cnt;
```

```
	uchar page_address;
	uchar column_address_L,column_address_H;
	page_address = 0xb0+page-1;
	column_address_L =(column&0x0f)-1;
	column_address_H =((column>>4)&0x0f)+0x10;

	transfer_command_lcd(page_address);		/*Set Page Address*/
	transfer_command_lcd(column_address_H);/*Set MSB of column Address*/
	transfer_command_lcd(column_address_L);/*Set LSB of column Address*/

	for (col_cnt=0;col_cnt<6;col_cnt++)
	{
		if(reverse==1)
			transfer_data_lcd(~*dp);		/*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
		else
			transfer_data_lcd(*dp);		/*写数据到 LCD,每写完一个 8 位的数据后列地址自动加 1*/
	    dp++;
	}
}

/****送指令到晶联讯字库 IC***/
void send_command_to_ROM( uchar datu )
{
	uchar i;
	for(i=0;i<8;i++ )
	{
	    if(datu&0x80)
			Rom_IN = 1;
		else
			Rom_IN = 0;
			datu = datu<<1;
			Rom_SCK=0;
			Rom_SCK=1;
	}
}

/****从晶联讯字库 IC 中取汉字或字符数据（1 个字节）***/
static uchar get_data_from_ROM( )
{
	uchar i;
	uchar ret_data=0;
	Rom_SCK=1;
	for(i=0;i<8;i++)
	{
		Rom_OUT=1;
		Rom_SCK=0;
		ret_data=ret_data<<1;
```

```
            if( Rom_OUT )
                  ret_data=ret_data+1;
            else
                  ret_data=ret_data+0;
            Rom_SCK=1;
      }
      return(ret_data);
}



/*从相关地址（addrHigh：地址高字节,addrMid：地址中字节,addrLow：地址低字节）中连续读出 DataLen 个字节的数据到 pBuff 的地址*/
/*连续读取*/
void get_n_bytes_data_from_ROM(uchar addrHigh,uchar addrMid,uchar addrLow,uchar *pBuff,uchar DataLen )
{
      uchar i;
      Rom_CS = 0;
      lcd_cs1=1;
      Rom_SCK=0;
      send_command_to_ROM(0x03);
      send_command_to_ROM(addrHigh);
      send_command_to_ROM(addrMid);
      send_command_to_ROM(addrLow);
      for(i = 0; i < DataLen; i++ )
           *(pBuff+i) =get_data_from_ROM();
      Rom_CS = 1;
}

/*****************************************************************/


ulong  fontaddr=0;
void display_GB2312_string(uchar y,uchar x,uchar reverse,uchar *text)
{
      uchar i= 0;
      uchar addrHigh,addrMid,addrLow ;
      uchar fontbuf[32];
      while((text[i]>0x00))
      {
            if(((text[i]>=0xb0) &&(text[i]<=0xf7))&&(text[i+1]>=0xa1))
            {
                  /*国标简体（GB2312）汉字在晶联讯字库 IC 中的地址由以下公式来计算：*/
                  /*Address = ((MSB - 0xB0) * 94 + (LSB - 0xA1)+ 846)*32+ BaseAdd;BaseAdd=0*/
                  /*由于担心 8 位单片机有乘法溢出问题，所以分三部取地址*/
                  fontaddr = (text[i]- 0xb0)*94;
                  fontaddr += (text[i+1]-0xa1)+846;
                  fontaddr = (ulong)(fontaddr*32);
```

