

a-Si TFT LCD Single Chip Driver with 132RGBx162 Resolution and 262K color

Application Notes

Version: V1.0

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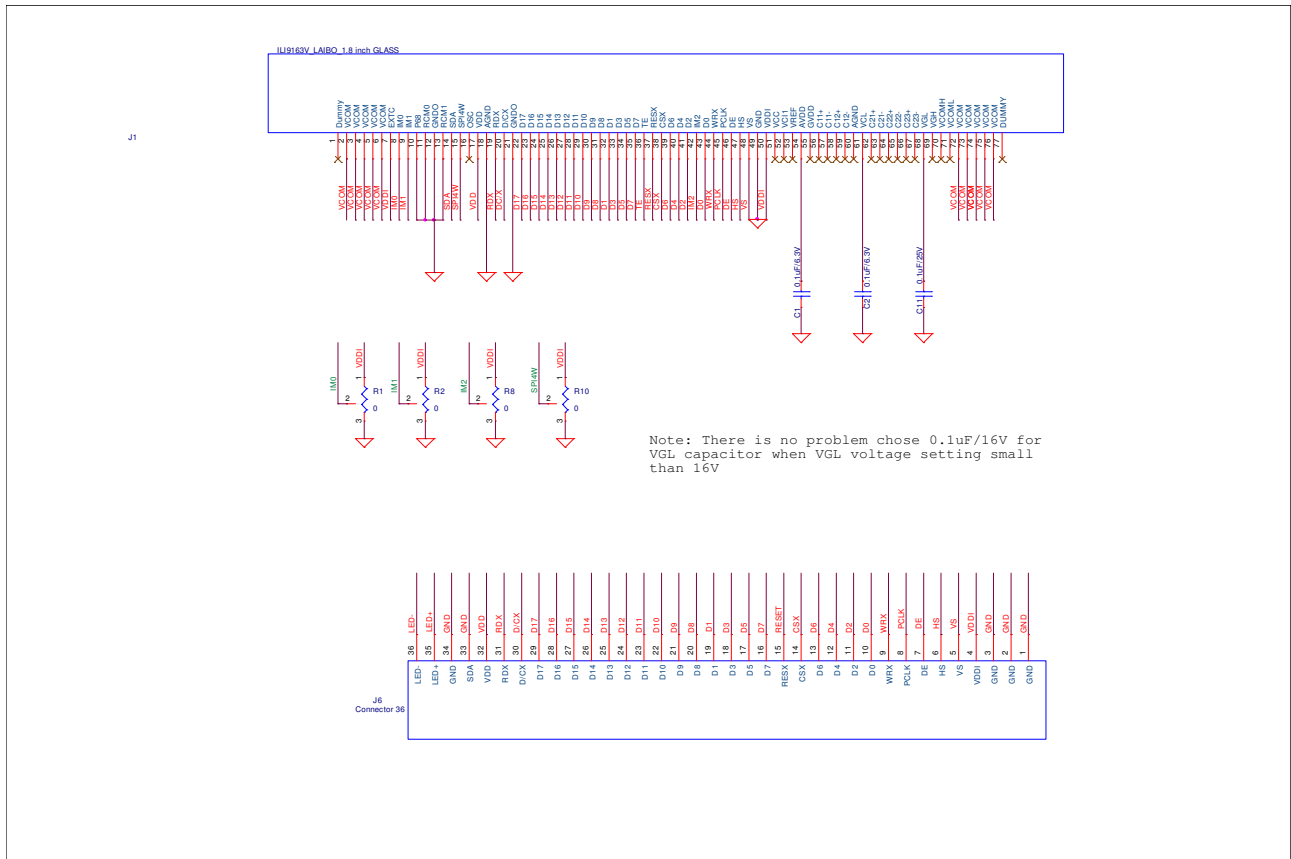
Tel.886-3-5600099; Fax.886-3-5600585

