PRODUCT : LCD MODULE

SUPPLIER : TRULY SEMICONDUCTORS LTD.

CERT. No.QAC0946535 (ISO9001) CERT. No.HKG002005 (ISO14001)

TFT-G240320UTSW-146W-TP-E APPLICATION NOTE

This application note is only for reference and maybe changed without any notice .
Please contact TRULY R&D department for update files and product status before design for this product or release the order.

WRITTEN BY	APPROVED BY
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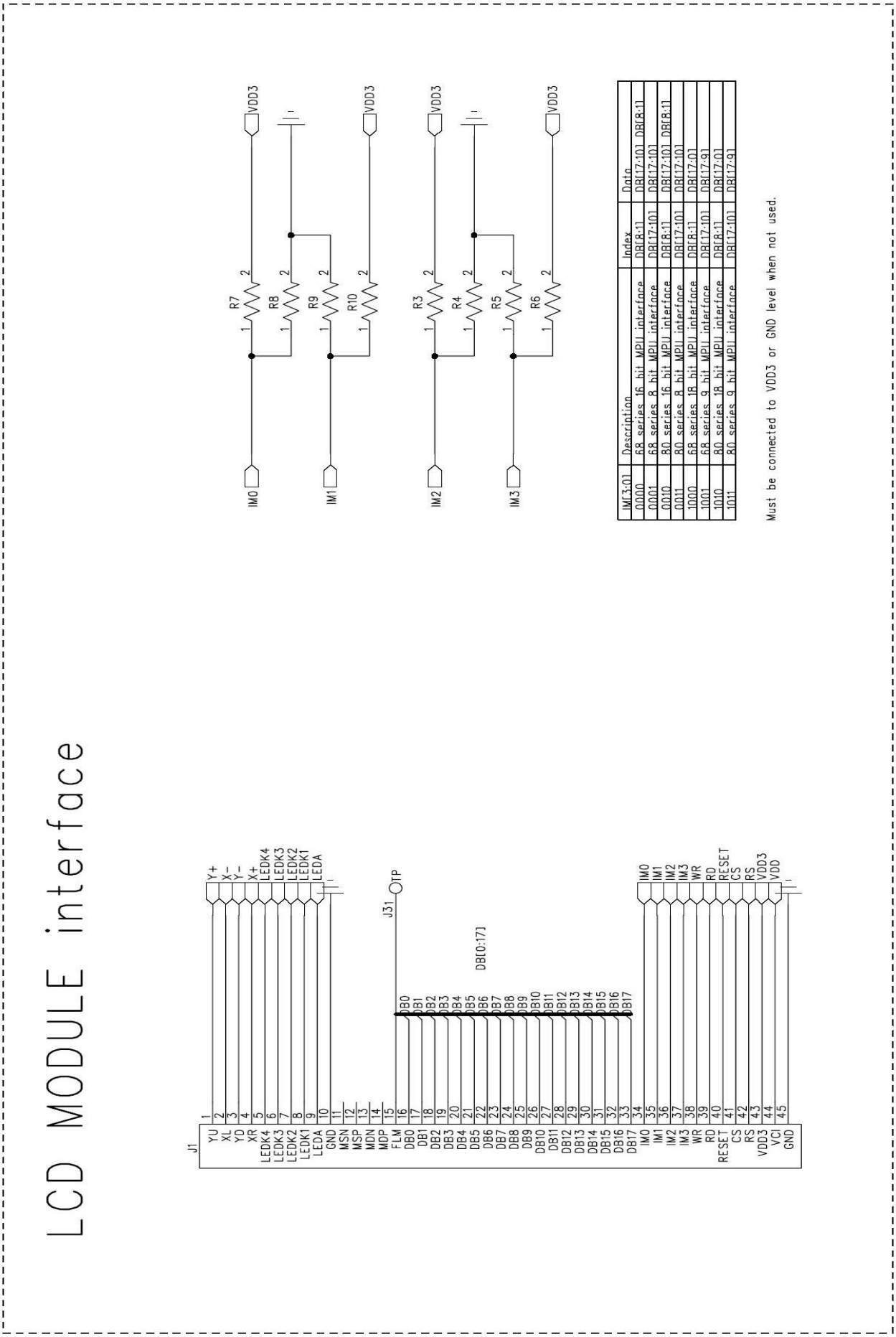
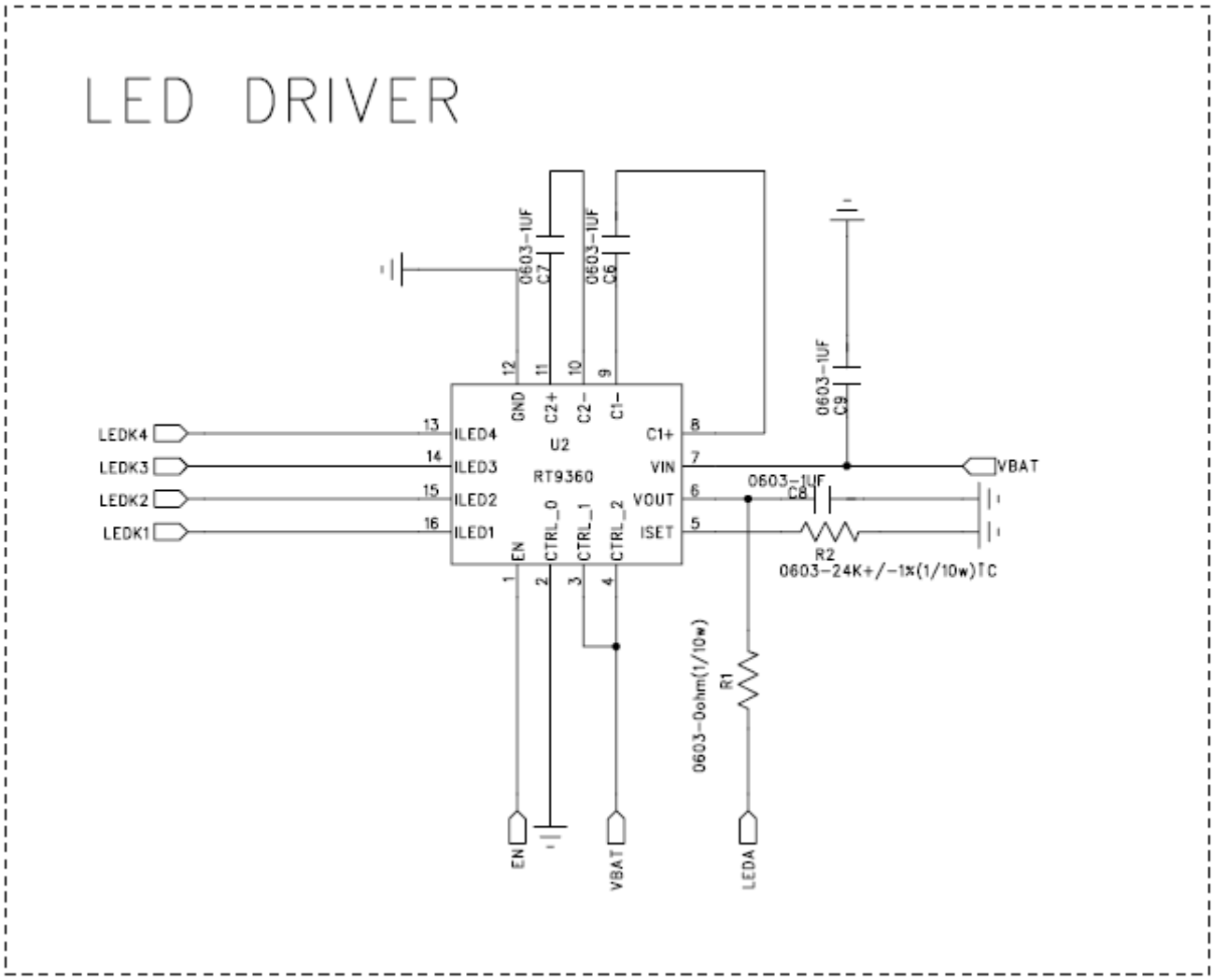
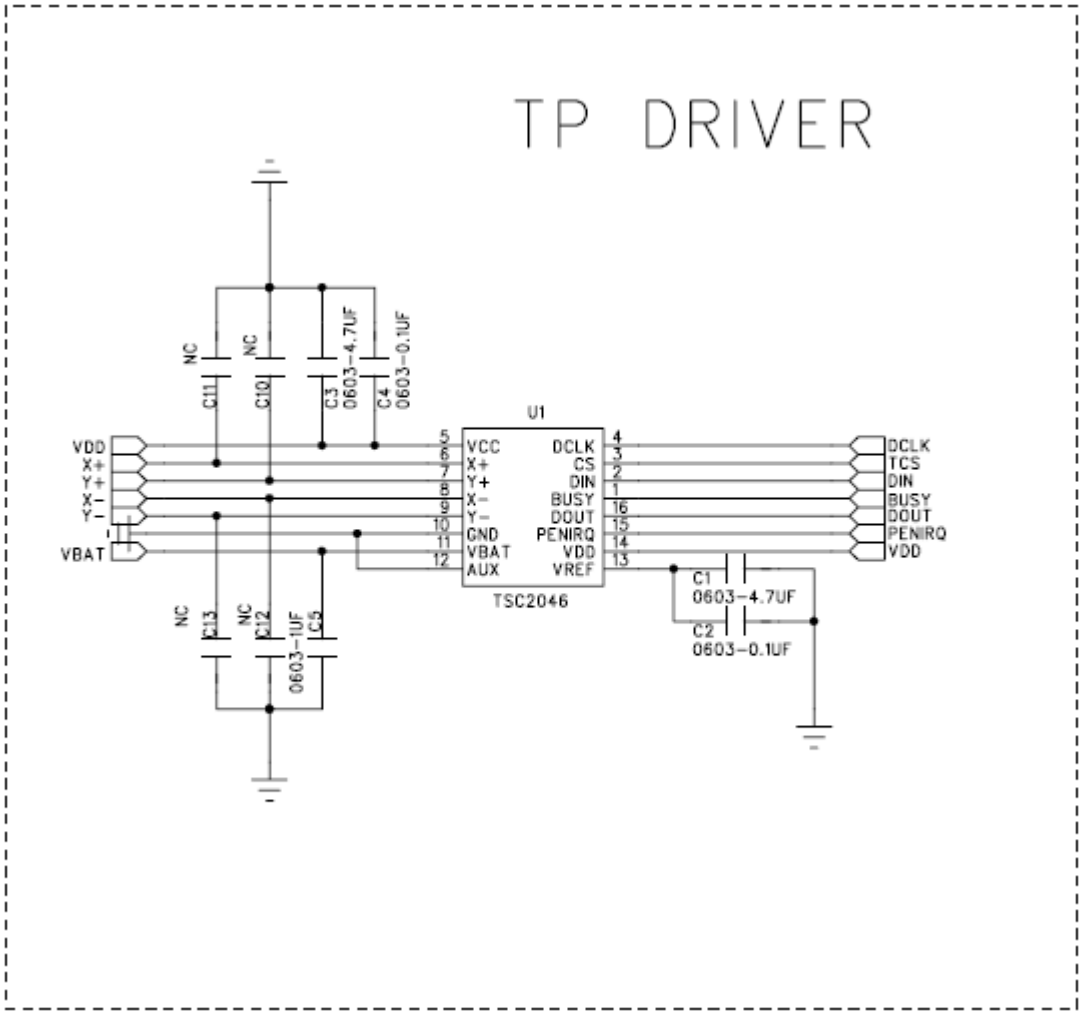
■ APPLICATION CIRCUIT

