

**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>

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## 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_INDEX(0x41);
```

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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);

LCD\_ILI9486\_CMD(0x11);

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

**Void ILI9486\_EnterSleep\_Code(void)**

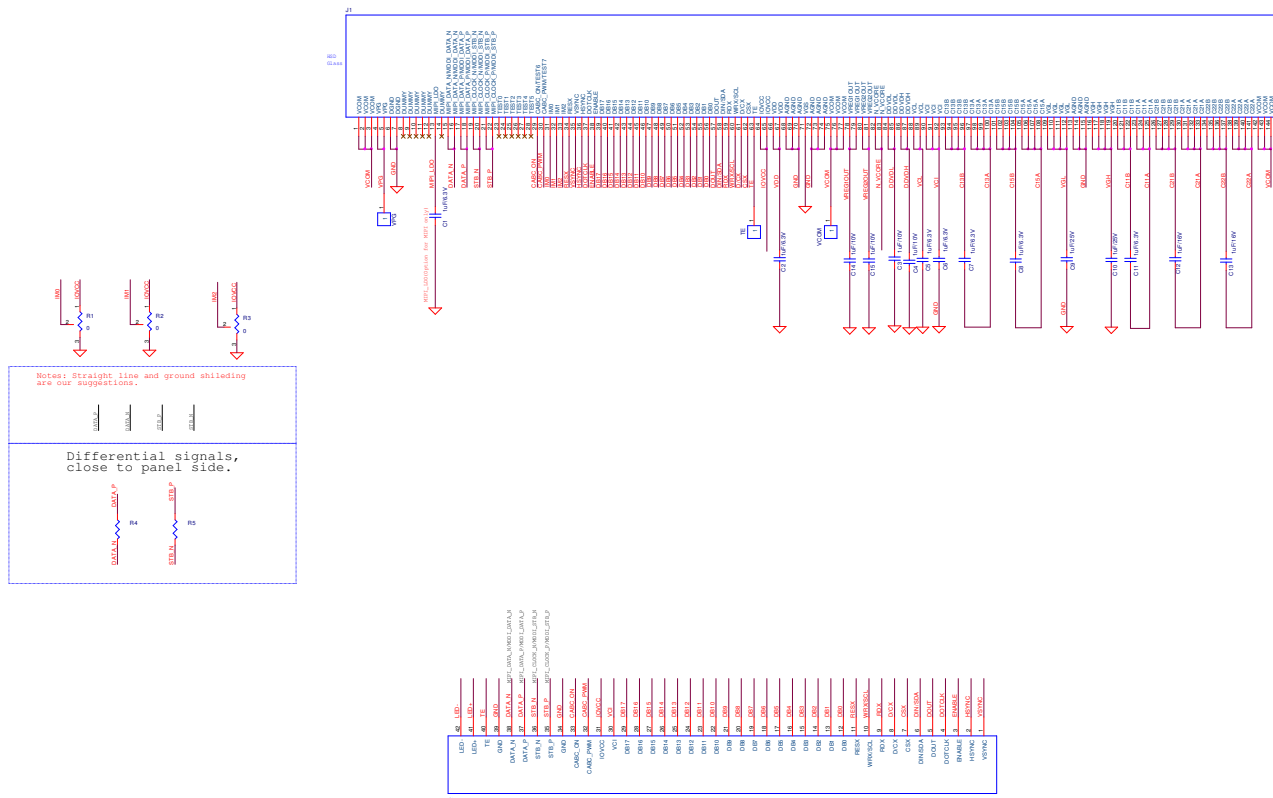
```
{  
LCD_ILI9486_CMD(0x28)  
Delaysms(10);  
LCD_ILI9486_CMD(0x10); // Set_address_mode  
Delaysms(120);  
}
```

**Void ILI9486\_ExitSleep\_Code(void)**

```
{  
LCD_ILI9486_CMD(0x11); // Set_address_mode  
Delaysms(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(0x02);
```

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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(0x03);

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

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

**Void ILI9486\_EnterSleep\_Code(void)**

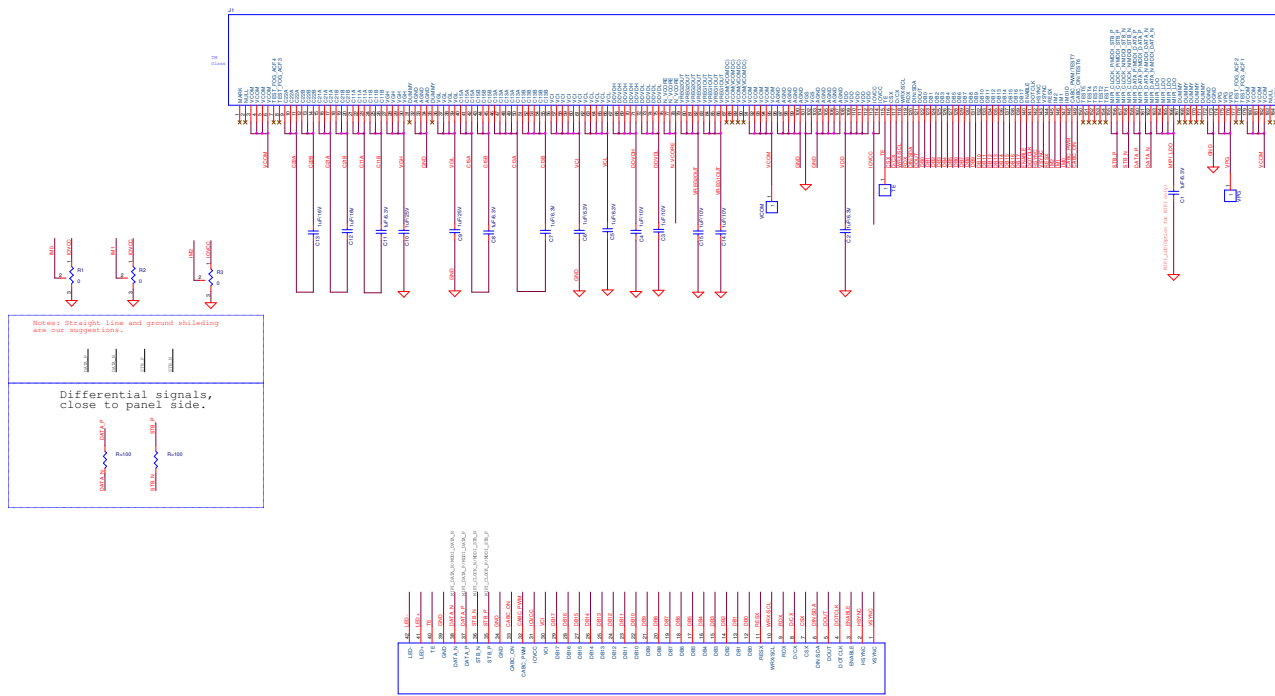
```
{  
LCD_ILI9486_CMD(0x28)  
Delaysms(10);  
LCD_ILI9486_CMD(0x10);  
Delaysms(120);  
}
```

**Void ILI9486\_ExitSleep\_Code(void)**

```
{  
LCD_ILI9486_CMD(0x11);  
Delaysms(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_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(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(0x07);

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

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

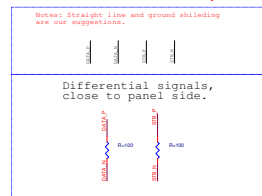
**Void ILI9486\_EnterSleep\_Code(void)**

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

**Void ILI9486\_ExitSleep\_Code(void)**

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

## 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(0x16);

```
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