iP597x slave I2C timing chart:

Because iP597x has 16 bit register address, the high byte is page byte and the low byte is register address byte.

- **Write Sequence**

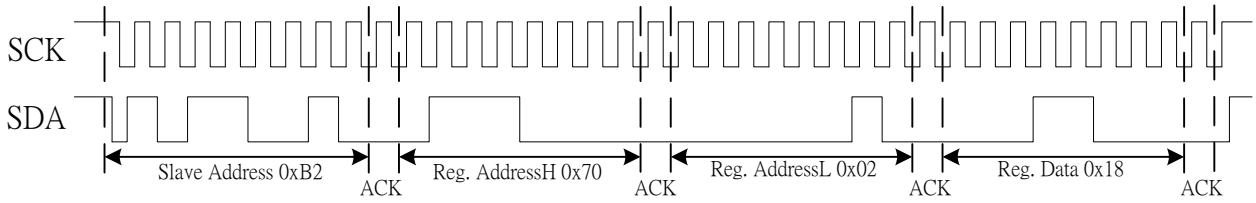

Fig.1

for example: write 0x7002 = 0x18

1. set the high byte register page:

ID address = 0xB2

Reg. Address High Byte = 0x70

Reg. Address Low Byte = 0x02

Reg. Data = 0x18

- **Read Sequence**

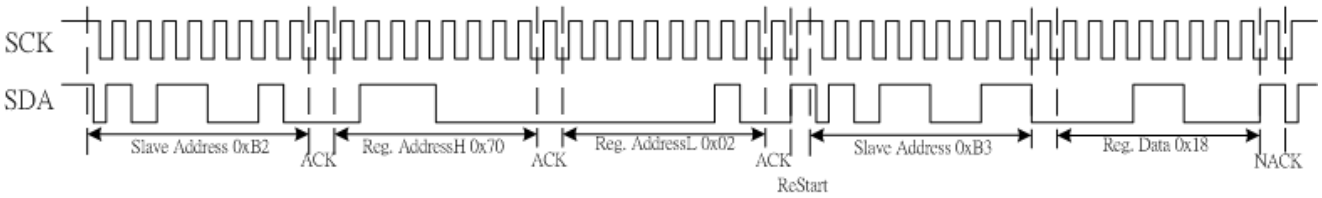

Fig.2

for example: read 0x7002 sequence:

1. set the high byte register page:

ID Write address = 0xB2

Reg. Address High Byte = 0x70

Reg. Address Low Byte = 0x02

ID Read address = 0xB3

Read 「Reg. Data」

Control sensor registers through iP597x slave I2C:

Because all the sensor control registers are in page 0xFE, user only needs to set one time page setting.

Write sensor registers:

For example:

Set sensor 0x55 = 0x68 (8bit mode, OV7740)

iP597x (R/W)	iP597x Reg. Address	iP597x Data	
W	0x7047	0x50	Set I2C mode
W	0x7049	0x21	Sensor Slave Address
W	0x704A	0x55	Set sensor register address
W	0x704C	0x68	Set sensor register data
W	0x7048	0x01	Write 0x01 will trig the I2C start to send.
R	0x7048	0x00, 0x01 or 0x10	0x00: I2C complete 0x01: I2C still transfer 0x10: I2C Fail

Read sensor registers:

For example:

Read sensor 0x55 (8bit mode, OV7740)

iP597x (R/W)	iP597x Reg. Address	iP597x Data	
W	0x7047	0x50	I2C mode
W	0x7049	0x21	Sensor Slave Address
W	0x704A	0x55	Set sensor register address
W	0x7048	0x02	Write 0x02 will trig the I2C start to send.
R	0x7048	0x00, 0x02 or 0x10	0x00: I2C complete 0x02: I2C still transfer 0x10: I2C Fail
R	0x704E	0xZZ	Register data

SPI interface with H.264 video stream output

iP597x can output H.264 video stream through SPI interface. User must check the EMPTY pin to confirm that there is valid stream data in the buffer. If EMPTY goes to HIGH, it means no data in the buffer.

Note*

1. The defatult setting is one package within 256 Bytes. Check EMPTY pin once, then get 256 Bytes data.
2. Each one byte data needs a CS.

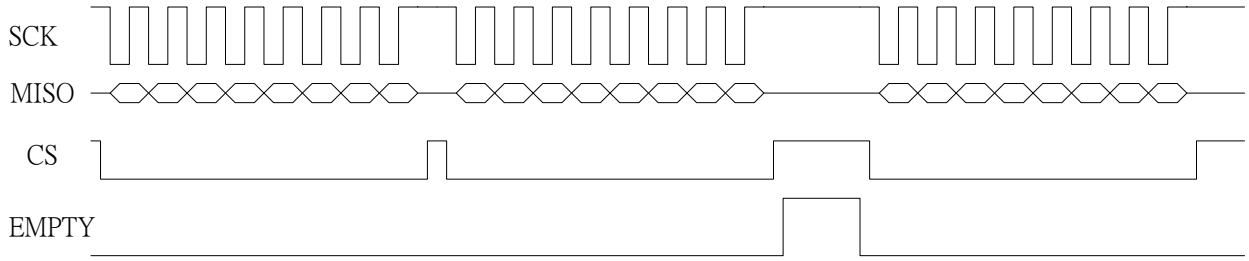

Fig.3
SPI Mode

Example SPI code for host

```
void SPI_Initial(void)
{
    1. Initial SPI interface of SOC as master mode.
    2. Set SPI clock as 20Mhz~25Mhz. Each byte needs a CS toogle.
    3. Initial one GPIO pin as intput only to detect iP597x Empty pin.
}

#define BUFFERSIZE 256
BYTE buffer[BUFFERSIZE];
void SPI_H264_Read_Page(void)
{
    while( Empty_Pin == 1 );
    SPI_Read_256Bytes(&buffer); //Get 256Bytes each time，then check Empty_Pin.
}
```

Schematic for iP597x demo board

iP597x Slave I2C Interface:

I2C SCK-->J2 pin1 , I2C SDA-->J2 pin3

iP597x H.264 SPI Interface:

SPI MISO-->J2 pin7, SPI SCK-->J2 pin9, SPI CS-->J2 pin11

Empty Pin-->J2 pin13, VIDEO/AUDIO DETECT-->J2 pin15(Option)