

Registers

Regno	15	10	9	0													
00				M0X	x coordinate sprite 0												
02				M0Y	y coordinate sprite 0												
04				M1X	x coordinate sprite 1												
06				M1Y	y coordinate sprite 1												
08				M2X	x coordinate sprite 2												
0A				M2Y	y coordinate sprite 2												
0C				M3X	x coordinate sprite 3												
0E				M3Y	y coordinate sprite 3												
10				M4X	x coordinate sprite 4												
12				M4Y	y coordinate sprite 4												
14				M5X	x coordinate sprite 5												
16				M5Y	y coordinate sprite 5												
18				M6X	x coordinate sprite 6												
1A				M6Y	y coordinate sprite 6												
1C				M7X	x coordinate sprite 7												
1E				M7Y	y coordinate sprite 7												
20				M8X	x coordinate sprite 8												
22				M8Y	y coordinate sprite 8												
24				M9X	x coordinate sprite 9												
26				M9Y	y coordinate sprite 9												
28				M10X	x coordinate sprite 10												
2A				M10Y	y coordinate sprite 10												
2C				M11X	x coordinate sprite 11												
2E				M11Y	y coordinate sprite 11												
30				RASTER													
32				LPX	light pen												
34				LPY													
36			M11E	M10E	M9E	M8E	M7E	M6E	M5E	M4E	M3E	M2E	M1E	M0E	Sprite Enable		
38	BM19	BM18	BMM	DEN	RSEL	YSCROLL			RES	CSEL			XSCROLL		Control Register 1		
3A					M11YE	M10YE	M9YE	M8YE	M7YE	M6YE	M5YE	M4YE	M3YE	M2YE	M1YE	M0YE	Sprite Y expand

3C	VM19	VM18	VM17	VM16	VM15	VM14	0	0	CB19	CB18	CB17	CB16	CB15	CB14	CB13	CB12	Memory Pointers
3E	IRQ								IRQ				ILP	IMMC	IMBC	IRST	Interrupt Register
40													ELP	EMMC	EMBC	ERST	Interrupt Enable
46					M11XE	M10XE	M9XE	M8XE	M7XE	M6XE	M5XE	M4XE	M3XE	M2XE	M1XE	M0XE	Sprite X expand
48					M11M	M10M	M9M	M8M	M7M	M6M	M5M	M4M	M3M	M2M	M1M	M0M	Sprite – Sprite Collision
4A					M11D	M10D	M9D	M8D	M7D	M6D	M5D	M4D	M3D	M2D	M1D	M0D	Sprite – Data Collision
4E									EC								Border Color
Sprite Color Palette																	
50	M0C1																Sprite 0 color
52	M1C1																Sprite 1 color
54	M2C1																Sprite 2 color
56	M3C1																Sprite 3 color
58	M4C1																Sprite 4 color
5A	M5C1																Sprite 5 color
5C	M6C1																Sprite 6 color
5E	M7C1																Sprite 7 color
60	M8C1																Sprite 8 color
62	M9C1																Sprite 9 color
64	M10C1																Sprite 10 color
66	M11C1																Sprite 11 color
68	M0C3								M0C2								Sprite 0 color
6A	M1C3								M1C2								Sprite 1 color
6C	M2C3								M2C2								Sprite 2 color
6E	M3C3								M3C2								Sprite 3 color
70	M4C3								M4C2								Sprite 4 color
72	M5C3								M5C2								Sprite 5 color
74	M6C3								M6C2								Sprite 6 color
76	M7C3								M7C2								Sprite 7 color
78	M8C3								M8C2								Sprite 8 color
7A	M9C3								M9C2								Sprite 9 color
7C	M10C3								M10C2								Sprite 10 color
7E	M11C3								M11C2								Sprite 11 color

80	Cursor Pos												
82	BP		Cursor End									Cursor Start	

Sprite Data Pointers

The last 64 bytes of the character display ram contain pointers to the sprite data. Each pointer occupies 32 bits of memory. Only bits 9 through 19 of the pointer are used, the remaining bits must be zero.

Sprite data must be aligned on a 512 byte page address. Each sprite requires 504 bytes of memory.

	Mem Offset	31	20	19	9	8	0
Sprite 0	3FC0		0	Address Pointer 0			0
Sprite 1	3FC4		0	Address Pointer 1			0
...
Sprite 10	3FE8		0	Address Pointer 10			0
Sprite 11	3FEC		0	Address Pointer 11			0
not used	3FF0 to 3FFC						

Sprite Colors

Each pixel of a sprite may have one of three colors or it may be transparent. Note that sprites may be stacked on top of each other at a given display location in order to increase the apparent numbers of colors.

The color corresponding to the bit pattern is looked up in the sprite's color palette.

Bit Pattern		
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00		transparent
01	M?C1	use sprite color 1
10	M?C2	use sprite color 2
11	M?C3	use sprite color 3