ILITEK
I Love Innovation

ILI9486

a-Si TFT LCD Single Chip Driver with 320RGBx480 Resolution and 262K color

Preliminary

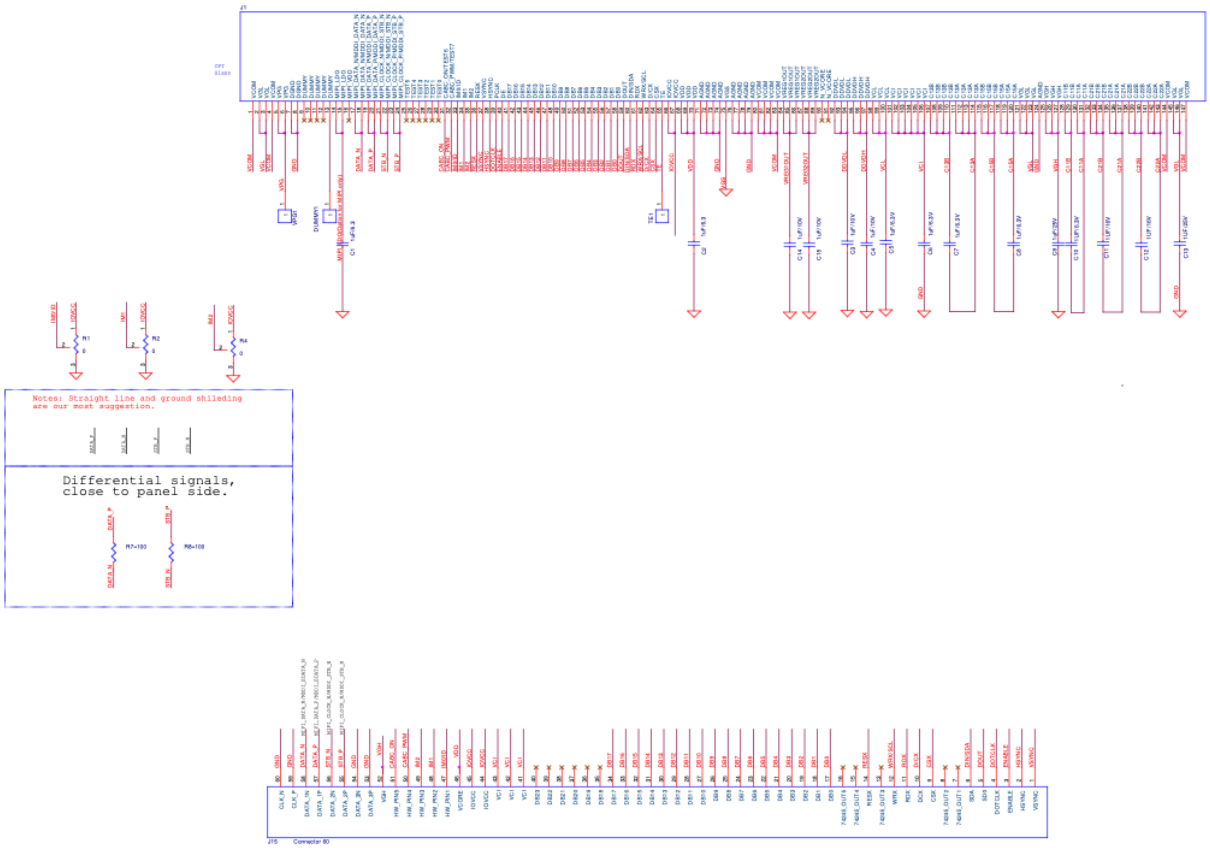
Application Notes

Version: Preliminary V0.6
Date: Aug. 16st 2011

ILI TECHNOLOGY CORP.
8F., No.38, Taiyuan St., Jhubei City, Hsinchu County 302, Taiwan (R.O.C.)
Tel.886-3-5600099; Fax.886-3-5600055
http://www.ilitek.com

