# 图形点阵液晶显示模块使用手册 CM240128-3SLYB

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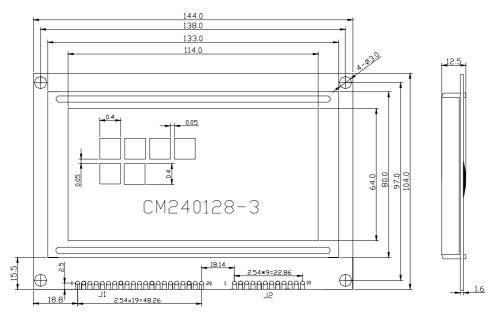
广州新赛格电子城三楼B3313档

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CM240128-3 是一种图形点阵液晶显示器,它由控制器 HD61830、行驱动器 / 列驱动器及 240 × 128 全点阵液晶显示器组成.可完成图形显示,也可以显示 15 × 8 个(16 × 16 点阵)汉字主要技术参数和性能:

1. 电源: VDD: +5V ± 5%; 模块内自带-15V 负压,用于 LCD 的驱动电压。

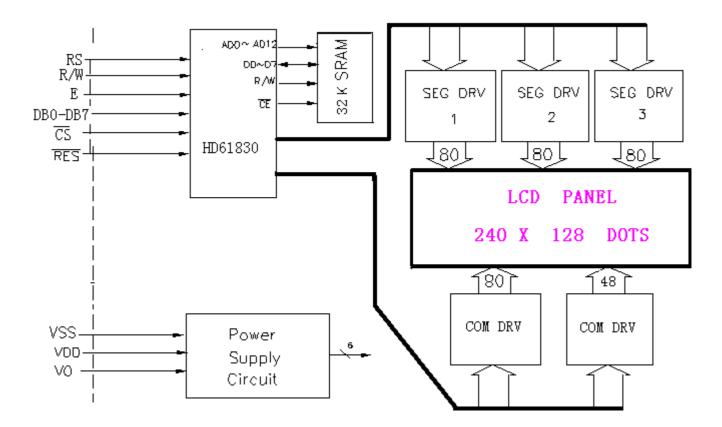
- 2.显示内容:240(列)×128(行)点
- 3. 全屏幕点阵
- 4. 带 8K 外部数据存储器(其地址由软件设定)
- 5. 其接口适配 68 系列 MPU 的控制时序
- 6. 驱动方式: 1/128 DUTY, 1/12 BIAS
- 7. 工作温度: -10 +60 ,存储温度: -20 +70
- 8. 显示模式: STN 黄绿膜、兰膜、黑白膜
- 9. 背光特性: LED 背光 (黄绿光、兰光、白光) 或 EL 背光
- 10. 模块封装方式: SMT
- 11. 视角方向: 6:00
- 12. 功耗:模块自带负压
- 二、外形尺寸图



## 外形尺寸一览

| ITEM  | NOMINAL DIMEN                  | UNI T |
|-------|--------------------------------|-------|
| 模块体积  | 144 <b>×</b> 104 <b>×</b> 12.5 | mm    |
| 视域    | 114.0 <b>×</b> 64.0            | mm    |
| 行列点阵数 | 240 × 128                      | DOTS  |
| 点距离   | 0.05 × 0.05                    | mm    |
| 点大小   | 0.4 × 0.4                      | mm    |

三、硬件结构图



| 四、 | J2 模块的外部接口: |   |
|----|-------------|---|
|    |             | · |

| 1  | ED          | -        | Serial data   |
|----|-------------|----------|---|
| 2  | CDATA       | -        | Synchronus signal for row driver                                |
| 3  | DISP OFF/NC |          | H:Display ON.L: Display OFF / for NC                            |
| 4  | LP          | -        | Latch pulse for column driver. Shift clock pulse for row driver |
| 5  | HSCP        | -        | Shift clock pulse for column driver                             |
| 6  | FR          |          | Frame signal  |
| 7  | VDD         | 5.0V     | Supply voltage for logic  |
| 8  | VSS         | 0V       | Grourd  |
| 9  | VOUT        | -15V     | Output voltage for LCD  |
| 10 | VO          | -12 -15V | Input voltage for LCD   |

## J1 模块的外部接口:

| 序号 | 符号         | 状态        | 功能                         |
|----|------------|-----------|----------------------------|
| 1  | VSS        | OV        | 地                          |
| 2  | VDD        | 5. OV     | 正电源                        |
| 3  | VO         | -12V -15V | 液晶驱动负电源输入                  |
| 4  | RS         | 输入        | 通道选择信号                     |
| 5  | R/W        | 输入        | 读/写选择信号                    |
| 6  | E          | 输入        | 使能信号                       |
| 7  | DBO        | 三态        | 数据总线                       |
| 8  | DB1        | 三态        | 数据总线                       |
| 9  | DB2        | 三态        | 数据总线                       |
| 10 | DB3        | 三态        | 数据总线                       |
| 11 | DB4        | 三态        | 数据总线                       |
| 12 | DB5        | 三态        | 数据总线                       |
| 13 | DB6        | 三态        | 数据总线                       |
| 14 | DB7        | 三态        | 数据总线                       |
| 15 | /CS        | 输入        | 片选信号                       |
| 16 | /RST       | 输入        | 复位信号                       |
| 17 | LED+ / VEE |           | LED 背光源+5V / 液晶驱动负电源输出-15V |
| 18 | LED- / NC  |           | LED 背光源 OV / NC            |
| 19 | NC / LED+  | +5V       | NC / LED(+5V)Backlight+5V  |
| 20 | NC / LED-  | OV        | NC / LED(OV)Backlight      |

