APPLICATION NOTE

(DOC No. HX8347-D(T)-AN)

HX8347-D(T)

240RGB x 320 dot, 262k color,
with internal GRAM,
TFT Mobile Single Chip Driver
Preliminary version 01 September, 2008

HX8347-D(T)
240RGB x 320 dot, 262k color, with Internal GRAM, TFT Mobile Single Chip Driver

Himax Technologies, Inc.
http://www.himax.com.tw

List of Contents

List of Figure

List of Table

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Preliminary Version 01

Sep, 2008

1. MPU mode Reference FPC Circuit and Initial Code

Capacitor	Recommended spec.
C01 (C11P/N)	1uF / 6.3Volt.
C02 (C12P/N)(Optional)	1uF / 6.3Volt.
C03 (DDVDH)	1uF / 10 Volt.
C04 (C21P/N)	1uF / 10 Volt.
C05 (C22P/N)	1uF / 10 Volt.
C06 (VGH)	1uF / 25 Volt.
C07 (VGL)	1uF / 16 Volt.
C08 (C31P/N)	1uF / 6.3 Volt.
C09 (VCL)	1uF / 6.3 Volt.
C10 (VDDD)	1uF / 6.3 Volt.

IM3	IM2	IM1	IM0	Interface mode
0	0	0	0	8080 MCU 16-bits Parallel type I
0	0	0	1	8080 MCU 8-bits Parallel type I
0	0	1	0	8080 MCU 16-bits Parallel type II
0	0	1	1	8080 MCU 8-bits Parallel type II
-	1	0	ID	3-WIRE SERIAL INTERFACE
-	1	1	-	4-WIRE SERIAL INTERFACE
1	0	0	0	8080 MCU 18-bits Paralle type I
1	0	0	1	8080 MCU 9-bits Parallel type I
1	0	1	0	8080 MCU 18-bits Parallel type II
1	0	1	1	8080 MCU 9-bits Parallel type II

```
RCM[1:0]="0x" MPU I/F
SRGB="0" S1,S2,S3="B,G,R"
SMX="0" S720->S1
SMY="0" G1->G320
IFSEL="0" REGISTER-CONTENT INTERFACE
```

1. VCI, IOVCC are separated from different power source to get better display quality.
2. SDI pin is I/O pin. SDO is no use.
3. The input pin must be fixed IOVCC or GND when no use. Refer to "Pin Description".
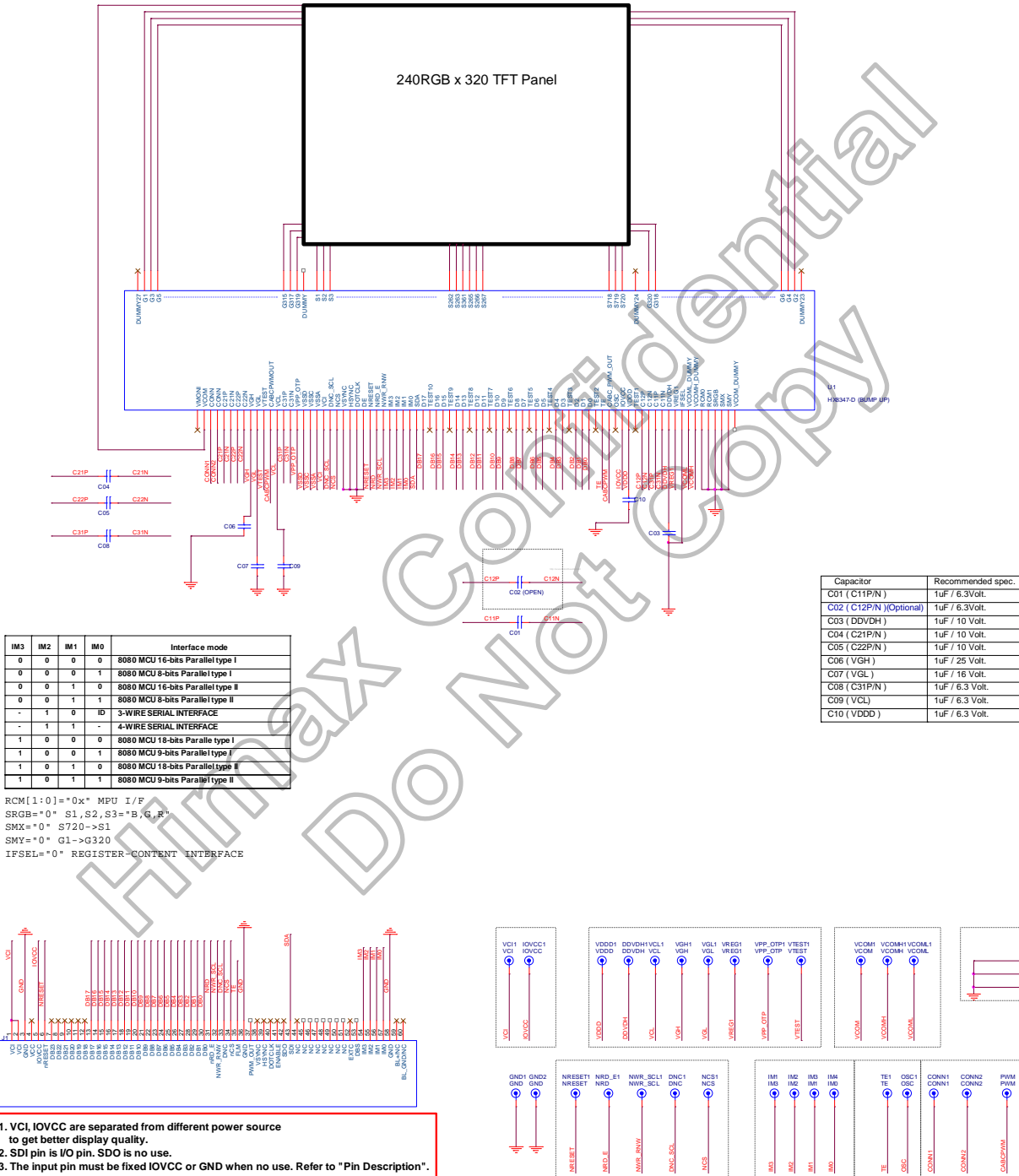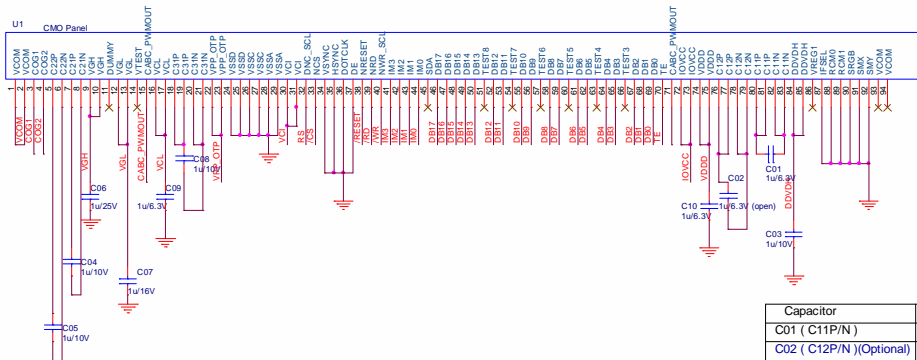
FPC60-0.5-4.0L
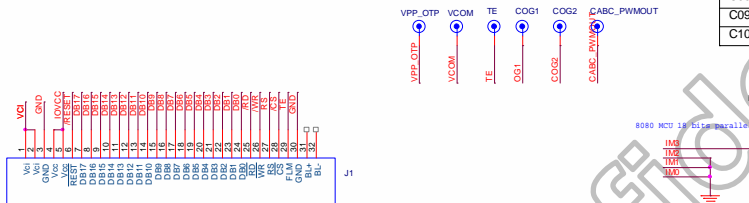
Figure 1. 1The HX8347-D MPU Application Reference Circuit

1.1 CMO
1.1-1CMO 2.6"Reference FPC Circuit

NOTES 1：Set IOVCC=2.8V(1.65~3.3V);VCI=2.8V(2.5~3.3V)

NOTES 2：Set IFSEL="0"；Register-content interface mode.

NOTES 3：Set IM3~IM0="1000"；80 system 18bit type I interface.

Capacitor	Recommended spec.
C01 (C11P/N)	1uF / 6.3Volt.
C02 (C12P/N)(Optional)	1uF / 6.3 Volt.
C03 (DDVDH)	1uF / 10 Volt.
C04 (C21P/N)	1uF / 10 Volt.
C05 (C22P/N)	1uF / 10 Volt.
C06 (VGH)	1uF / 25 Volt.
C07 (VGL)	1uF / 16 Volt.
C08 (C31P/N)	1uF / 6.3 Volt.
C09 (VCL)	1uF / 6.3 Volt.
C10 (VDDD)	1uF / 6.3 Volt.