1. CPT 3.5 Inch Panel

1.1 Application circuit



1.2CPT 3.5 Inch Initial Code

Void ILI9486_CPT_Initial_Code(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_ILI9486_CMD(0XF2);
LCD_ILI9486_INDEX(0x18);
LCD_ILI9486_INDEX(0xA3);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0x02);
LCD_ILI9486_INDEX(0XB2);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0xFF);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0XF8);
LCD_ILI9486_INDEX(0x21);
LCD_ILI9486_INDEX(0x04);

LCD_ILI9486_CMD(0XF9);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0x36);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0xB4);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0xC1);
```

```
LCD_ILI9486_CMD(0xC5);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x53);
LCD_ILI9486_CMD(0xE0);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x1B);
LCD_ILI9486_INDEX(0x18);
LCD_ILI9486_INDEX(0x0B);
LCD_ILI9486_INDEX(0x0E);
LCD_ILI9486_INDEX(0x09);
LCD_ILI9486_INDEX(0x47);
LCD_ILI9486_INDEX(0x94);
LCD_ILI9486_INDEX(0x35);
LCD_ILI9486_INDEX(0x0A);
LCD_ILI9486_INDEX(0x13);
LCD_ILI9486_INDEX(0x05);
LCD_ILI9486_INDEX(0x08);
LCD_ILI9486_INDEX(0x03);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0XE1);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x3A);
LCD_ILI9486_INDEX(0x37);
LCD_ILI9486_INDEX(0x0B);
LCD_ILI9486_INDEX(0x0C);
LCD_ILI9486_INDEX(0x05);
LCD_ILI9486_INDEX(0x4A);
LCD_ILI9486_INDEX(0x24);
LCD_ILI9486_INDEX(0x39);
LCD_ILI9486_INDEX(0x07);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x04);
LCD_ILI9486_INDEX(0x27);
LCD_ILI9486_INDEX(0x25);
LCD_ILI9486_INDEX(0x00);
```

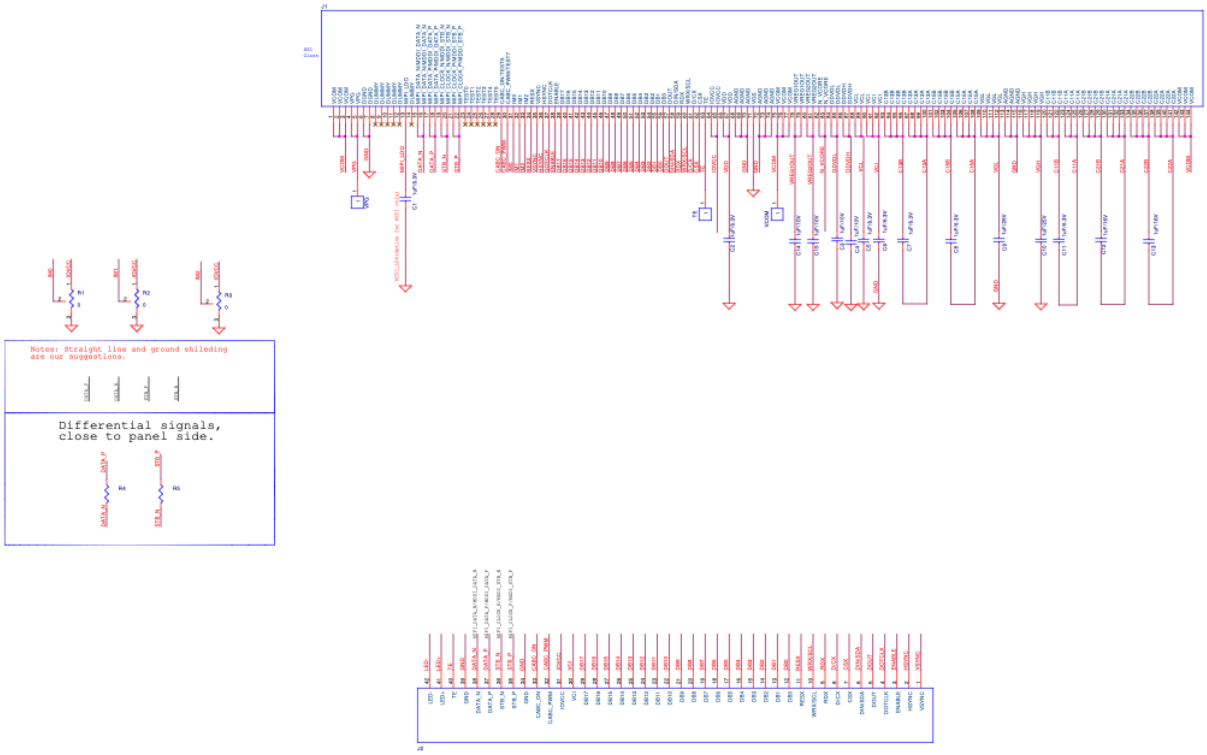
```
Delayms(120);
LCD_ILI9486_CMD(0x29);
}

