

Source: "Harnessing the 8514/A," MIPS, January 1990, page 88

[https://ia800903.us.archive.org/16/items/fl5\\_the\\_pc\\_programmers\\_sourcebook/the\\_pc\\_programmers\\_sourcebook\\_images\\_processed.pdf](https://ia800903.us.archive.org/16/items/fl5_the_pc_programmers_sourcebook/the_pc_programmers_sourcebook_images_processed.pdf)

Page 674 and 676

7.046. 8514/A I/O PORT USAGE

7.047. 8514/A STATUS REGISTER

7.048. 8514/A COMMAND REGISTER

### 8514/A I/O PORT USAGE

Type	Port	Function	Comment
Setup	100H	setup mode ID 1	R
	101H	setup mode ID 2	R
	102H	setup option mode select	R/W
Lookup	2EAH	DAC mask	R/W
	2EBH	DAC read Index	W
	2ECH	DAC write Index	W
	2EDH	DAC data	R/W
CRT Control	2E8H	read: display status write: horizontal total	R/W
	6E8H	horizontal displayed	W
	AE8H	horizontal sync start	W
	EE8H	horizontal sync width	W
	12E8H	vertical total	W
	16E8H	vertical displayed	W
	1AE8H	vertical sync start	W
	1EE8H	vertical sync width	W
	22E8H	display control	W
4AE8H	advanced function control	W	
Misc. Control	42E8H	read: subsystem status write: subsystem control	R/W
	46E8H	ROM page select	W
Drawing Control	82E8H	current Y position	R/W
	86E8H	current X position	R/W
	8AE8H	destination Y position/axial step constant	W
	8EE8H	destination X position/diagonal step constant	W
	92E8H	error term	R/W
	96E8H	major axis pixel count	W
	9AE8H	read: graphics processor status write: command	R/W
	9EE8H	short stroke vector transfer	W
	A2E8H	background color	W
	A6E8H	foreground color	W
	AAE8H	write mask	W
	AEE8H	read mask	W
	B2E8H	color compare	W
	B6E8H	background mix	W
	BAE8H	foreground mix	W
	BEE8H	multifunction control	W
	E2E8H	pixel data transfer	R/W

### 8514/A STATUS REGISTER

#### Bit Number

1	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0	Description	Values
X	X	X	X	X	X												RESERVED	
							X										Busy	0=idle: 1=busv
								X									Data RDY	0=no data: 1=data waiting to be read
									X	X	X	X	X	X	X	X	Queue State	each bit represents a queue position: 0=empty: 1=filled

Source: "Harnessing the 8514/A," MIPS, January 1990, page 91

### 8514/A COMMAND REGISTER

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Name	Values
X	X	X														Command	000=no operation 001=line draw 010=fast fill rectangle 011=fill rectangle vertically#1 100=fill rectangle vertically#2 (4 pixels) 101=line draw, one pixel per scan line 110=copy rectangle 111=RESERVED
			X													BYTSEQ	0=high byte first 1=high byte last
				X	X											RESERVED	
						X										16 BIT	0=disable 16-bit writes: 1=enable
							X									PCDATA	0=use 8514/A data 1=pixel data trans req
								X								INC_Y	0=draw lines up 1=draw lines down
									X							YMAJAXIS	0-x is major axis 1-y is major axis
										X						INC_X	0=draw lines left 1=draw lines right
											X					DRAW	0=do move only 1=draw and move
												X				LINETYPE	0=Bresenham line draw 1=directional vector
													X			LASTPIX	0=draw last pixel 1=don't draw last pixel
														X		PLANAR	0=access one pixel at a time 1=4 pixels
															X	RD/WR	0=read from display memory 1=write data