

Reset

0x02 [6]	SRST	Reset command
	0h : Active	1h : Reset

Adjustment for input clock and frame rate*Clock adjustment*

0x03 [3:0]	PLLMODE (4)	Mode selection for External clock
	0: PLL off, 1-F:PLL on	

Framerate adjustment

Basic frame speed can be adjusted by FRMSPD.

0x05 [7:6]	FRMSPD (2)	Frame rate selection
	0h: quarter frame rate, 1h: half frame rate, 2h: max frame rate	

In PLLOFF and FRMSPD=2h output frequency will be same as input frequency.

Output clock have to be set more than 17MHz in every framerate of full output mode.

Frame rate can be made slow by HCOUNT and VCOUNT. SPCOUNT have to adjust according to the setting of HCOUNT.

0x1A [7:0],1B [1:0]	HCOUNT (10)	Horizontal pixel adjustment
	Horizontal pixel clock number	
	= H_COUNT(default: 713) + 677	
	(713: 1390 clocks to 1023: 1700 clocks).	

0x1C [5:0],1B [7:4]	VCOUNT (10)	Vertical line adjustment
	Total line number (vertical pixel number)1052 = V_COUNT	
	(default: 539) +513	

0x1F [3:0],1E [7:0]	SPCOUNT (12)	Internal pulse adjustment
	4VGA, SXGA:	
	SP_COUNT= 2 x (H_COUNT +183) in decimal.	
	QVGA:	
	SP_COUNT= 2 x (H_COUNT +192) in decimal.	
	Other image size:	
	SP_COUNT= 2 x (H_COUNT +191) in decimal.	

To satisfy flickerless operation following setting have to be adjusted.

0x4E [3:0], 4D [7:0]	L8P100S (12)	Number of lines setting for 8/100[s]
	Adjust 8/100s by this setting.	
	$L8P100S = p[\text{line}] \times q[\text{fps}] \times 8/100$	
0x50 [3:0], 4F [7:0]	L8P120S (12)	Number of lines setting for 8/120[s]
	Adjust 8/120s by this setting.	
	$L8P120S = p[\text{line}] \times q[\text{fps}] \times 8/120$	
0x5F [7]	ACDETSW	Enable command for automatic switching of flickerless frequency
	0:OFF(manual select) 1:ON(automaticaly select)	
0x5F [6]	AC5060HZ	Manual setting of AC frequency
	0:AC50[Hz] 1:AC60[Hz]	
0x58 [7:4]	LSESLIM (4)	Maximum setting of exposure time

LSESLIM have to be set to satisfy following equation

Time of 1 frame > LSESLIM

0,1,Fh: not available 2: 3/100 4/120s 3:4/100 5/120s 4:1/20s 5:2/20s 6:3/20s
7: 4/20s 8: 1/4s 9:2/4s A:3/4s B:1s C: 5/4s D:10/4s E:15/4s

Data output control

0x04 [7]	DOUTOFF	Data output enable command
	0h : Data stop	1h : Data out

Output picture size

PICSIZ can be change output image size. In Full output two different sizes can be select by PICMODE.

0x04 [5:4]	PICMODE (2)	Full pixel size selection		
	0h : 4VGA(1280x960)	1h : SXGA (1280x1024)		
0x04 [2:0]	PICSIZ (3)	Output picture size selection		
	0h : Full (4VGA or SXGA)	1h : VGA	2h : QVGA	3h : QQVGA
	4h : CIF	5h : QCIF	6h : subQCIF	

In this mode change following address also have to be changed.

0x0E [7:0]	B0 / AB / AC	Full / QVGA / VGA,QQVGA,subQCIF,CIF,QCIF
0x11 [7:0]	6A / 4A / 4A	Full / QVGA / VGA,QQVGA,subQCIF,CIF,QCIF
0x14 [7:0]	33 / 34 / 33	Full / QVGA / VGA,QQVGA,subQCIF,CIF,QCIF
0x1F [3:0],1E [7:0]	SPCOUNT according to calculation	

Digital zoom

Digital zooming rate

0xE0 [5:0]	ZOOMMODE (6)	Zooming setting
	0h : Minimum (x1)	
	3Fh : Maximum (Maximum zoom rate is different from picture size)	

Filter of digital zooming

0xE0 [6]	AVGSW	ON/OFF of horizontal averaging In case of digital zooming
	0h : Averaging on	1h : Averaging off

Edge enhancement in digital zoom

0xE1 [7:5]	ZHCORE (3)	Suppression level of horizontal edge enhancement in digital zoom
	0h : No suppression	7h : Maximum suppression
0xE1 [4:0]	ZHDTL (5)	Horizontal edge enhancement level in digital zoom
	0h : No suppression	7h : Maximum suppression
0xE2 [7:5]	ZVCORE (3)	Suppression level of vertical edge enhancement in digital zoom
	0: 0, 7: maximum	
0xE2 [4:0]	ZVDTL (5)	Vertical edge enhancement level in digital zoom
	0h: x1, 1Fh: x 4 (maximum)	

Flip

0x05 [0]	LRINV	Horizontal flip command 0:normal image 1:inverse image
0x06 [7]	UDINV	Vertical flip command 0:normal image 1:upside down image