Void ILI9486_EnterSleep_Code(void)
{
LCD_ILI9486_CMD(0x28)
Delayms(10);
LCD_ILI9486_CMD(0x10);    // Set_address_mode
Delayms(120);
}


Void ILI9486_ExitSleep_Code(void)
{
LCD_ILI9486_CMD(0x11);    // Set_address_mode
Delayms(120);
LCD_ILI9486_CMD(0x29)
}
```

2.HSD

2.1 HSD 3.5 INCH FPC



2.2 HSD 3.5 Inch Initial Code

```
Void ILI9486_HSD_Initial_Code(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_ILI9486_CMD(0XF2);
LCD_ILI9486_INDEX(0x18);
LCD_ILI9486_INDEX(0xA3);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0x02);
LCD_ILI9486_INDEX(0XB2);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0xFF);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0XF8);
LCD_ILI9486_INDEX(0x21);
LCD_ILI9486_INDEX(0x04);

LCD_ILI9486_CMD(0XF9);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0x36);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0xB4);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0xB6);
```

```
LCD_ILI9486_INDEX(0x22);

LCD_ILI9486_CMD(0xC1);
LCD_ILI9486_INDEX(0x41);


LCD_ILI9486_CMD(0xC5);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x18);

LCD_ILI9486_CMD(0xE0);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x1F);
LCD_ILI9486_INDEX(0x1C);
LCD_ILI9486_INDEX(0x0C);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x08);
LCD_ILI9486_INDEX(0x48);
LCD_ILI9486_INDEX(0x98);
LCD_ILI9486_INDEX(0x37);
LCD_ILI9486_INDEX(0x0A);
LCD_ILI9486_INDEX(0x13);
LCD_ILI9486_INDEX(0x04);
LCD_ILI9486_INDEX(0x11);
LCD_ILI9486_INDEX(0x0D);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0xE1);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x32);
LCD_ILI9486_INDEX(0x2E);
LCD_ILI9486_INDEX(0x0B);
LCD_ILI9486_INDEX(0x0D);
LCD_ILI9486_INDEX(0x05);
LCD_ILI9486_INDEX(0x47);
LCD_ILI9486_INDEX(0x75);
LCD_ILI9486_INDEX(0x37);
LCD_ILI9486_INDEX(0x06);
LCD_ILI9486_INDEX(0x10);
```