# 五、电气参数

#### 1. ABSOLUTE MAXIMUM RATING

| Item           | Symbol  | Condition | Min     | Тур | Max     | Unit |
|----------------|---------|-----------|---------|-----|---------|------|
| Supply         | VDD-VSS | -         | -0.3    | -   | 7       | V    |
| Voltage(logic) |         |           |         |     |         | v    |
| Supply         | VDD-VO  | -         | VDD+0.3 | -   | VDD-0.3 |      |
| Voltage(LCD    |         |           |         |     |         | V    |
| Drive)         |         |           |         |     |         |      |
| Input Voltage  | VI      | -         | -0.3    | -   | VDD+0.3 | V    |
| Operating      | Topr    | -         | -10     | -   | +55     | ° C  |
| Temperature    | -       |           |         |     |         |      |
| Storage        | Tstg    | -         | -20     | -   | +60     | ° C  |
| Temperature    |         |           |         |     |         |      |

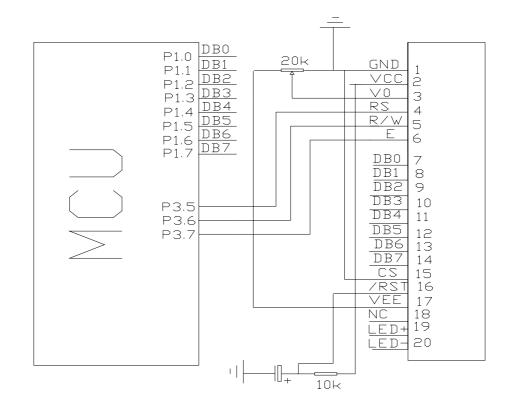
#### 2. OPTI CAL DATA Ta=25 ° C

| Item                  | Symbol  | Condition | St   | andard Valu | ue   | Unit |
|-----------------------|---------|-----------|------|-------------|------|------|
|                       |         |           | min  | typ         | max  |      |
| Supply voltage(Logic) | VDD-VSS | -         | 4.75 | 5           | 5.25 | V    |

| Supply voltage(LCD Drive) | VDD-VO | -      |       | -      | -    | -      | V   |
|---------------------------|--------|--------|-------|--------|------|--------|-----|
| Supply current            | IDD    | -      |       | -      | 12.0 | 17.0   | mA  |
|                           | IO     | -      |       | -      | 1.8  | 2.5    | mA  |
| EL Backlight current      | IEL    | -      |       | -      | 100  | -      | mA  |
| Input high voltage        | VIH    | High   | level | 0.7VDD | -    | VDD    | V   |
| Input low voltage         | VIL    | Low    | level | 0      | -    | 0.3VDD | V   |
| Supply voltage for LCD    |        | Ta=0   | ° C   | 14.2   | 14.5 | 14.8   | V   |
| Drive (1/80 duty)         | VDD-VO | Ta=25  | 5°C   | 13.3   | 13.6 | 13.9   | V   |
|                           |        | Ta=50  | )°C   | 12.3   | 12.6 | 12.9   | V   |
| Contrast Ratio            | CR     |        |       | -      | 4    | -      | -   |
| Viewing Angle             | -      | CR 2   |       | -10    | -    | 20     | deg |
|                           |        |        |       | 60     | -    | 120    | deg |
| Response Time ( rise )    | Tr     | Note 1 | Ta=2  | -      | 130  | 200    | ms  |
| -                         |        |        | 5°    |        |      |        |     |
| Response Time (delay)     | Td     | Note 2 | Ta=2  | -      | 150  | 230    | ms  |
|                           |        |        | 5°    |        |      |        |     |

# 六、应用举例

CM240128-3 与单片机 8031 的一种接口如下图. 所示: 注: V0 为液晶驱动电压。此图为模块内自带负压的示例



| ;IC618 | 330    |       |           |
|--------|--------|-------|-----------|
|        |        | ORG   | 0000H     |
|        |        | LJMP  | MAIN      |
|        |        | ORG   | 0003H     |
|        |        |       |           |
|        |        | LJMP  | ZHONGDUAN |
|        |        | ORG   | 0035H     |
|        | ZHONGI | DUAN: |           |
|        |        |       |           |
|        | PUSH   | ACC   |           |
|        | PUSH   | DPL   |           |
|        | PUSH   | DPH   |           |
|        | PUSH   | PSW   | SJMP \$   |
|        | POP    | PSW   |           |
|        | POP    | DPH   |           |
|        | POP    | DPL   |           |
|        | POP    | ACC   |           |
|        | RETI   |       |           |

| RS    | EQU | P3.5 |   |
|-------|-----|------|---|
| RW    | EQU | P3.6 |   |
| Е     | EQU | P3.7 |   |
| DAT   | EQU | 50H  |   |
| COM   | EQU | 51H  |   |
| CUL   | EQU | 52H  | ; |
| ROW   | EQU | 53H  |   |
| COUNT | EQU | 54H  |   |

|      | CFLUG     | EQU   | 10H |  |
|------|-----------|-------|-----|--|
|      | CODE1     | EQU   | 55H |  |
|      | PARA1     | EQU   | 40H |  |
|      | DAT1      | EQU   | 41H |  |
|      |           |       |     |  |
|      | addrL equ | u 42h |     |  |
|      | addrH equ | u 43h |     |  |
| ;=== |           |       |     |  |

