

**a-Si TFT LCD Single Chip Driver with
240RGBx320 Resolution and 262K color**

Application Notes

Version: V0.12

Date: May. 6th, 2009

ILI TECHNOLOGY CORP.

8F, No.38, Taiyuan St., Jhubei City, Hsinchu County,

Taiwan 302, R.O.C.

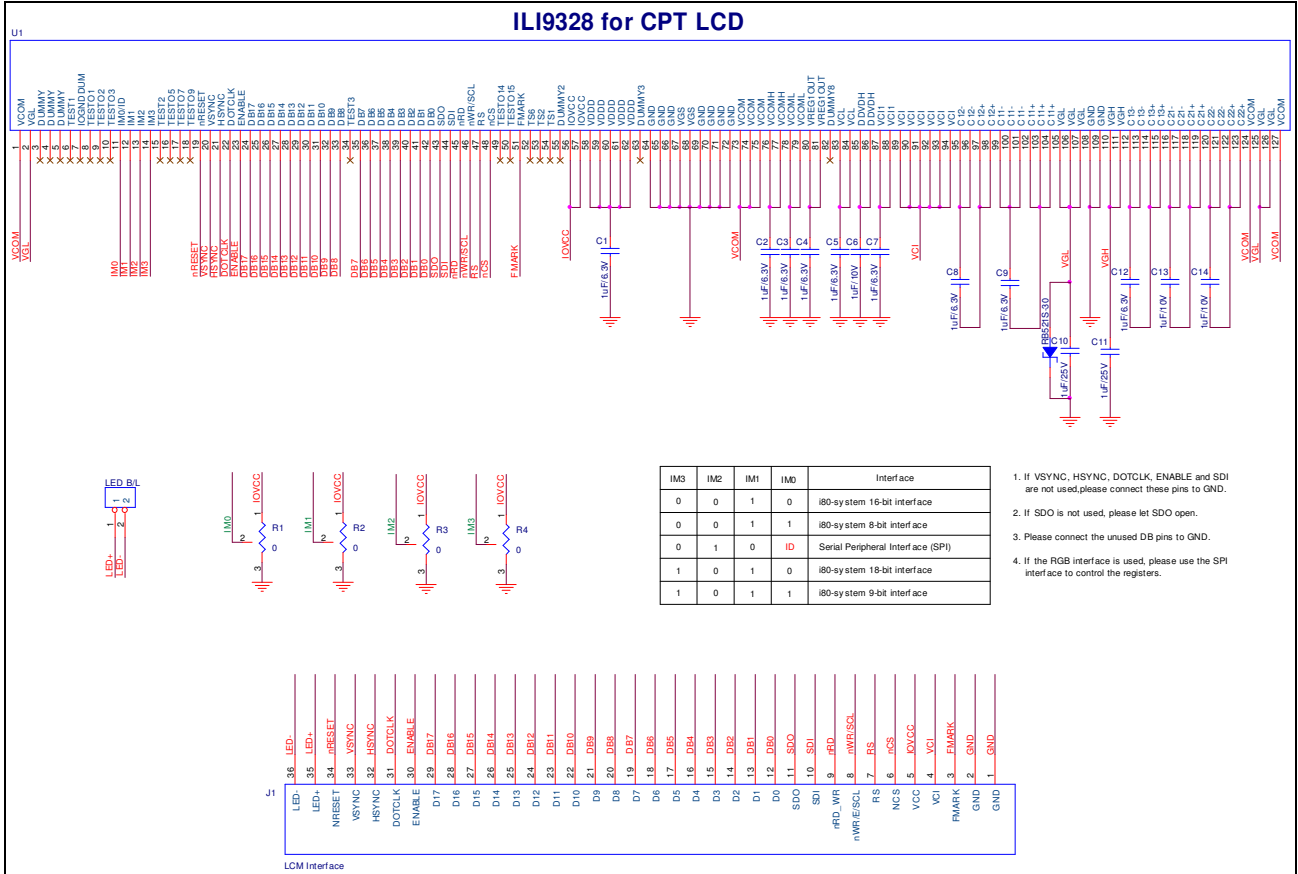
Tel.886-3-5600099; Fax.886-3-56--585

<http://www.ilitek.com>

1. CPT PANEL	3
1.1 CPT 2.4" INITIAL CODE	4
1.2 CPT 2.8" INITIAL CODE	6
2. CMO PANEL	8
2.1 CMO 2.4 INITIAL CODE	10
2.2 CMO 2.8" INITIAL CODE	12
2.3 CMO 3.2" INITIAL CODE	14
3. AUO PANEL	16
3.1 AUO 2.4" INITIAL CODE	17
3.2 AUO 2.6" INITIAL CODE	19
3.3 AUO 2.8" INITIAL CODE	21
4. HITACHI PANEL	23
4.1 HITACHI 2.4" INITIAL CODE	24
5. WINTEK PANEL	26
5.1 WINTEK 2.4" INITIAL CODE	27
5.1 WINTEK 2.8" INITIAL CODE	29
6. LGD PANEL	31
6.1 LGD 2.0" INITIAL CODE	32
6.2 LGD 2.4" INITIAL CODE	34
7. PVI PANEL	36
7.1 PVI 2.4" INITIAL CODE	37
7.2 PVI 2.8" INITIAL CODE	39
8. GP PANEL	41
9. HYDIS PANEL	42
9.1 HYDIS 2.4" INITIAL CODE	43
REVISION HISTORY	45

1. CPT Panel

2.4", 2.6" and 2.8" Panel



1.1 CPT 2.4” Initial Code

void ILI9328_CPT24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001C); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1A00); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0025); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0506);
LCD_CtrlWrite_ILI9328(0x0032, 0x0104);
LCD_CtrlWrite_ILI9328(0x0035, 0x0207);
LCD_CtrlWrite_ILI9328(0x0036, 0x000F);
LCD_CtrlWrite_ILI9328(0x0037, 0x0306);
LCD_CtrlWrite_ILI9328(0x0038, 0x0102);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0702);
LCD_CtrlWrite_ILI9328(0x003D, 0x1604);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
}
```

```

LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
LCD_CtrlWrite_ILI9328(0x006A, 0x0000); // set scrolling line
//----- Partial Display Control -----//
LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