8080 MCU 18 bits parallel

IM3	IM2	IM1	IM0	Interface	Valid Data bus
0	0	0	0	8080 MCU 16-bits Parallel type I	DB15-0
0	0	0	1	8080 MCU 8-bits Parallel type I	DB7-0
0	0	1	0	8080 MCU 16-bits Parallel type II	DB17-10, DB8-1
0	0	1	1	8080 MCU 8-bits Parallel type II	DB17-10
-	1	0	1D	3-WIRE SERIAL INTERFACE	SDA,SCL
-	1	1	1D	4-WIRE SERIAL INTERFACE	SDA,SCL,RS
1	0	0	0	8080 MCU 18-bits Paralle type I	DB17-0
1	0	0	1	8080 MCU 9-bits Parallel type I	DB8-0
1	0	1	0	8080 MCU 18-bits Parallel type II	DB17-0
1	0	1	1	8080 MCU 9-bits Parallel type II	DB17-9

Title	CMO 2.6" FPC Rev A01		
Size Custom	Document Number Driver IC：HIMAX HX8347D		Rev A01
Date:	Friday, September 19, 2008	Sheet 1 of 1	

1.1-2 Initial Code for CMO 2.6" and 2.4"

```
//############################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);    //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);    // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);    // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);    //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);    //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);    //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);    //STBA[7:0]
Set_LCD_8B_REG(0xE8,0x40);    //OPON[7:0]
Set_LCD_8B_REG(0xE9,0x38);    //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);    //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);    //GEN
Set_LCD_8B_REG(0x27,0xA3);    //

//Gamma 2.2 Setting
 Set_LCD_8B_REG(0x40,0x01); //
Set_LCD_8B_REG(0x41,0x00); //
Set_LCD_8B_REG(0x42,0x00); //
Set_LCD_8B_REG(0x43,0x10); //
Set_LCD_8B_REG(0x44,0x0E); //
Set_LCD_8B_REG(0x45,0x24); //
Set_LCD_8B_REG(0x46,0x04); //
Set_LCD_8B_REG(0x47,0x50); //
Set_LCD_8B_REG(0x48,0x02); //
Set_LCD_8B_REG(0x49,0x13); //
Set_LCD_8B_REG(0x4A,0x19); //
Set_LCD_8B_REG(0x4B,0x19); //
Set_LCD_8B_REG(0x4C,0x16); //

Set_LCD_8B_REG(0x50,0x1B); //
Set_LCD_8B_REG(0x51,0x31); //
Set_LCD_8B_REG(0x52,0x2F); //
Set_LCD_8B_REG(0x53,0x3F); //
Set_LCD_8B_REG(0x54,0x3F); //
Set_LCD_8B_REG(0x55,0x3E); //
Set_LCD_8B_REG(0x56,0x2F); //
Set_LCD_8B_REG(0x57,0x7B); //
Set_LCD_8B_REG(0x58,0x09); //
Set_LCD_8B_REG(0x59,0x06); //
Set_LCD_8B_REG(0x5A,0x06); //
Set_LCD_8B_REG(0x5B,0x0C); //
Set_LCD_8B_REG(0x5C,0x1D); //
Set_LCD_8B_REG(0x5D,0xCC); //
```

```
//Power Voltage Setting
Set_LCD_8B_REG(0x1B,0x1B);     //VRH=4.65V
Set_LCD_8B_REG(0x1A,0x01);     //BT (VGH~15V,VGL~-10V,DDVDH~5V)
Set_LCD_8B_REG(0x24,0x2F);     //VMH(VCOM High voltage ~3.2V)
Set_LCD_8B_REG(0x25,0x57);     //VML(VCOM Low voltage -1.2V)
//****VCOM offset**///
Set_LCD_8B_REG(0x23,0x88);     //for Flicker adjust //can reload from OTP

//Power on Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);     //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x01,0x00);     //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);     //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x00);     //SS_P, GS_P,REV_P,BGR_P
//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);     //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);     //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);     //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);     //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);     //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);     //Row End

WR_8B_FORMAT(0x22);        //Start GRAM write
```

```
//##################################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);      //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,            0x00);      //VCI & IOVCC OFF


//##################################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);      //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);      //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);      //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);      //IDLE='0', EXIT IDLE mode


//##################################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ  Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);      //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);      //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);      //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);      //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);      //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);      //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);      //PTL='0', EXIT Partial mode
```

```
//#################################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x34);     //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);     // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);     // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);     //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);     //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);     //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);     //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);     //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);     // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//#################################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0x38);     //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);     // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);     //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);     //OSC_EN='0'
DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);     //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);     //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);     //GON=1, DTE=1, D=1100
```

```
//###########################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0x38);      //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);      //DP_STB[1:0]='11'


// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);      //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);        //Start GRAM write
```
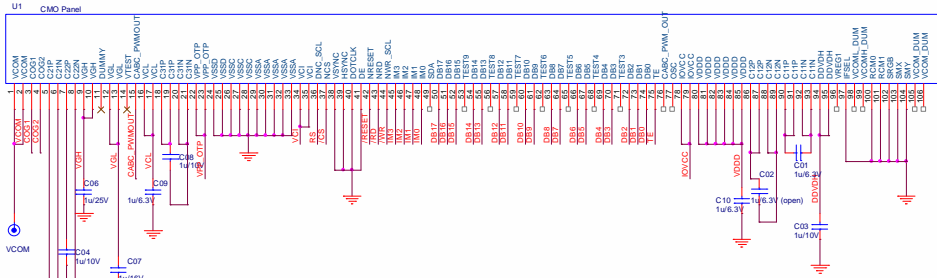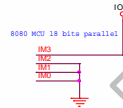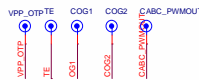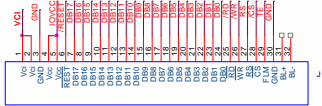
1.1-3 CMO 2.0" 2.2" 2.4" 2.8" Reference FPC Circuit

NOTES 1 : Set IOVCC=2.8V(1.65~3.3V);VCI=2.8V(2.5~3.3V).

NOTES 2 : Set IFSEL="0" : Register-content interface mode.

NOTES 3 : Set IM3~IM0="1000" : 80 system 18bit type I interface.

Capacitor	Recommended spec.
C01 (C11P/N)	1uF / 6.3Volt.
C02 (C12P/N)(Optional)	1uF / 6.3Volt.
C03 (DDVDH)	1uF / 10 Volt.
C04 (C21P/N)	1uF / 10 Volt.
C05 (C22P/N)	1uF / 10 Volt.
C06 (VGH)	1uF / 25 Volt.
C07 (VGL)	1uF / 16 Volt.
C08 (C31P/N)	1uF / 6.3 Volt.
C09 (VCL)	1uF / 6.3 Volt.
C10 (VDDD)	1uF / 6.3 Volt.

IM3	IM2	IM1	IM0	Interface	Valid Data bus
0	0	0	0	8080 MCU 16-bits Parallel type I	DB15-0
0	0	0	1	8080 MCU 8-bits Parallel type I	DB7-0
0	0	1	0	8080 MCU 16-bits Parallel type II	DB17-10, DB8-1
0	0	1	1	8080 MCU 8-bits Parallel type II	DB17-10
0	1	1	0	3-WIRE SERIAL INTERFACE	SDA,SCL
0	1	1	1	4-WIRE SERIAL INTERFACE	SDA,SCL,RS
1	0	0	0	8080 MCU 18-bits Parallel type I	DB17-0
1	0	0	1	8080 MCU 9-bits Parallel type I	DB8-0
1	0	1	0	8080 MCU 18-bits Parallel type II	DB17-0
1	0	1	1	8080 MCU 9-bits Parallel type II	DB17-9

Title	CMO 2.0" FPC Rev A01		
Size B	Document Number Driver IC : HIMAX HX8347D		Rev A01
Date:	Wednesday, October 08, 2008	Sheet 1 of 1	