```
            addrHigh = (fontaddr&0xff0000)>>16;  /*地址的高 8 位,共 24 位*/
            addrMid = (fontaddr&0xff00)>>8;      /*地址的中 8 位,共 24 位*/
            addrLow = fontaddr&0xff;             /*地址的低 8 位,共 24 位*/
            get_n_bytes_data_from_ROM(addrHigh,addrMid,addrLow,fontbuf,32 );/*取 32 个字节的数据，存到"fontbuf[32]"*/
            display_graphic_16x16(y,x,reverse,fontbuf);/*显示汉字到 LCD 上，y 为页地址，x 为列地址，fontbuf[]为数据*/
            i+=2;
            x+=16;
        }
        else if(((text[i]>=0xa1) &&(text[i]<=0xa3))&&(text[i+1]>=0xa1))
        {
            /*国标简体（GB2312）15x16 点的字符在晶联讯字库 IC 中的地址由以下公式来计算：*/
            /*Address = ((MSB - 0xa1) * 94 + (LSB - 0xA1))*32+ BaseAdd;BaseAdd=0*/
            /*由于担心 8 位单片机有乘法溢出问题，所以分三部取地址*/
            fontaddr = (text[i]- 0xa1)*94;
            fontaddr += (text[i+1]-0xa1);
            fontaddr = (ulong)(fontaddr*32);

            addrHigh = (fontaddr&0xff0000)>>16;  /*地址的高 8 位,共 24 位*/
            addrMid = (fontaddr&0xff00)>>8;      /*地址的中 8 位,共 24 位*/
            addrLow = fontaddr&0xff;             /*地址的低 8 位,共 24 位*/
            get_n_bytes_data_from_ROM(addrHigh,addrMid,addrLow,fontbuf,32 );/*取 32 个字节的数据，存到"fontbuf[32]"*/
            display_graphic_16x16(y,x,reverse,fontbuf);/*显示汉字到 LCD 上，y 为页地址，x 为列地址，fontbuf[]为数据*/
            i+=2;
            x+=16;
        }
        else if((text[i]>=0x20) &&(text[i]<=0x7e))
        {
            unsigned char fontbuf[16];
            fontaddr = (text[i]- 0x20);
            fontaddr = (unsigned long)(fontaddr*16);
            fontaddr = (unsigned long)(fontaddr+0x3cf80);
            addrHigh = (fontaddr&0xff0000)>>16;
            addrMid = (fontaddr&0xff00)>>8;
            addrLow = fontaddr&0xff;

            get_n_bytes_data_from_ROM(addrHigh,addrMid,addrLow,fontbuf,16 );/*取 16 个字节的数据，存到"fontbuf[32]"*/

            display_graphic_8x16(y,x,reverse,fontbuf);/*显示 8x16 的 ASCII 字到 LCD 上，y 为页地址，x 为列地址，fontbuf[]为数据*/
            i+=1;
            x+=8;
        }
        else
            i++;
    }

}
```

```
void display_string_5x7(uchar y,uchar x,uchar *text)
{
    unsigned char i= 0;
    unsigned char addrHigh,addrMid,addrLow ;
    while((text[i]>0x00))
    {

        if((text[i]>=0x20) &&(text[i]<=0x7e))
        {
            unsigned char fontbuf[8];
            fontaddr = (text[i]- 0x20);
            fontaddr = (unsigned long)(fontaddr*8);
            fontaddr = (unsigned long)(fontaddr+0x3bfc0);
            addrHigh = (fontaddr&0xff0000)>>16;
            addrMid = (fontaddr&0xff00)>>8;
            addrLow = fontaddr&0xff;

            get_n_bytes_data_from_ROM(addrHigh,addrMid,addrLow,fontbuf,8);/*取 8 个字节的数据，存到"fontbuf[32]"*/

            display_graphic_5x7(y,x,0,fontbuf);/*显示 5x7 的 ASCII 字到 LCD 上，y 为页地址，x 为列地址，fontbuf[]为数据*/
            i+=1;
            x+=6;
        }
        else
        i++;
    }
}
//==============main program==================
void main(void)
{
    while(1)
    {
        Rom_CS=1;
        lcd_cs1=0;
        initial_lcd();
        clear_screen();       //clear all dots
        display_128x64(bmp1);
    waitkey();
        clear_screen();             //clear all dots
        display_128x64(bmp2);
        waitkey();
        clear_screen();             //clear all dots
        display_128x64(bmp3);
        waitkey();
        clear_screen();
```