<http://www.ilitek.com>

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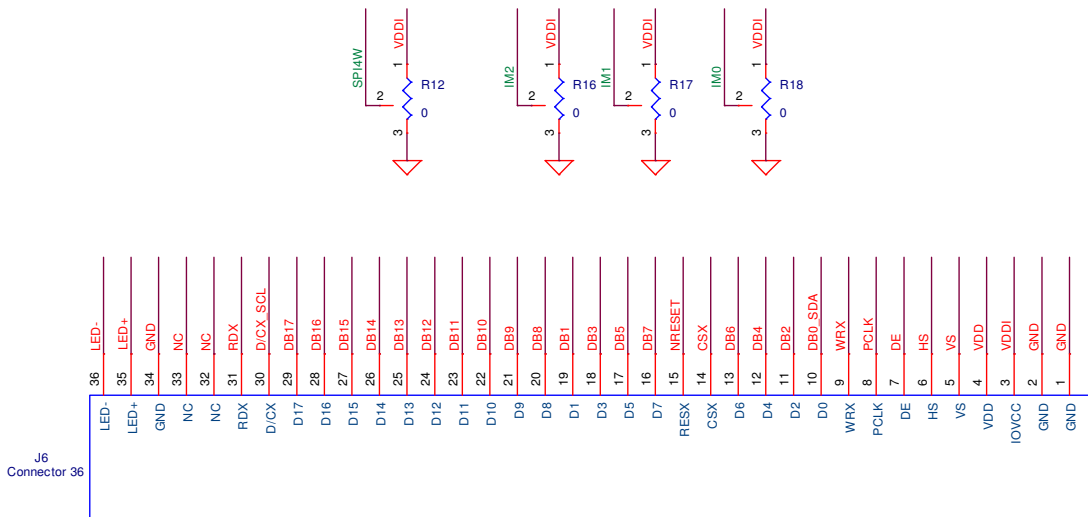
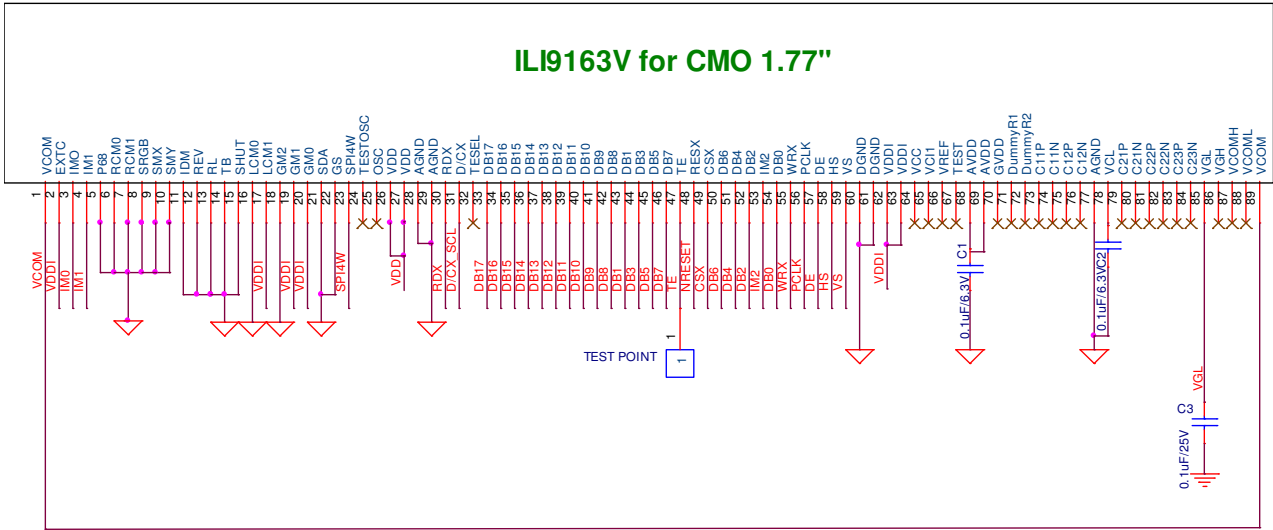
1. LAIBO Panel

