APPLICATION NOTE

(DOC No. HX8357-B-AN)

HX8357-B

320RGB x 480 dot, 262K color, with internal GRAM,TFT Mobile Single Chip Driver

Preliminary version 01 March, 2010

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March, 2010

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1.1.1 HX8357-B MPU interface reference FPC circuit for CMO's F03509/03206 panel

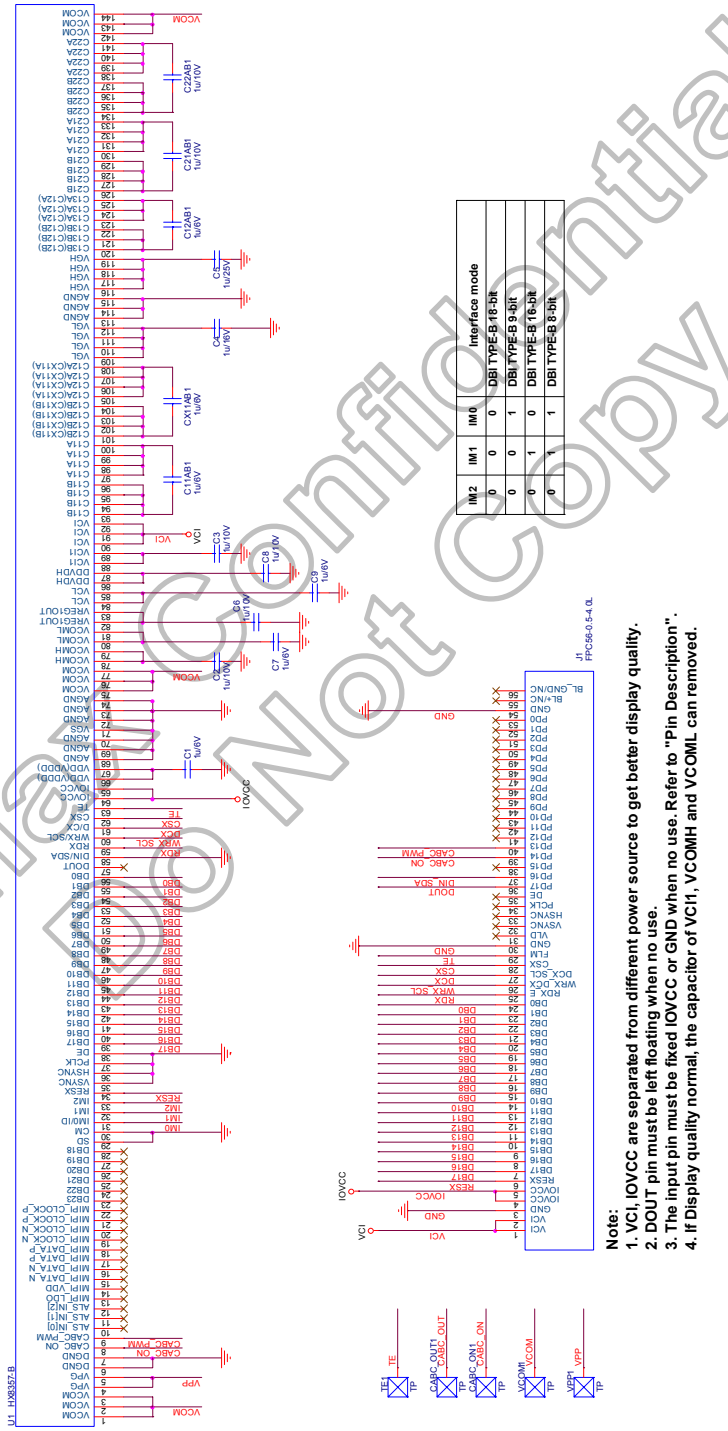

Figure 1. 1 MPU mode Reference FPC Circuit for CMO's F03509/03206 panel

1.1.2 HX8357-B MPU interface reference initial code for CMO's F03509 panel

```
void LCD_Initial_HX8357B_CMO_3_5(void)
{
   All Power On();                  // VCI & IOVCC On
   DelayX1ms(10);

   HW_RESET();                      // Hardware Reset
   DelayX1ms(10);

   Set_NOKIA_8B_CMD(0x11);          //Sleep Out
   DelayX1ms(150);

   Set_NOKIA_8B_CMD(0xB4);          //Set RM, DM
   Set_NOKIA_8B_PA(0x00);           //MPU Mode

   Set_NOKIA_8B_CMD(0xC8);          //Set Gamma
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x67);
   Set_NOKIA_8B_PA(0x04);
   Set_NOKIA_8B_PA(0x70);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x1E);
   Set_NOKIA_8B_PA(0x37);
   Set_NOKIA_8B_PA(0x01);
   Set_NOKIA_8B_PA(0x77);
   Set_NOKIA_8B_PA(0x07);
   Set_NOKIA_8B_PA(0x0F);
   Set_NOKIA_8B_PA(0x00);

   Set_NOKIA_8B_CMD(0xD0);          //Set Power
   Set_NOKIA_8B_PA(0x44);           //DDVDH
   Set_NOKIA_8B_PA(0x41);
   Set_NOKIA_8B_PA(0x07);           //VREG1

   Set_NOKIA_8B_CMD(0xD1);          //Set VCOM
   Set_NOKIA_8B_PA(0x2A);
   Set_NOKIA_8B_PA(0x14);