```
LCD_ILI9486_INDEX(0x24);
LCD_ILI9486_INDEX(0x20);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0x11);
Delayms(120);
LCD_ILI9486_CMD(0x29);
}
```

Void ILI9486_EnterSleep_Code(void)

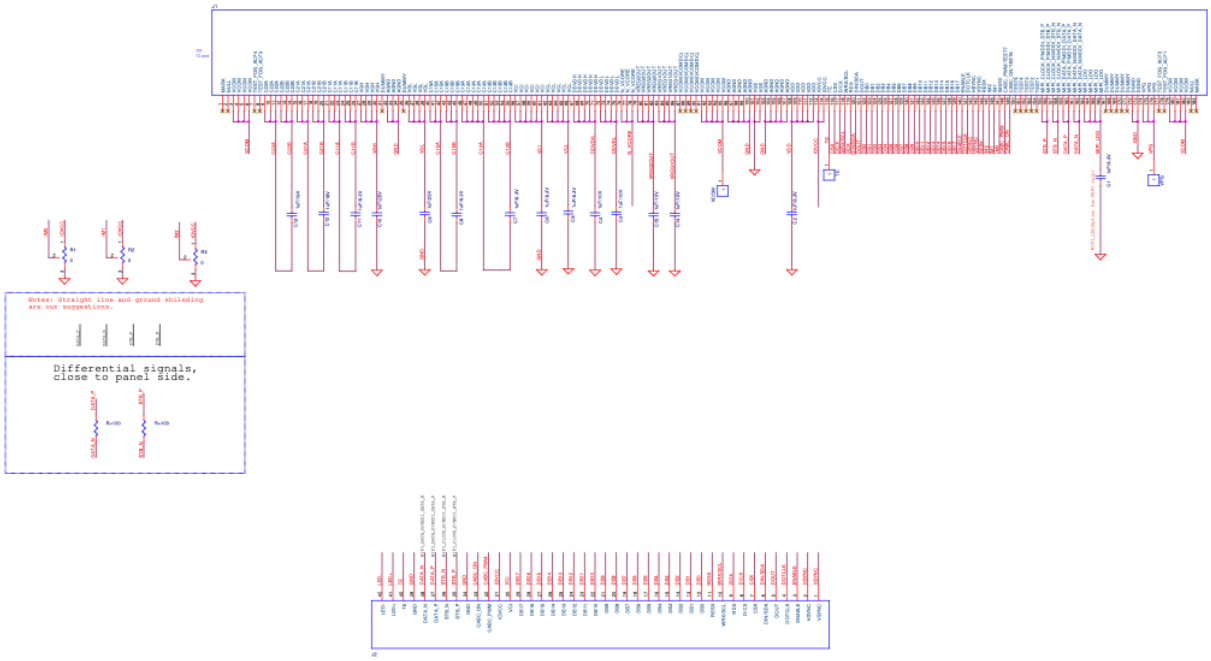
```
{
LCD_ILI9486_CMD(0x28)
Delayms(10);
LCD_ILI9486_CMD(0x10);
Delayms(120);
}
```

Void ILI9486_ExitSleep_Code(void)

```
{
LCD_ILI9486_CMD(0x11);
Delayms(120);
LCD_ILI9486_CMD(0x29)
}
```

3.TM Panel

3.1TM 3.2 INCH FPC Circuit



3.2 TM 3.2 Inch Initial Code

```
Void ILI9486_TM_Initial_Code(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_ILI9486_CMD(0XF2);
LCD_ILI9486_INDEX(0x18);
LCD_ILI9486_INDEX(0xA3);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0x02);
LCD_ILI9486_INDEX(0XB2);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0xFF);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0XF8);
LCD_ILI9486_INDEX(0x21);
LCD_ILI9486_INDEX(0x04);

LCD_ILI9486_CMD(0XF9);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0x36);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0xB4);
LCD_ILI9486_INDEX(0x00);
```

```
LCD_ILI9486_INDEX(0x02);
LCD_ILI9486_INDEX(0x22);



LCD_ILI9486_CMD(0xC1);
LCD_ILI9486_INDEX(0x41);

LCD_ILI9486_CMD(0xC5);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x55);