1.1-4 Initial Code for CMO 2.0"

```
//#################################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);      //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);      // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);      // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);    //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);    //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);    //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);    //STBA[7:0]
Set_LCD_8B_REG(0xE8,0x40);    //OPON[7:0]
Set_LCD_8B_REG(0xE9,0x38);    //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);    //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);    //GEN
Set_LCD_8B_REG(0x27,0xA3);    //

 //Gamma 2.2 Setting
Set_LCD_8B_REG(0x40,0x00); //
Set_LCD_8B_REG(0x41,0x00); //
Set_LCD_8B_REG(0x42,0x01); //
Set_LCD_8B_REG(0x43,0x12); //
Set_LCD_8B_REG(0x44,0x10); //
Set_LCD_8B_REG(0x45,0x26); //
Set_LCD_8B_REG(0x46,0x08); //
Set_LCD_8B_REG(0x47,0x54); //
Set_LCD_8B_REG(0x48,0x02); //
Set_LCD_8B_REG(0x49,0x15); //
Set_LCD_8B_REG(0x4A,0x19); //
Set_LCD_8B_REG(0x4B,0x19); //
Set_LCD_8B_REG(0x4C,0x16); //

Set_LCD_8B_REG(0x50,0x19); //
Set_LCD_8B_REG(0x51,0x2F); //
Set_LCD_8B_REG(0x52,0x2D); //
Set_LCD_8B_REG(0x53,0x3E); //
Set_LCD_8B_REG(0x54,0x3F); //
Set_LCD_8B_REG(0x55,0x3F); //
Set_LCD_8B_REG(0x56,0x2B); //
Set_LCD_8B_REG(0x57,0x77); //
Set_LCD_8B_REG(0x58,0x09); //
Set_LCD_8B_REG(0x59,0x06); //
Set_LCD_8B_REG(0x5A,0x06); //
Set_LCD_8B_REG(0x5B,0x0A); //
Set_LCD_8B_REG(0x5C,0x1D); //
Set_LCD_8B_REG(0x5D,0xCC); //


    //Power Voltage Setting
```
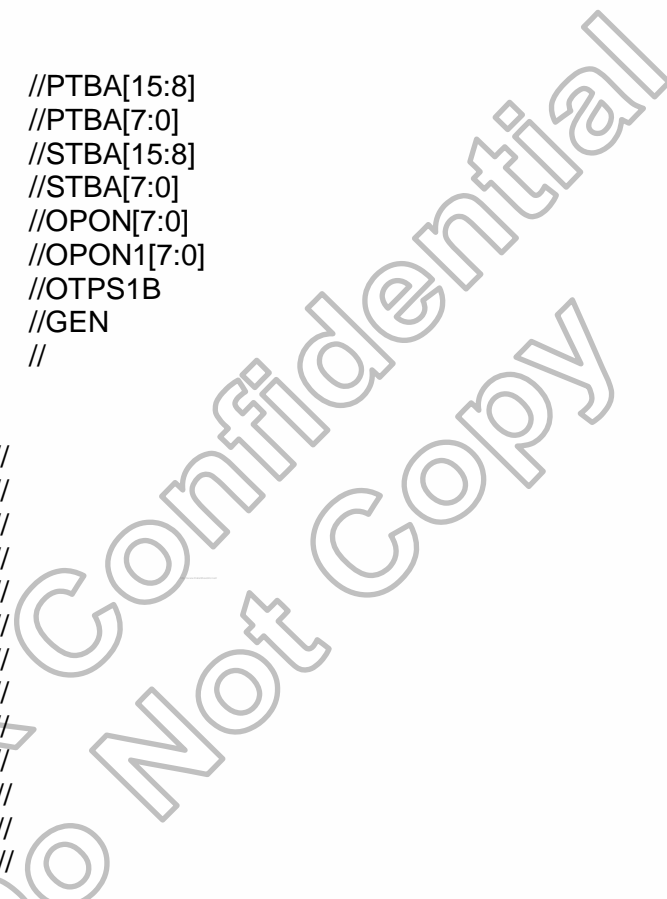
```
Set_LCD_8B_REG(0x1B,0x1B);      //VRH=4.65V
Set_LCD_8B_REG(0x1A,0x01);      //BT (VGH~15V,VGL~-10V,DDVDH~5V)
Set_LCD_8B_REG(0x24,0x2F);      //VMH(VCOM High voltage ~3.2V)
Set_LCD_8B_REG(0x25,0x57);      //VML(VCOM Low voltage -1.2V)
 //****VCOM offset**///
Set_LCD_8B_REG(0x23,0x79);      //for Flicker adjust //can reload from OTP

//Power on Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);      //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x00);      //SS_P, GS_P,REV_P,BGR_P
//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);      //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);      //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);      //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);      //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);      //Row End

WR_8B_FORMAT(0x22);        //Start GRAM write
```

```
//####################################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);      //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,            0x00);      //VCI & IOVCC OFF


//####################################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);      //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);      //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);      //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);      //IDLE='0', EXIT IDLE mode


//####################################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ   Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);      //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);      //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);      //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);      //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);      //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);      //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);      //PTL='0', EXIT Partial mode
```

```
//###############################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);    // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);    // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);    //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);    //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);    //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);    //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);    //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);    //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);    // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//###############################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);    //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);    // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);    //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);    //OSC_EN='0'
DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);    //GON=1, DTE=1, D=1100
```

```
//#############################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);      //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);      //DP_STB[1:0]='11'

// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);      //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);        //Start GRAM write
```

1.1-5 Initial Code for CMO 2.2"

```
//################################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);    //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);    // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);    // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);    //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);    //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);    //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);    //STBA[7:0]
Set_LCD_8B_REG(0xE8,0x40);    //OPON[7:0]
Set_LCD_8B_REG(0xE9,0x38);    //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);    //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);    //GEN
Set_LCD_8B_REG(0x27,0xA3);    //

 //Gamma 2.2 Setting
Set_LCD_8B_REG(0x40,0x00); //
Set_LCD_8B_REG(0x41,0x00); //
Set_LCD_8B_REG(0x42,0x01); //
Set_LCD_8B_REG(0x43,0x12); //
Set_LCD_8B_REG(0x44,0x10); //
Set_LCD_8B_REG(0x45,0x26); //
Set_LCD_8B_REG(0x46,0x08); //
Set_LCD_8B_REG(0x47,0x53); //
Set_LCD_8B_REG(0x48,0x02); //
Set_LCD_8B_REG(0x49,0x15); //
Set_LCD_8B_REG(0x4A,0x19); //
Set_LCD_8B_REG(0x4B,0x19); //
Set_LCD_8B_REG(0x4C,0x16); //

Set_LCD_8B_REG(0x50,0x19); //
Set_LCD_8B_REG(0x51,0x2F); //
Set_LCD_8B_REG(0x52,0x2D); //
Set_LCD_8B_REG(0x53,0x3E); //
Set_LCD_8B_REG(0x54,0x3F); //
Set_LCD_8B_REG(0x55,0x3F); //
Set_LCD_8B_REG(0x56,0x2C); //
Set_LCD_8B_REG(0x57,0x77); //
Set_LCD_8B_REG(0x58,0x09); //
Set_LCD_8B_REG(0x59,0x06); //
Set_LCD_8B_REG(0x5A,0x06); //
Set_LCD_8B_REG(0x5B,0x0A); //
Set_LCD_8B_REG(0x5C,0x1D); //
Set_LCD_8B_REG(0x5D,0xCC); //

//Power Voltage Setting
```

```
Set_LCD_8B_REG(0x1B,0x1B);      //VRH=4.65V
Set_LCD_8B_REG(0x1A,0x01);      //BT (VGH~15V,VGL~-10V,DDVDH~5V)
Set_LCD_8B_REG(0x24,0x2F);      //VMH(VCOM High voltage ~3.2V)
Set_LCD_8B_REG(0x25,0x57);      //VML(VCOM Low voltage -1.2V)
 //****VCOM offset**///
Set_LCD_8B_REG(0x23,0x97);      //for Flicker adjust //can reload from OTP

//Power on Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);      //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x00);      //SS_P, GS_P,REV_P,BGR_P
//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);      //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);      //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);      //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);      //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);      //Row End

WR_8B_FORMAT(0x22);         //Start GRAM write
```

```
//####################################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);      //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,          0x00);      //VCI & IOVCC OFF


//####################################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);      //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);      //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);      //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);      //IDLE='0', EXIT IDLE mode


//####################################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ   Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);      //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);      //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);      //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);      //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);      //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);      //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);      //PTL='0', EXIT Partial mode
```

```
//##################################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);    // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);    // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);    //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);    //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);    //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);    //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);    //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);    //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);    // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//##################################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);    //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);    // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);    //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);    //OSC_EN='0'
DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);    //GON=1, DTE=1, D=1100
```

```
//###########################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);     //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);     // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);     //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);     //OSC_EN='0'
DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);     //DP_STB[1:0]='11'


// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);     //DP_STB='0', out deep sleep
DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);     //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);     //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);     //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);       //Start GRAM write
```