   Set_NOKIA_8B_CMD(0xE9);          //Set Panel
   Set_NOKIA_8B_PA(0x01);

   Set_NOKIA_8B_CMD(0x29);          //Display On
   DelayX1ms(5);
}
```

1.1.3 HX8357-B MPU interface reference initial code for CMO's F03206 panel

```
void LCD_Initial_HX8357B_CMO_3_2(void)
{
   All Power On();                 // VCI & IOVCC On
   DelayX1ms(10);

   HW_RESET();                     // Hardware Reset
   DelayX1ms(10);

   Set_NOKIA_8B_CMD(0x11);         //Sleep Out
   DelayX1ms(150);

   Set_NOKIA_8B_CMD(0xB4);         //Set RM, DM
   Set_NOKIA_8B_PA(0x00);          //MPU Mode

   Set_NOKIA_8B_CMD(0xC0);         //Set PANEL
   Set_NOKIA_8B_PA(0x14);
   Set_NOKIA_8B_PA(0x3B);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x02);
   Set_NOKIA_8B_PA(0x11);

   Set_NOKIA_8B_CMD(0xC8);         //Set Gamma
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x37);
   Set_NOKIA_8B_PA(0x20);
   Set_NOKIA_8B_PA(0x03);
   Set_NOKIA_8B_PA(0x05);
   Set_NOKIA_8B_PA(0x0E);
   Set_NOKIA_8B_PA(0x55);
   Set_NOKIA_8B_PA(0x04);
   Set_NOKIA_8B_PA(0x77);
   Set_NOKIA_8B_PA(0x30);
   Set_NOKIA_8B_PA(0x07);
   Set_NOKIA_8B_PA(0x0A);

   Set_NOKIA_8B_CMD(0xD0);         //Set Power
   Set_NOKIA_8B_PA(0x44);          //DDVDH
   Set_NOKIA_8B_PA(0x41);
   Set_NOKIA_8B_PA(0x07);          //VREG1

   Set_NOKIA_8B_CMD(0xD1);         //Set VCOM
   Set_NOKIA_8B_PA(0x47);          //VCOMH
   Set_NOKIA_8B_PA(0x0F);          //VCOML

   Set_NOKIA_8B_CMD(0xE9);         //Set Panel
   Set_NOKIA_8B_PA(0x01);

   Set_NOKIA_8B_CMD(0x29);        //Display On
   DelayX1ms(5);
}
```

