This document is just for having quick TIPS for using I2C debugger (AARDVARK), basically based on experiment performed by Najeem Lawal and Muhammad Imran for setting camera register of 1/3-Inch Wide-VGA CMOS Digital Image SensorMT9V032.



1,3,4 sho be towards yellow direction when programing I2C register..2 on RED direction

## open AARDVARK GUI



Click I2C-SPI and select the port

Configure Aardvark Adapter	×
<b>Configure Aardvark Adapte</b>	er
Select an Aardvark port	Select a Mode
P FW HW I2C SPI GPIO Serial Num	I2C - SPI
0 3.50 3.00 Y Y Y 2237-147514	
	C GPIO Only
	O Batch Mode
	12C Monitor
Refresh List	
	OK Cancel

Switch on the i2c by writing 0x(E6/2)=0x73 as the 8-bit address of a two-wire serial interface device consists of 7 bits of address and 1 bit of direction. A "0" in the LSB of the address indicates write mode, and a "1" indicates read mode. But this will wash out the previously configured data in camera if you did through programming. If already configured register through code, then instead of 0x73 give slave address 0xB8/2=0x5C. Every time you want to see any value in register, first write its address through Master Write, then read it using Master Read. You can Free the bus when needed. How many number of bytes needs to be read or written can be specified in the Text box of Number of Bytes.

slv\_adr\_o <= "11100110"; -- 0xE6 reg\_adr\_o <= "00000001"; -- 0x01 reg\_dat\_o <= "00000001"; -- 0x01

Aardvark I2C/SPI Control File Aardvark Help	Center									
I2C Control			Bitrate	Set	400 💌	kHz	SPI Co	ontrol	Bitrate	Set 4000 💌 kH
Master         Slave           Slave Addr.         0x73           (For Hex: enter "0x")         Free Bus           Features:         10-Bit Addr           Combined FMT         No Stop           Master Write         Noncord						us	Polarity: Rising/F Falling/F Master SI SS Polarity:	Phase: alling © Sample/Set Rising © Setup/Samp ave   © SS Active Low © SS Activ	ıp le e High	Bit Order: MSB CLSB
Of 01     Of 02     O	Sav	e		×	Master V	√rite	MOSI Messi	ige		Send
Number of Bytes: 64				ŀ	Master R	ead	Clear	Load Save		_
Transaction Log										
Time	Mod.	R/W	M/S	Feat.	B.R.	Addr.	Len.	Data		
2010-12-03 20:23:02.655	I2C	W	М		400	0x73	0			
2010-12-03 20:23:04.717	I2C				100	0.70		I2C Bus Freed		
2010-12-03 20:23:07.342	12C	W	M		400	0x73	0			
2010-12-03 20:23:48.421	120	W	121		400	0x5C	0			
2010-12-03 20(23(50,717	120	ĸ	191		400	0,50	U	I2C Buc Ereed		
2010-12-03 20:24:41.015	120	w	M		400	0x73	2	01.01		
								,	Clear I	.og Save to File

Next step is setting values for different registers either through code or through this software

slv_adr_o <= "10111000"; 0xB8	
reg_adr_o <= "00000011"; 0x03	rows regiter
reg_dat_o <= "00000001"; 0x01	"00000001"; defualt in program 0x01

next is the first byte

slv\_adr\_o <= "10111000"; -- 0xB8 reg\_adr\_o <= "11110000"; -- 0xF0 reg\_dat\_o <= "00001100";-- 0x01C0=268 rows