LCD_ILI9486_CMD(0xE0);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x21);
LCD_ILI9486_INDEX(0x1C);
LCD_ILI9486_INDEX(0x0B);
LCD_ILI9486_INDEX(0x0E);
LCD_ILI9486_INDEX(0x08);
LCD_ILI9486_INDEX(0x49);
LCD_ILI9486_INDEX(0x98);
LCD_ILI9486_INDEX(0x38);
LCD_ILI9486_INDEX(0x09);
LCD_ILI9486_INDEX(0x11);
LCD_ILI9486_INDEX(0x03);
LCD_ILI9486_INDEX(0x14);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0xE1);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x2F);
LCD_ILI9486_INDEX(0x2B);
LCD_ILI9486_INDEX(0x0C);
LCD_ILI9486_INDEX(0x0E);
LCD_ILI9486_INDEX(0x06);
LCD_ILI9486_INDEX(0x47);
LCD_ILI9486_INDEX(0x76);
LCD_ILI9486_INDEX(0x37);
```

```
LCD_ILI9486_INDEX(0x11);
LCD_ILI9486_INDEX(0x04);
LCD_ILI9486_INDEX(0x23);
LCD_ILI9486_INDEX(0x1E);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0x11);
Delayms(120);
LCD_ILI9486_CMD(0x29);
}
```

Void ILI9486_EnterSleep_Code(void)

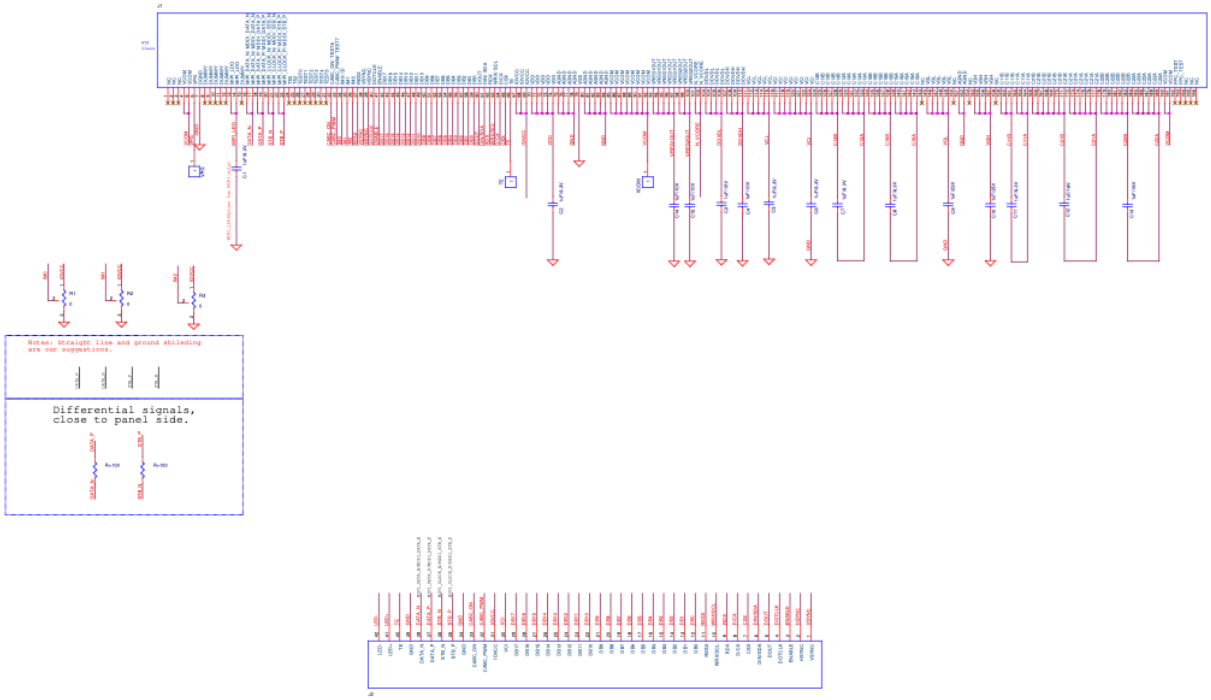
```
{
LCD_ILI9486_CMD(0x28)
Delayms(10);
LCD_ILI9486_CMD(0x10);
Delayms(120);
}
```

Void ILI9486_ExitSleep_Code(void)