1.2 Tianma's TM035NYH01 panel

1.2.1 HX8357-B MPU interface reference FPC circuit for Tianma's TM035NYH01 panel

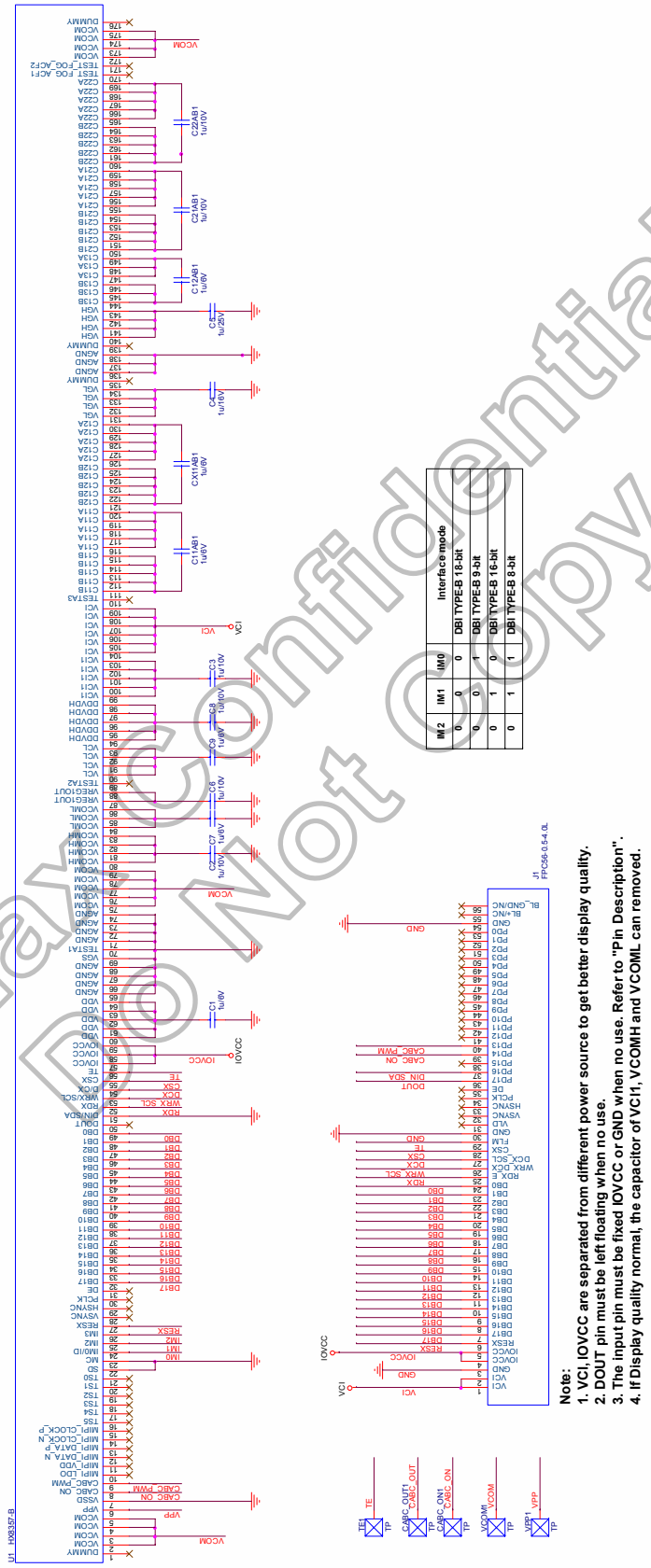

Figure 1. 2 MPU mode Reference FPC Circuit for Tianma's TM035NYH01 panel

1.2.2 HX8357-B MPU interface reference initial code for Tianma's TM035NYH01 panel

```
void LCD_Initial_HX8357B_Tianma_3_5(void)
{
   TBD
}
```