#### MAIN:

| NOP   |          |
|-------|----------|
| SETB  | EA       |
| SETB  | EX0      |
| SETB  | IT0      |
|       |          |
| MOV   | SP,#70H  |
| ANL   | P1,#0E3H |
|       |          |
|       |          |
| LCALL | CHARDISP |
| LCALL | CLEAR    |
| LCALL | DELAY    |
|       |          |
|       |          |

| LCALL | TXDISP |
|-------|--------|
| LCALL | CLEAR  |

- LCALL BC
- LCALL DELAY

| LCALL      | DELAY |
|------------|-------|
| LCALL      | CLEAR |
| lcall zifu | _test |
| LCALL      | LL    |
| LCALL      | СМ    |
| LCALL      | DELAY |
| LCALL      | DELAY |
| LCALL      | DELAY |
| LCALL      | CLEAR |
| LJMP       | MAIN  |

#### LL:

| MOV   | COM,#0AH   |
|-------|------------|
| LCALL | PR1        |
| MOV   | DAT,#00H   |
| LCALL | PR2        |
| MOV   | СОМ,#0ВН ; |
| LCALL | PR1        |
| MOV   | DAT,#00H ; |
| LCALL | PR2        |
| MOV   | R2,#128    |
|       |            |

## L30:

| MOV   | COM,#0CH |
|-------|----------|
| LCALL | PR1      |
| MOV   | R3,#30   |

## L31:

| MOV   | DAT,#0FFH |
|-------|-----------|
| LCALL | PR2       |

| DJNZ  | R3,L31   |
|-------|----------|
| DJNZ  | R2,L30   |
| LCALL | DELAY    |
|       |          |
| MOV   | R2,#128  |
| MOV   | COM,#0AH |
| LCALL | PR1      |
| MOV   | DAT,#00H |
| LCALL | PR2      |
| MOV   | COM,#0BH |
| LCALL | PR1      |
| MOV   | DAT,#00H |
| LCALL | PR2      |
|       |          |

;

;

# L32:

| MOV   | COM,#0CH |
|-------|----------|
| LCALL | PR1      |
| MOV   | R3,#30   |

# L33:

| MOV   | DAT,#0AAH |
|-------|-----------|
| LCALL | PR2       |
| DJNZ  | R3,L33    |
| DJNZ  | R2,L32    |
| LCALL | DELAY     |
| LCALL | DELAY     |
| LCALL | DELAY     |

| LCALL | DELAY    |   |
|-------|----------|---|
| MOV   | R2,#128  |   |
| MOV   | COM,#0AH | ; |
| LCALL | PR1      |   |
| MOV   | DAT,#00H |   |
| LCALL | PR2      |   |
| MOV   | COM,#0BH | ; |
| LCALL | PR1      |   |
| MOV   | DAT,#00H | ; |
| LCALL | PR2      |   |

## L34:

| MOV   | COM,#0CH |
|-------|----------|
| LCALL | PR1      |
|       |          |
| MOV   | R3,#30   |

# L35:

| MOV   | DAT,#055H |
|-------|-----------|
| LCALL | PR2       |
| DJNZ  | R3,L35    |
| DJNZ  | R2,L34    |
|       |           |
| LCALL | DELAY     |

| MOV   | R2,#64   |   |
|-------|----------|---|
|       |          |   |
| MOV   | COM,#0AH | ; |
| LCALL | PR1      |   |
| MOV   | DAT,#00H |   |
| LCALL | PR2      |   |
| MOV   | COM,#0BH | ; |
| LCALL | PR1      |   |
| MOV   | DAT,#00H | ; |
| LCALL | PR2      |   |

## L36:

| MOV   | COM,#0CH |
|-------|----------|
| LCALL | PR1      |

| MOV | R3,#30 |
|-----|--------|
|-----|--------|

## L37:

| MOV   | DAT,#00H |
|-------|----------|
| LCALL | PR2      |
| DJNZ  | R3,L37   |
| MOV   | R3,#30   |
|       |          |

# L37A:

| MOV   | DAT,#0FFH |
|-------|-----------|
| LCALL | PR2       |
| DJNZ  | R3,L37A   |
|       |           |

DJNZ R2,L36

| LCALL | DELAY      |
|-------|------------|
| LCALL | DELAY      |
| LCALL | DELAY      |
| LCALL | DELAY      |
| MOV   | R2,#64     |
| MOV   | COM,#0AH ; |
| LCALL | PR1        |
| MOV   | DAT,#00H   |
| LCALL | PR2        |
| MOV   | СОМ,#0ВН ; |
| LCALL | PR1        |
| MOV   | DAT,#00H ; |
| LCALL | PR2        |
|       |            |

# L38:

| MOV   | COM,#0CH |
|-------|----------|
| LCALL | PR1      |

| MOV | R3,#30 |
|-----|--------|
|     |        |

## L39:

| MOV   | DAT,#0FFH |
|-------|-----------|
| LCALL | PR2       |
| DJNZ  | R3,L39    |
| MOV   | R3,#30    |
|       |           |

# L39A:

| MOV   | DAT,#00H |
|-------|----------|
| LCALL | PR2      |
| DJNZ  | R3,L39A  |

| DJNZ  | R2,L38   |   |
|-------|----------|---|
|       |          |   |
| LCALL | DELAY    |   |
|       |          |   |
| MOV   | R2,#64   |   |
|       |          |   |
| MOV   | COM,#0AH | ; |
| LCALL | PR1      |   |
| MOV   | DAT,#00H |   |
| LCALL | PR2      |   |
| MOV   | COM,#0BH | ; |
| LCALL | PR1      |   |
| MOV   | DAT,#00H | ; |
| LCALL | PR2      |   |
|       |          |   |