1.1-6 Initial Code for CMO 2.8"

```
//###################################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);    //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);    // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);    // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);    //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);    //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);    //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);    //STBA[7:0]
Set_LCD_8B_REG(0xE8,0x40);    //OPON[7:0]
Set_LCD_8B_REG(0xE9,0x38);    //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);    //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);    //GEN
Set_LCD_8B_REG(0x27,0xA3);    //

 //Gamma 2.2 Setting
Set_LCD_8B_REG(0x40,0x00); //
Set_LCD_8B_REG(0x41,0x00); //
Set_LCD_8B_REG(0x42,0x01); //
Set_LCD_8B_REG(0x43,0x13); //
Set_LCD_8B_REG(0x44,0x10); //
Set_LCD_8B_REG(0x45,0x26); //
Set_LCD_8B_REG(0x46,0x08); //
Set_LCD_8B_REG(0x47,0x51); //
Set_LCD_8B_REG(0x48,0x02); //
Set_LCD_8B_REG(0x49,0x12); //
Set_LCD_8B_REG(0x4A,0x18); //
Set_LCD_8B_REG(0x4B,0x19); //
Set_LCD_8B_REG(0x4C,0x14); //

Set_LCD_8B_REG(0x50,0x19); //
Set_LCD_8B_REG(0x51,0x2F); //
Set_LCD_8B_REG(0x52,0x2C); //
Set_LCD_8B_REG(0x53,0x3E); //
Set_LCD_8B_REG(0x54,0x3F); //
Set_LCD_8B_REG(0x55,0x3F); //
Set_LCD_8B_REG(0x56,0x2E); //
Set_LCD_8B_REG(0x57,0x77); //
Set_LCD_8B_REG(0x58,0x0B); //
Set_LCD_8B_REG(0x59,0x06); //
Set_LCD_8B_REG(0x5A,0x07); //
Set_LCD_8B_REG(0x5B,0x0D); //
Set_LCD_8B_REG(0x5C,0x1D); //
Set_LCD_8B_REG(0x5D,0xCC); //


//Power Voltage Setting
```

```
Set_LCD_8B_REG(0x1B,0x1B);      //VRH=4.65V
Set_LCD_8B_REG(0x1A,0x01);      //BT (VGH~15V,VGL~-10V,DDVDH~5V)
Set_LCD_8B_REG(0x24,0x2F);      //VMH(VCOM High voltage ~3.2V)
Set_LCD_8B_REG(0x25,0x57);      //VML(VCOM Low voltage -1.2V)
 //****VCOM offset**///
Set_LCD_8B_REG(0x23,0x86);      //for Flicker adjust //can reload from OTP

//Power on Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);      //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x00);      //SS_P, GS_P,REV_P,BGR_P
//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);      //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);      //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);      //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);      //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);      //Row End

WR_8B_FORMAT(0x22);        //Start GRAM write
```

```
//############################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);      //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,            0x00);     //VCI & IOVCC OFF


//############################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);      //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);      //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);      //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);      //IDLE='0', EXIT IDLE mode


//############################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ   Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);      //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);      //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);      //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);      //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);      //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);      //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);      //PTL='0', EXIT Partial mode
```

```
//###############################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);    // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);    // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);    //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);    //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);    //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);    //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);    //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);    //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);    // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//###############################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);    //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);    // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);    //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);    //OSC_EN='0'
DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);    //GON=1, DTE=1, D=1100
```

```
//###################################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);      //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
 DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
 DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
 DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);      //DP_STB[1:0]='11'

// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
 DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
 DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);      //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);        //Start GRAM write
```

1.1-7 Initial Code for CMO 2.4"

```
//#################################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);    //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);    // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);    // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);    //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);    //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);    //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);    //STBA[7:0]
Set_LCD_8B_REG(0xE8,0x40);    //OPON[7:0]
Set_LCD_8B_REG(0xE9,0x38);    //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);    //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);    //GEN
Set_LCD_8B_REG(0x27,0xA3);    //

 //Gamma 2.2 Setting
Set_LCD_8B_REG(0x40,0x01); //
Set_LCD_8B_REG(0x41,0x00); //
Set_LCD_8B_REG(0x42,0x00); //
Set_LCD_8B_REG(0x43,0x10); //
Set_LCD_8B_REG(0x44,0x0E); //
Set_LCD_8B_REG(0x45,0x24); //
Set_LCD_8B_REG(0x46,0x04); //
Set_LCD_8B_REG(0x47,0x50); //
Set_LCD_8B_REG(0x48,0x02); //
Set_LCD_8B_REG(0x49,0x13); //
Set_LCD_8B_REG(0x4A,0x19); //
Set_LCD_8B_REG(0x4B,0x19); //
Set_LCD_8B_REG(0x4C,0x16); //

Set_LCD_8B_REG(0x50,0x1B); //
Set_LCD_8B_REG(0x51,0x31); //
Set_LCD_8B_REG(0x52,0x2F); //
Set_LCD_8B_REG(0x53,0x3F); //
Set_LCD_8B_REG(0x54,0x3F); //
Set_LCD_8B_REG(0x55,0x3E); //
Set_LCD_8B_REG(0x56,0x2F); //
Set_LCD_8B_REG(0x57,0x7B); //
Set_LCD_8B_REG(0x58,0x09); //
Set_LCD_8B_REG(0x59,0x06); //
Set_LCD_8B_REG(0x5A,0x06); //
Set_LCD_8B_REG(0x5B,0x0C); //
Set_LCD_8B_REG(0x5C,0x1D); //
Set_LCD_8B_REG(0x5D,0xCC); //


//Power Voltage Setting
```

```
Set_LCD_8B_REG(0x1B,0x1B);      //VRH=4.65V
Set_LCD_8B_REG(0x1A,0x01);      //BT (VGH~15V,VGL~-10V,DDVDH~5V)
Set_LCD_8B_REG(0x24,0x2F);      //VMH(VCOM High voltage ~3.2V)
Set_LCD_8B_REG(0x25,0x57);      //VML(VCOM Low voltage -1.2V)
 //****VCOM offset**///
Set_LCD_8B_REG(0x23,0x86);      //for Flicker adjust //can reload from OTP

//Power on Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);      //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x00);      //SS_P, GS_P,REV_P,BGR_P
//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);      //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);      //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);      //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);      //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);      //Row End

WR_8B_FORMAT(0x22);        //Start GRAM write
```

```
//##############################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);      //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,            0x00);      //VCI & IOVCC OFF


//##############################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);      //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);      //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);      //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);      //IDLE='0', EXIT IDLE mode


//##############################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ   Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);      //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);      //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);      //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);      //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);      //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);      //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);      //PTL='0', EXIT Partial mode
```

```
//###############################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);    // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);    // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);    //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);    //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);    //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);    //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);    //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);    //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);    // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//###############################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);    //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);    // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);    //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);    //OSC_EN='0'
DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);    //GON=1, DTE=1, D=1100
```

```
//############################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);    //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);    // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);    //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);    //OSC_EN='0'
DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);    //DP_STB[1:0]='11'


// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);    //DP_STB='0', out deep sleep
DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);    //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);      //Start GRAM write
```

1.1-8 Initial Code for CMO 2223 panel

```
//############################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);     //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);     // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);     // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);     //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);     //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);     //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);     //STBA[7:0]
Set_LCD_8B_REG(0xE8,0x44);     //OPON[7:0]
Set_LCD_8B_REG(0xE9,0x38);     //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);     //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);     //GEN
Set_LCD_8B_REG(0x27,0xA3);     //

 //Gamma 2.2 Setting
Set_LCD_8B_REG(0x40,0x07);
Set_LCD_8B_REG(0x41,0x0C);
Set_LCD_8B_REG(0x42,0x09);
Set_LCD_8B_REG(0x43,0x07);
Set_LCD_8B_REG(0x44,0x06);
Set_LCD_8B_REG(0x45,0x21);
Set_LCD_8B_REG(0x46,0x00);
Set_LCD_8B_REG(0x47,0x3A);
Set_LCD_8B_REG(0x48,0x06);
Set_LCD_8B_REG(0x49,0x11);
Set_LCD_8B_REG(0x4A,0x18);
Set_LCD_8B_REG(0x4B,0x18);
Set_LCD_8B_REG(0x4C,0x1F);
Set_LCD_8B_REG(0x50,0x08);
Set_LCD_8B_REG(0x51,0x2E);
Set_LCD_8B_REG(0x52,0x2D);
Set_LCD_8B_REG(0x53,0x20);
Set_LCD_8B_REG(0x54,0x1E);
Set_LCD_8B_REG(0x55,0x21);
Set_LCD_8B_REG(0x56,0x2F);
Set_LCD_8B_REG(0x57,0x71);
Set_LCD_8B_REG(0x58,0x01);
Set_LCD_8B_REG(0x59,0x06);
Set_LCD_8B_REG(0x5A,0x08);
Set_LCD_8B_REG(0x5B,0x0E);
Set_LCD_8B_REG(0x5C,0x18);
Set_LCD_8B_REG(0x5D,0xFF);

 //Power Voltage Setting
Set_LCD_8B_REG(0x1B,0x2E); //VREG1
Set_LCD_8B_REG(0x1A,0x01);
Set_LCD_8B_REG(0x24,0x64);
```