1.8" Panel



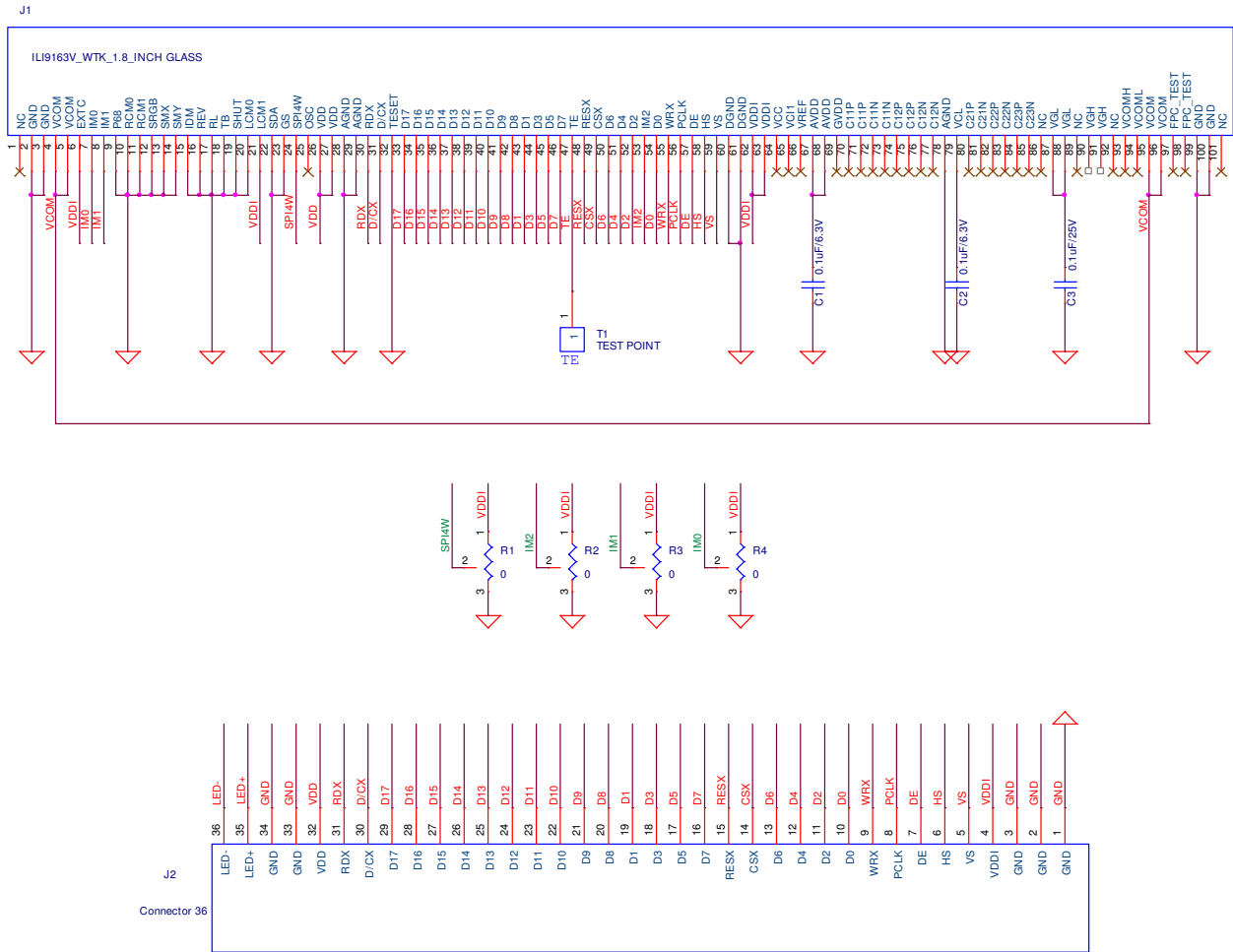
2. CMO Panel

1.77" Panel



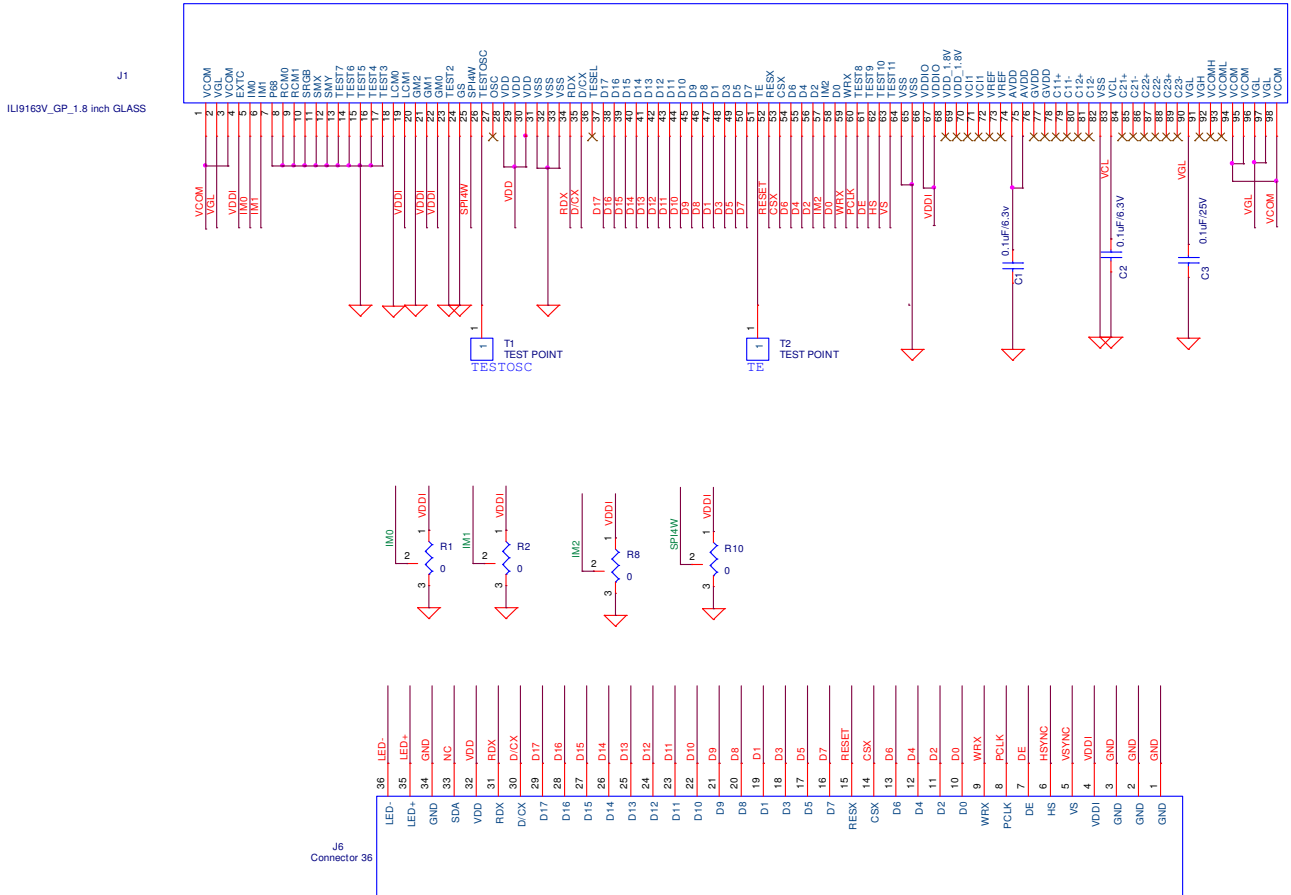
3. WTK Panel

1.8" Panel



Note: There is no problem chose 0.1uF/16V for VGL capacitor when VGL voltage setting small than 16V