```
            display_GB2312_string(1,1,0,"JLX12864G-33008-PC");/*在第 1 页，第 1 列，显示一串 16x16 点阵汉字或 8x16 的 ASCII 字*/
            display_GB2312_string(3,1,1,"16X16 简体汉字库,");
            display_GB2312_string(5,1,0,"或 8X16 点阵 ASCII,");  /*显示一串 16x16 点阵汉字或 8x16 的 ASCII 字.以下雷同*/
            display_GB2312_string(7,1,0,"或 5X7 点阵 ASCII 码");
            waitkey();
            clear_screen();
            display_GB2312_string(1,1,0,"abcdefghijklmnoprstuvwxyz");     /*在第 1 页，第 1 列，显示一串 16x16 点阵汉字或 8*16 的 ASCII 字*/
            display_string_5x7(3,1,"abcdefghijklmnopqrstu");/*在第 3 页，第 1 列，显示一串 5x7 点阵的 ASCII 字*/
            display_string_5x7(4,1,"JLX electronics Co., ");/*显示一串 5x7 点阵的 ASCII 字*/
            display_string_5x7(5,1,"Ltd. established at  ");/*显示一串 5x7 点阵的 ASCII 字*/
            display_string_5x7(6,1,"year 2004.Focus LCM. ");/*显示一串 5x7 点阵的 ASCII 字*/
            display_string_5x7(7,1,"TEL:TEL:0755-29784961    ");/*显示一串 5x7 点阵的 ASCII 字*/
            display_string_5x7(8,1,"FAX:0755-29784964    ");/*显示一串 5x7 点阵的 ASCII 字*/
            waitkey();
            clear_screen();
            display_graphic_32x32(1,(1+32*1),cheng1);    /*在第 1 页，第 49 列显示单个汉字"成"*/
            display_graphic_32x32(1,(1+32*2),gong1);     /*在第 1 页，第 49 列显示单个汉字"功"*/
            display_graphic_16x16(6,1,1,zhuang1);        /*在第 5 页，第 1 列显示单个汉字"状"*/
            display_graphic_16x16(6,(1+16),1,tai1);      /*在第 5 页，第 17 列显示单个汉字"态"*/
            display_GB2312_string(6,(1+16*2),0,":");
            display_graphic_16x16(6,(1+16*2+8),0,shi1);  /*在第 5 页，第 41 列显示单个汉字"使"*/
            display_graphic_16x16(6,(1+16*3+8),0,yong1); /*在第 5 页，第 49 列显示单个汉字"用"*/
            display_GB2312_string(6,(1+16*4+8*2),0,"12:45");
            waitkey();
            clear_screen();
            test_display(0xff,0xff);
            waitkey();
            clear_screen();
            test_display(0x55,0xaa);
            waitkey();
            clear_screen();
            test_display(0xaa,0x55);
            waitkey();
        }
}