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-P.32-

Sep, 2008

```
Set_LCD_8B_REG(0x25,0x21);
//****VCOM offset**///
Set_LCD_8B_REG(0x23,0x71);
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x82);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x92);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD2);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=1, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);      //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x03);      //SS_P, GS_P,REV_P,BGR_P
 //Display ON Setting//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);       //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);      //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);      //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);      //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);      //Row End

WR_8B_FORMAT(0x22);         //Start GRAM write
```

```
//#############################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);     //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);     // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);     //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);     //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,            0x00);     //VCI & IOVCC OFF


//#############################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);     //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);     //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);     //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);     //IDLE='0', EXIT IDLE mode


//#############################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ  Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);     //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);     //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);     //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);     //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);     //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);     //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);     //PTL='0', EXIT Partial mode
```

```
//##############################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);      // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);      // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);      //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);      //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);      //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);      //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);      //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);      // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//##############################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);      //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x82);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x92);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD2);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);      //GON=1, DTE=1, D=1100
```

```
//##############################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);      //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);      //DP_STB[1:0]='11'


// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);      //DP_STB='0', out deep sleep
DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);      //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x82);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x92);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD2);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=1, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);      //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);      //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);        //Start GRAM write
```

1.1-9 Initial Code for CMO 2807 panel

```
//##############################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);     //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);     // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);     // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);    //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);    //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);    //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);    //STBA[7:0]
Set_LCD_8B_REG(0xE8,0x40);    //OPON[7:0]
Set_LCD_8B_REG(0xE9,0x38);    //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);    //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);    //GEN
Set_LCD_8B_REG(0x27,0xA3);    //

 //Gamma 2.2 Setting
Set_LCD_8B_REG(0x40,0x01);
Set_LCD_8B_REG(0x41,0x07);
Set_LCD_8B_REG(0x42,0x06);
Set_LCD_8B_REG(0x43,0x0A);
Set_LCD_8B_REG(0x44,0x0C);
Set_LCD_8B_REG(0x45,0x3D);
Set_LCD_8B_REG(0x46,0x02);
Set_LCD_8B_REG(0x47,0x43);
Set_LCD_8B_REG(0x48,0x07);
Set_LCD_8B_REG(0x49,0x14);
Set_LCD_8B_REG(0x4A,0x19);
Set_LCD_8B_REG(0x4B,0x1A);
Set_LCD_8B_REG(0x4C,0x1E);
Set_LCD_8B_REG(0x50,0x02);
Set_LCD_8B_REG(0x51,0x33);
Set_LCD_8B_REG(0x52,0x35);
Set_LCD_8B_REG(0x53,0x39);
Set_LCD_8B_REG(0x54,0x38);
Set_LCD_8B_REG(0x55,0x3E);
Set_LCD_8B_REG(0x56,0x3C);
Set_LCD_8B_REG(0x57,0x7D);
Set_LCD_8B_REG(0x58,0x01);
Set_LCD_8B_REG(0x59,0x05);
Set_LCD_8B_REG(0x5A,0x06);
Set_LCD_8B_REG(0x5B,0x0B);
Set_LCD_8B_REG(0x5C,0x18);
Set_LCD_8B_REG(0x5D,0xFF);

 //Power Voltage Setting
Set_LCD_8B_REG(0x1B,0x1B);    //VRH=4.65V
Set_LCD_8B_REG(0x1A,0x01);    //BT (VGH~15V,VGL~-10V,DDVDH~5V)
Set_LCD_8B_REG(0x24,0x45);    //VMH(VCOM High voltage ~3.53V)
```
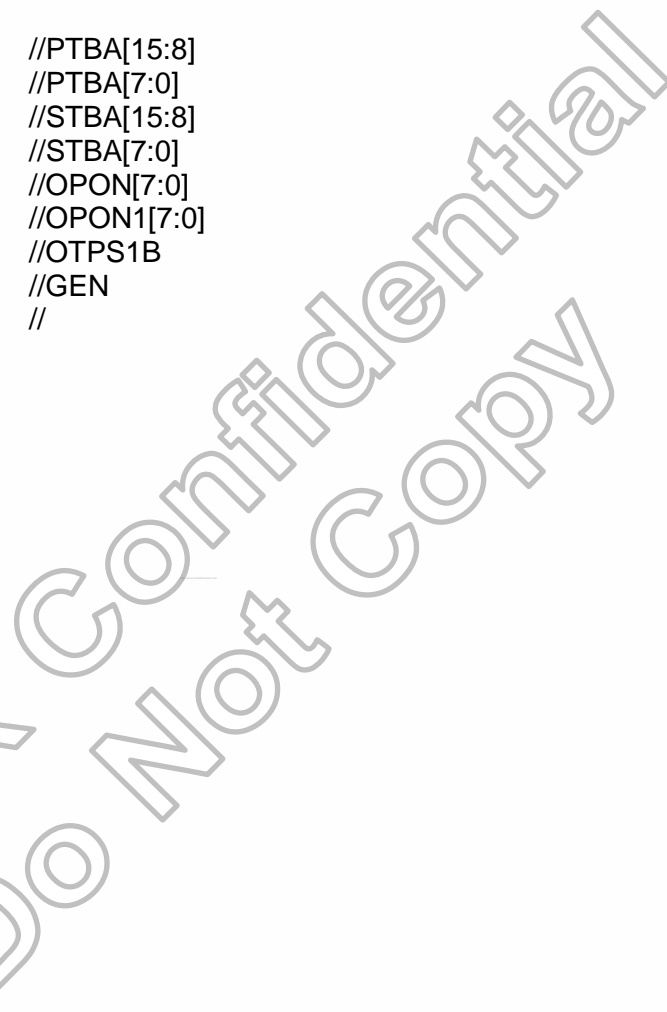
Set_LCD_8B_REG(0x25,0x1F);   //VML(VCOM Low voltage -2.03V)
//****VCOM offset**///
Set_LCD_8B_REG(0x23,0x8A);   //for Flicker adjust //can reload from OTP

//Power on Setting
Set_LCD_8B_REG(0x18,0x36);   //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);   //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x01,0x00);   //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);   //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x02);   //SS_P, GS_P,REV_P,BGR_P
//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);   //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);   //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);   //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);   //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);   //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);   //Row End

WR_8B_FORMAT(0x22);   //Start GRAM write

```
//#############################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);      //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);      // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);      //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);      //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,            0x00);     //VCI & IOVCC OFF


//#############################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);      //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);      //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);      //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);      //IDLE='0', EXIT IDLE mode


//#############################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ   Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);      //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);      //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);      //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);      //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);      //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);      //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);      //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);      //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);      //PTL='0', EXIT Partial mode
```

```
//##############################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);    // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);    // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);    //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);    //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);    //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);    //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);    //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);    //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);    // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//##############################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);    //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);    // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);    //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);    //OSC_EN='0'
DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);    //GON=1, DTE=1, D=1100
```

```
//############################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);     //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);     // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);     //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);     //OSC_EN='0'
DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);     //DP_STB[1:0]='11'


// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);     //DP_STB='0', out deep sleep
DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);     //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);     //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3C);     //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);        //Start GRAM write
```

1.2 CPT
1.2-1 CPT 2.0" Reference FPC Circuit

NOTES 1：Set IOVCC=2.8V(1.65~3.3V);VCI=2.8V(2.5~3.3V)
NOTES 2：Set IFSEL="0"：Register-content interface mode.
NOTES 3：Set IM3~IM0="1000"：80 system 18bit type I interface.

Capacitor	Recommended spec.
C01 (C11P/N)	1uF / 6.3Volt.
C02 (C12P/N)(Optional)	1uF / 6.3Volt.
C03 (DDVDH)	1uF / 10 Volt.
C04 (C21P/N)	1uF / 10 Volt.
C05 (C22P/N)	1uF / 10 Volt.
C06 (VGH)	1uF / 25 Volt.
C07 (VGL)	1uF / 16 Volt.
C08 (C31P/N)	1uF / 6.3 Volt.
C09 (VCL)	1uF / 6.3 Volt.
C10 (VDDD)	1uF / 6.3 Volt.

