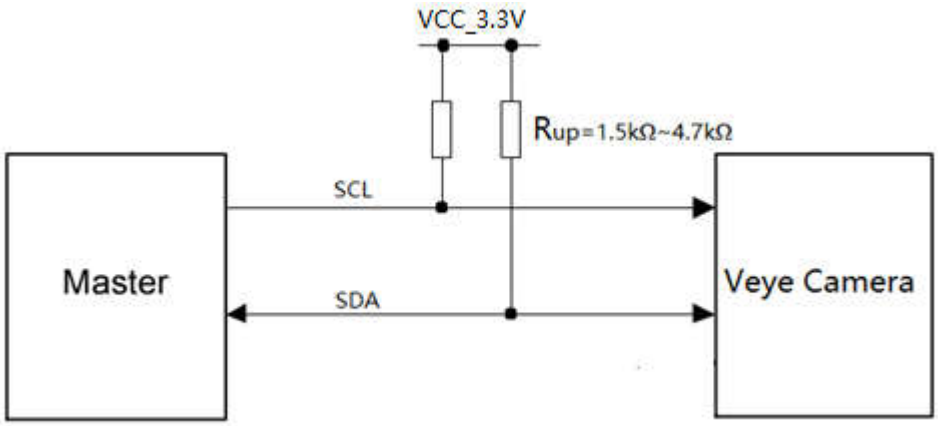
VEYE 系列 200 万像素星光模组控制接口使用指南

概要

VEYE 系列模组 控制接口采用 I2C 串行通信接口，遵循标准 I2C 接口协议（100KHz）。通过该接口，可以对 VEYE 系列模组进行帧率调整、宽动态控制、强制黑白、日夜滤波片切换等相关控制。

设备连接



设备地址

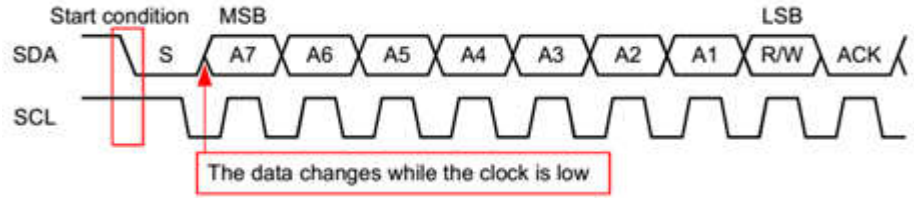
VEYE 系列模组设备地址 SlaveAddress[7:1]=0x7B，即

MSB							LSB
1	1	1	1	0	1	1	0/1(W/R)