LCD_CtrlWrite_ILI9328(0x0007, 0x0133); // 262K color and display ON
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0080); // SAP, BT[3:0], AP, DSTB, SLP
LCD_CtrlWrite_ILI9328(0x0011, 0x0000); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001C); // Internal reference voltage =Vci;
    delays(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1A00); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0025); // VCM[5:0] for VCOMH
    delays(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0007, 0x0133); // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

```

{
LCD_CtrlWrite_ILI9328(0x0007, 0x0131); // Set D1=0, D0=1
    delays(10);
LCD_CtrlWrite_ILI9328(0x0007, 0x0130); // Set D1=0, D0=0
    delays(10);
LCD_CtrlWrite_ILI9328(0x0007, 0x0000); // display OFF
//***** Power OFF sequence ***** //
LCD_CtrlWrite_ILI9328(0x0010, 0x0080); // SAP, BT[3:0], APE, AP, DSTB, SLP
LCD_CtrlWrite_ILI9328(0x0011, 0x0000); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
    delays(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x0082); // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

1.2 CPT 2.8” Initial Code

void ILI9328_CPT28_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1290); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001A); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1800); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0028); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0305);
LCD_CtrlWrite_ILI9328(0x0032, 0x0003);
LCD_CtrlWrite_ILI9328(0x0035, 0x0304);
LCD_CtrlWrite_ILI9328(0x0036, 0x000F);
LCD_CtrlWrite_ILI9328(0x0037, 0x0407);
LCD_CtrlWrite_ILI9328(0x0038, 0x0204);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0403);
LCD_CtrlWrite_ILI9328(0x003D, 0x1604);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1290);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001A);    // Internal reference voltage =Vci;
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1800);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0028);    // VCM[5:0] for VCOMH
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

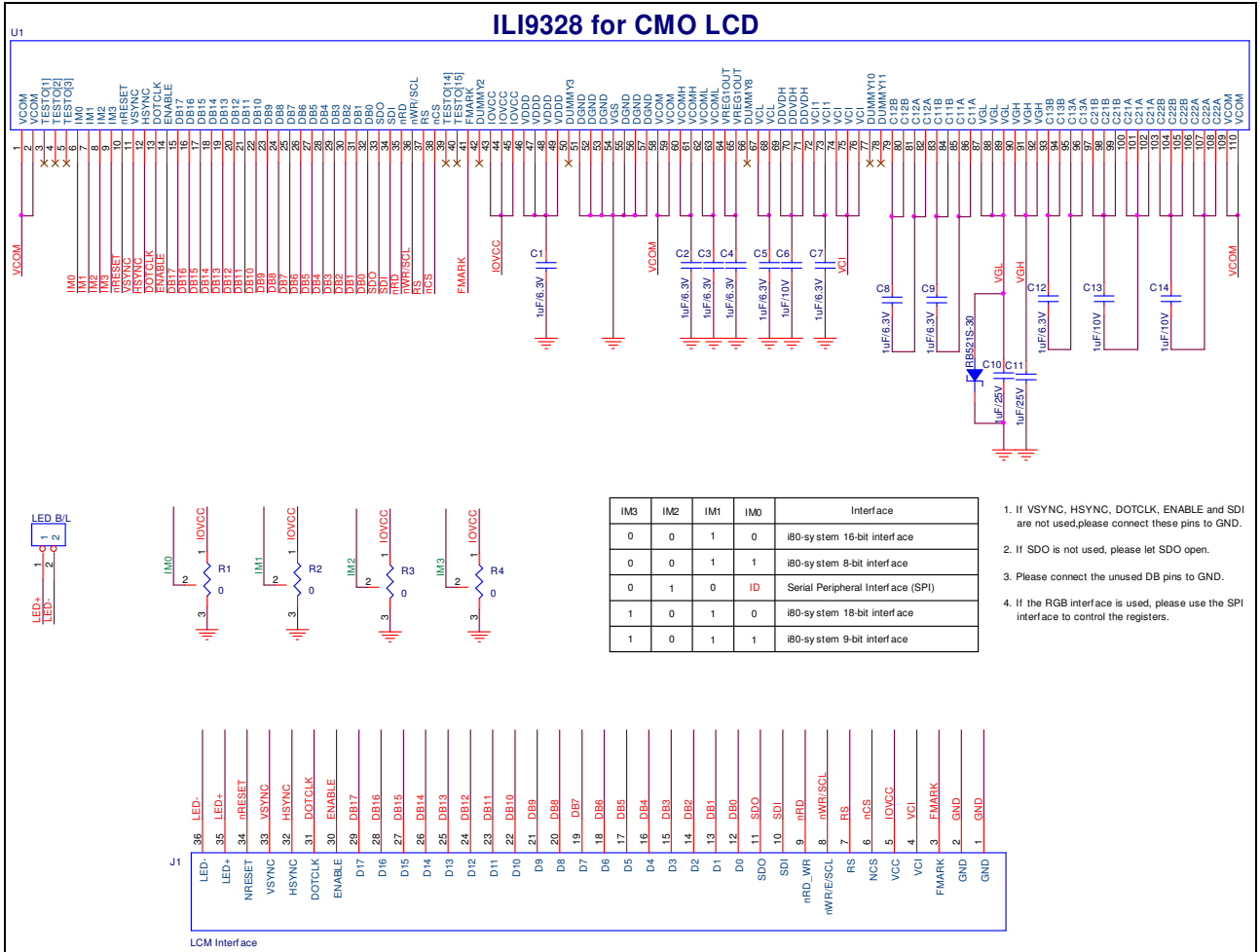
```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

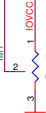
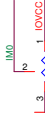
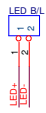
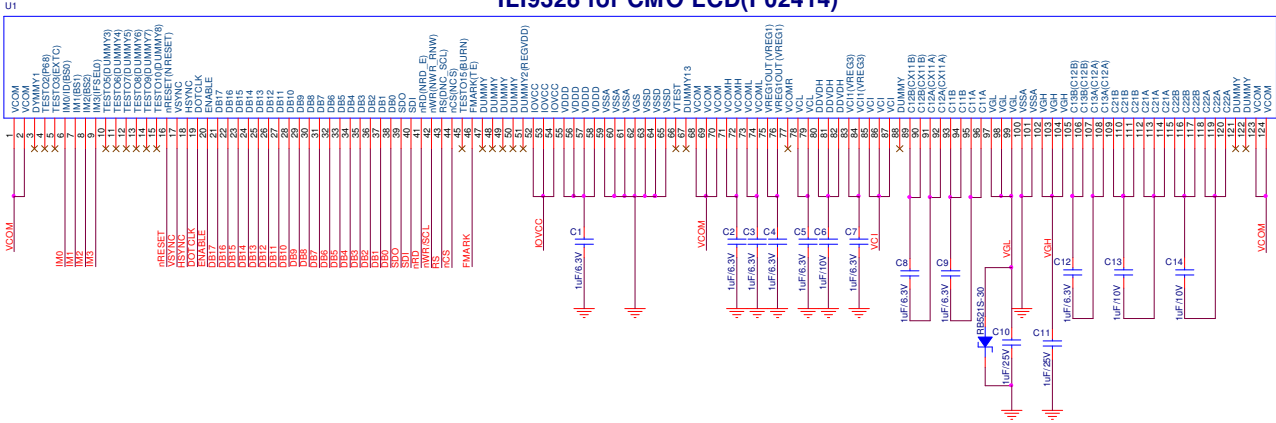
2. CMO Panel

2.4", 2.8" and 3.2" Panel



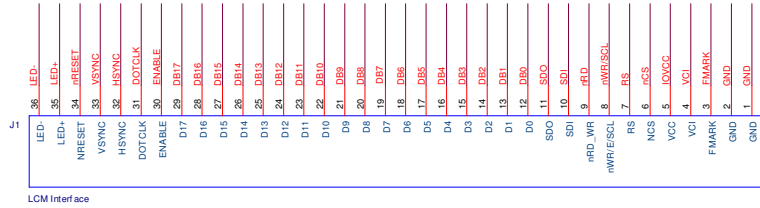
2.4" Panel (F02414-01V)

ILI9328 for CMO LCD(F02414)



IM3	IM2	IM1	IM0	Interface
0	0	1	0	i80-system 16-bit interface
0	0	1	1	i80-system 8-bit interface
0	1	0	0	Serial Peripheral Interface (SPI)
1	0	1	0	i80-system 18-bit interface
1	0	1	1	i80-system 9-bit interface

1. If VSYNC, HSYNC, DOTCLK, ENABLE and SDO are not used, please connect these pins to GND.
2. If SDO is not used, please let SDO open.
3. Please connect the unused DB pins to GND.
4. If the RGB interface is used, please use the SPI interface to control the registers.