1.8" Panel



Note: There is no problem chose 0.1uF/16V for VGL capacitor when VGL voltage setting small than 16V

4.2 GP 1.8 Initial Code

```

void ILI9163V_Initial_GP1.8(void)
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
delayms(1); // Delay 1ms
LCD_nRESET = 0;
delayms(10); // Delay 10ms // This delay time is necessary
LCD_nRESET = 1;
delayms(120); // Delay 120 ms
//***** Start Initial Sequence *****//
LCD_ILI9163V_CMD(0x36);
LCD_ILI9163V_INDEX(0x08);

LCD_ILI9163V_CMD(0x2A); //Set Column Address
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x7F);

LCD_ILI9163V_CMD(0x2B); //Set Page Address
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x9F);

LCD_ILI9163V_CMD(0xB1); //Set Frame Rate
LCD_ILI9163V_INDEX(0x0A);
LCD_ILI9163V_INDEX(0x05);

LCD_ILI9163V_CMD(0xC0); //Set VRH1[4:0] & VC[2:0] for VCI1 & GVDD
LCD_ILI9163V_INDEX(0x08);
LCD_ILI9163V_INDEX(0x00);

LCD_ILI9163V_CMD(0xC1); //Set BT[2:0] for AVDD & VCL & VGH & VGL
LCD_ILI9163V_INDEX(0x03);

```


LCD_ILI9163V_CMD(0xC2);

LCD_ILI9163V_INDEX(0x05);

LCD_ILI9163V_CMD(0xC5); //Set VMH[6:0] & VML[6:0] for VOMH & VCOML

LCD_ILI9163V_INDEX(0x43);

LCD_ILI9163V_INDEX(0x43);

LCD_ILI9163V_CMD(0xEC); //Set pumping clock frequency

LCD_ILI9163V_INDEX(0x0C);

LCD_ILI9163V_CMD(0xf2); //Enable Gamma bit

LCD_ILI9163V_INDEX(0x01);

LCD_ILI9163V_CMD(0xE0);

LCD_ILI9163V_INDEX(0x3B); //p1

LCD_ILI9163V_INDEX(0x2B); //p2

LCD_ILI9163V_INDEX(0x2A); //p3

LCD_ILI9163V_INDEX(0x2D); //p4

LCD_ILI9163V_INDEX(0x28); //p5

LCD_ILI9163V_INDEX(0x0C); //p6

LCD_ILI9163V_INDEX(0x57); //p7

LCD_ILI9163V_INDEX(0xF0); //p8

LCD_ILI9163V_INDEX(0x41); //p9

LCD_ILI9163V_INDEX(0x12); //p10

LCD_ILI9163V_INDEX(0x15); //p11

LCD_ILI9163V_INDEX(0x12); //p12

LCD_ILI9163V_INDEX(0x11); //p13

LCD_ILI9163V_INDEX(0x10); //p14

LCD_ILI9163V_INDEX(0x04); //p15

LCD_ILI9163V_CMD(0xE1);