# L40:

| MOV   | COM,#0CH |
|-------|----------|
| LCALL | PR1      |

| MOV | R3,#30 |
|-----|--------|
|     |        |

# L41:

| MOV   | DAT,#0AAH |
|-------|-----------|
| LCALL | PR2       |
| DJNZ  | R3,L41    |
| MOV   | R3,#30    |

# L41A:

| MOV                                   | DAT,#55H                                  |        |
|---------------------------------------|---|--------|
| LCALL                                 | PR2                                       |        |
| DJNZ                                  | R3,L41A                                   |        |
|                                       |   |        |
| DJNZ                                  | R2,L40                                    |        |
| LCALL                                 | DELAY                                     |        |
|                                       |   |        |
| MOV                                   | R2,#64                                    |        |
|                                       |   |        |
|                                       |   |        |
| MOV                                   | COM,#0AH                                  | ;      |
| MOV<br>LCALL                          | COM,#0AH<br>PR1                           | ;      |
|                                       |   | • •    |
| LCALL                                 | PR1                                       | ;      |
| LCALL<br>MOV                          | PR1<br>DAT,#00H                           | ;      |
| LCALL<br>MOV<br>LCALL                 | PR1<br>DAT,#00H<br>PR2                    | ;      |
| LCALL<br>MOV<br>LCALL<br>MOV          | PR1<br>DAT,#00H<br>PR2<br>COM,#0BH        | ;<br>; |
| LCALL<br>MOV<br>LCALL<br>MOV<br>LCALL | PR1<br>DAT,#00H<br>PR2<br>COM,#0BH<br>PR1 | ;;     |

# L42:

| MOV   | COM,#0CH |
|-------|----------|
| LCALL | PR1      |

| 3,#30 |
|-------|
|       |

# L43:

| MOV   | DAT,#055H |
|-------|-----------|
| LCALL | PR2       |
| DJNZ  | R3,L43    |
| MOV   | R3,#30    |
|       |           |

## L43A:

| MOV   | DAT,#0AAH |
|-------|-----------|
| LCALL | PR2       |
| DJNZ  | R3,L43A   |
|       |           |
| DJNZ  | R2,L42    |
| LCALL | DELAY     |
| RET   |           |

#### zifu\_test:

| mov       | com,#00h |
|-----------|----------|
| lcallpr1  |          |
| mov       | dat,#3ch |
| lcallpr2  |          |
| mov       | com,#0ah |
| lcallpr1  |          |
| mov       | dat,#00h |
| lcallpr2  |          |
| mov       | com,#0bh |
| lcallpr1  |          |
| mov       | dat,#00h |
| lcallpr2  |          |
|           |          |
| mov       | com,#0ch |
| lcallpr1  |          |
| mov       | r2,#16   |
| zifu_col: |          |

mov r3,#30 dptr,#zifu\_tab mov zifu\_row: clr a a,@a+dptr movc mov dat,a lcallpr2 inc dptr djnzr3,zifu\_row djnzr2,zifu\_col lcalldelay lcalldelay lcalldelay lcalldelay mov com,#00h lcallpr1 dat,#32h mov

lcallpr2

ret

zifu\_tab:

;db "0123456789ABCDEFGHIJKLMNOPQRST"

#### DB " WELCOME TO BRILLIANT CRYSTAL "

PR0:

| ;PUSH | ACC |
|-------|-----|
| SETB  | RS  |
| SETB  | RW  |

#### PR01:

| MOV  | P1,#0FFH   |
|------|------------|
| SETB | Ε          |
| MOV  | A,P1       |
| CLR  | E          |
| JB   | ACC.7,PR01 |
| ;POP | ACC        |
| RET  |            |
|      |            |

#### PR1:

|       | ;PUSH | ACC        |
|-------|-------|------------|
|       | SETB  | RS         |
|       | SETB  | RW         |
| PR11: | MOV   | P1,#0FFH   |
|       | SETB  | Е          |
|       | MOV   | A,P1       |
|       | CLR   | Е          |
|       | JB    | ACC.7,PR11 |
|       |       |            |
|       | SETB  | RS         |
|       | CLR   | RW         |
|       | MOV   | P1,COM     |
|       | SETB  | Е          |
|       | CLR   | Е          |
|       | ;POP  | ACC        |
|       | RET   |            |
|       |       |            |

#### PR2:

| ;PUSH | ACC |
|-------|-----|
| SETB  | RS  |

|       | SETB | RW         |
|-------|------|------------|
| PR21: | MOV  | P1,#0FFH   |
|       | SETB | Е          |
|       | MOV  | A,P1       |
|       | CLR  | E          |
|       | JB   | ACC.7,PR21 |
|       |      |            |
|       | CLR  | RS         |
|       | CLR  | RW         |
|       | MOV  | P1,DAT     |
|       | SETB | E          |
|       | CLR  | Е          |
|       | ;POP | ACC        |
|       | RET  |            |
|       |      |            |

PR3:

|      | ;PUSH | ACC        |
|------|-------|------------|
|      | SETB  | RS         |
|      | SETB  | RW         |
| PR31 | :MOV  | P1,#0FFH   |
|      | SETB  | E          |
|      | MOV   | A,P1       |
|      | CLR   | E          |
|      | JB    | ACC.7,PR31 |
|      | CLR   | RS         |
|      | SETB  | RW         |
|      | MOV   | P1,#0FFH   |
|      | SETB  | E          |
|      | MOV   | DAT,P1     |
|      |       |            |