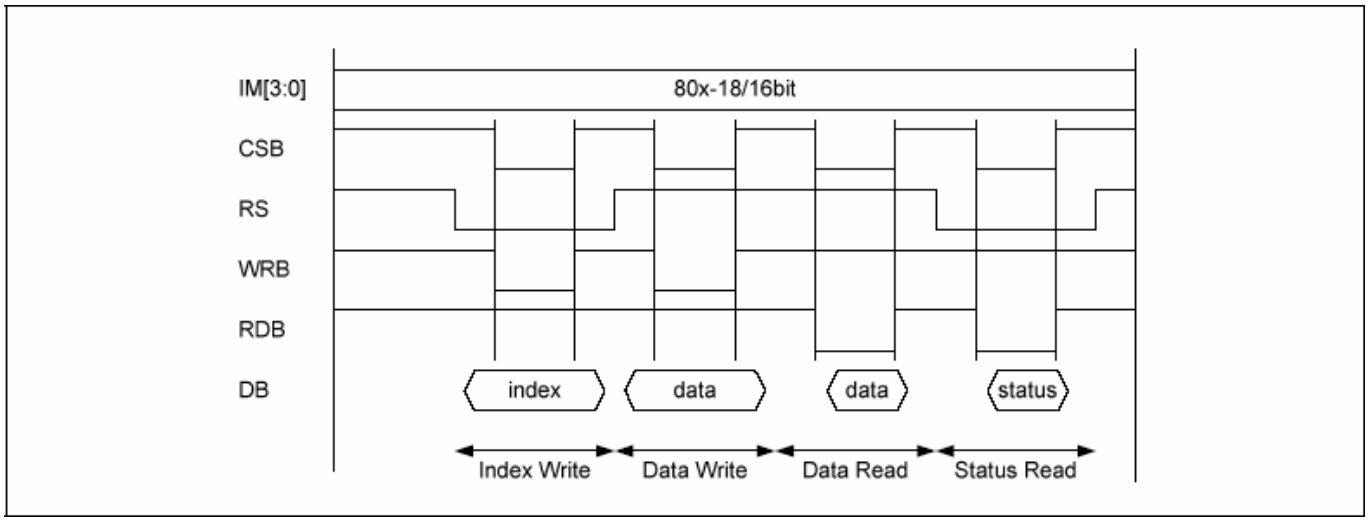



LED DRIVER
0603-1UF
C7
0603-1UF
C6
0603-1UF
C9
U2
RT9360
GND
C2+
C2-
C1-
C1+
VIN
VOUT
ISET
EN
CTRL_0
CTRL_1
CTRL_2
ILED4
ILED3
ILED2
ILED1
LEDK4
LEDK3
LEDK2
LEDK1
VBAT
0603-1UF
C8
R2
0603-24K+/-1%(1/10w)TC
R1
0603-0ohm(1/10w)
EN
VBAT
LEDA