uchar code bmp1[]={
/*--  调入了一幅图像：D:\e\新开发部\显示图案收藏\晶联讯 LOGO 小图黑白-无外框.bmp  --*/
/*--  宽度 x 高度=128x64  --*/
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x80,
0x80,0x80,0x80,0x80,0xC0,0xC0,0xC0,0xC0,0xC0,0xC0,0xC0,0xC0,0xE0,0xE0,0xE0,0xE0,
0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xE0,0xC0,0xC0,0xC0,
0xC0,0xC0,0xC0,0xC0,0xC0,0x80,0x80,0x80,0x80,0x80,0x00,0x00,0x00,0x00,0x00,0x00,
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,
```

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0x00, 0x00, 0x00, 0x00, 0x04, 0x04, 0x04, 0x02, 0x02, 0x02, 0x02, 0x03, 0x03, 0x03, 0x01, 0x01,
0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01,
0x01, 0x01, 0x01, 0x01, 0x03, 0x03, 0x03, 0x03, 0x03, 0x03, 0x07, 0x07, 0x07, 0x07, 0x0F, 0x0F,
0x0F, 0x0F, 0x1F, 0x1F, 0x1F, 0x1F, 0x3F, 0x3F, 0x7F, 0x7F, 0x7F, 0xFF, 0xFF, 0xFF, 0xFE, 0xFE,
0xFE, 0xFC, 0xFC, 0xFC, 0xF8, 0xF8, 0xF8, 0xF0, 0xF0, 0xE0, 0xE0, 0xE0, 0xC0, 0xC0, 0x80, 0x80,
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, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0,
0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x01, 0x01, 0x03,
0x03, 0x07, 0x0F, 0x0F, 0x1F, 0x1F, 0x3F, 0x7F, 0x7F, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0xFE, 0xFE, 0xFC, 0xF8, 0xF0, 0xF0, 0xE0, 0xE0, 0xC0, 0x80, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x80, 0xE0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0,
0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0xF0, 0x70, 0x30, 0x10, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x01, 0x01, 0x03, 0x07, 0x07, 0x0F,
0x1F, 0x3F, 0x3F, 0x7F, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFE, 0xFC,
0xF8, 0xF8, 0xF0, 0xE0, 0xF0, 0xF8, 0xFC, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0x7F, 0x3F, 0x1F, 0x0F, 0x07, 0x03, 0x01, 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, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 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, 0x03, 0x03, 0x07, 0x0F, 0x9F, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0x9F, 0x0F, 0x07,
0x03, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 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, 0x80, 0xC0, 0xE0, 0xF8, 0xFC, 0xFE, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFE,
0xF8, 0xF0, 0xE0, 0x80, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x0F, 0x3F, 0x7F, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFE,
0xFC, 0xF8, 0xF8, 0xFC, 0xFE, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0x7F, 0x3F, 0x03,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC,
0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0xFC, 0x00, 0x00, 0x00, 0x00, 0x00, 0x80, 0xC0, 0xE0, 0xF0, 0xF8,
0xFE, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0x7F, 0x3F, 0x0F,
0x07, 0x03, 0x00, 0x01, 0x03, 0x07, 0x1F, 0x3F, 0x7F, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF,