;POP ACC RET

#### DELAY:

| MOV     | R6,#00H |
|---------|---------|
| MOV     | R7,#00H |
| DELAY1: |         |

NOP

| DJNZ | R7,DELAY1 |
|------|-----------|
| DJNZ | R6,DELAY1 |
| RET  |           |

### CHARDISP:

| MOV   | COM,#00H | ;方式设置*           |
|-------|----------|------------------|
| LCALL | PR1      |                  |
| MOV   | DAT,#3CH | ;开显示设置,文本方式      |
| LCALL | PR2      |                  |
| MOV   | COM,#01H | ;字符体设置*          |
| LCALL | PR1      |                  |
| MOV   | DAT,#77H | ;字符字体为 8*8 点阵    |
| LCALL | PR2      |                  |
| MOV   | COM,#02H | ;显示域宽度设置*        |
| LCALL | PR1      |                  |
| MOV   | DAT,#1DH | ;一行占显示存储器 30 个字节 |
| LCALL | PR2      |                  |
| MOV   | СОМ,#03Н | ;帧信号设置*          |
| LCALL | PR1      |                  |
| MOV   | DAT,#7FH | ;128 行扫描行        |
| LCALL | PR2      |                  |

| MOV   | COM,#04H | ;光标形状设置   |
|-------|----------|-----------|
| LCALL | PR1      |           |
| MOV   | DAT,#07H | ;光标为底线形式  |
| LCALL | PR2      |           |
| MOV   | COM,#08H | ;显示起始地址设置 |
| LCALL | PR1      |           |
| MOV   | DAT,#00H | ;低字节为 00H |
| LCALL | PR2      |           |
| MOV   | СОМ,#09Н | ;显示起始地址设置 |
| LCALL | PR1      |           |
| MOV   | DAT,#00H | ;高字节为 00H |
| LCALL | PR2      |           |
| RET   |          |           |

TXDISP:

| MOV   | COM,#00H | ;方式设置*           |
|-------|----------|------------------|
| LCALL | PR1      |                  |
| MOV   | DAT,#32H | ;开显示设置,图形方式      |
| LCALL | PR2      |                  |
| MOV   | COM,#01H | ;字符体设置*          |
| LCALL | PR1      |                  |
| MOV   | DAT,#77H | ;字符字体为 8*8 点阵    |
| LCALL | PR2      |                  |
| MOV   | COM,#02H | ;显示域宽度设置*        |
| LCALL | PR1      |                  |
| MOV   | DAT,#1DH | ;一行占显示存储器 32 个字节 |
| LCALL | PR2      |                  |
| MOV   | COM,#03H | ;帧信号设置*          |
| LCALL | PR1      |                  |
| MOV   | DAT,#7FH | ;128 行扫描行        |

| LCALL                                  | PR2      |   |
|--|----------|---|
| MOV                                    | COM,#08H | ;显示起始地址设置                                     |
| LCALL                                  | PR1      |   |
| MOV                                    | DAT,#00H | ;低字节为 00H                                     |
| LCALL                                  | PR2      |   |
| MOV                                    | COM,#09H | ;显示起始地址设置                                     |
| LCALL                                  | PR1      |   |
| MOV                                    | DAT,#00H | ;高字节为 00H                                     |
| LCALL                                  | PR2      |   |
| RET                                    |          |   |
| ·************************************* | 文本清屏子程序  | <b>;</b> ************************************ |
| CLEAR:                                 |          |   |
| MOV                                    | R2,#00H  | ;设置循环量  |
| MOV                                    | R3,#20H  |   |
| MOV                                    | COM,#0AH | ;设置光标指针地址                                     |
| LCALL                                  | PR1      |   |
| MOV                                    | DAT,#00H |   |
| LCALL                                  | PR2      |   |

| MOV | COM,#0BH | ;方式设置* |
|-----|----------|--------|
|-----|----------|--------|

LCALL PR1

- MOV DAT,#00H ;开显示设置,文本方式
- LCALL PR2
- MOV COM,#0CH ;写数据指令代码
- LCALL PR1
- MOV DAT,#00H ;数据为 0

CLR1:

| LCALL | PR2     | ;写数据 |
|-------|---------|------|
| DJNZ  | R2,CLR1 | ;循环  |
| DJNZ  | R3,CLR1 |      |
| RET   |         |      |

## BC:

| mov      | com,#00h |
|----------|----------|
| lcallpr1 |          |
| mov      | dat,#32h |
| lcallpr2 |          |

|     | MOV         | COM,#0AH           | ;        |
|-----|-------------|--------------------|----------|
|     | LCALL       | PR1                |          |
|     | MOV         | DAT,#00H           |          |
|     | LCALL       | PR2                |          |
|     | MOV         | COM,#0BH           | ;        |
|     | LCALL       | PR1                |          |
|     | MOV         | DAT,#00H           |          |
|     | LCALL       | PR2                |          |
|     |             |                    |          |
|     | MOV         | DPTR,#CCTAB        |          |
|     | MOV         | COM,#0CH           | ;写数据指令代码 |
|     | LCALL       | PR1                |          |
|     |             |                    |          |
|     | MOV         | R3,#80h            |          |
| BC0 | : MOV       | R2,#30             |          |
| BC2 |             |                    |          |
|     | •           |                    |          |
|     | :<br>CLR    | А                  |          |
|     |             | A<br>A,@A+DPTR     |          |
|     | CLR         |                    |          |
|     | CLR<br>MOVC | A,@A+DPTR<br>DAT,A |          |

INC DPTR DJNZ R2,BC2 DJNZ R3,BC0 RET

CM:

mov com,#0 lcallpr1 mov dat,#32h lcallpr2

> ;设置光标指针地址 MOV COM,#0AH LCALL PR1 DAT,#00H MOV LCALL PR2 MOV COM,#0BH ;方式设置\* LCALL PR1 ;开显示设置,文本方式 MOV DAT,#00H LCALL PR2

| MOV   | DPTR,#CCTAB1 |          |
|-------|--------------|----------|
| MOV   | COM,#0CH     | ;写数据指令代码 |
| LCALL | PR1          |          |