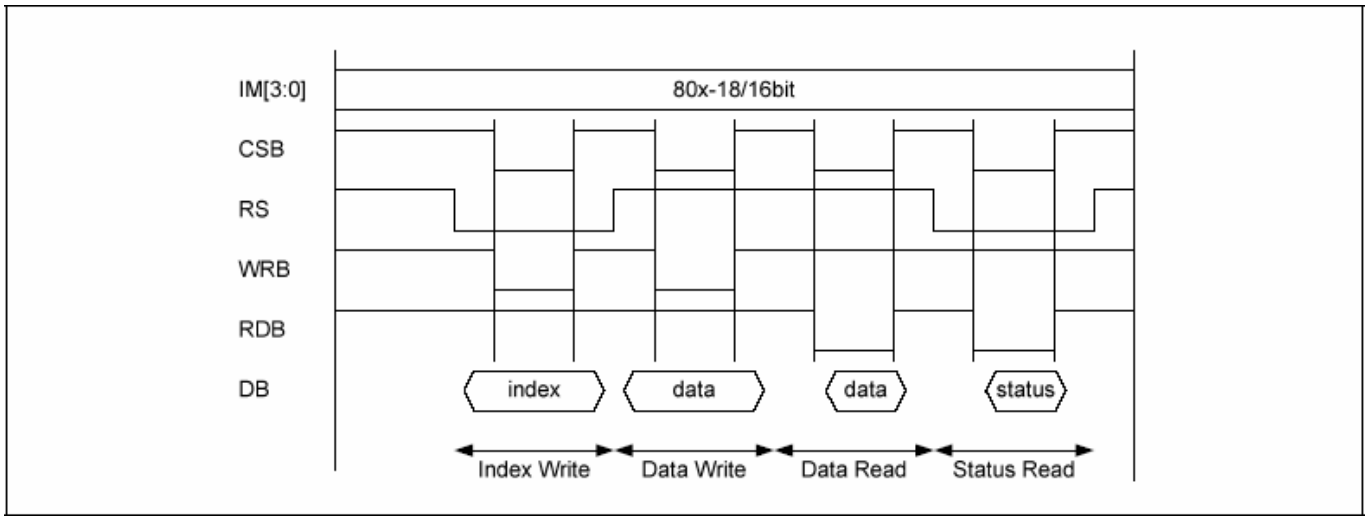

TP DRIVER
U1
TSC2046
VDD
X+
Y+
X-
Y-
VBAT
VCC
X+
Y+
X-
Y-
GND
VBAT
AUX
DCLK
CS
DIN
BUSY
DOUT
PENIRQ
VDD
VREF
DCLK
TCS
DIN
BUSY
DOUT
PENIRQ
VDD
NC
C11
NC
C10
C3
0603-4.7UF
C4
0603-0.1UF
NC
C13
NC
C12
0603-1UF
C5
C1
0603-4.7UF
C2
0603-0.1UF

■ TIMING CHART

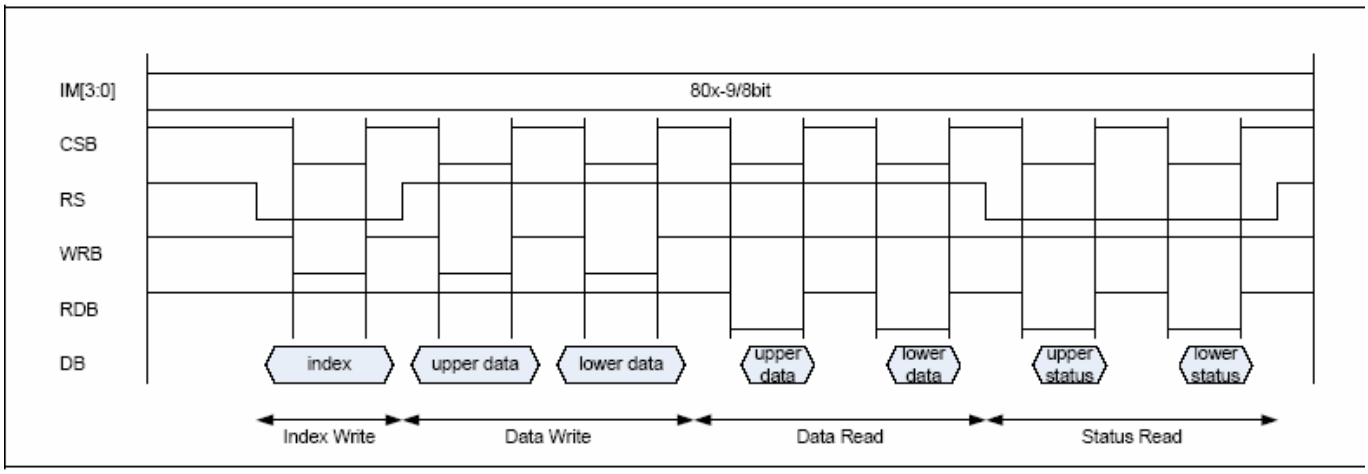
1 Timing Diagram of 80-18bit CPU Interface