IM3	IM2	IM1	IM0	Interface	Valid Data bus
0	0	0	0	8080 MCU 16-bits Parallel type I	DB15-0
0	0	0	1	8080 MCU 8-bits Parallel type I	DB7-0
0	0	1	0	8080 MCU 16-bits Parallel type II	DB17-10, DB8-1
0	0	1	1	8080 MCU 8-bits Parallel type II	DB17-10
-	1	1	1D	3-WIRE SERIAL INTERFACE	SDA,SCL
-	1	1	-	4-WIRE SERIAL INTERFACE	SDA,SCL,RS
1	0	0	0	8080 MCU 18-bits Parallel type I	DB17-0
1	0	0	1	8080 MCU 9-bits Parallel type I	DB8-0
1	0	1	0	8080 MCU 18-bits Parallel type II	DB17-0
1	0	1	1	8080 MCU 9-bits Parallel type II	DB17-9

Title: CPT 2.0" FPC Rev A01
Size: B
Document Number: Driver IC：HIMAX HX8347D
Rev: A01
Date: Wednesday, October 08, 2008   Sheet 1 of 1

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-P.42-

Sep, 2008

1.2-2 Initial Code for CPT 2.0"

```
//##############################################################.
M51_WR_REG(U05_LCD_POWER_ON,          0x0F);    //VCI & IOVCC ON
DelayX1ms(10);
//RESET
M51_WR_REG(U05_LCD_RST,               0x01);    // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,               0x00);    // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_8B_REG(0xEA,0x00);    //PTBA[15:8]
Set_LCD_8B_REG(0xEB,0x20);    //PTBA[7:0]
Set_LCD_8B_REG(0xEC,0x0C);    //STBA[15:8]
Set_LCD_8B_REG(0xED,0xC4);    //STBA[7:0]
Set_LCD_8B_REG(0xE8,0xC8);    //OPON[7:0]
Set_LCD_8B_REG(0xE9,0xC8);    //OPON1[7:0]
Set_LCD_8B_REG(0xF1,0x01);    //OTPS1B
Set_LCD_8B_REG(0xF2,0x10);    //GEN

Set_LCD_8B_REG(0x2e,0x86);    //GDOFF(70)
Set_LCD_8B_REG(0x29,0xFF);    //RTN (22)
Set_LCD_8B_REG(0xE4,0x01);    //EQ   (10)
Set_LCD_8B_REG(0xE7,0x01);    //EQ   (10)

//Gamma 2.2 Setting
Set_LCD_8B_REG(0x40,0x00); //
Set_LCD_8B_REG(0x41,0x00); //
Set_LCD_8B_REG(0x42,0x01); //
Set_LCD_8B_REG(0x43,0x12); //
Set_LCD_8B_REG(0x44,0x10); //
Set_LCD_8B_REG(0x45,0x26); //
Set_LCD_8B_REG(0x46,0x08); //
Set_LCD_8B_REG(0x47,0x54); //
Set_LCD_8B_REG(0x48,0x02); //
Set_LCD_8B_REG(0x49,0x15); //
Set_LCD_8B_REG(0x4A,0x19); //
Set_LCD_8B_REG(0x4B,0x19); //
Set_LCD_8B_REG(0x4C,0x16); //

Set_LCD_8B_REG(0x50,0x19); //
Set_LCD_8B_REG(0x51,0x2f); //
Set_LCD_8B_REG(0x52,0x2d); //
Set_LCD_8B_REG(0x53,0x3e); //
Set_LCD_8B_REG(0x54,0x3F); //
Set_LCD_8B_REG(0x55,0x3f); //
Set_LCD_8B_REG(0x56,0x2b); //
Set_LCD_8B_REG(0x57,0x77); //
Set_LCD_8B_REG(0x58,0x09); //
Set_LCD_8B_REG(0x59,0x06); //
Set_LCD_8B_REG(0x5A,0x06); //
Set_LCD_8B_REG(0x5B,0x0a); //
Set_LCD_8B_REG(0x5C,0x1D); //
```

```
Set_LCD_8B_REG(0x5D,0xCC); //

 //Power Voltage Setting
Set_LCD_8B_REG(0x1B,0x16);    //VRH=4.4V
Set_LCD_8B_REG(0x1C,0x06);    //AP
Set_LCD_8B_REG(0x1A,0x02);    //BT (VGH~15V,VGL~-10V,DDVDH~5V)
Set_LCD_8B_REG(0x24,0x57);    //VMH(VCOM High voltage ~3.85V)
Set_LCD_8B_REG(0x25,0x64);    //VML(VCOM Low voltage -1.0V)
 //****VCOM offset**///
Set_LCD_8B_REG(0x23,0x80);    //for Flicker adjust //can reload from OTP
Set_LCD_8B_REG(0x2F,0x01);    //for Flicker adjust //can reload from OTP

 //Power on Setting
Set_LCD_8B_REG(0x18,0x36);    //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1c,0x06);    //OSC_EN='1', start Osc

Set_LCD_8B_REG(0x01,0x00);    //DP_STB='0', out deep sleep
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_8B_REG(0x17,0x06);    //default 0x06 262k color // 0x05 65k color

//SET PANEL
Set_LCD_8B_REG(0x36,0x00);    //SS_P, GS_P,REV_P,BGR_P
//Display ON Setting
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3c);    //GON=1, DTE=1, D=1100

//Set GRAM Area
Set_LCD_8B_REG(0x02,0x00);
Set_LCD_8B_REG(0x03,0x00);    //Column Start
Set_LCD_8B_REG(0x04,0x00);
Set_LCD_8B_REG(0x05,0xEF);    //Column End

Set_LCD_8B_REG(0x06,0x00);
Set_LCD_8B_REG(0x07,0x00);    //Row Start
Set_LCD_8B_REG(0x08,0x01);
Set_LCD_8B_REG(0x09,0x3F);    //Row End

WR_8B_FORMAT(0x22);        //Start GRAM write
```

```
//#############################################################
// Power Off Setting