2.1 CMO 2.4 Initial Code

void ILI9328_CMO24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0202); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1290); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // Set DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001B); // External reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1900); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x000F); // SetVCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0406);
LCD_CtrlWrite_ILI9328(0x0032, 0x0004);
LCD_CtrlWrite_ILI9328(0x0035, 0x0305);
LCD_CtrlWrite_ILI9328(0x0036, 0x0004);
LCD_CtrlWrite_ILI9328(0x0037, 0x0207);
LCD_CtrlWrite_ILI9328(0x0038, 0x0103);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0503);
LCD_CtrlWrite_ILI9328(0x003D, 0x0004);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1290);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // Set DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001B);    // External reference voltage =Vci;
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1900);    // Set VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x000F);    // Set VCM[5:0] for VCOMH
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

2.2 CMO 2.8" Initial Code

void ILI9328_CMO28_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1690); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001B); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1600); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0018); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0404);
LCD_CtrlWrite_ILI9328(0x0032, 0x0304);
LCD_CtrlWrite_ILI9328(0x0035, 0x0005);
LCD_CtrlWrite_ILI9328(0x0036, 0x1604);
LCD_CtrlWrite_ILI9328(0x0037, 0x0304);
LCD_CtrlWrite_ILI9328(0x0038, 0x0303);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0500);
LCD_CtrlWrite_ILI9328(0x003D, 0x000F);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1690);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // Set DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001B);    // External reference voltage =Vci;
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1600);    // R13h=0x1D00 when R12=009D VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0018);    // R29h=0x0013 when R12=009D VCM[5:0] for VCOMH
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

2.3 CMO 3.2” Initial Code

void ILI9328_CMO32_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1290); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x0019); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1D00); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0028); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0603);
LCD_CtrlWrite_ILI9328(0x0032, 0x0206);
LCD_CtrlWrite_ILI9328(0x0035, 0x0206);
LCD_CtrlWrite_ILI9328(0x0036, 0x0004);
LCD_CtrlWrite_ILI9328(0x0037, 0x0105);
LCD_CtrlWrite_ILI9328(0x0038, 0x0401);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0602);
LCD_CtrlWrite_ILI9328(0x003D, 0x0004);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // ND, VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);    // VDV[4:0] for VCOM amplitude
    delayms(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1290);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delayms(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x0019);    // Internal reference voltage =Vci;
    delayms(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1D00);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0028);    // VCM[5:0] for VCOMH
    delayms(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

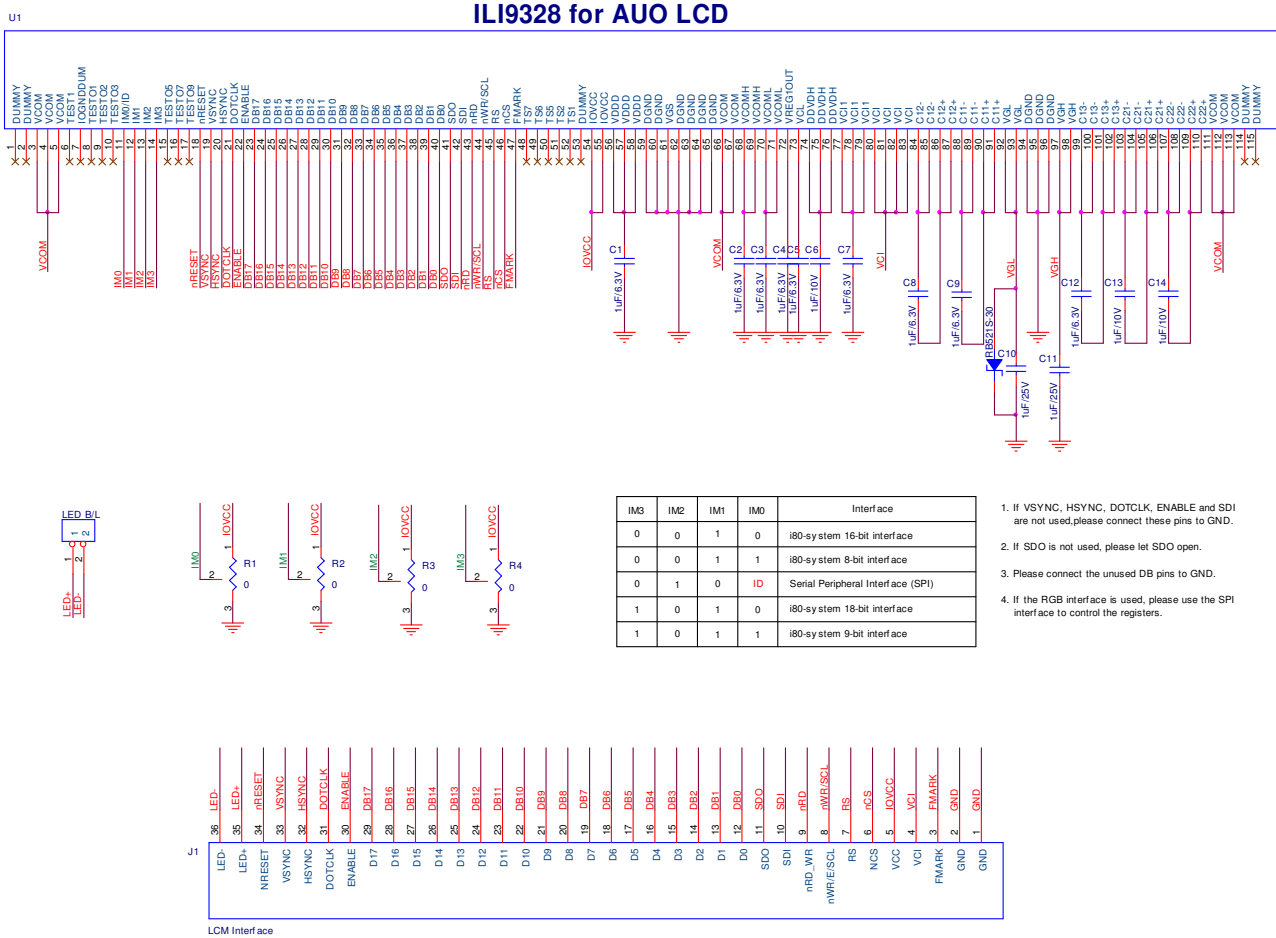
```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delayms(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delayms(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delayms(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

3. AUO Panel

2.4", 2.6" and 2.8" Panel



3.1 AUO 2.4" Initial Code

void ILI9328_AUO24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0202); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1290); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // Set DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x009D); // External reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1A00); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x001D); // VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000D); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0201);
LCD_CtrlWrite_ILI9328(0x0032, 0x0003);
LCD_CtrlWrite_ILI9328(0x0035, 0x0305);
LCD_CtrlWrite_ILI9328(0x0036, 0x0004);
LCD_CtrlWrite_ILI9328(0x0037, 0x0407);
LCD_CtrlWrite_ILI9328(0x0038, 0x0605);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0503);
LCD_CtrlWrite_ILI9328(0x003D, 0x0004);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1290);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x009D);    // External reference voltage =Vci;
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1A00);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x001D);    // VCM[5:0] for VCOMH
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

3.2 AUO 2.6” Initial Code

void ILI9328_AUO26_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0202); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // Set DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001A); // External reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1400); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0020); // VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000D); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0604);
LCD_CtrlWrite_ILI9328(0x0032, 0x0306);
LCD_CtrlWrite_ILI9328(0x0035, 0x0204);
LCD_CtrlWrite_ILI9328(0x0036, 0x1604);
LCD_CtrlWrite_ILI9328(0x0037, 0x0104);
LCD_CtrlWrite_ILI9328(0x0038, 0x0301);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0402);
LCD_CtrlWrite_ILI9328(0x003D, 0x000F);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

LCD_CtrlWrite_ILI9328(0x006A, 0x0000); // set scrolling line
//----- Partial Display Control -----//
LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

LCD_CtrlWrite_ILI9328(0x0007, 0x0133); // 262K color and display ON