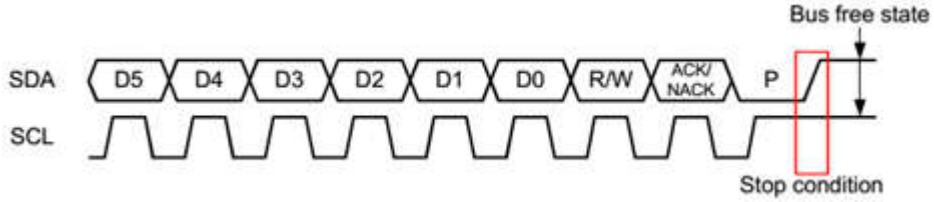
访问协议

控制接口采用 MSB 模式，高位优先传输。

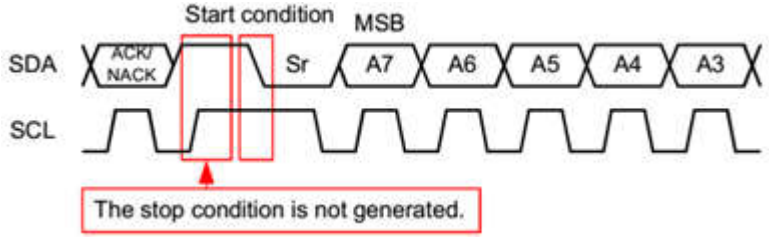
开始（Start Condition）



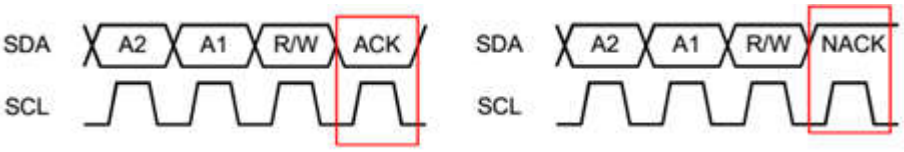
结束（Stop Condition）



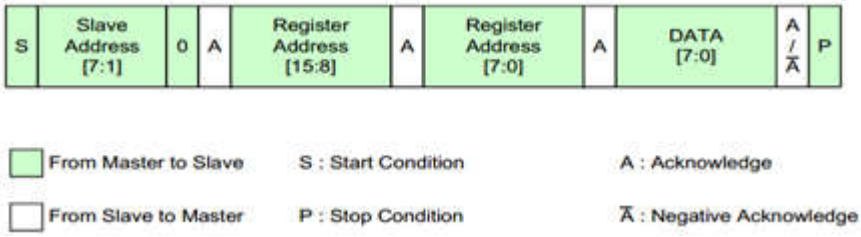
重复开始（Repeated Start Condition）



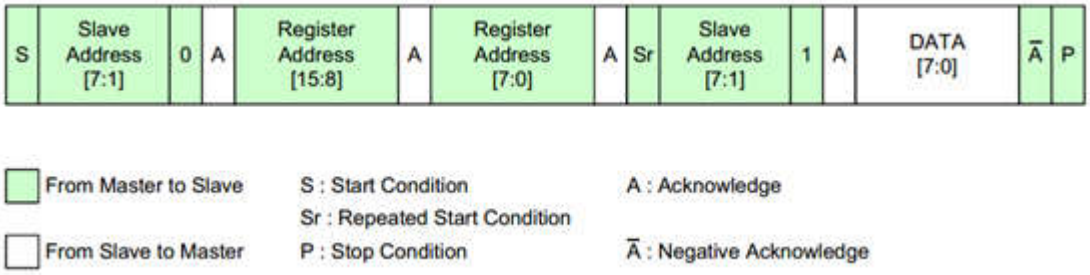
响应与不响应（Acknowledge and Negative Acknowledge）



写随机寄存器（Single Write to Random Location）



读随机寄存器（Single Read to Random Location）



访问范例

1、复位视频流（Video Stream Reset）0x0008=0xFE ---> 0x0008=0xFF

S	SlaveAddress Write								A	Register Address [15:8]								A	Register Address [7:0]								A	Write data								A	P
	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	0	0	
S	SlaveAddress Write								A	Register Address [15:8]								A	Register Address [7:0]								A	Write data								A	P
	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	0	

2、获取设备类型，0x0000 = 0x02(MIPI_2Lane)

S	SlaveAddress Write								A	Register Address [15:8]								A	Register Address [7:0]								A	Sr	SlaveAddress Read								A
	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1	1	1	1	0	1	1	1	0	