Set_LCD_8B_REG(0x28,0x38);     //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);     // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);     //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);     //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,          0x00);    //VCI & IOVCC OFF


//#############################################################

// ENTER IDLE mode Setting
Set_LCD_8B_REG(0x18,0x34);     //I/P_RADJ,N/P_RADJ, IDLE mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);     //IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x04);     //IDLE='1', enter IDLE mode


// EXIT IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Normal mode line inversion
Set_LCD_8B_REG(0x01,0x00);     //IDLE='0', EXIT IDLE mode


//#############################################################

// ENTER Partial mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ  Partial mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Partial mode line inversion
Set_LCD_8B_REG(0x01,0x01);     //PTL='1', Enter Partial mode
Set_LCD_8B_REG(0x0A,0x00);     //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);     //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);     //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);     //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);     //refresh cycle=5frame

// EXIT Partial mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);     //PTL='0', EXIT Partial mode
```

```
//#############################################################

// ENTER Partial + IDLE mode Setting 32line
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Partial mode 55Hz
Set_LCD_8B_REG(0x2F,0x11);     // Partial + IDLE mode line inversion
Set_LCD_8B_REG(0x01,0x09);     // PTL='1' IDLE='1', Enter Partial + IDLE mode
Set_LCD_8B_REG(0x0A,0x00);     //PSL[15:8]=0x00
Set_LCD_8B_REG(0x0B,0x20);     //PSL[7:0]=0x20
Set_LCD_8B_REG(0x0C,0x00);     //PEL[15:8]=0x00
Set_LCD_8B_REG(0x0D,0x47);     //PEL[7:0]=0x47
Set_LCD_8B_REG(0x26,0x01);     //refresh cycle=5frame

// EXIT Partial + IDLE mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ ,Normal mode 75Hz
Set_LCD_8B_REG(0x2F,0x11);     //Normal mode, line inversion
Set_LCD_8B_REG(0x01,0x00);     // PTL='0' IDLE='0', EXIT Partial + IDLE mode
//#############################################################
// Enter Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);     //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);     // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
 DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);     //GON='0' DTE='0' D[1:0]='01'
 DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);     //OSC_EN='0'
 DelayX1ms(5);

// Exit Sleep mode Setting
Set_LCD_8B_REG(0x18,0x36);     //I/P_RADJ,N/P_RADJ, Normal mode 75Hz
Set_LCD_8B_REG(0x19,0x01);     //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
 DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);     //GON=1, DTE=1, D=1000
 DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);     //GON=1, DTE=1, D=1100
```

```
//##############################################################
// Enter Deep Sleep mode Setting
Set_LCD_8B_REG(0x28,0xB8);    //GON='1' DTE='1' D[1:0]='10'
 DelayX1ms(40);
Set_LCD_8B_REG(0x1F,0x89);    // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x04);    //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_8B_REG(0x19,0x00);    //OSC_EN='0'
DelayX1ms(5);
Set_LCD_8B_REG(0x01,0xC0);    //DP_STB[1:0]='11'

// Exit Deep Sleep mode Setting
Set_LCD_8B_REG(0x01,0x00);    //DP_STB='0', out deep sleep
DelayX1ms(10);
Set_LCD_8B_REG(0x19,0x01);    //OSC_EN='1', start Osc
Set_LCD_8B_REG(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_8B_REG(0x28,0x38);    //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_8B_REG(0x28,0x3F);    //GON=1, DTE=1, D=1100
WR_8B_FORMAT(0x22);           //Start GRAM write
```
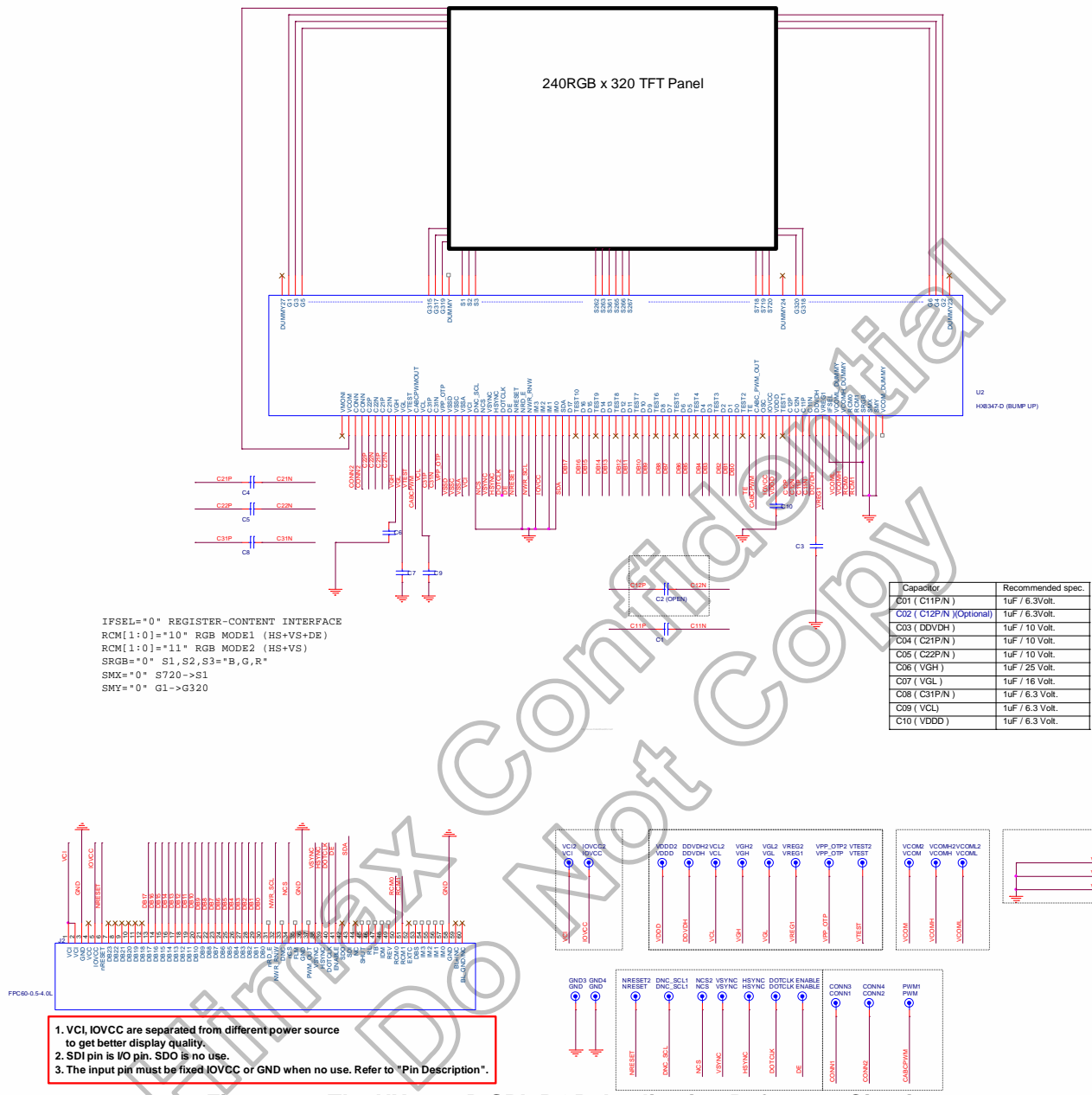
2. RGB mode Reference FPC Circuit