LCD_ILI9163V_INDEX(0x04); //p1

LCD_ILI9163V_INDEX(0x14); //p2

LCD_ILI9163V_INDEX(0x15); //p3

LCD_ILI9163V_INDEX(0x12); //p4

LCD_ILI9163V_INDEX(0x17); //p5

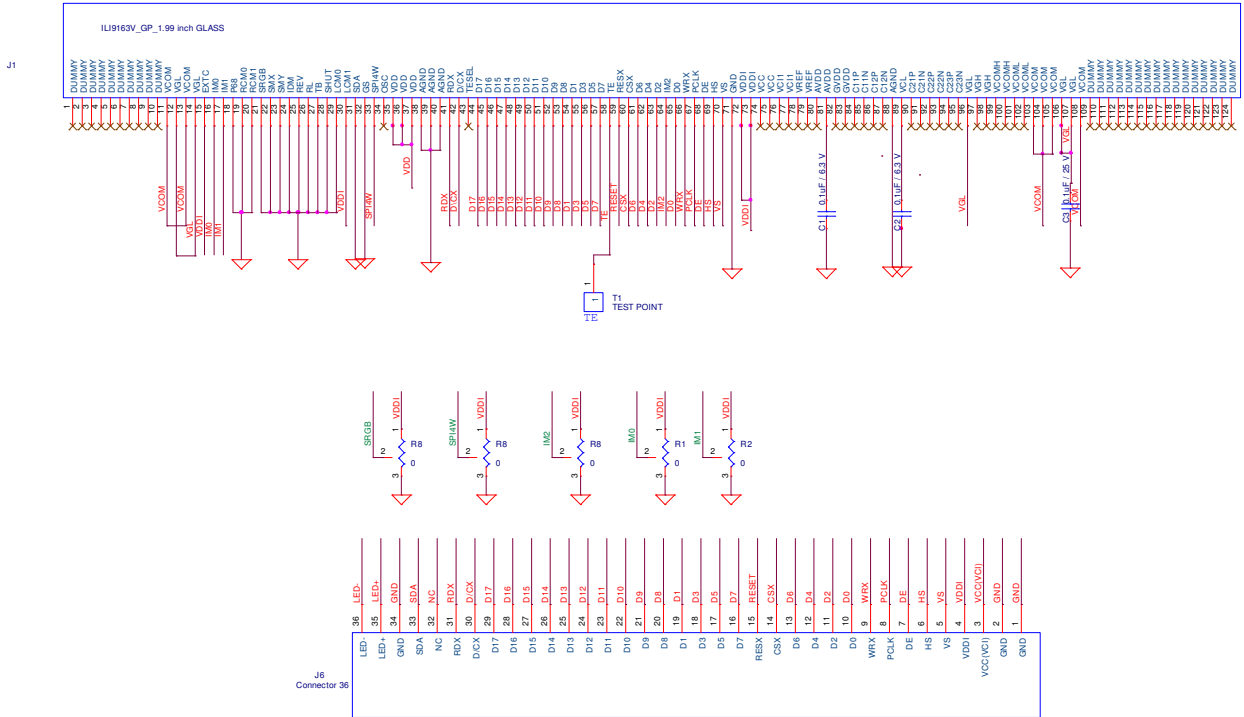
LCD_ILI9163V_INDEX(0x13); //p6

LCD_ILI9163V_INDEX(0x28); //p7

```
LCD_ILI9163V_INDEX(0x60); //p8
LCD_ILI9163V_INDEX(0x3E); //p9
LCD_ILI9163V_INDEX(0x0D); //p10
LCD_ILI9163V_INDEX(0x2A); //p11
LCD_ILI9163V_INDEX(0x2D); //p12
LCD_ILI9163V_INDEX(0x2E); //p13
LCD_ILI9163V_INDEX(0x2F); //p14
LCD_ILI9163V_INDEX(0x3B); //p15

LCD_ILI9163V_CMD(0x11); //Exit Sleep
Delays(120);
LCD_ILI9163V_CMD(0x29); // Display On
}
```

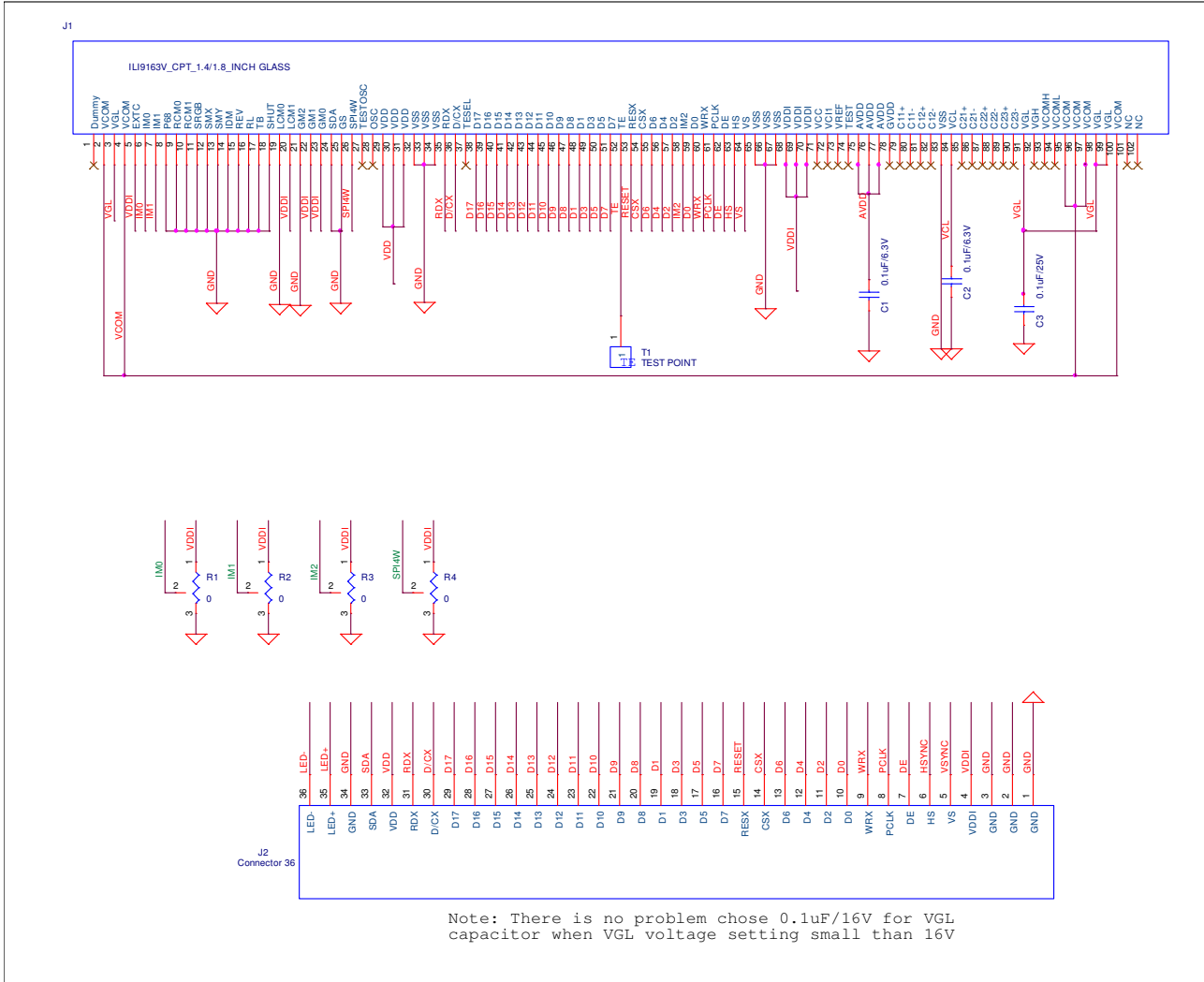
2.0" Panel



Note: There is no problem chose 0.1uF/16V for VGL capacitor when VGL voltage setting small than 16V