```

```
0xFF,0xFF,0xFF,0xFF,0xFF,0xFE,0xF8,0xF0,0xE0,0x80,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x01,0x03,0x03,0x07,0x07,0x07,0x07,
0x0F,0x0F,0x0F,0x0F,0x0F,0x07,0x07,0x07,0x07,0x03,0x03,0x01,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x07,0x07,0x07,0x07,0x07,
0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,
0x07,0x07,0x07,0x07,0x07,0x07,0x00,0x00,0x04,0x06,0x07,0x07,0x07,0x07,0x07,0x07,
0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x01,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x01,0x07,0x07,0x07,0x07,0x07,0x07,
0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x07,0x04,0x00,0x00,0x00,0x00,

};

uchar code bmp2[]={
/*--  调入了一幅图像：E:\work\图片收藏夹\黑白屏图片\JLX12864G-33008.bmp  --*/
/*--  宽度 x 高度=128x64  --*/
0x10,0x61,0x06,0xE0,0x00,0x26,0x22,0x1A,0x02,0xC2,0x0A,0x12,0x32,0x06,0x02,0x00,
0x10,0x10,0x10,0xFE,0x10,0x10,0xFE,0x00,0x00,0xFC,0x00,0x00,0x00,0xFE,0x00,0x00,
0x04,0x04,0x04,0xE4,0x24,0x24,0x25,0xFE,0x24,0x24,0x24,0x24,0xE4,0x04,0x04,0x00,
0x00,0x00,0x00,0x00,0x7E,0x2A,0x2A,0x2A,0x2A,0x2A,0x2A,0x7E,0x00,0x00,0x00,0x00,
0x02,0xFE,0x92,0x92,0x92,0xFE,0x12,0x11,0x12,0x1C,0xF0,0x18,0x17,0x12,0x10,0x00,
0x20,0x21,0x2E,0xE4,0x00,0x42,0x42,0xFE,0x42,0x42,0x42,0x02,0xFE,0x00,0x00,0x00,
0x00,0x00,0xF8,0x48,0x48,0x48,0x48,0xFF,0x48,0x48,0x48,0x48,0xF8,0x00,0x00,0x00,
0x00,0x00,0x02,0x02,0x02,0x02,0x02,0xE2,0x12,0x0A,0x06,0x02,0x00,0x80,0x00,0x00,
0x04,0xFC,0x03,0x20,0x20,0x11,0x11,0x09,0x05,0xFF,0x05,0x09,0x19,0x31,0x10,0x00,
0x08,0x08,0x04,0x47,0x24,0x18,0x07,0x00,0x00,0x1F,0x00,0x00,0x00,0x7F,0x00,0x00,
0x00,0x00,0x00,0x3F,0x00,0x00,0x00,0xFF,0x00,0x00,0x10,0x20,0x1F,0x00,0x00,0x00,
0x00,0x7F,0x25,0x25,0x25,0x25,0x7F,0x00,0x00,0x7F,0x25,0x25,0x25,0x25,0x7F,0x00,
0x08,0x1F,0x08,0x08,0x04,0xFF,0x05,0x81,0x41,0x31,0x0F,0x11,0x21,0xC1,0x41,0x00,
0x00,0x00,0x00,0x7F,0x20,0x10,0x00,0x7F,0x00,0x00,0x00,0x00,0x3F,0x40,0x38,0x00,
0x00,0x00,0x0F,0x04,0x04,0x04,0x04,0x3F,0x44,0x44,0x44,0x44,0x4F,0x40,0x70,0x00,
0x01,0x01,0x01,0x01,0x01,0x41,0x81,0x7F,0x01,0x01,0x01,0x01,0x01,0x01,0x01,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x08,0x08,0xF8,
0x08,0x08,0x00,0x08,0xF8,0x08,0x00,0x00,0x00,0x00,0x00,0x08,0x18,0x68,0x80,0x80,
0x68,0x18,0x08,0x00,0x10,0x10,0xF8,0x00,0x00,0x00,0x00,0x00,0x70,0x08,0x08,0x08,
0x88,0x70,0x00,0x00,0x70,0x88,0x08,0x08,0x88,0x70,0x00,0x00,0xE0,0x10,0x88,0x88,
0x18,0x00,0x00,0x00,0x00,0xC0,0x20,0x10,0xF8,0x00,0x00,0xC0,0x30,0x08,0x08,0x08,
0x38,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x30,0x08,0x88,0x88,
0x48,0x30,0x00,0x00,0x30,0x08,0x88,0x88,0x48,0x30,0x00,0x00,0xE0,0x10,0x08,0x08,
0x10,0xE0,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0xC0,0x80,0x80,0x80,0x7F,
0x00,0x00,0x00,0x20,0x3F,0x20,0x20,0x20,0x20,0x30,0x00,0x20,0x30,0x2C,0x03,0x03,