```
{
LCD_ILI9486_CMD(0x11);
Delayms(120);
LCD_ILI9486_CMD(0x29)
}
```

4 WTK 3.5 PANEL

4.1 FPC CIRCUIT



4.2 WTK 3.5 Inch Initial Code

```
Void ILI9486_WTK_Initial_Code(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_ILI9486_CMD(0XF2);
LCD_ILI9486_INDEX(0x18);
LCD_ILI9486_INDEX(0xA3);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0x02);
LCD_ILI9486_INDEX(0XB2);
LCD_ILI9486_INDEX(0x12);
LCD_ILI9486_INDEX(0xFF);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0XF8);
LCD_ILI9486_INDEX(0x21);
LCD_ILI9486_INDEX(0x04);

LCD_ILI9486_CMD(0XF9);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0x21);

LCD_ILI9486_CMD(0x36);
LCD_ILI9486_INDEX(0x08);

LCD_ILI9486_CMD(0xB4);
LCD_ILI9486_INDEX(0x00);
```

```
LCD_ILI9486_CMD(0xB6);
LCD_ILI9486_INDEX(0x02);
LCD_ILI9486_INDEX(0x22);

LCD_ILI9486_CMD(0xC1);
LCD_ILI9486_INDEX(0x41);

LCD_ILI9486_CMD(0xC5);
LCD_ILI9486_INDEX(0x00);
LCD_ILI9486_INDEX(0x53);

LCD_ILI9486_CMD(0xE0);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x08);
LCD_ILI9486_INDEX(0x05);
LCD_ILI9486_INDEX(0x09);
LCD_ILI9486_INDEX(0x05);
LCD_ILI9486_INDEX(0x37);
LCD_ILI9486_INDEX(0x98);
LCD_ILI9486_INDEX(0x26);
LCD_ILI9486_INDEX(0x07);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x02);
LCD_ILI9486_INDEX(0x09);
LCD_ILI9486_INDEX(0x07);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0xE1);
LCD_ILI9486_INDEX(0x0F);
LCD_ILI9486_INDEX(0x38);
LCD_ILI9486_INDEX(0x36);
LCD_ILI9486_INDEX(0x0D);
LCD_ILI9486_INDEX(0x10);
LCD_ILI9486_INDEX(0x08);
LCD_ILI9486_INDEX(0x59);
LCD_ILI9486_INDEX(0x76);
LCD_ILI9486_INDEX(0x48);
LCD_ILI9486_INDEX(0x0A);
```

```
LCD_ILI9486_INDEX(0x0A);
LCD_ILI9486_INDEX(0x37);
LCD_ILI9486_INDEX(0x2F);
LCD_ILI9486_INDEX(0x00);

LCD_ILI9486_CMD(0x11);
Delayms(120);
LCD_ILI9486_CMD(0x29);
}
```

Void ILI9486_EnterSleep_Code(void)

```
{
LCD_ILI9486_CMD(0x28)
Delayms(10);
LCD_ILI9486_CMD(0x10);
Delayms(120);
}
```

Void ILI9486_ExitSleep_Code(void)

```
{
LCD_ILI9486_CMD(0x11);
Delayms(120);
LCD_ILI9486_CMD(0x29)
}
```

2.Revision History

Revision History

Version No.	Date	Page	Description
V0.1	2011/02/23		New creation
V0.2	2011/03/02		Add external component spec.
V0.3	2011/06/02		Add WTK TM HSD FPC and initial code
V0.4	2011/07/01		Add Vreg1out and Vreg2out capacitor
V0.5	2011/07/07		Suggest set to column inversion
V0.6	2011/08/16		Add F9 register for SRAM timing adjuster