5. CPT Panel

1.4"/1.8" Panel



5.1 CPT 1.77 Initial Code

```
void ILI9163V_Initial_CPT1.77(void)
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
delayms(1); // Delay 1ms
LCD_nRESET = 0;
delayms(10); // Delay 10ms // This delay time is necessary
LCD_nRESET = 1;
delayms(120); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_ILI9163V_CMD(0x26); //Set Default Gamma
LCD_ILI9163V_INDEX(0x04);
LCD_ILI9163V_CMD(0xB1); //Set Frame Rate
LCD_ILI9163V_INDEX(0x08);
LCD_ILI9163V_INDEX(0x14);
LCD_ILI9163V_CMD(0xC0); //Set VRH1[4:0] & VC[2:0] for VCI1 & GVDD
LCD_ILI9163V_INDEX(0x08);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_CMD(0xC1); //Set BT[2:0] for AVDD & VCL & VGH & VGL
LCD_ILI9163V_INDEX(0x05);
LCD_ILI9163V_CMD(0xC5); //Set VMH[6:0] & VML[6:0] for VOMH & VCOML
LCD_ILI9163V_INDEX(0x46);
LCD_ILI9163V_INDEX(0x40);
LCD_ILI9163V_CMD(0xC7); // Set VMF
LCD_ILI9163V_INDEX(0xC2);
LCD_ILI9163V_CMD(0x3a); //Set Color Format
LCD_ILI9163V_INDEX(0x05);
LCD_ILI9163V_CMD(0x2A); //Set Column Address
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x7F);
LCD_ILI9163V_CMD(0x2B); //Set Page Address
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
```

```
LCD_ILI9163V_INDEX(0x9F);
LCD_ILI9163V_CMD(0xB4);
LCD_ILI9163V_INDEX(0x00);

LCD_ILI9163V_CMD(0xEC); //Set pumping clock frequency
LCD_ILI9163V_INDEX(0x0C);

LCD_ILI9163V_CMD(0xf2); //Enable Gamma bit
LCD_ILI9163V_INDEX(0x01);

LCD_ILI9163V_CMD(0x36);
LCD_ILI9163V_INDEX(0x08);

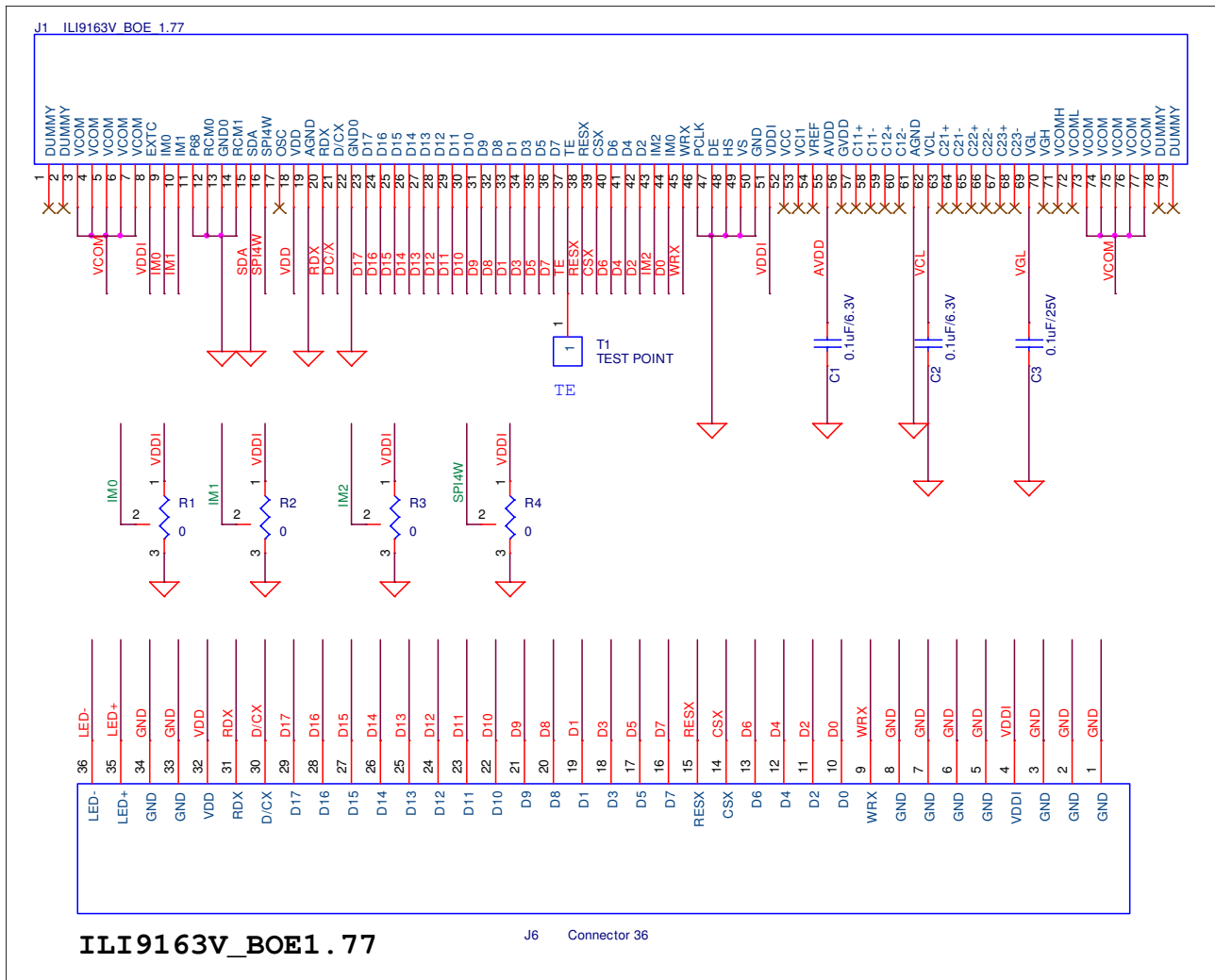
LCD_ILI9163V_CMD(0xE0);
LCD_ILI9163V_INDEX(0x3F); //p1
LCD_ILI9163V_INDEX(0x26); //p2
LCD_ILI9163V_INDEX(0x23); //p3
LCD_ILI9163V_INDEX(0x30); //p4
LCD_ILI9163V_INDEX(0x28); //p5
LCD_ILI9163V_INDEX(0x10); //p6
LCD_ILI9163V_INDEX(0x55); //p7
LCD_ILI9163V_INDEX(0xB7); //p8
LCD_ILI9163V_INDEX(0x40); //p9
LCD_ILI9163V_INDEX(0x19); //p10
LCD_ILI9163V_INDEX(0x10); //p11
LCD_ILI9163V_INDEX(0x1E); //p12
LCD_ILI9163V_INDEX(0x02); //p13
LCD_ILI9163V_INDEX(0x01); //p14
LCD_ILI9163V_INDEX(0x00); //p15
LCD_ILI9163V_CMD(0xE1);
LCD_ILI9163V_INDEX(0x00); //p1
LCD_ILI9163V_INDEX(0x19); //p2
LCD_ILI9163V_INDEX(0x1C); //p3
LCD_ILI9163V_INDEX(0x0F); //p4
LCD_ILI9163V_INDEX(0x14); //p5
LCD_ILI9163V_INDEX(0x0F); //p6
LCD_ILI9163V_INDEX(0x2A); //p7
LCD_ILI9163V_INDEX(0x48); //p8
LCD_ILI9163V_INDEX(0x3F); //p9
```

```
LCD_ILI9163V_INDEX(0x06); //p10  
LCD_ILI9163V_INDEX(0x1D); //p11  
LCD_ILI9163V_INDEX(0x21); //p12  
LCD_ILI9163V_INDEX(0x3d); //p13  
LCD_ILI9163V_INDEX(0x3e); //p14  
LCD_ILI9163V_INDEX(0x3f); //p15
```

```
LCD_ILI9163V_CMD(0x11); //Exit Sleep  
Delaysms(120);  
LCD_ILI9163V_CMD(0x29); // Display On  
}
```