I2C Control Bitrate Set 400 V KHz							SPI Control			Bitrate Set 4000 💌 kH	
Master Slave							Polarity:		Phase:		Bit Order:
Slave Addr Dx5c /For f	lav: anta	r "0v	ŋ		Free B	us []	Rising/F	alling	Sample/Setup		MSB
Features: 10.Bit Addr Combined FMT No Stop						<u> </u>	C Falling/F	Rising	C Setup/Sample		C LSB
Features: ] 10-Bit Addr   Combined FMT   No Stop							Master Let				
Master Write							master   Sta	ave	G		
Message							SS Polarity:	<ul> <li>SS Active I</li> </ul>	.ow 🔘 SS Active H	ligh	
03 、					Master V	Vrite	MOSI Messa	age			
					1000011						≜ Send
03 represent re	w regit	er									
0x5c Represen	nt slave	addre	55								
				-							
							I				
Class   Land	6										
Clear Load	Sav	e									
Clear Load Master Read	Sav	e									<b>_</b>
Clear Load Master Read	Sav	e		[]	daster F	and 1	Clear	load	Save		<b>*</b>
Clear Load Master Read Number of Bytes: 8	Sav	e		I	Aaster F	lead	Clear	Load	Save		Y
Clear Load Master Read Number of Bytes: 8	Sav	e			Master F	lead	Clear	Load	Save		Y
Clear Load Master Read Number of Bytes: 8 Transaction Log Time	Mod	P /W		Feat	Aaster F	lead	Clear	Load	Save		
Clear         Load           Master Read	Mod.	R/W	M/S	Feat.	Aaster F	Addr.	Clear Len.	Load Data	Save		<u> </u>
Clear         Load           Master Read	Mod. 12C	R/W W	M/S M	Feat.	Aaster F B.R. 400	Addr.	Clear Len. 0	Data	Save		<u></u>
Clear         Load           Master Read         Number of Bytes:         8           Transaction Log         1         1           Time         2010-12-04 14:05:54.265 2010-12-04 14:05:54.500 2010-12-04 15:05:52.326         2010-12-04 15:05:52.326	Mod. 12C 12C	R/W W W	M/S M M M	Feat.	Aaster F B.R. 400 400	Addr. 0x5c 0x5c 0x5c	Clear Len. 0 3 0	Load Data AF 00 00	Save		× 
Clear         Load           Master Read         Number of Bytes:         8           Transaction Log         2010-12-04 14:05:54.265         2010-12-04 15:03:52.328           2010-12-04 15:03:52.328         2010-12-04 15:03:52.328         2010-12-04 15:03:52.328	Mod. 12C 12C 12C 12C	R/W W W W	M/S M M M M	Feat.	Aaster F B.R. 400 400 400	Addr. 0x5c 0x5c 0x5c 0x5c	Clear Len. 0 3 0 1	Load	Save		× 
Clear         Load           Master Read            Number of Bytes:         8           Transaction Log            Time         2010-12-04 14:05:54.265           2010-12-04 14:05:54.500         2010-12-04 14:05:52.328           2010-12-04 14:05:52.921         2010-12-04 15:03:54.625           2010-12-04 15:03:54.625         2010-12-04 15:03:52.328	Mod. 12C 12C 12C 12C 12C 12C	R/W W W W W	M/S M M M M	Feat.	Aaster F B.R. 400 400 400 400 400	Addr. 0x5c 0x5c 0x5c 0x5c 0x5c	Clear	Load	Save		×
Clear         Load           Master Read         Number of Bytes:         8           Transaction Log         2010-12-04 14:05:54.265         2010-12-04 14:05:54.500           2010-12-04 14:05:54.500         2010-12-04 15:03:52.328         2010-12-04 15:03:55.921           2010-12-04 15:03:55.4625         2010-12-04 15:03:54.625         2010-12-04 15:03:54.625	Sav Mod. I2C I2C I2C I2C I2C I2C I2C	R/W W W W W	M/S M M M M M	Feat.	Aaster F B.R. 400 400 400 400 400 400	Addr. 0x5c 0x5c 0x5c 0x5c 0x5c 0x5c	Clear Len. 0 3 0 1 64 1	Data Data AF 00 00 03 01 0C 02 80 03	Save		× 

first write 03, reading 8 bytes.if Master write does not work first time, press it again. then press Master Read. you can see 8 bytes

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Download software <a href="http://www.totalphase.com/support/product/aardvark">http://www.totalphase.com/support/product/aardvark</a> i2cspi/