1.3 BOE's 3.5 inch panel

1.3.1 HX8357-B MPU interface reference FPC circuit for BOE's 3.5 inch panel

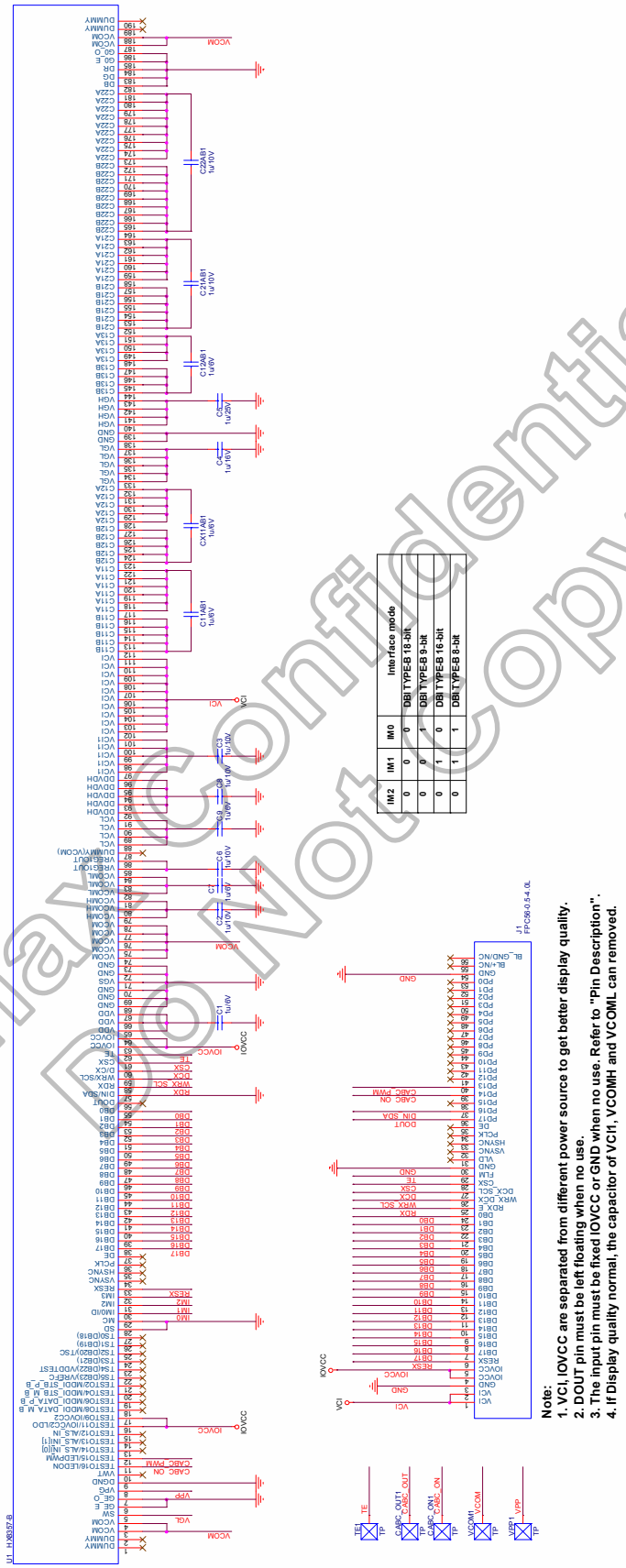

Figure 1. 3 MPU mode Reference FPC Circuit for BOE's 3.5 inch panel

1.3.2 HX8357-B MPU interface reference initial code for BOE's 3.5 inch panel

```
void LCD_Initial_HX8357B_BOE_3_5(void)
{
   All Power On();                  // VCI & IOVCC On
   DelayX1ms(10);

   HW_RESET();                      // Hardware Reset
   DelayX1ms(10);

   Set_NOKIA_8B_CMD(0x11);          //Sleep Out
   DelayX1ms(150);

   Set_NOKIA_8B_CMD(0xB4);          //Set RM, DM
   Set_NOKIA_8B_PA(0x00);           //MPU Mode

   Set_NOKIA_8B_CMD(0xC0);          //Set PANEL
   Set_NOKIA_8B_PA(0x14);
   Set_NOKIA_8B_PA(0x3B);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x02);
   Set_NOKIA_8B_PA(0x11);

   Set_NOKIA_8B_CMD(0xC8);          //Set Gamma
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x36);
   Set_NOKIA_8B_PA(0x13);
   Set_NOKIA_8B_PA(0x21);
   Set_NOKIA_8B_PA(0x09);
   Set_NOKIA_8B_PA(0x0C);
   Set_NOKIA_8B_PA(0x46);
   Set_NOKIA_8B_PA(0x14);
   Set_NOKIA_8B_PA(0x77);
   Set_NOKIA_8B_PA(0x12);
   Set_NOKIA_8B_PA(0x06);
   Set_NOKIA_8B_PA(0x12);

   Set_NOKIA_8B_CMD(0xD0);          //Set Power
   Set_NOKIA_8B_PA(0x45);           //DDVDH
   Set_NOKIA_8B_PA(0x41);
   Set_NOKIA_8B_PA(0x02);           //VREG1

   Set_NOKIA_8B_CMD(0xD1);          //Set VCOM
   Set_NOKIA_8B_PA(0x44);           //VCOMH
   Set_NOKIA_8B_PA(0x0F);           //VCOML

   Set_NOKIA_8B_CMD(0xE9);          //Set Panel
   Set_NOKIA_8B_PA(0x01);

   Set_NOKIA_8B_CMD(0xEE);          //Set EQ
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x00);
```

```
    Set_NOKIA_8B_CMD(0xED);     //Set DIR TIM
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0xAE);
    Set_NOKIA_8B_PA(0xAE);
    Set_NOKIA_8B_PA(0x01);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0x00);

    Set_NOKIA_8B_CMD(0x29);    //Display On
    DelayX1ms(5);
}
```