6. BOE Panel

1.8" Panel



6.1 BOE 1.8” Initial Code

```

void ILI9163V_Initial_BOE1.8(void)
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
delayms(1); // Delay 1ms
LCD_nRESET = 0;
delayms(10); // Delay 10ms // This delay time is necessary
LCD_nRESET = 1;
delayms(120); // Delay 120 ms
//***** Start Initial Sequence *****//

LCD_ILI9163V_CMD(0x26); //Set Default Gamma
LCD_ILI9163V_INDEX(0x04);

LCD_ILI9163V_CMD(0xB1);
LCD_ILI9163V_INDEX(0x08);
LCD_ILI9163V_INDEX(0x10);

LCD_ILI9163V_CMD(0xC0); //Set VRH1[4:0] & VC[2:0] for VCI1 & GVDD
LCD_ILI9163V_INDEX(0x02);
LCD_ILI9163V_INDEX(0x00);

LCD_ILI9163V_CMD(0xC1); //Set BT[2:0] for AVDD & VCL & VGH & VGL
LCD_ILI9163V_INDEX(0x02);

LCD_ILI9163V_CMD(0xC5); //Set VMH[6:0] & VML[6:0] for VOMH & VCOML
LCD_ILI9163V_INDEX(0x4C);
LCD_ILI9163V_INDEX(0x5E);

LCD_ILI9163V_CMD(0xC7);
LCD_ILI9163V_INDEX(0x00);

LCD_ILI9163V_CMD(0x3a); //Set Color Format
LCD_ILI9163V_INDEX(0x05);

LCD_ILI9163V_CMD(0x2A); //Set Column Address