```

void LCD_EnterSleep_ILI9328(void)

```

{
LCD_CtrlWrite_ILI9328(0x0007, 0x0131); // Set D1=0, D0=1
delays(10);
LCD_CtrlWrite_ILI9328(0x0007, 0x0130); // Set D1=0, D0=0
delays(10);
LCD_CtrlWrite_ILI9328(0x0007, 0x0000); // display OFF
//***** Power OFF sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0080); // SAP, BT[3:0], APE, AP, DSTB, SLP
LCD_CtrlWrite_ILI9328(0x0011, 0x0000); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
delays(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x0082); // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0080); // SAP, BT[3:0], AP, DSTB, SLP
LCD_CtrlWrite_ILI9328(0x0011, 0x0000); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
delays(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
delays(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001A); // External reference voltage =Vci;
delays(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1400); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0020); // VCM[5:0] for VCOMH
delays(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0007, 0x0133); // 262K color and display ON
}

```

3.3 AUO 2.8" Initial Code

void ILI9328_AUO28_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // Set DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001A); // External reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1400); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0019); // VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0067);
LCD_CtrlWrite_ILI9328(0x0032, 0x0305);
LCD_CtrlWrite_ILI9328(0x0035, 0x0000);
LCD_CtrlWrite_ILI9328(0x0036, 0x1604);
LCD_CtrlWrite_ILI9328(0x0037, 0x0204);
LCD_CtrlWrite_ILI9328(0x0038, 0x0001);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0000);
LCD_CtrlWrite_ILI9328(0x003D, 0x000F);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

void LCD_ExitSleep_ILI9328(void)

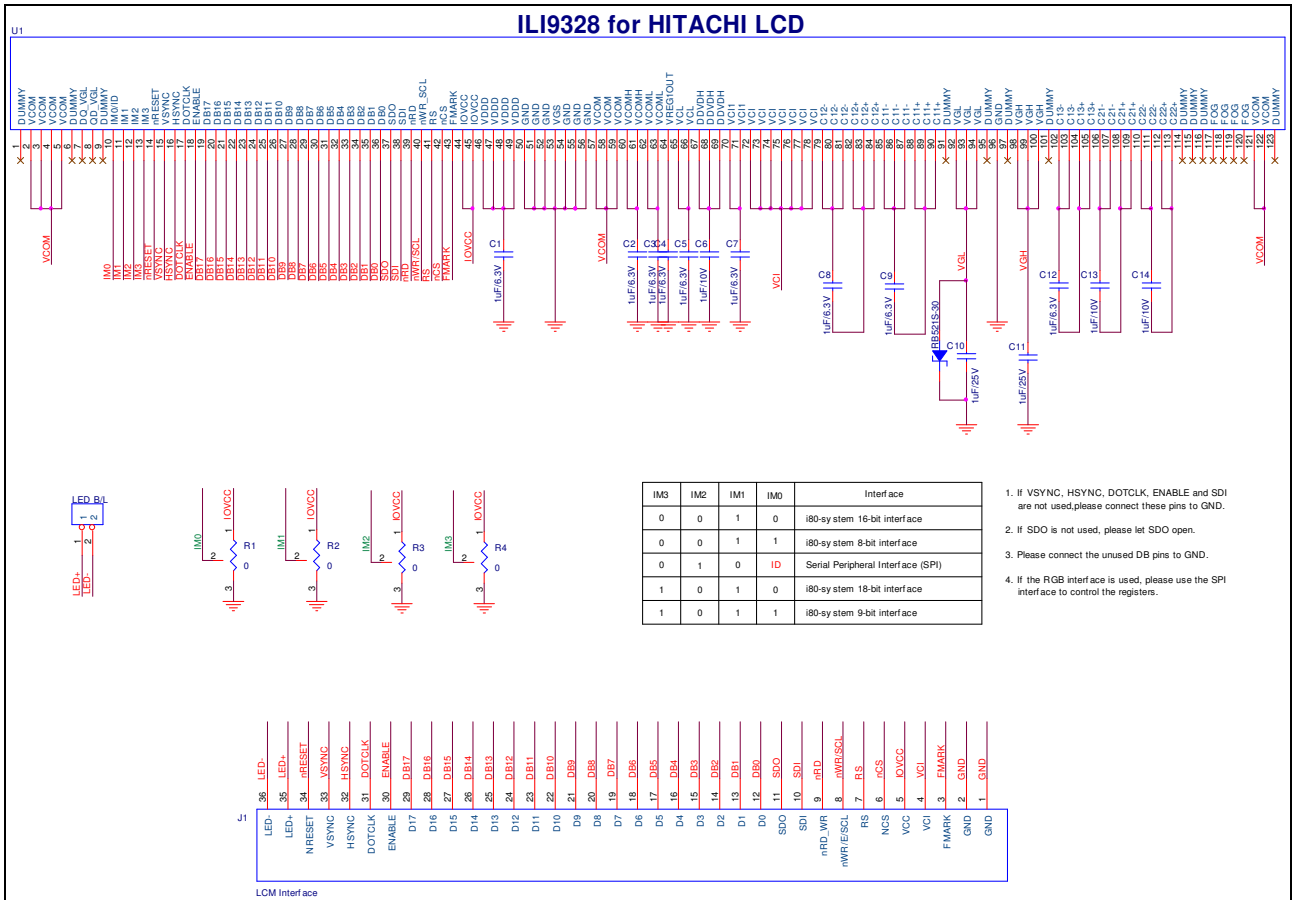
```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1490);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001A);    // External reference voltage =Vci;
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1400);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0019);    // VCM[5:0] for VCOMH
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

4. Hitachi Panel

2.4" Panel



4.1 Hitachi 2.4" Initial Code

void ILI9328_HITACHI24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0221); // R11h=0x0221 at VCI=3.3V, DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x0018); // External reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1100); // R13=1D00 when R12=009D;VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0011); // R29=0013 when R12=009D;VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0004);
LCD_CtrlWrite_ILI9328(0x0032, 0x0200);
LCD_CtrlWrite_ILI9328(0x0035, 0x0107);
LCD_CtrlWrite_ILI9328(0x0036, 0x1606);
LCD_CtrlWrite_ILI9328(0x0037, 0x0705);
LCD_CtrlWrite_ILI9328(0x0038, 0x0307);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0701);
LCD_CtrlWrite_ILI9328(0x003D, 0x040F);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```



```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1490);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0221);    // R11h=0x0221 at VCI=3.3V DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x0018);    // External reference voltage =Vci;
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1100);    // R13h=0x1D00 when R12=009D VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0011);    // R29h=0x0013 when R12=009D VCM[5:0] for VCOMH
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