Return data								Ā	P
0	0	0	0	0	0	1	0	1	

设备寄存器表

地址	位	读写特性	寄存器名	位描述	默认
0x0000	[7:4]	RO	DeviceType	0x0:VEYE-MIPI-290	0x02
		RO		0x1:VEYE-LVDS-290	
	[3:0]	RO	DataWidth	0x1:1 Lane	
		RO		0x2:2 Lane	
		RO		0x3:3 Lane	
		RO		0x4:4 Lane	
0x0001	[7:0]	RO	Version	Hardware Version	0x01
0x0002	[7:4]	RO	Reserve	Reserve	0x08
	3	RW	Infrared lamp Active level	1:High Level means lamp On	
				0:Low level means lamp On	
	2	RW	IR-Cut Direction	IR filter Direction	
	1	RW	ForceMode	1:Force Mode Enable	
				0:Force Mode disable	
	0	RW	ForceColor	When ForceMode=1	
				1:Color Mode	
				0:Black-and-White Mode	
0x0003	7	RW	txfifo_rstn	VideoTxCmdFIFO reset, low active	0x9a
	6	RO	Reserve	Reserve	
	5	RO	txfifo_full	VideoTxCmdFIFO full	
	4	RO	txfifo_empty	VideoTxCmdFIFO empty	
	[3:0]	RO	Reserve	Reserve	
0x0007	[7:1]	RO	Reserve	Reserve	0xFE
	0	RW	VideoCtrlDisable	VideoCtrlDisable,high active	
0x0008	[7:1]	RO	Reserve	Reserve	0xFF
	0	RW	Video Stream Reset	Video Stream Reset, Low Active	
0x000B	[7:1]	RO	Reserve	Reserve	0xFE
	0	RW	ContinuousClockMode	MIPI Continuous Clock Mode Enable	
0x0010	[7:0]	RW	VideoRegAddrMSB	Video Control Register Address MSB	0x00
0x0011	[7:0]	RW	VideoRegAddrLSB	Video Control Register Address LSB	0x00
0x0012	[7:0]	RW	VideoRegCfgValue	Write Video Control Register Value	0x00
0x0013	[7:0]	RW	VideoRegCmd	0x00:Write Command	0x00
				0x01:Read Command	
0x0014	[7:0]	RW	VideoRegAckValue	Current Video Control Register Value	0x00
Others	[7:0]	RW	Reserve	Reserve	0xFF

视频控制寄存器（Video Control Register）表

地址	位	读写特性	寄存器名	位描述	默认
0xDB32	[7:2]	Reserve	Reserve	Reserve	0x00
	[1:0]	RW	Back Light Mode	Back Light Mode Select 0x0: OFF 0x1: BLC 0x2: HBLC 0x3: WDR	
0xDEC2	[7:1]	Reserve	Reserve	Reserve	0x00
	0	RW	FRAME RATE	FRAME RATE Select 0x0: 25fps 0x1: 30fps	
0xDE57	[7:2]	Reserve	Reserve	Reserve	0x00
	[1:0]	RW	MIRROR_MODE	Mirror Mode 0x0: Normal 0x1: Mirror 0x2: V-Flip 0x3: Mirror And V-Flip(180 Degree Rotate)	
0xD89B	[7:4]	Reserve	Reserve	Reserve	0x02
	[3:2]	RW	DNR2_MODE	NR 2D Mode 0x0: OFF 0x1: LOW 0x2: MIDDLE 0x3: HIGH	
	[1:0]	RW	DNR3_MODE	NR 3D Mode 0x0: OFF 0x1: LOW 0x2: MIDDLE 0x3: HIGH	
0xDA64	[7:5]	Reserve	Reserve	Reserve	0x00
	[4:1]	RW	LOW LIGHT FRAME RATE Control	0x0:1/2 0x1:1/4 0x2:1/6 0x3:1/8 0x4:1/10 0x5:1/15	

				0x6:1/20 0x7:1/25 0x8:1/30	
	0	RW	LOW LIGHT FRAME RATE Control	0x0: FRAME RATE constant 0x1:Low Light FRAME RATE Control Enable	
0x40EA	[7:5]	Reserve	Reserve	Reserve	0x00
	4	RW	TestEnable	Output Test Pattern Enable	
	[3:0]	Reserve	Reserve	Reserve	
0x40EB	[7:5]	Reserve	Reserve	Reserve	0x14
	[4:0]	RW	Test Pattern	0x0: Horizontal Color Bar 0x1: Vertical Color Bar, 0x2 : Horizontal Color Plane, 0x3 : Vertical Color 0x4 : Horizontal B/W Line Bar, 0x5 : Vertical B/W Line Bar, 0x6 : Outline, 0x7 : White Plane, 0x8 : Yellow Plane, 0x9 : Cyan Plane, 0xA : Green Plane, 0xB : Magenta Plane, 0xC : Red Plane, 0xD : Blue Plane, 0xE : Black Plane, 0xF : User Color, 0x10 : Hatch, 0x11 : Horizontal Y Ramp1, 0x12 : Vertical Y Ramp1, 0x13 : Horizontal C RAmp1, 0x14 : Vertical C RAmp1,	