MOV R3,#128 CM0: MOV R2,#30

CM2:

CLR A

| MOVC     | A,@A+DPTR |  |
|----------|-----------|--|
| MOV      | DAT,A     |  |
| LCALL    | PR2       |  |
| INC      | DPTR      |  |
| DJNZ     | R2,CM2    |  |
| DJNZ     | R3,CM0    |  |
| RET      |           |  |
| ;====汉字5 | 写入子程序设置== |  |

WORDCC:

| MOV  | CUL,#00H    |               |
|------|-------------|---------------|
| MOV  | ROW,#00H    |               |
| MOV  | A,#00H      |               |
| MOV  | DPTR,#CCTAB |               |
| MOV  | B,#20H      | ;一个汉字占 32 个字节 |
| MUL  | AB          |               |
| ADD  | A,DPL       |               |
| PUSH | ACC         |               |
| MOV  | A,B         |               |
| ADDC | A,DPH       |               |
| PUSH | ACC         |               |
| MOV  | A,ROW       |               |
| MOV  | B,#1DH      |               |
| MUL  | AB          |               |
| ADD  | A,CUL       |               |
| MOV  | CUL,A       |               |
| MOV  | A,B         |               |
| ADDC | A,#00H      |               |
| MOV  | ROW,A       |               |
|      |             |               |

WORDCC0:

| MOV      | COM,#08H   |
|----------|------------|
| LCALL    | PR1        |
| MOV      | DAT,CUL    |
| LCALL    | PR2        |
| MOV      | COM,#09H   |
| LCALL    | PR1        |
| MOV      | DAT,CUL    |
| LCALL    | PR2        |
| PUSH     | DPL        |
| PUSH     | DPH        |
| MOV      | COM,#0CH   |
| LCALL    | PR1        |
| POP      | DPH        |
| POP      | DPL        |
| MOV      | R0,#20H    |
| WORDCC1: |            |
| MOV      | R1,#128    |
| WORDCC2: |            |
| CLR      | А          |
| MOVC     | A,@A+DPTR  |
| PUSH     | DPL        |
| PUSH     | DPH        |
| MOV      | DAT,A      |
| LCALL    | CONVERT    |
| LCALL    | PR2        |
| POP      | DPH        |
| POP      | DPL        |
| INC      | DPTR       |
| DJNZ     | R1,WORDCC2 |
| DJNZ     | R0,WORDCC1 |

|      | POP          | ACC                      |  |
|------|--------------|--------------------------|--|
|      | POP          | ACC                      |  |
|      | RET          |                          |  |
| ,    | ************ | 汉字字模结构转换子程序<br>********* |  |
| CONV | /ERT:        |                          |  |
|      | MOV          | A,R1                     |  |
|      | PUSH         | ACC                      |  |
|      | MOV          | R1,#08H                  |  |
|      | MOV          | A,DAT                    |  |
|      | MOV          | DAT,#00H                 |  |
| CONV | /ERT1:       |                          |  |
|      | RRC          | А                        |  |
|      | ХСН          | A,DAT                    |  |
|      | RLC          | Α                        |  |
|      | ХСН          | A,DAT                    |  |
|      | DJNZ         | R1,CONVERT1              |  |
|      | POP          | ACC                      |  |
|      | MOV          | R1,A                     |  |
|      | RET          |                          |  |
|      |              |                          |  |

CCTAB1:

;-- 宽度 x 高度=240x128 --

DB OFFH, OOH
DB OOOH, OFFH, OOOH, OO

DB 000H, 000H 000H, 000H, 000H, 000H, 000H, 000H, 0A0H, 0F5H, 0FFH, DB DB OFFH, OAFH, O15H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H DB 000H, 000H DB DB 000H, 000H, 000H, 0A8H, 015H, 000H, 000H DB 000H, 000H DB 000H, 0A8H, 015H, 000H, 000H 000H, 0A8H DB DB 015H, 000H, 000H 000H, 0A8H, 015H, 000H DB 000H, 000H DB 000H, 0A8H, 015H, 000H, 000H, 000H DB 000H, 000H DB DB 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H 000H, 000H DB 000H, 000H, 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H, 000H, 000H DB DB 000H, 000H DB 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H 000H, 000H DB DB 000H, 000H, 000H, 0A8H, 015H, 000H, 000H DB 000H, 000H DB 000H, 0A8H, 015H, 000H, 000H DB 000H, 0A8H DB 015H, 000H, 080H, 007H, 000H, 000H, 03FH, 080H, 0FFH, 001H, 000H, 000H, 0C0H, 00FH, 07EH, 080H DB 03FH, 080H, 0FFH, 001H, 078H, 080H, 087H, 007H, 000H, 0F8H, 0FFH, 003H, 000H, 0A8H, 015H, 000H DB 080H, 007H, 000H, 0C0H, 0FFH, 080H, 0FFH, 007H, 000H, 000H, 0C0H, 00FH, 07EH, 0C0H, 0FFH, 080H DB 0FFH, 007H, 078H, 080H, 087H, 007H, 000H, 0F8H, 0FFH, 003H, 000H, 0A8H, 015H, 000H, 080H, 007H DB 000H, 0E0H, 0FFH, 081H, 0FFH, 00FH, 000H, 000H, 0C0H, 00FH, 07EH, 0E0H, 0FFH, 081H, 0FFH, 00FH DB 078H, 080H, 087H, 007H, 000H, 0F8H, 0FFH, 003H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 0F0H