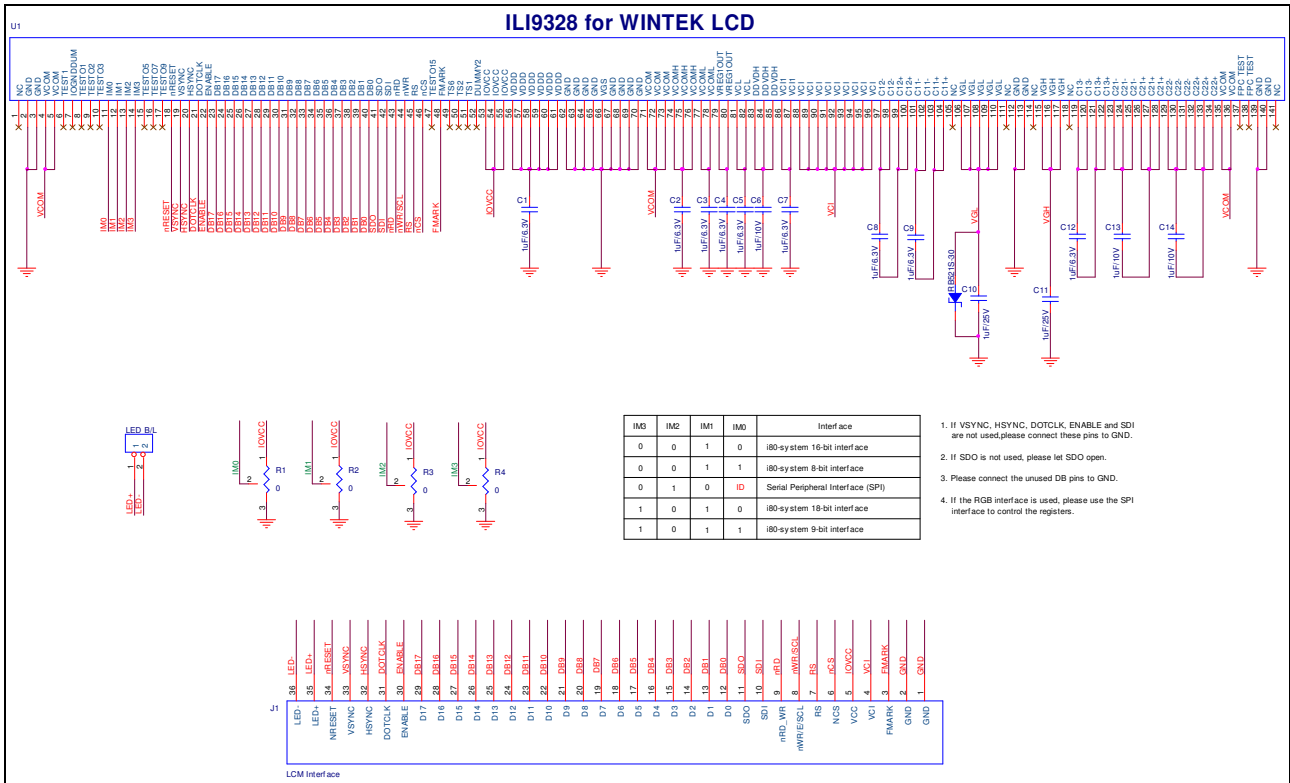
```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

5. Wintek Panel

2.4" and 2.8" Panel



The information contained herein is the exclusive property of ILI Technology Corp. and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission of ILI Technology Corp.

5.1 Wintek 2.4" Initial Code

void ILI9328_WTK24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1290); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // Set DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001A); // External reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1600); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x001D); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0204);
LCD_CtrlWrite_ILI9328(0x0031, 0x0507);
LCD_CtrlWrite_ILI9328(0x0032, 0x0204);
LCD_CtrlWrite_ILI9328(0x0035, 0x0107);
LCD_CtrlWrite_ILI9328(0x0036, 0x0207);
LCD_CtrlWrite_ILI9328(0x0037, 0x0305);
LCD_CtrlWrite_ILI9328(0x0038, 0x0002);
LCD_CtrlWrite_ILI9328(0x0039, 0x0305);
LCD_CtrlWrite_ILI9328(0x003C, 0x0701);
LCD_CtrlWrite_ILI9328(0x003D, 0x060A);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

void LCD_ExitSleep_ILI9328(void)

```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, STB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1290);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // R11h=0x0227 at VCI=3.3V DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001A);    // External reference voltage =Vci;
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1600);    // Set VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x001D);    // Set VCM[5:0] for VCOMH
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

5.1 Wintek 2.8" Initial Code

void ILI9328_WTK28_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1690); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // Set DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001A); // External reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1800); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x002A); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000D); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0007);
LCD_CtrlWrite_ILI9328(0x0031, 0x0605);
LCD_CtrlWrite_ILI9328(0x0032, 0x0106);
LCD_CtrlWrite_ILI9328(0x0035, 0x0206);
LCD_CtrlWrite_ILI9328(0x0036, 0x0808);
LCD_CtrlWrite_ILI9328(0x0037, 0x0007);
LCD_CtrlWrite_ILI9328(0x0038, 0x0201);
LCD_CtrlWrite_ILI9328(0x0039, 0x0007);
LCD_CtrlWrite_ILI9328(0x003C, 0x0602);
LCD_CtrlWrite_ILI9328(0x003D, 0x0808);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

```

void LCD_EnterSleep_ILI9328(void)

```

{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

void LCD_ExitSleep_ILI9328(void)

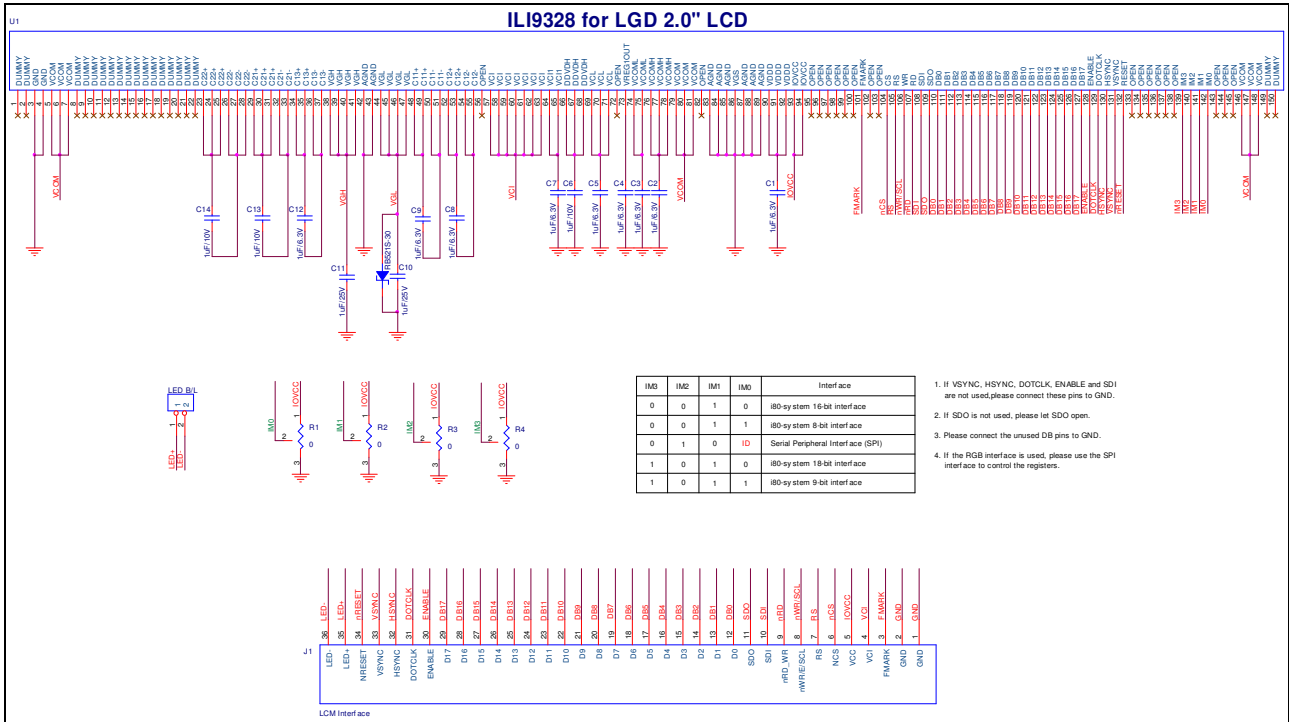
```

{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, STB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1690);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // R11h=0x0227 at VCI=3.3V DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001A);    // External reference voltage =Vci;
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1800);    // Set VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x002A);    // Set VCM[5:0] for VCOMH
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

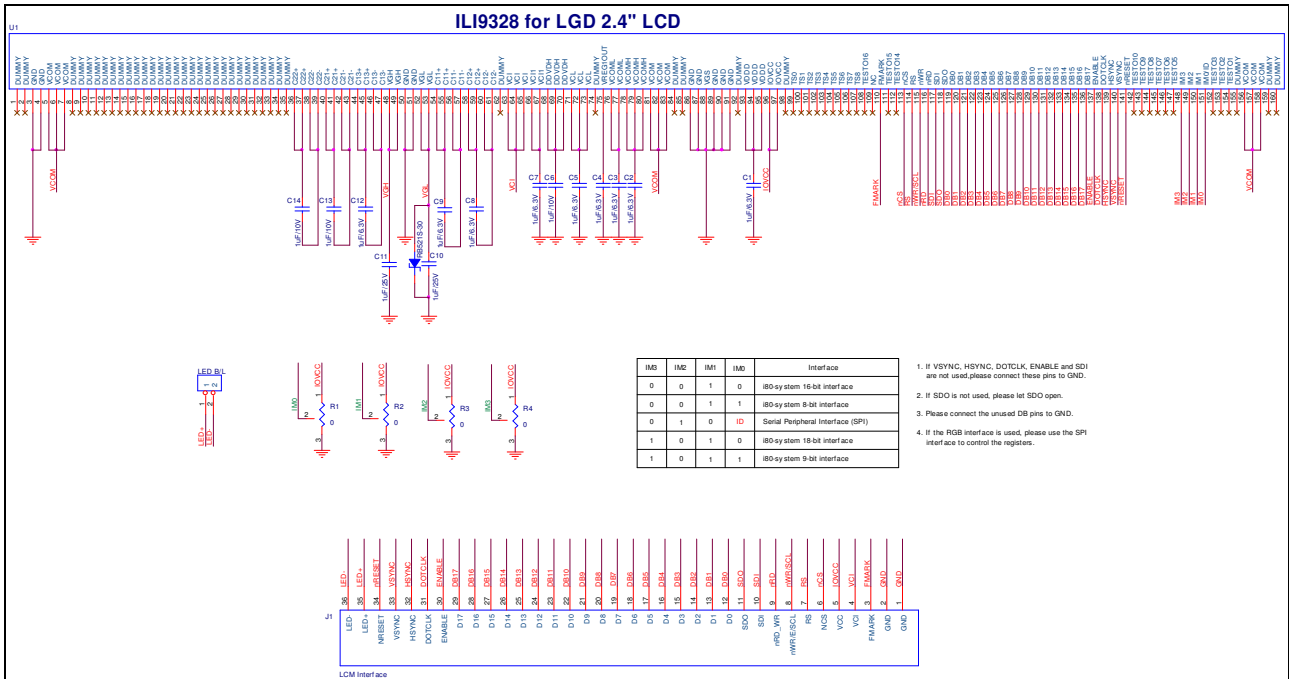
```