1.4 TRULY's 3.5 inch panel

1.4.1 HX8357-B MPU interface reference FPC circuit for TRULY's 3.5 inch panel

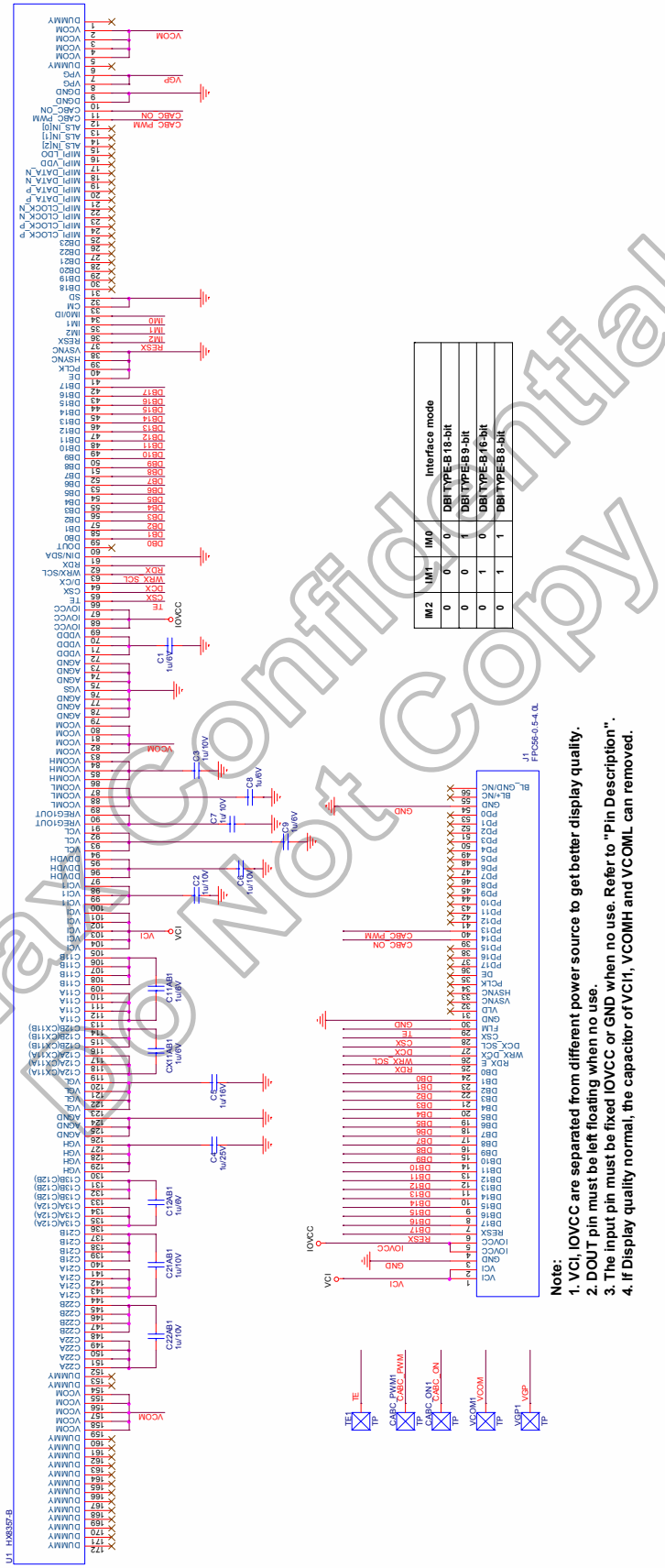

Figure 1. 4 MPU mode Reference FPC Circuit for TRULY's 3.5 inch panel

1.4.2 HX8357-B MPU interface reference initial code for TRULY's 3.5 inch panel

```
void LCD_Initial_HX8357B_TRULY_3_5(void)
{
   All Power On();                  // VCI & IOVCC On
   DelayX1ms(10);

   HW_RESET();                      // Hardware Reset
   DelayX1ms(10);

   Set_NOKIA_8B_CMD(0x11);          //Sleep Out
   DelayX1ms(150);

   Set_NOKIA_8B_CMD(0xB4);          //Set RM, DM
   Set_NOKIA_8B_PA(0x00);           //MPU Mode

   Set_NOKIA_8B_CMD(0xC0);          //Set PANEL
   Set_NOKIA_8B_PA(0x14);
   Set_NOKIA_8B_PA(0x3B);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x02);
   Set_NOKIA_8B_PA(0x11);

   Set_NOKIA_8B_CMD(0xC8);          //Set Gamma
   Set_NOKIA_8B_PA(0x02);
   Set_NOKIA_8B_PA(0x25);
   Set_NOKIA_8B_PA(0x01);
   Set_NOKIA_8B_PA(0x23);
   Set_NOKIA_8B_PA(0x02);
   Set_NOKIA_8B_PA(0x08);
   Set_NOKIA_8B_PA(0x67);
   Set_NOKIA_8B_PA(0x25);
   Set_NOKIA_8B_PA(0x57);
   Set_NOKIA_8B_PA(0x32);
   Set_NOKIA_8B_PA(0x04);
   Set_NOKIA_8B_PA(0x04);

   Set_NOKIA_8B_CMD(0xD0);          //Set Power
   Set_NOKIA_8B_PA(0x44);           //DDVDH
   Set_NOKIA_8B_PA(0x41);