0x2C,0x30,0x20,0x00,0x20,0x20,0x3F,0x20,0x20,0x00,0x00,0x00,0x30,0x28,0x24,0x22,
0x21,0x30,0x00,0x00,0x1C,0x22,0x21,0x21,0x22,0x1C,0x00,0x00,0x0F,0x11,0x20,0x20,
0x11,0x0E,0x00,0x00,0x07,0x04,0x24,0x24,0x3F,0x24,0x00,0x07,0x18,0x20,0x20,0x22,
0x1E,0x02,0x00,0x00,0x01,0x01,0x01,0x01,0x01,0x01,0x01,0x00,0x18,0x20,0x20,0x20,
0x11,0x0E,0x00,0x00,0x18,0x20,0x20,0x20,0x11,0x0E,0x00,0x00,0x0F,0x10,0x20,0x20,
0x10,0x0F,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,
0x00,0x00,0x00,0x00,0x00,0xE0,0x20,0x20,0x20,0x3F,0x24,0x24,0x24,0xF4,0x24,0x00,
0x00,0x00,0xFE,0x02,0x12,0x2A,0xC6,0x88,0xC8,0xB8,0x8F,0xE8,0x88,0x88,0x88,0x88,
0x00,0x00,0x00,0x00,0x00,0xC0,0xC0,0x00,0x00,0x00,0x00,0x10,0x10,0xF8,0x00,0x00,
0x00,0x00,0x00,0x70,0x08,0x08,0x08,0x88,0x70,0x00,0x00,0x70,0x88,0x08,0x08,0x88,
0x70,0x00,0x40,0x40,0x80,0xF0,0x80,0x40,0x40,0x00,0x00,0xE0,0x10,0x88,0x88,0x18,
0x00,0x00,0x00,0x00,0xC0,0x20,0x10,0xF8,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
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,
0x00,0x00,0x00,0x40,0x30,0x07,0x12,0x62,0x02,0x8A,0x12,0x62,0x02,0x0F,0x10,0x60,
0x00,0x00,0xFF,0x00,0x02,0x04,0x03,0x04,0x04,0x04,0x04,0x7F,0x04,0x04,0x04,0x04,
0x04,0x00,0x00,0x00,0x00,0x30,0x30,0x00,0x00,0x00,0x00,0x20,0x20,0x3F,0x20,0x20,
0x00,0x00,0x00,0x30,0x28,0x24,0x22,0x21,0x30,0x00,0x00,0x1C,0x22,0x21,0x21,0x22,
0x1C,0x00,0x02,0x02,0x01,0x0F,0x01,0x02,0x02,0x00,0x00,0x0F,0x11,0x20,0x20,0x11,
0x0E,0x00,0x00,0x07,0x04,0x24,0x24,0x3F,0x24,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x08,0x08,0x89,0x4E,0xAA,0x18,0x00,0xFE,0x02,0x02,0xFA,0x02,0x02,0xFE,0x00,0x00,
0x00,0xFE,0x02,0x02,0x12,0x22,0x22,0x42,0x82,0x62,0x1E,0x0A,0x02,0x02,0x00,0x00,
0x00,0x00,0x00,0xC0,0xC0,0x00,0x00,0x00,0x00,0x00,0xC0,0x20,0x10,0xF8,0x00,0x00,
0x00,0x30,0x08,0x88,0x88,0x48,0x30,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x10,0x10,0xF8,0x00,0x00,0x00,0x00,0x40,0x40,0x80,0xF0,0x80,0x40,0x40,0x00,
0x00,0x70,0x08,0x08,0x08,0x88,0x70,0x00,0x00,0xE0,0x10,0x88,0x88,0x18,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x38,0x08,0x08,0xC8,0x38,0x08,0x00,
0x80,0x80,0x80,0x80,0x80,0x80,0x80,0x00,0x80,0x80,0x80,0x80,0x80,0x80,0x80,0x00,
0x02,0x01,0x00,0xFF,0x00,0x87,0x42,0x21,0x18,0x06,0x01,0x3E,0x40,0x43,0x70,0x00,
0x00,0x3F,0x20,0x30,0x28,0x24,0x22,0x21,0x20,0x21,0x26,0x3C,0x28,0x20,0x00,0x00,
0x00,0x00,0x00,0x30,0x30,0x00,0x00,0x00,0x00,0x07,0x04,0x24,0x24,0x3F,0x24,0x00,
0x00,0x18,0x20,0x20,0x20,0x11,0x0E,0x00,0x00,0x30,0x30,0x00,0x00,0x00,0x00,0x00,
0x00,0x20,0x20,0x3F,0x20,0x20,0x00,0x00,0x02,0x02,0x01,0x0F,0x01,0x02,0x02,0x00,
0x00,0x30,0x28,0x24,0x22,0x21,0x30,0x00,0x00,0x0F,0x11,0x20,0x20,0x11,0x0E,0x00,
0x00,0x30,0x30,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x3F,0x00,0x00,0x00,0x00,
0x20,0x3F,0x20,0x00,0x3F,0x20,0x00,0x3F,0x20,0x3F,0x20,0x00,0x3F,0x20,0x00,0x3F,

};

