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Memo of W99702 Hardware Filter

2004/04/30

Filter Name	Y Filter	U Filter	V Filter	Note
B&W	3×3 Filter	3×3 Filter	3×3 Filter	
	0 0 0 0 1 0 0 0 0 	0 0 0 0 0 0 0 0 0 	0 0 0 0 0 0 0 0 0 	
	Offset	Offset	Offset	
Negative	0x00 3×3 Filter	0x80 3×3 Filter	0x80 3×3 Filter	
	0 0 0 0 -1 0 0 0 0 	0 0 0 0 -1 0 0 0 0 	0 0 0 0 -1 0 0 0 0 	
	Offset 0xff	Offset 0xff	Offset 0xff	
Bluish	3×3 Filter	3×3 Filter	3×3 Filter	
Sepia Etc.	0 0 0 0 1 0 0 0 0 	0 0 0 0 0 0 0 0 0 	0 0 0 0 0 0 0 0 0 	
	Offset 0x00	Offset [0255]	Offset [0255]	
Solarize	3×3 Filter 0 0 0	3×3 Filter 0 0 0	3×3 Filter 0 0 0	Need mask operation.

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	1	1 -		
	0 1 0	0 1 0	0 1 0	
	0 0 0	0 0 0	0 0 0	
	1	1	1	
	Offset	Offset	Offset	
	0x00	0x00	0x00	
	02100	02100	02100	
	Mask	Mask	Mask	
			[0255]	
T. C. ([0255]	[0255]	1	
Trace Contour	3×3 Filter	3×3 Filter	3×3 Filter	
	-1 -1 -1	0 0 0	0 0 0	
	-1 8 -1	0 0 0	0 1 0	
	-1 -1 -1	0 0 0	0 0 0	
	1	1	1	
	Offset	Offset	Offset	
	0x00	0x80	0x80	
Blur (Mean)	3×3 Filter	3×3 Filter	3×3 Filter	
Diai (Mean)	37.3 111001	37.3 111661	37.3 111001	
	1 1 1		1 1 1	
	1 1 1 1 1 1	1 1 1 1 1 1	1 1 1	
	1 1 1	1 1 1	1 1 1	
	9	9	9	
	Offset	Offset	Offset	
	0x00	0x00	0x00	
Blur (Gaussian)	3×3 Filter	3×3 Filter	3×3 Filter	
	1 2 1	1 2 1	1 2 1	
	2 3 2	2 3 2	2 3 2	
	1 2 1	1 2 1	1 2 1	
	9	9	9	
	<u>ا</u>) 	9	
	0.5.5	0.55		
	Offset	Offset	Offset	
	0x00	0x00	0x00	

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Sharpen 1	3×3 Filter	3×3 Filter	3×3 Filter	
1				
	-1 -1 -1	-1 -1 -1	-1 -1 -1	
	-1 9 -1	-1 9 -1	-1 9 -1	
	-1 -1 -1	-1 -1 -1	-1 -1 -1	
	1	1	1	
	Offset	Offset	Offset	
	0x00	0x00	0x00	
Sharpen 2	3×3 Filter	3×3 Filter	3×3 Filter	
	-2 -2 -2	-2 -2 -2	-2 -2 -2	
	-2 32 -2	-2 32 -2	-2 32 -2	
	-2 -2 -2	-2 -2 -2	-2 -2 -2	
	16	16	16	
	Offset	Offset	Offset	
	0x00	0x00	0x00	
Tiles	N/A	N/A	N/A	Done by S/W
Dither	N/A	N/A	N/A	Done by VPE
Barrel Distortion	N/A	N/A	N/A	Done by S/W
Pincushion	N/A	N/A	N/A	Done by S/W
Distortion				
Histogram	N/A	N/A	N/A	Done by S/W
Equalization	,		,	
Erode	N/A	N/A	N/A	Done by S/W
Dilate	N/A	N/A	N/A	Done by S/W
Emboss	3×3 Filter	3×3 Filter	3×3 Filter	UD=User Defined
	0 0 -1	0 0 -1	0 0 -1	
	0 0 0	0 0 0	0 0 0	
	1 0 0	1 0 0	1 0 0	
	UD	UD	UD	
	Offset	Offset	Offset	
	UD	UD	UD	

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Mosaic	N/A	N/A	N/A	Done by S/W
Jitter	N/A	N/A	N/A	Done by S/W
Find Edge	3×3 Filter	3×3 Filter	3×3 Filter	UD=User Defined
	-2 -2 -2	-2 -2 -2	-2 -2 -2	
	-2 16 -2	-2 16 -2	-2 16 -2	
	-2 -2 -2	-2 -2 -2	-2 -2 -2	
	1	1	1	
	Offset	Offset	Offset	
	0x00	0x00	0x00	
	Threshold	Threshold	Threshold	
	UD	UD	UD	
	XOR	XOR	XOR	
	0xFF	0xFF	OxFF	

備註:

爲了支援上表所列的 Filter, Hardware 必須修改的部份有:

- Offset 的 Programming 範圍可以在[0..255]的正數。
- Central Pixel 可以爲負數。
- Solarize 必須在 Filter+Offset+Clamping 完之後,寫入前進行 Mask 運算,若 Hardware 無法修改,可以利用 BitBlt 的 Write Mask。
- Find Edge Hardware 必須能讓 Software 設定 Clamping 的 Maximum Value,不一定是 255,或許 Minimum 也可以由 Software 來設定。最後在寫入前進行 XOR 運算。