ITAMS
Applied Microcontroller Systems

Indholdsfortegnelse

LAB 3a

1.1 Lektion 15-02-2018

GraphicTFT display driver

Driver for "ITDB02 320 x 240 TFT display module, Version 2"mounted at "ITDB02 Arduino Mega2560 Shield".

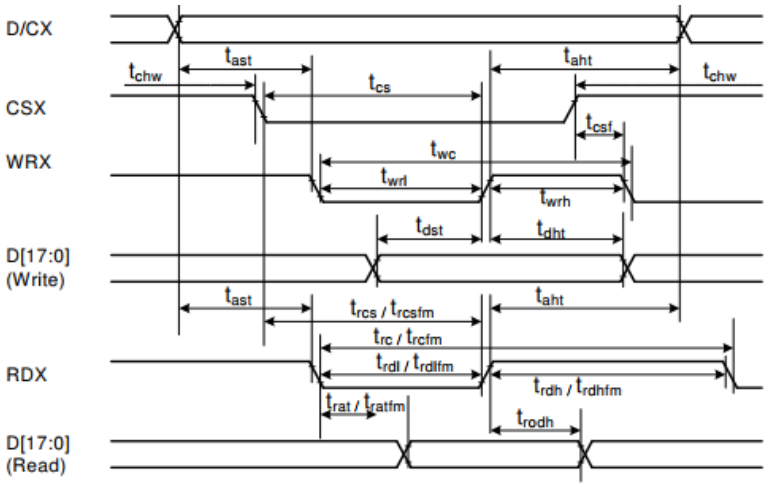
Display controller = ILI 9341.

Connections	
DB15-DB8:	PORT A
DB7-DB0:	PORT C
RESETx:	PORT G, bit 0
CSx:	PORT G, bit 1
WRx:	PORT G, bit 2
RS (=D/Cx):	PORT D, bit 7

```
// Data port definitions:
#define DATA_PORT_HIGH PORTA
#define DATA_PORT_LOW  PORTC

// Control port definitions:
#define WR_PORT PORTG
#define WR_BIT 2
#define DC_PORT PORTD
#define DC_BIT  7  // SHIELD RS
#define CS_PORT PORTG
#define CS_BIT  1
#define RST_PORT PORTG
#define RST_BIT 0
```

Start by implementing the basic, time-critical functions.



Figur 1.1: Timing Characteristics (8080- system).

`PORTD &= ~(1 << n);` will set PIN n low.

`PORTD |= (1 << n);` will set PIN n high.

```
void WriteCommand(unsigned int command)
{
DATA_PORT_LOW = command;
DC_PORT &= ~(1<<DC_BIT);        // DCX LOW = COMMAND MODE
CS_PORT &= ~(1<<CS_BIT);        // CSX LOW
WR_PORT &= ~(1<<WR_BIT);        // WRX LOW
_NOP();                         // DELAY = twrl 15ns
WR_PORT |= (1<<WR_BIT);         // WRX HIGH
_NOP();                         // DELAY = tcf 10ns
}

void WriteData(unsigned int data)
{
DATA_PORT_HIGH = (data >> 8);       // MSB
DATA_PORT_LOW  = data;              // LSB
DC_PORT |= (1<<DC_BIT);             // DCX HIGH = DATA MODE
CS_PORT &= ~(1<<CS_BIT);            // CSX LOW
WR_PORT &= ~(1<<WR_BIT);            // WRX LOW
_NOP();                             // DELAY = twrl 15ns
WR_PORT |= (1<<WR_PORT);            // WRX HIGH
_NOP();                             // DELAY = twcf 10ns
}
```