6. LGD Panel

2.0" Panel



2.4" Panel



6.1 LGD 2.0” Initial Code

void ILI9328_LGD20_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x0019); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1000); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0013); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0707);
LCD_CtrlWrite_ILI9328(0x0032, 0x0307);
LCD_CtrlWrite_ILI9328(0x0035, 0x0200);
LCD_CtrlWrite_ILI9328(0x0036, 0x0008);
LCD_CtrlWrite_ILI9328(0x0037, 0x0004);
LCD_CtrlWrite_ILI9328(0x0038, 0x0000);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0002);
LCD_CtrlWrite_ILI9328(0x003D, 0x0804);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // NDL,VLE, REV
}
```



```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_ExitSleep_ILI9328(void)
{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1490);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x0019);    // Internal reference voltage =Vci;
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0013);    // VCM[5:0] for VCOMH
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_EnterSleep_ILI9328(void)
{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

6.2 LGD 2.4" Initial Code

void ILI9328_LGD24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1190); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001C); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1A00); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0011); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0003);
LCD_CtrlWrite_ILI9328(0x0031, 0x0705);
LCD_CtrlWrite_ILI9328(0x0032, 0x0007);
LCD_CtrlWrite_ILI9328(0x0035, 0x0007);
LCD_CtrlWrite_ILI9328(0x0036, 0x000F);
LCD_CtrlWrite_ILI9328(0x0037, 0x0007);
LCD_CtrlWrite_ILI9328(0x0038, 0x0200);
LCD_CtrlWrite_ILI9328(0x0039, 0x0407);
LCD_CtrlWrite_ILI9328(0x003C, 0x0700);
LCD_CtrlWrite_ILI9328(0x003D, 0x1604);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // ND,L,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