```

```
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x7F);

LCD_ILI9163V_CMD(0x2B); //Set Page Address
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x00);
LCD_ILI9163V_INDEX(0x9F);

LCD_ILI9163V_CMD(0x36); //Set Scanning Direction
LCD_ILI9163V_INDEX(0xC0);

LCD_ILI9163V_CMD(0xB7); //Set Source Output Direction
LCD_ILI9163V_INDEX(0x00);

LCD_ILI9163V_CMD(0xEC); //Set pumping clock frequency
LCD_ILI9163V_INDEX(0x0C);

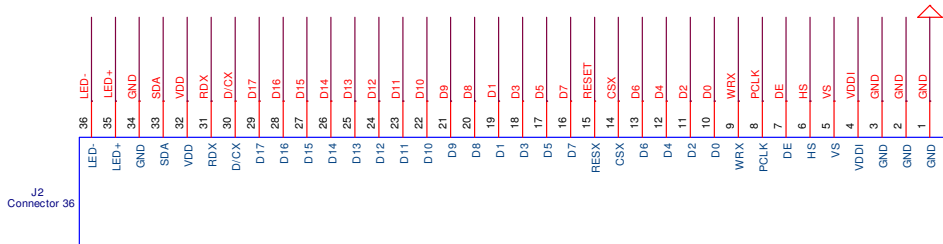
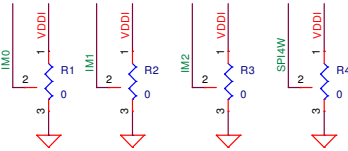
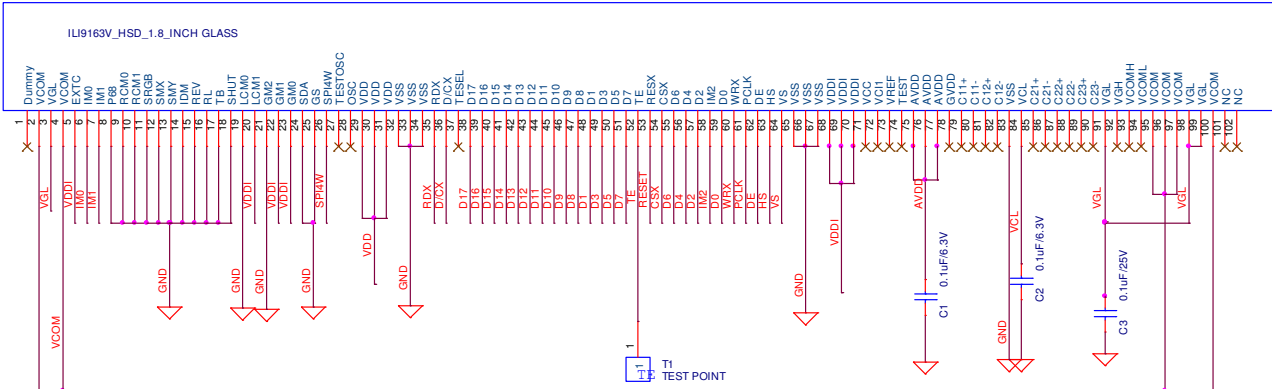
LCD_ILI9163V_CMD(0xf2); //Enable Gamma bit
LCD_ILI9163V_INDEX(0x01);

LCD_ILI9163V_CMD(0xE0);
LCD_ILI9163V_INDEX(0x3F); //p1
LCD_ILI9163V_INDEX(0x22); //p2
LCD_ILI9163V_INDEX(0x20); //p3
LCD_ILI9163V_INDEX(0x24); //p4
LCD_ILI9163V_INDEX(0x20); //p5
LCD_ILI9163V_INDEX(0x0C); //p6
LCD_ILI9163V_INDEX(0x4E); //p7
LCD_ILI9163V_INDEX(0xB7); //p8
LCD_ILI9163V_INDEX(0x3C); //p9
LCD_ILI9163V_INDEX(0x19); //p10
LCD_ILI9163V_INDEX(0x22); //p11
LCD_ILI9163V_INDEX(0x1E); //p12
LCD_ILI9163V_INDEX(0x02); //p13
LCD_ILI9163V_INDEX(0x01); //p14
LCD_ILI9163V_INDEX(0x00); //p15
```

```
LCD_ILI9163V_CMD(0xE1);  
LCD_ILI9163V_INDEX(0x00);//p1  
LCD_ILI9163V_INDEX(0x1B);//p2  
LCD_ILI9163V_INDEX(0x1F);//p3  
LCD_ILI9163V_INDEX(0x0B);//p4  
LCD_ILI9163V_INDEX(0x0F);//p5  
LCD_ILI9163V_INDEX(0x13);//p6  
LCD_ILI9163V_INDEX(0x31);//p7  
LCD_ILI9163V_INDEX(0x84);//p8  
LCD_ILI9163V_INDEX(0x43);//p9  
LCD_ILI9163V_INDEX(0x06);//p10  
LCD_ILI9163V_INDEX(0x1D);//p11  
LCD_ILI9163V_INDEX(0x21);//p12  
LCD_ILI9163V_INDEX(0x3D);//p13  
LCD_ILI9163V_INDEX(0x3E);//p14  
LCD_ILI9163V_INDEX(0x3F);//p15  
  
LCD_ILI9163V_CMD(0x11); //Exit Sleep  
Delayms(120);  
LCD_ILI9163V_CMD(0x29); // Display On  
}
```

7.1 HSD Panel

J1



Note: There is no problem chose 0.1uF/16V for VGL capacitor when VGL voltage setting small than 16V

7. Revision History

Version No.	Date	Page	Description
V1.0	2013/04/25	All	New