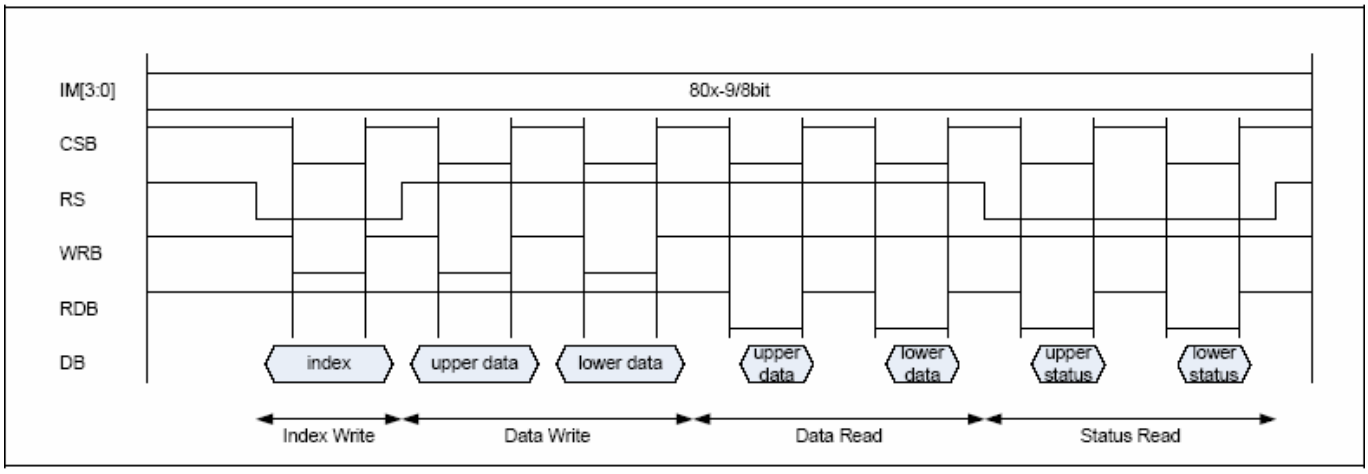
2 Timing Diagram of 80-16bit CPU Interface