0E1H, 083H, 087H, 01FH, 000H, 000H, 0C0H, 01FH, 07FH, 0F0H, 0F1H, 081H, 087H, 01FH, 078H, 080H DB 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 0F0H, 0C0H, 083H DB DB 007H, 03EH, 000H, 000H, 0C0H, 01FH, 07FH, 0F8H, 0E0H, 083H, 007H, 03EH, 078H, 080H, 087H, 007H DB 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 078H, 0C0H, 087H, 007H, 03EH 000H, 000H, 0C0H, 01FH, 07FH, 078H, 0C0H, 083H, 007H, 03EH, 078H, 080H, 087H, 007H, 000H, 078H DB 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 078H, 080H, 087H, 007H, 03CH, 000H, 000H DB DB 0C0H, 01FH, 07FH, 078H, 0C0H, 083H, 007H, 03CH, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H DB 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 078H, 080H, 087H, 007H, 07CH, 000H, 000H, 0C0H, 01FH 07FH, 03CH, 080H, 087H, 007H, 07CH, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H DB DB 015H, 000H, 080H, 007H, 000H, 03CH, 080H, 087H, 007H, 078H, 000H, 000H, 0C0H, 0BFH, 07FH, 03CH 080H, 087H, 007H, 078H, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H DB 080H, 007H, 000H, 03CH, 000H, 080H, 007H, 078H, 000H, 000H, 0C0H, 0BFH, 07FH, 03CH, 080H, 087H DB 007H, 078H, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H DB 000H, 03CH, 000H, 080H, 007H, 078H, 000H, 000H, 0COH, 0BFH, 07FH, 03CH, 080H, 087H, 007H, 078H DB DB 078H, 080H, 087H, 007H, 000H, 0F8H, 0FFH, 001H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 03CH 000H, 080H, 007H, 078H, 000H, 000H, 0C0H, 0BFH, 07FH, 03CH, 080H, 087H, 007H, 078H, 078H, 080H DB 087H, 007H, 000H, 0F8H, 0FFH, 001H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 03CH, 000H, 080H DB DB 007H, 078H, 000H, 000H, 0C0H, 0BFH, 07FH, 03CH, 080H, 087H, 007H, 078H, 078H, 080H, 087H, 007H DB 000H, 0F8H, 0FFH, 001H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 03CH, 000H, 080H, 007H, 078H 000H, 000H, 0C0H, 0FBH, 07BH, 03CH, 080H, 087H, 007H, 078H, 078H, 080H, 087H, 007H, 000H, 078H DB DB 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 03CH, 000H, 080H, 007H, 078H, 000H, 000H DB 0C0H, 0FBH, 07BH, 03CH, 080H, 087H, 007H, 078H, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H DB 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 03CH, 080H, 087H, 007H, 078H, 000H, 000H, 0C0H, 0FBH DB 07BH, 03CH, 080H, 087H, 007H, 078H, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H DB 015H, 000H, 080H, 007H, 000H, 03CH, 080H, 087H, 007H, 078H, 000H, 000H, 0C0H, 0FBH, 07BH, 03CH DB 080H, 087H, 007H, 078H, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H DB 080H, 007H, 000H, 03CH, 080H, 087H, 007H, 07CH, 000H, 000H, 0COH, 0FBH, 07BH, 03CH, 080H, 087H DB 007H, 07CH, 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H DB 000H, 078H, 080H, 087H, 007H, 03CH, 000H, 000H, 0COH, 0F3H, 079H, 03CH, 080H, 087H, 007H, 03CH DB 078H, 080H, 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 078H

DB 0C0H, 083H, 007H, 03CH, 000H, 000H, 0C0H, 0F3H, 079H, 078H, 0C0H, 083H, 007H, 03CH, 078H, 080H 087H, 007H, 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 0F8H, 0C0H, 083H DB DB 007H, 01EH, 000H, 000H, 0C0H, 0F3H, 079H, 078H, 0C0H, 083H, 007H, 01EH, 0F8H, 0C0H, 087H, 007H DB 000H, 078H, 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 007H, 000H, 0F0H, 0F1H, 083H, 087H, 01FH 000H, 000H, 0C0H, 0F3H, 079H, 0F8H, 0E0H, 083H, 087H, 01FH, 0F0H, 0E1H, 083H, 007H, 000H, 078H DB 000H, 000H, 000H, 0A8H, 015H, 000H, 080H, 0FFH, 07FH, 0E0H, 0FFH, 081H, 0FFH, 00FH, 000H, 000H DB DB 0C0H, 0F3H, 079H, 0F0H, 0F1H, 081H, 0FFH, 00FH, 0F0H, 0FFH, 083H, 0FFH, 07FH, 0F8H, 0FFH, 007H DB 000H, 0A8H, 015H, 000H, 080H, 0FFH, 07FH, 0C0H, 0FFH, 080H, 0FFH, 007H, 000H, 000H, 0C0H, 0E3H 078H, 0E0H, 0FFH, 080H, 0FFH, 007H, 0E0H, 0FFH, 081H, 0FFH, 07FH, 0F8H, 0FFH, 007H, 000H, 0A8H DB DB 015H, 000H, 080H, 0FFH, 07FH, 000H, 03FH, 080H, 0FFH, 000H, 000H, 000H, 0C0H, 0E3H, 078H, 0C0H 0FFH, 080H, 0FFH, 000H, 080H, 07FH, 080H, 0FFH, 07FH, 0F8H, 0FFH, 007H, 000H, 0A8H, 015H, 000H DB 000H, 080H, 03FH, 000H DB 000H, 0A8H, 015H, 000H, 000H, 000H DB 000H, 000H DB DB 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H 000H, 000H DB 000H, 000H, 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H, 000H, 000H DB DB 000H, 000H DB 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H 000H, 000H DB DB 000H, 000H, 000H, 0A8H, 015H, 000H, 000H DB 000H, 000H DB 000H, 0A8H, 015H, 000H, 000H DB 000H, 0A8H DB 015H, 000H, 000H DB 000H, 0A8H, 015H, 000H DB 000H, 000H DB 000H, 0A8H, 015H, 000H, 000H, 000H DB 000H, 000H DB 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H