uchar code bmp3[]={
/*--  调入了一幅图像：D:\e\新开发部\显示图案收藏\12864G-202 回字框.bmp  --*/
/*--  宽度 x 高度=128x64  --*/
0xFF,0x01,0x01,0x01,0x01,0xF9,0x09,0x09,0x09,0x09,0x89,0x89,0x89,0x89,0x89,0x89,
0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,
0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,
0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,
0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,
0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,
0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,0x89,
0x89,0x89,0x89,0x89,0x89,0x89,0x09,0x09,0x09,0x09,0xF9,0x01,0x01,0x01,0x01,0xFF,
0xFF,0x00,0x00,0x00,0x00,0xFF,0x00,0x00,0x00,0x00,0xFF,0x00,0x00,0x00,0x00,0xF8,
```

```
0x08, 0x08, 0x08, 0x08, 0x08, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x08, 0x08, 0x08, 0x08, 0x08,
0xF8, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xF8, 0x08, 0x08, 0x08, 0x08, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88, 0x88,
0x88, 0x08, 0x08, 0x08, 0x08, 0xF8, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0x00,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0x00, 0x00, 0x00, 0xF8, 0x08, 0x08, 0x08, 0x08, 0xC8, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48,
0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48,
0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48,
0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0x48, 0xC8, 0x08, 0x08, 0x08, 0x08, 0xF8, 0x00, 0x00, 0x00,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0x00,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0x00, 0x00, 0x00, 0x1F, 0x10, 0x10, 0x10, 0x10, 0x13, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12,
0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12,
0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12,
0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x12, 0x13, 0x10, 0x10, 0x10, 0x10, 0x1F, 0x00, 0x00, 0x00,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0x00,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0x00, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0x1F, 0x10, 0x10, 0x10, 0x10, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x10, 0x10, 0x10, 0x10, 0x1F, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0x00,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0x1F,
0x10, 0x10, 0x10, 0x10, 0x10, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11,
0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x11, 0x10, 0x10, 0x10, 0x10, 0x10,
0x1F, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF, 0x00, 0x00, 0x00, 0x00, 0xFF,
```

```
0xFF,0x80,0x80,0x80,0x80,0x9F,0x90,0x90,0x90,0x90,0x91,0x91,0x91,0x91,0x91,0x91,
0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,
0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,
0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,
0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,