3 Timing Diagram of 80-9bit CPU Interface



4 Timing Diagram of 80-8bit CPU Interface



■ INITIAL CODE

POWER ON → RESET THE DEVICE

```
void MainLCD_Init(void)
{

WMLCDCOM(0x0080); WMLCDDATA(0x008D);
WMLCDCOM(0x0092); WMLCDDATA(0x0010);
WMLCDCOM(0x0011); WMLCDDATA(0x001B);
WMLCDCOM(0x0012); WMLCDDATA(0x2101);
WMLCDCOM(0x0013); WMLCDDATA(0x006B);
WMLCDCOM(0x0014); WMLCDDATA(0x4A5C);
WMLCDCOM(0x0010); WMLCDDATA(0x0800);
Delayms(15);//delay 15 millisecond
WMLCDCOM(0x0011); WMLCDDATA(0x011B);
Delayms(15);
WMLCDCOM(0x0011); WMLCDDATA(0x031B);
Delayms(15);
WMLCDCOM(0x0011); WMLCDDATA(0x071B);
Delayms(15);
WMLCDCOM(0x0011); WMLCDDATA(0x0F1B);
Delayms(20);
WMLCDCOM(0x0011); WMLCDDATA(0x0F3B);
Delayms(30);
WMLCDCOM(0x0001); WMLCDDATA(0x0128);
WMLCDCOM(0x0002); WMLCDDATA(0x0100);
WMLCDCOM(0x0003); WMLCDDATA(0x1030);
WMLCDCOM(0x0007); WMLCDDATA(0x1012);
WMLCDCOM(0x0008); WMLCDDATA(0x0808);
WMLCDCOM(0x000B); WMLCDDATA(0x1105);
WMLCDCOM(0x000C); WMLCDDATA(0x0000);
```

```
WMLCDCOM(0x000F); WMLCDDATA(0x1A01);
Delayms(15);
WMLCDCOM(0x0015); WMLCDDATA(0x0070);
WMLCDCOM(0x0036); WMLCDDATA(0x00EF);
WMLCDCOM(0x0037); WMLCDDATA(0x0000);
WMLCDCOM(0x0038); WMLCDDATA(0x013F);
WMLCDCOM(0x0039); WMLCDDATA(0x0000);
WMLCDCOM(0x0050); WMLCDDATA(0x0101);
WMLCDCOM(0x0051); WMLCDDATA(0x0500);
WMLCDCOM(0x0052); WMLCDDATA(0x0500);
WMLCDCOM(0x0053); WMLCDDATA(0x0400);
WMLCDCOM(0x0054); WMLCDDATA(0x0805);
WMLCDCOM(0x0055); WMLCDDATA(0x0009);
WMLCDCOM(0x0056); WMLCDDATA(0x0F00);
WMLCDCOM(0x0057); WMLCDDATA(0x0005);
WMLCDCOM(0x0058); WMLCDDATA(0x0000);
WMLCDCOM(0x0059); WMLCDDATA(0x0002);
WMLCDCOM(0x0007); WMLCDDATA(0x0012);
Delayms(10);
WMLCDCOM(0x0007); WMLCDDATA(0x0013);
WMLCDCOM(0x0007); WMLCDDATA(0x0017);
Delayms(20);
WMLCDCOM(0x0020); WMLCDDATA(0x0000);
WMLCDCOM(0x0021); WMLCDDATA(0x0000);
WMLCDCOM(0x0022);

}

void MainLCD_Standby(void)
{
WMLCDCOM(0x0015); WMLCDDATA(0x0000);
WMLCDCOM(0x0007); WMLCDDATA(0x0012);
Delayms(30);
WMLCDCOM(0x0007); WMLCDDATA(0x0000);
Delayms(30);
WMLCDCOM(0x0010); WMLCDDATA(0x0001);
}

void MainLCD_ExitStandby (void)
{
WMLCDCOM(0x0010); WMLCDDATA(0x0000);
Delayms(15);
WMLCDCOM(0x0080); WMLCDDATA(0x008D);
WMLCDCOM(0x0092); WMLCDDATA(0x0010);
WMLCDCOM(0x0011); WMLCDDATA(0x001B);
```

```
WMLCDCOM(0x0012); WMLCDDATA(0x2101);
WMLCDCOM(0x0013); WMLCDDATA(0x0066);
WMLCDCOM(0x0014); WMLCDDATA(0x4656);
WMLCDCOM(0x0010); WMLCDDATA(0x0800);
Delayms(15);
WMLCDCOM(0x0011); WMLCDDATA(0x011B);
Delayms(15);
WMLCDCOM(0x0011); WMLCDDATA(0x031B);
Delayms(15);
WMLCDCOM(0x0011); WMLCDDATA(0x071B);
Delayms(15);
WMLCDCOM(0x0011); WMLCDDATA(0x0F1B);
Delayms(20);
WMLCDCOM(0x0011); WMLCDDATA(0x0F3B);
Delayms(30);
WMLCDCOM(0x0015); WMLCDDATA(0x0070);
WMLCDCOM(0x0007); WMLCDDATA(0x0012);
Delayms(10);
WMLCDCOM(0x0007); WMLCDDATA(0x0013);
WMLCDCOM(0x0007); WMLCDDATA(0x0017);
Delayms(20);
}

void MainLCD_DeepStandby(void)
{
      WMLCDCOM(0x0015); WMLCDDATA(0x0000);
      WMLCDCOM(0x0007); WMLCDDATA(0x0012);
      Delayms(30);
      WMLCDCOM(0x0007); WMLCDDATA(0x0000);
      Delayms(30);
      WMLCDCOM(0x0010); WMLCDDATA(0x0002);
}

void MainLCD_ExitDeepStandby(void)
{
    LCD_HardwareReset();
    MainLCD_Init();
    MainLCD_FullColor(0xffff);
}
```