DB 000H, 000H 000H, 000H, 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 000H, 000H, 000H, 000H DB DB 000H, 000H 000H, 000H, 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 0F0H, 003H, 000H, 0F8H, 000H, 0F8H, 003H DB 000H, 000H, 000H, 0C0H, 001H, 000H, 03FH, 000H, 0F0H, 003H, 0F8H, 01FH, 000H, 000H, 000H, 000H DB DB 000H, 000H, 000H, 0A8H, 015H, 000H, 000H, 0F8H, 00FH, 000H, 0F8H, 000H, 0FCH, 007H, 000H, 000H DB 000H, 0C0H, 001H, 080H, 0FFH, 000H, 0FCH, 00FH, 0F8H, 07FH, 000H, 000H, 000H, 000H, 000H, 000H DB 000H, 0A8H, 015H, 000H, 000H, 0FCH, 01FH, 000H, 0FCH, 000H, 0FEH, 00FH, 000H, 000H, 000H, 0E0H 001H, 0C0H, 0FFH, 001H, 0FEH, 01FH, 0F8H, 0FFH, 000H, 000H, 000H, 000H, 000H, 000H, 000H, 0A8H DB DB 015H, 000H, 000H, 03EH, 01EH, 000H, 0FCH, 000H, 01FH, 01FH, 000H, 000H, 000H, 0F0H, 001H, 0E0H 0E3H, 001H, 03EH, 01FH, 078H, 0F8H, 001H, 000H, 000H, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H DB 000H, 01EH, 03EH, 000H, 0FEH, 000H, 00FH, 03EH, 000H, 000H, 000H, 0FEH, 001H, 0E0H, 0E1H, 003H DB 01FH, 03EH, 078H, 0E0H, 003H, 000H, 000H, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H, 000H, 00FH DB 03CH, 000H, 0FFH, 080H, 007H, 03CH, 000H, 000H, 000H, 0FEH, 001H, 0FOH, 0COH, 003H, 00FH, 03CH DB DB 078H, 0E0H, 003H, 000H, 000H, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H, 000H, 00FH, 03CH, 000H OFFH, 080H, 007H, 03CH, 000H, 000H, 000H, 0E0H, 001H, 0F0H, 0C0H, 003H, 00FH, 03CH, 078H, 0C0H DB 003H, 000H, 000H, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H, 000H, 00FH, 03CH, 080H, 0FFH, 080H DB DB 007H, 038H, 000H, 000H, 000H, 0E0H, 001H, 0F0H, 0C0H, 003H, 00FH, 03CH, 078H, 0C0H, 007H, 000H DB 000H, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H, 000H, 00FH, 03CH, 080H, 0F7H, 0C0H, 003H, 078H 000H, 000H, 000H, 0E0H, 001H, 0F0H, 0C0H, 003H, 00FH, 03CH, 078H, 080H, 007H, 000H, 000H, 080H DB DB 007H, 000H, 000H, 0A8H, 015H, 000H, 000H, 000H, 03CH, 0C0H, 0F3H, 0C0H, 003H, 078H, 07CH, 0E0H DB 003H, 0E0H, 001H, 000H, 0C0H, 003H, 01EH, 01EH, 078H, 080H, 007H, 0F8H, 003H, 0FCH, 0FFH, 001H DB 000H, 0A8H, 015H, 000H, 000H, 000H, 01EH, 0E0H, 0F3H, 0C0H, 003H, 078H, 0F8H, 0F0H, 001H, 0E0H 001H, 000H, 0E0H, 001H, 03EH, 01FH, 078H, 080H, 007H, 0FEH, 00FH, 0FCH, 0FFH, 001H, 000H, 0A8H DB DB 015H, 000H, 000H, 000H, 01FH, 0E0H, 0F1H, 0C0H, 003H, 078H, 0F0H, 0F0H, 000H, 0E0H, 001H, 000H DB 0F0H, 001H, 0FCH, 00FH, 078H, 080H, 007H, 0FFH, 01FH, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H DB 000H, 080H, 00FH, 0F0H, 0F1H, 0C0H, 003H, 078H, 0F0H, 0F9H, 000H, 0E0H, 001H, 000H, 0F8H, 000H DB 0FCH, 00FH, 078H, 080H, 087H, 01FH, 03FH, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H, 000H, 0C0H DB 007H, 0F0H, 0F0H, 0C0H, 003H, 078H, 0E0H, 079H, 000H, 0E0H, 001H, 000H, 07CH, 000H, 01EH, 01EH DB 078H, 080H, 087H, 007H, 03CH, 080H, 007H, 000H, 000H, 0A8H, 015H, 000H, 000H, 0E0H, 003H, 078H

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; 宽×高(像素): 240×128

; 字模格式/大小: 单色点阵液晶字模,横向取模,字节倒序/3840字节

#### ; 数据转换日期 : 2006-7-27 10:34:18

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