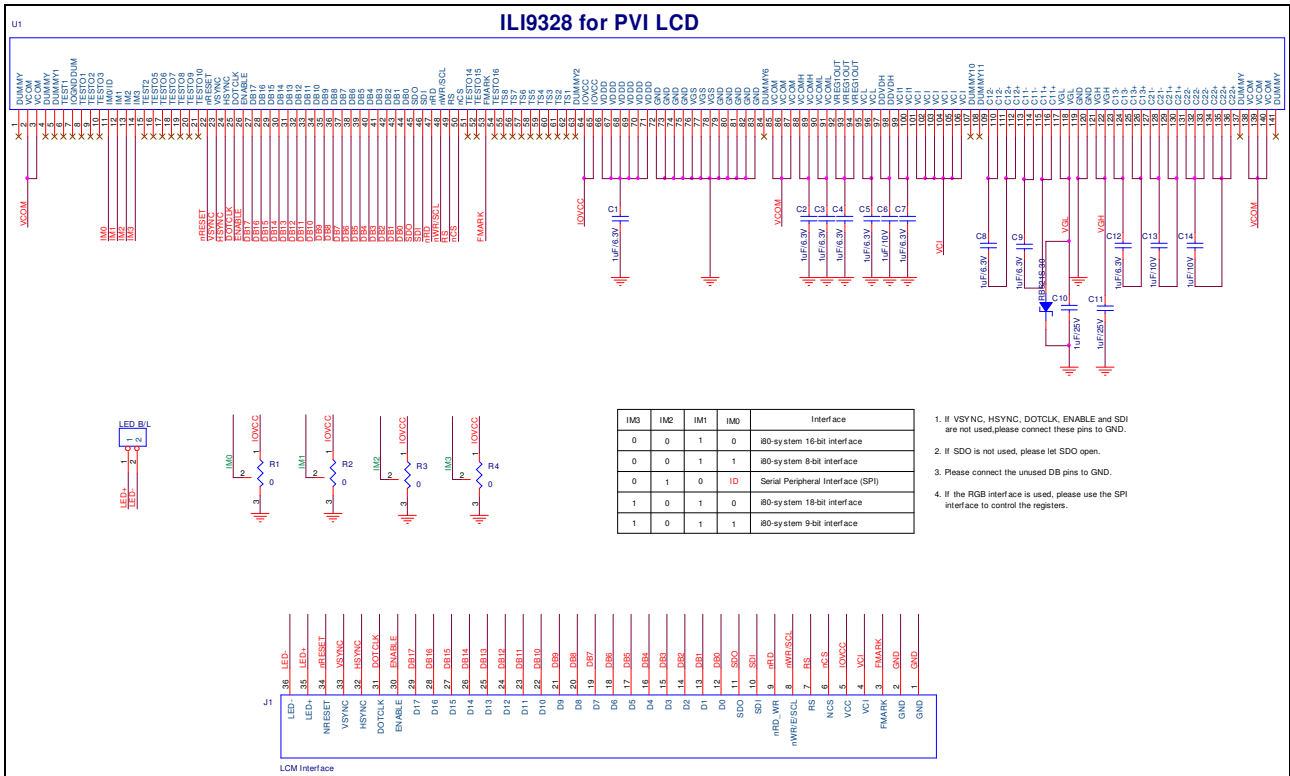
void LCD_ExitSleep_ILI9328(void)
{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delayms(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1190);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delayms(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001C);    // Internal reference voltage =Vci;
    delayms(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1A00);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0011);    // VCM[5:0] for VCOMH
    delayms(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_EnterSleep_ILI9328(void)
{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delayms(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delayms(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delayms(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP

```

7. PVI Panel

2.4" & 2.8" Panel



7.1 PVI 2.4” Initial Code

void ILI9328_PVI24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1690); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x009D); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1800); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0024); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000D); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0404);
LCD_CtrlWrite_ILI9328(0x0032, 0x0004);
LCD_CtrlWrite_ILI9328(0x0035, 0x0305);
LCD_CtrlWrite_ILI9328(0x0036, 0x0004);
LCD_CtrlWrite_ILI9328(0x0037, 0x0307);
LCD_CtrlWrite_ILI9328(0x0038, 0x0303);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0503);
LCD_CtrlWrite_ILI9328(0x003D, 0x0004);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // ND,L,VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_ExitSleep_ILI9328(void)
{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1690);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x009D);    // Internal reference voltage =Vci;
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1800);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0024);    // VCM[5:0] for VCOMH
    delays(50);                               // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_EnterSleep_ILI9328(void)
{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                               // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

7.2 PVI 2.8” Initial Code

void ILI9328_PVI28_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1290); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001B); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1100); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0019); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000C); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0204);
LCD_CtrlWrite_ILI9328(0x0032, 0x0200);
LCD_CtrlWrite_ILI9328(0x0035, 0x0007);
LCD_CtrlWrite_ILI9328(0x0036, 0x1404);
LCD_CtrlWrite_ILI9328(0x0037, 0x0705);
LCD_CtrlWrite_ILI9328(0x0038, 0x0305);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0701);
LCD_CtrlWrite_ILI9328(0x003D, 0x000E);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // ND, VLE, REV
}
```



```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

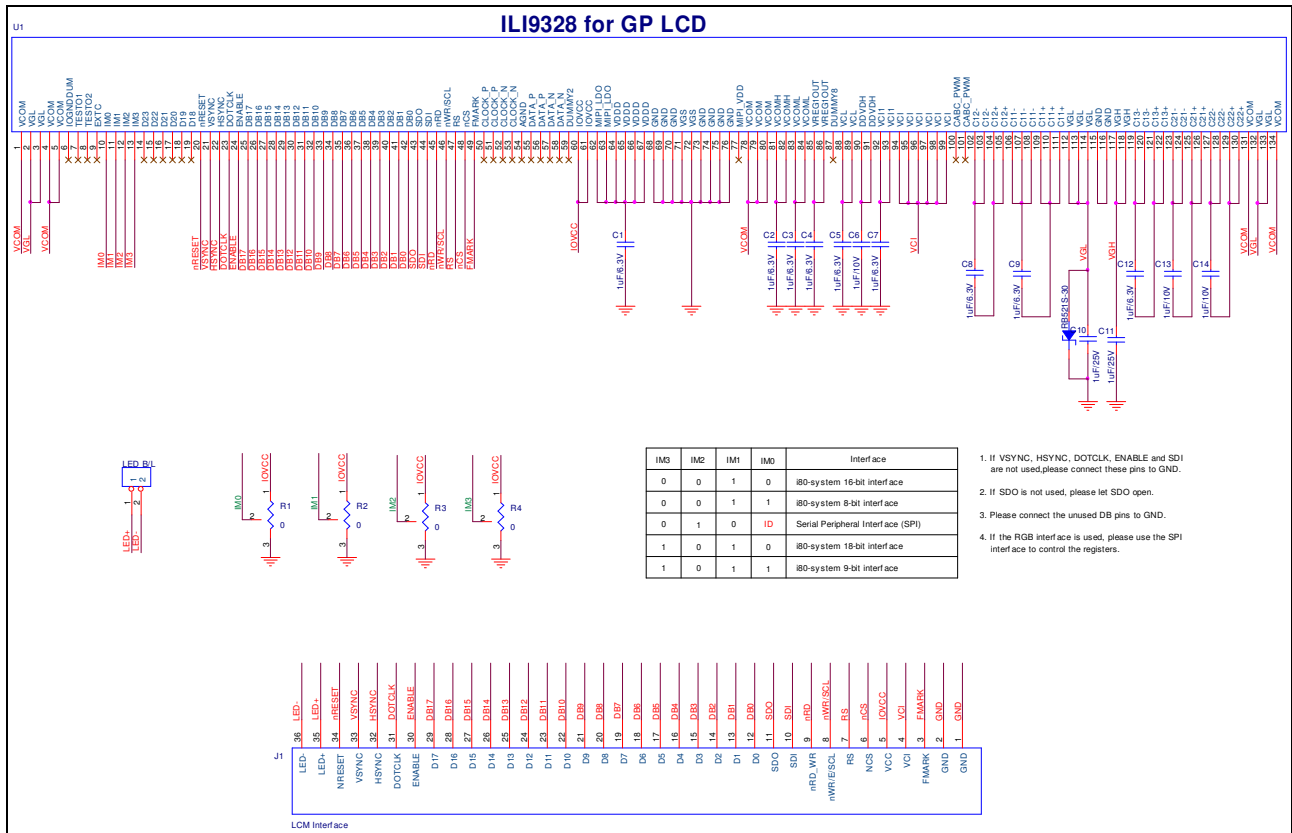
void LCD_ExitSleep_ILI9328(void)
{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1290);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001B);    // Internal reference voltage =Vci;
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1100);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0019);    // VCM[5:0] for VCOMH
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_EnterSleep_ILI9328(void)
{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

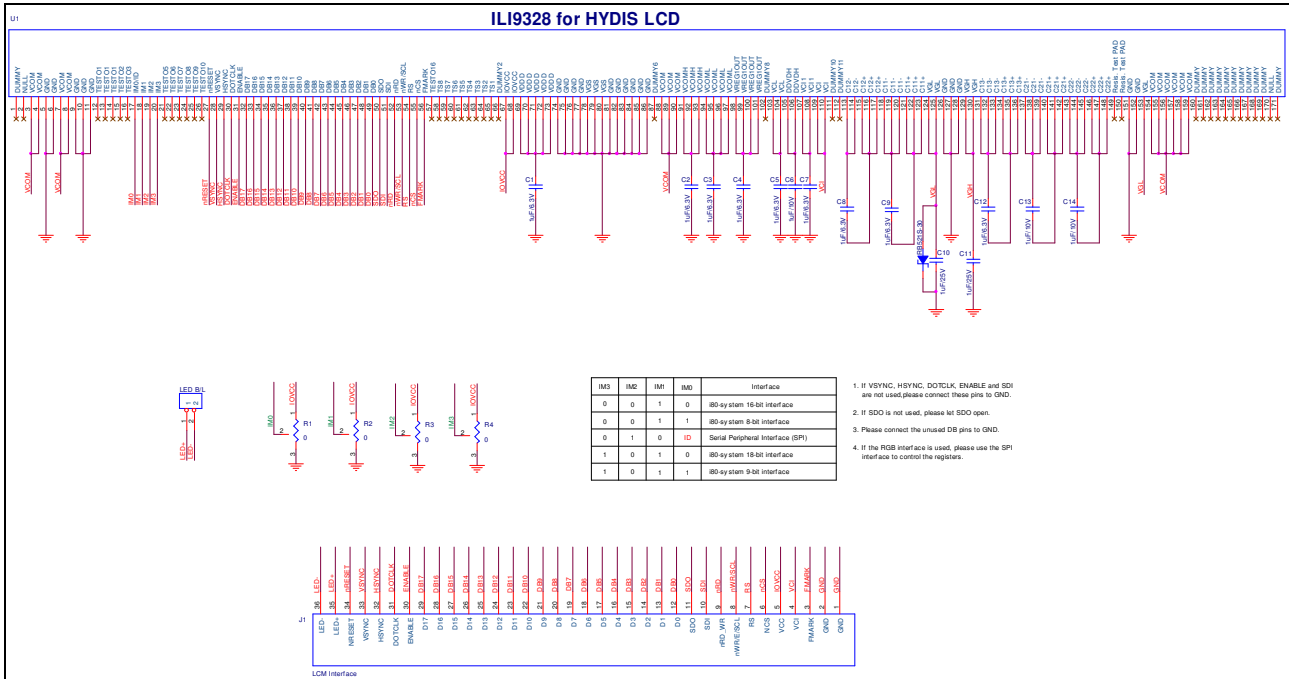

8. GP Panel

2.2" and 2.4" Panel



9. HYDIS Panel

2.2" and 2.4" Panel



9.1 HYDIS 2.4" Initial Code

void ILI9328_HYDIS24_Initial(void)