   Set_NOKIA_8B_PA(0x06);           //VREG1

   Set_NOKIA_8B_CMD(0xD1);          //Set VCOM
   Set_NOKIA_8B_PA(0x53);           //VCOMH
   Set_NOKIA_8B_PA(0x0F);           //VCOML

   Set_NOKIA_8B_CMD(0xE9);          //Set Panel
   Set_NOKIA_8B_PA(0x01);

   Set_NOKIA_8B_CMD(0xEE);          //Set EQ
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x00);
   Set_NOKIA_8B_PA(0x00);
```

```
    Set_NOKIA_8B_CMD(0xED);     //Set DIR TIM
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0x00);
    Set_NOKIA_8B_PA(0xAE);
    Set_NOKIA_8B_PA(0xAE);
    Set_NOKIA_8B_PA(0x01);
    Set_NOKIA_8B_PA(0xA2);
    Set_NOKIA_8B_PA(0x00);

    Set_NOKIA_8B_CMD(0x29);    //Display On
    DelayX1ms(5);
}
```

2. Revision History

Version	Date	Description of changes
01	2010/03/01	1. New setup
	2010/04/16	1. Add HX8357-B MPU interface reference FPC circuit and initial code for Tianma's TM035NYH01 panel. 2. Add HX8357-B MPU interface reference FPC circuit and initial code for BOE's 3.5 inch panel. 3. Add Initial code for CMO's F03206 panel.
	2010/06/03	1. Modify the Note4 of Figure1.1, 1.2, 1.3 2. Add HX8357-B MPU interface reference FPC circuit and initial code for TRULY's 3.5 inch panel. 3. Modify the initial code for CMO's F03509/03206 and BOE's 3.5 inch panel. 4. Delete D1 of Figure1.1, 1.2, 1.3 and 1.4