0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,
0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,0x91,
0x91,0x91,0x91,0x91,0x91,0x91,0x90,0x90,0x90,0x90,0x9F,0x80,0x80,0x80,0x80,0xFF
};


uchar code cheng1[]={
/*--  文字:  成  --*/
/*--  宋体 23;  此字体下对应的点阵为：宽 x 高=31x31   --*/
/*--  高度不是 8 的倍数，现调整为：宽度 x 高度=32x32  --*/
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x0C,
0xFC,0xFC,0x88,0x00,0x00,0x1C,0x78,0xF0,0xE0,0x00,0x80,0x80,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0xFF,0xFF,0x83,0x83,0x83,0x83,0x83,0x83,0xC3,0xC3,0x03,0x1F,
0xFF,0xFF,0x83,0x03,0x03,0x03,0xC3,0xF3,0xF3,0x63,0x03,0x03,0x00,0x00,0x00,0x00,
0x00,0x00,0xFC,0xFF,0x3F,0x00,0x80,0x00,0x00,0x80,0xFF,0xFF,0x03,0x00,0x00,0x03,
0x9F,0xFF,0xF8,0xF8,0xBE,0x1F,0x07,0x01,0x00,0x00,0xE0,0x20,0x00,0x00,0x20,0x38,
0x1F,0x07,0x01,0x00,0x00,0x01,0x01,0x07,0x07,0x23,0x31,0x18,0x0C,0x0E,0x07,0x03,
0x01,0x01,0x01,0x03,0x07,0x0F,0x0E,0x1C,0x1F,0x3F,0x30,0x00,0x00,0x00,0x00,0x00};

uchar code gong1[]={
/*--  文字:  功  --*/
/*--  宋体 23;  此字体下对应的点阵为：宽 x 高=31x31   --*/
/*--  高度不是 8 的倍数，现调整为：宽度 x 高度=32x32  --*/
0x00,0x00,0x80,0x80,0x80,0x80,0x80,0x80,0x80,0x80,0x80,0x80,0xC0,0xC0,0xC0,0x00,
0x00,0x00,0x00,0xFE,0xFC,0x0C,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0xFF,0xFF,0x00,0x00,0x00,0x00,0x0C,0x04,0x04,
0x04,0x84,0xFF,0xFF,0x04,0x04,0x04,0x04,0x04,0xFE,0xFE,0x04,0x00,0x00,0x00,0x00,
0xC0,0xC0,0xC0,0xC0,0xE0,0x60,0x7F,0x3F,0x30,0x30,0x10,0x18,0x18,0x88,0xC0,0xF8,
0x7F,0x1F,0x01,0x00,0x00,0x00,0x00,0xF8,0xFF,0xFF,0x00,0x00,0x00,0x00,0x00,0x01,
0x01,0x00,0x00,0x00,0x00,0x20,0x20,0x30,0x18,0x0C,0x0C,0x07,0x03,0x01,0x00,0x04,
0x04,0x0C,0x0C,0x1C,0x38,0x3C,0x1F,0x0F,0x01,0x00,0x00,0x00,0x00,0x00,0x00,0x00};


uchar code zhuang1[]={
/*--  文字:  状  --*/
/*--  宋体 12;  此字体下对应的点阵为：宽 x 高=16x16   --*/
0x08,0x30,0x00,0xFF,0x20,0x20,0x20,0x20,0xFF,0x20,0xE1,0x26,0x2C,0x20,0x20,0x00,
0x04,0x02,0x01,0xFF,0x40,0x20,0x18,0x07,0x00,0x00,0x03,0x0C,0x30,0x60,0x20,0x00};

uchar code tai1[]={
/*--  文字:  态  --*/
/*--  宋体 12;  此字体下对应的点阵为：宽 x 高=16x16   --*/
```

```
0x00, 0x04, 0x04, 0x04, 0x84, 0x44, 0x34, 0x4F, 0x94, 0x24, 0x44, 0x84, 0x84, 0x04, 0x00, 0x00,
0x00, 0x60, 0x39, 0x01, 0x00, 0x3C, 0x40, 0x42, 0x4C, 0x40, 0x40, 0x70, 0x04, 0x09, 0x31, 0x00};

uchar code shi1[]={
/*--  文字:  使  --*/
/*--  宋体 12;  此字体下对应的点阵为：宽 x 高=16x16    --*/
0x40, 0x20, 0xF0, 0x1C, 0x07, 0xF2, 0x94, 0x94, 0x94, 0xFF, 0x94, 0x94, 0x94, 0xF4, 0x04, 0x00,
0x00, 0x00, 0x7F, 0x00, 0x40, 0x41, 0x22, 0x14, 0x0C, 0x13, 0x10, 0x30, 0x20, 0x61, 0x20, 0x00};

uchar code yong1[]={
/*--  文字:  用  --*/
/*--  宋体 12;  此字体下对应的点阵为：宽 x 高=16x16    --*/
0x00, 0x00, 0x00, 0xFE, 0x22, 0x22, 0x22, 0x22, 0xFE, 0x22, 0x22, 0x22, 0x22, 0xFE, 0x00, 0x00,
0x80, 0x40, 0x30, 0x0F, 0x02, 0x02, 0x02, 0x02, 0xFF, 0x02, 0x02, 0x42, 0x82, 0x7F, 0x00, 0x00};
```