```
{
// VCI=2.8V
//***** Reset LCD Driver *****//
LCD_nRESET = 1;
    delaysms(1); // Delay 1ms
LCD_nRESET = 0;
    delaysms(10); // Delay 10ms           // This delay time is necessary
LCD_nRESET = 1;
    delaysms(50); // Delay 50 ms
//***** Start Initial Sequence *****//
LCD_CtrlWrite_ILI9328(0x0001, 0x0100); // set SS and SM bit
LCD_CtrlWrite_ILI9328(0x0002, 0x0700); // set 1 line inversion
LCD_CtrlWrite_ILI9328(0x0003, 0x1030); // set GRAM write direction and BGR=1.
LCD_CtrlWrite_ILI9328(0x0004, 0x0000); // Resize register
LCD_CtrlWrite_ILI9328(0x0008, 0x0207); // set the back porch and front porch
LCD_CtrlWrite_ILI9328(0x0009, 0x0000); // set non-display area refresh cycle ISC[3:0]
LCD_CtrlWrite_ILI9328(0x000A, 0x0000); // FMARK function
LCD_CtrlWrite_ILI9328(0x000C, 0x0000); // RGB interface setting
LCD_CtrlWrite_ILI9328(0x000D, 0x0000); // Frame marker Position
LCD_CtrlWrite_ILI9328(0x000F, 0x0000); // RGB interface polarity
//*****Power On sequence *****//
LCD_CtrlWrite_ILI9328(0x0010, 0x0000); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0007); // DC1[2:0], DC0[2:0], VC[2:0]
LCD_CtrlWrite_ILI9328(0x0012, 0x0000); // VREG1OUT voltage
LCD_CtrlWrite_ILI9328(0x0013, 0x0000); // VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delaysms(200); // Dis-charge capacitor power voltage
LCD_CtrlWrite_ILI9328(0x0010, 0x1490); // SAP, BT[3:0], AP, DSTB, SLP, STB
LCD_CtrlWrite_ILI9328(0x0011, 0x0227); // DC1[2:0], DC0[2:0], VC[2:0]
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0012, 0x001C); // Internal reference voltage= Vci;
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0013, 0x1400); // Set VDV[4:0] for VCOM amplitude
LCD_CtrlWrite_ILI9328(0x0029, 0x0012); // Set VCM[5:0] for VCOMH
LCD_CtrlWrite_ILI9328(0x002B, 0x000D); // Set Frame Rate
    delaysms(50); // Delay 50ms
LCD_CtrlWrite_ILI9328(0x0020, 0x0000); // GRAM horizontal Address
LCD_CtrlWrite_ILI9328(0x0021, 0x0000); // GRAM Vertical Address
// ----- Adjust the Gamma Curve -----//
LCD_CtrlWrite_ILI9328(0x0030, 0x0000);
LCD_CtrlWrite_ILI9328(0x0031, 0x0203);
LCD_CtrlWrite_ILI9328(0x0032, 0x0001);
LCD_CtrlWrite_ILI9328(0x0035, 0x0205);
LCD_CtrlWrite_ILI9328(0x0036, 0x030C);
LCD_CtrlWrite_ILI9328(0x0037, 0x0607);
LCD_CtrlWrite_ILI9328(0x0038, 0x0405);
LCD_CtrlWrite_ILI9328(0x0039, 0x0707);
LCD_CtrlWrite_ILI9328(0x003C, 0x0502);
LCD_CtrlWrite_ILI9328(0x003D, 0x1008);
//----- Set GRAM area -----//
LCD_CtrlWrite_ILI9328(0x0050, 0x0000); // Horizontal GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0051, 0x00EF); // Horizontal GRAM End Address
LCD_CtrlWrite_ILI9328(0x0052, 0x0000); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0053, 0x013F); // Vertical GRAM Start Address
LCD_CtrlWrite_ILI9328(0x0060, 0xA700); // Gate Scan Line
LCD_CtrlWrite_ILI9328(0x0061, 0x0001); // ND, VLE, REV
}
```

```

    LCD_CtrlWrite_ILI9328(0x006A, 0x0000);    // set scrolling line
//----- Partial Display Control -----//
    LCD_CtrlWrite_ILI9328(0x0080, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0081, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0082, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0083, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0084, 0x0000);
    LCD_CtrlWrite_ILI9328(0x0085, 0x0000);
//----- Panel Control -----//
    LCD_CtrlWrite_ILI9328(0x0090, 0x0010);
    LCD_CtrlWrite_ILI9328(0x0092, 0x0600);

    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_ExitSleep_ILI9328(void)
{
//*****Power On sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0007, 0x0001);
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x1490);    // SAP, BT[3:0], AP, DSTB, SLP, STB
    LCD_CtrlWrite_ILI9328(0x0011, 0x0227);    // DC1[2:0], DC0[2:0], VC[2:0]
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0012, 0x001C);    // Internal reference voltage =Vci;
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0013, 0x1400);    // VDV[4:0] for VCOM amplitude
    LCD_CtrlWrite_ILI9328(0x0029, 0x0012);    // VCM[5:0] for VCOMH
    delays(50);                                // Delay 50ms
    LCD_CtrlWrite_ILI9328(0x0007, 0x0133);    // 262K color and display ON
}

void LCD_EnterSleep_ILI9328(void)
{
    LCD_CtrlWrite_ILI9328(0x0007, 0x0131);    // Set D1=0, D0=1
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0130);    // Set D1=0, D0=0
    delays(10);
    LCD_CtrlWrite_ILI9328(0x0007, 0x0000);    // display OFF
//***** Power OFF sequence *****//
    LCD_CtrlWrite_ILI9328(0x0010, 0x0080);    // SAP, BT[3:0], APE, AP, DSTB, SLP
    LCD_CtrlWrite_ILI9328(0x0011, 0x0000);    // DC1[2:0], DC0[2:0], VC[2:0]
    LCD_CtrlWrite_ILI9328(0x0012, 0x0000);    // VREG1OUT voltage
    LCD_CtrlWrite_ILI9328(0x0013, 0x0000);    // VDV[4:0] for VCOM amplitude
    delays(200);                                // Dis-charge capacitor power voltage
    LCD_CtrlWrite_ILI9328(0x0010, 0x0082);    // SAP, BT[3:0], APE, AP, DSTB, SLP
}

```

Revision History

Revision History

Version No.	Date	Page	Description
V0.1	2009/02/11		New
V0.12	2009/05/06		Modify Schottky diode connected method