240RGB x 320 TFT Panel

```
IFSEL="0" REGISTER-CONTENT INTERFACE
RCM[1:0]="10" RGB MODE1 (HS+VS+DE)
RCM[1:0]="11" RGB MODE2 (HS+VS)
SRGB="0" S1,S2,S3="B,G,R"
SMX="0" S720->S1
SMY="0" G1->G320
```

Capacitor	Recommended spec.
C01 (C11P/N)	1uF / 6.3Volt.
C02 (C12P/N)(Optional)	1uF / 6.3Volt.
C03 (DDVDH)	1uF / 10 Volt.
C04 (C21P/N)	1uF / 10 Volt.
C05 (C22P/N)	1uF / 10 Volt.
C06 (VGH)	1uF / 25 Volt.
C07 (VGL)	1uF / 16 Volt.
C08 (C31P/N)	1uF / 6.3 Volt.
C09 (VCL)	1uF / 6.3 Volt.
C10 (VDDD)	1uF / 6.3 Volt.

1. VCI, IOVCC are separated from different power source to get better display quality.
2. SDI pin is I/O pin. SDO is no use.
3. The input pin must be fixed IOVCC or GND when no use. Refer to "Pin Description".

Figure 2. 1 The HX8347-D SPI+RGB Application Reference Circuit

2.1. Initial Code for Reference

```
//for CMO 2.6"
//##################################################################
M51_WR_REG(U13_RGB_IF_ENABLE,        0x13);   // RGB IF TIMING ENABLE.
DelayX1ms(5);
//RESET
M51_WR_REG(U05_LCD_RST,              0x01);    // LCD HW RST Enable
DelayX1ms(5);
M51_WR_REG(U05_LCD_RST,              0x00);    // LCD HW RST Disable.
DelayX1ms(10);

//Driving ability Setting
Set_LCD_SPI_REG_8b(0xEA,0x00);     //PTBA[15:8]
Set_LCD_SPI_REG_8b(0xEB,0x20);     //PTBA[7:0]
Set_LCD_SPI_REG_8b(0xEC,0x0C);     //STBA[15:8]
Set_LCD_SPI_REG_8b(0xED,0xC4);     //STBA[7:0]
Set_LCD_SPI_REG_8b(0xE8,0x38);     //OPON[7:0]
Set_LCD_SPI_REG_8b(0xE9,0x10);     //OPON1[7:0]
Set_LCD_SPI_REG_8b(0xF1,0x01);     //OTPS1B
Set_LCD_SPI_REG_8b(0xF2,0x10);     //GEN

//Gamma 2.2 Setting
Set_LCD_SPI_REG_8b(0x40,0x01); //
Set_LCD_SPI_REG_8b(0x41,0x00); //
Set_LCD_SPI_REG_8b(0x42,0x00); //
Set_LCD_SPI_REG_8b(0x43,0x10); //
Set_LCD_SPI_REG_8b(0x44,0x0E); //
Set_LCD_SPI_REG_8b(0x45,0x24); //
Set_LCD_SPI_REG_8b(0x46,0x04); //
Set_LCD_SPI_REG_8b(0x47,0x50); //
Set_LCD_SPI_REG_8b(0x48,0x02); //
Set_LCD_SPI_REG_8b(0x49,0x13); //
Set_LCD_SPI_REG_8b(0x4A,0x19); //
Set_LCD_SPI_REG_8b(0x4B,0x19); //
Set_LCD_SPI_REG_8b(0x4C,0x16); //

Set_LCD_SPI_REG_8b(0x50,0x1B); //
Set_LCD_SPI_REG_8b(0x51,0x31); //
Set_LCD_SPI_REG_8b(0x52,0x2F); //
Set_LCD_SPI_REG_8b(0x53,0x3F); //
Set_LCD_SPI_REG_8b(0x54,0x3F); //
Set_LCD_SPI_REG_8b(0x55,0x3E); //
Set_LCD_SPI_REG_8b(0x56,0x2F); //
Set_LCD_SPI_REG_8b(0x57,0x7B); //
Set_LCD_SPI_REG_8b(0x58,0x09); //
Set_LCD_SPI_REG_8b(0x59,0x06); //
Set_LCD_SPI_REG_8b(0x5A,0x06); //
Set_LCD_SPI_REG_8b(0x5B,0x0C); //
Set_LCD_SPI_REG_8b(0x5C,0x1D); //
Set_LCD_SPI_REG_8b(0x5D,0xCC); //

//Power Voltage Setting
Set_LCD_SPI_REG_8b(0x1B,0x1B);     //VRH=4.65V
Set_LCD_SPI_REG_8b(0x1A,0x01);     //BT (VGH~15V,VGL~-10V,DDVDH~5V)
```

```
Set_LCD_SPI_REG_8b(0x24,0x2F);        //VMH(VCOM High voltage ~3.2V)
Set_LCD_SPI_REG_8b(0x25,0x57);        //VML(VCOM Low voltage -1.2V)
//****VCOM offset**///
Set_LCD_SPI_REG_8b(0x23,0x88);        //for Flicker adjust //can reload from OTP

//Power on Setting
Set_LCD_SPI_REG_8b(0x19,0x01);        //OSC_EN='1', start Osc
Set_LCD_SPI_REG_8b(0x01,0x00);        //DP_STB='0', out deep sleep
Set_LCD_SPI_REG_8b(0x1F,0x88);// GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_SPI_REG_8b(0x1F,0x80);// GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_SPI_REG_8b(0x1F,0x90);// GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
DelayX1ms(5);
Set_LCD_SPI_REG_8b(0x1F,0xD0);// GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0
DelayX1ms(5);

//262k/65k color selection
Set_LCD_SPI_REG_8b(0x17,0x60);        //default 0x60 262k color // 0x50 65k color

//Display ON Setting
Set_LCD_SPI_REG_8b(0x28,0x38);        //GON=1, DTE=1, D=1000
DelayX1ms(40);
Set_LCD_SPI_REG_8b(0x28,0x3F);        //GON=1, DTE=1, D=1100

//Set Window Area
Set_LCD_SPI_REG_8b(0x02,0x00);
Set_LCD_SPI_REG_8b(0x03,0x00);        //Column Start
Set_LCD_SPI_REG_8b(0x04,0x00);
Set_LCD_SPI_REG_8b(0x05,0xEF);        //Column End

Set_LCD_SPI_REG_8b(0x06,0x00);
Set_LCD_SPI_REG_8b(0x07,0x00);        //Row Start
Set_LCD_SPI_REG_8b(0x08,0x01);
Set_LCD_SPI_REG_8b(0x09,0x3F);        //Row End


//################################################################
// Power Off Setting
Set_LCD_SPI_REG_8b(0x28,0x38);        //GON='1' DTE='1' D[1:0]='10'
DelayX1ms(40);
Set_LCD_SPI_REG_8b(0x1F,0x89);        // GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1
DelayX1ms(40);
Set_LCD_SPI_REG_8b(0x28,0x04);        //GON='0' DTE='0' D[1:0]='01'
DelayX1ms(40);
Set_LCD_SPI_REG_8b(0x19,0x00);        //OSC_EN='0'
DelayX1ms(5);
M51_WR_REG(U05_LCD_POWER_ON,          0x00);      //VCI & IOVCC OFF
```

3. OTP Programming

	YA[2:0]=111	YA[2:0]=110	YA[2:0]=101	YA[2:0]=100	YA[2:0]=011	YA[2:0]=010	YA[2:0]=001	YA[2:0]=000	Non-Program
XA[4:0]=00h	ID17	ID16	ID15	ID14	ID13	ID12	ID11	ID10	00h
XA[4:0]=01h	Valid_ID	ID26	ID25	ID24	ID23	ID22	ID21	ID20	00h
XA[4:0]=02h	ID37	ID36	ID35	ID34	ID33	ID32	ID31	ID30	00h
XA[4:0]=03h	VMF17	VMF16	VMF15	VMF14	VMF13	VMF12	VMF11	VMF10	00h
XA[4:0]=04h	VMF27	VMF26	VMF25	VMF24	VMF23	VMF22	VMF21	VMF20	00h
XA[4:0]=05h	VMF37	VMF36	VMF35	VMF34	VMF33	VMF32	VMF31	VMF30	00h
XA[4:0]=06h	VMH7	VMH6	VMH5	VMH4	VMH3	VMH2	VMH1	VMH0	00h
XA[4:0]=07h	VML7	VML6	VML5	VML4	VML3	VML2	VML1	VML0	00h
XA[4:0]=08h	--	--	--	Valid_VML	Valid_VMH	Valid_VMF3	Valid_VMF2	Valid_VMF1	00h
XA[4:0]=09h	Valid_Panel		DDVDH_TRI		SS_PANEL	GS_PANEL	REV_PANEL	BGR_PANEL	00h

Table 3. 1 OTP ADDRESS MAPPING
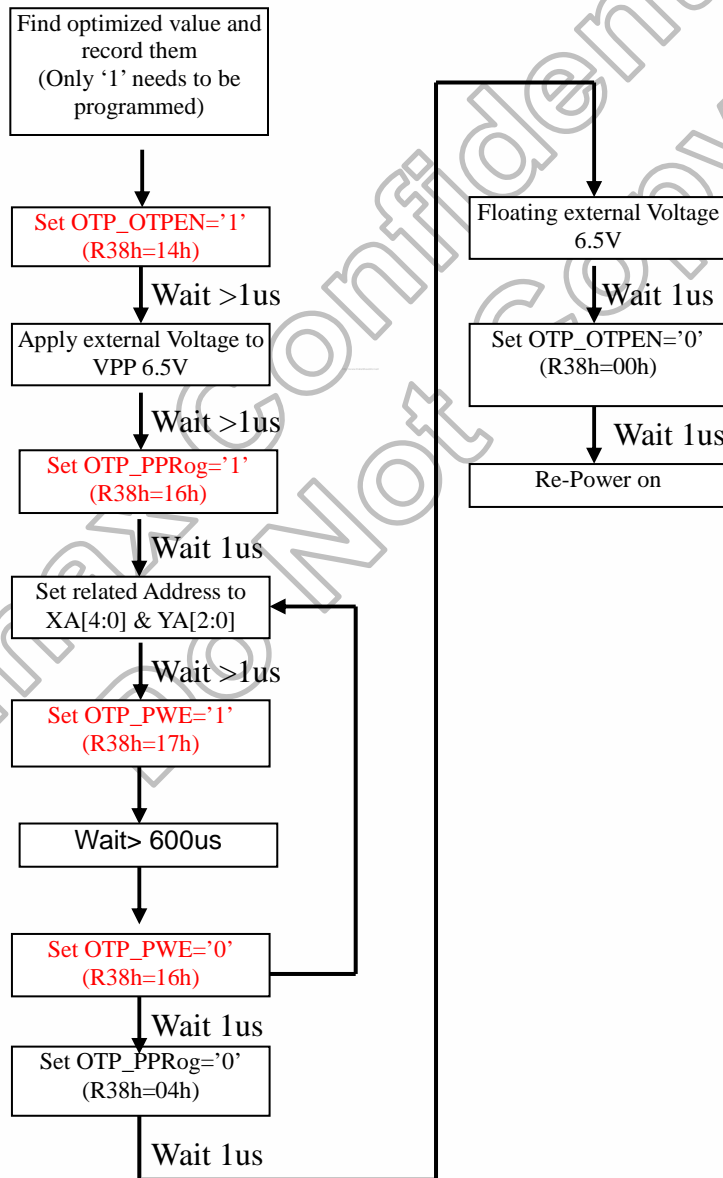
Note: Valid bit must program if user want use this OTP function

4. Revision History

Version	Date	Description of changes
01	2008/08/11	New setup
	2008/08/20	P7 and P13 modify VCOM setting
	2008/09/15	Modify P11 SPI+RGB reference FPC circuit Modify normal mode at 70Hz Modify P14 OTP Programming
	2008/10/13	Add CMO 2.0" application
	2008/10/17	1. Modify P8 P9 P10 CMO2.6" Power Off Setting, Enter Sleep mode Setting, and Enter Deep Sleep mode Setting 2. Modify P14 P15 P16 CMO2.0" Power Off Setting, Enter Sleep mode Setting, and Enter Deep Sleep mode Setting
	2008/11/12	Modify CMO 2.0" application circuit
	2008/11/14	Add CMO 2.2" and 2.8" initial code
	2009/03/04	Add CMO 2.4 initial code
	2009/03/18	Add CPT2.0" application Add ID OTP table
	2009/05/25	Add CMO 2223 panel initial code Add CMO 2807 panel initial code