NO.:	VERSION:	PAGE: 1

Memo of W99702 Hardware Filter

2004/04/30

Filter Name	Y Filter	U Filter	V Filter	Note
B&W	3×3 Filter 0 0 0 0 1 0 0 0 0 -------- 1 Offset 0x00	3×3 Filter 0 0 0 0 0 0 0 0 0 -------- 1 Offset 0x80	3×3 Filter 0 0 0 0 0 0 0 0 0 -------- 1 Offset 0x80	
Negative	3×3 Filter 0 0 0 0 -1 0 0 0 0 -------- 1 Offset 0xff	3×3 Filter 0 0 0 0 -1 0 0 0 0 -------- 1 Offset 0xff	3×3 Filter 0 0 0 0 -1 0 0 0 0 -------- 1 Offset 0xff	
Bluish Sepia Etc.	3×3 Filter 0 0 0 0 1 0 0 0 0 -------- 1 Offset 0x00	3×3 Filter 0 0 0 0 0 0 0 0 0 -------- 1 Offset [0..255]	3×3 Filter 0 0 0 0 0 0 0 0 0 -------- 1 Offset [0..255]	
Solarize	3×3 Filter 0 0 0	3×3 Filter 0 0 0	3×3 Filter 0 0 0	Need mask operation.

	0 1 0 0 0 0 -------- 1 Offset 0x00 Mask [0..255]	0 1 0 0 0 0 -------- 1 Offset 0x00 Mask [0..255]	0 1 0 0 0 0 -------- 1 Offset 0x00 Mask [0..255]	
Trace Contour	3×3 Filter -1 -1 -1 -1 8 -1 -1 -1 -1 -------- 1 Offset 0x00	3×3 Filter 0 0 0 0 0 0 0 0 0 -------- 1 Offset 0x80	3×3 Filter 0 0 0 0 1 0 0 0 0 -------- 1 Offset 0x80	
Blur (Mean)	3×3 Filter 1 1 1 1 1 1 1 1 1 -------- 9 Offset 0x00	3×3 Filter 1 1 1 1 1 1 1 1 1 -------- 9 Offset 0x00	3×3 Filter 1 1 1 1 1 1 1 1 1 -------- 9 Offset 0x00	
Blur (Gaussian)	3×3 Filter 1 2 1 2 3 2 1 2 1 -------- 9 Offset 0x00	3×3 Filter 1 2 1 2 3 2 1 2 1 -------- 9 Offset 0x00	3×3 Filter 1 2 1 2 3 2 1 2 1 -------- 9 Offset 0x00	

Sharpen 1	3×3 Filter -1 -1 -1 -1 9 -1 -1 -1 -1 -------- 1 Offset 0x00	3×3 Filter -1 -1 -1 -1 9 -1 -1 -1 -1 -------- 1 Offset 0x00	3×3 Filter -1 -1 -1 -1 9 -1 -1 -1 -1 -------- 1 Offset 0x00	
Sharpen 2	3×3 Filter -2 -2 -2 -2 32 -2 -2 -2 -2 -------- 16 Offset 0x00	3×3 Filter -2 -2 -2 -2 32 -2 -2 -2 -2 -------- 16 Offset 0x00	3×3 Filter -2 -2 -2 -2 32 -2 -2 -2 -2 -------- 16 Offset 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 Distortion	N/A	N/A	N/A	Done by S/W
Histogram Equalization	N/A	N/A	N/A	Done by S/W
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 0 0 -1 0 0 0 1 0 0 -------- UD Offset UD	3×3 Filter 0 0 -1 0 0 0 1 0 0 -------- UD Offset UD	3×3 Filter 0 0 -1 0 0 0 1 0 0 -------- UD Offset UD	UD=User Defined

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 -2 -2 -2 -2 16 -2 -2 -2 -2 -------- 1 Offset 0x00 Threshold UD XOR 0xFF	3×3 Filter -2 -2 -2 -2 16 -2 -2 -2 -2 -------- 1 Offset 0x00 Threshold UD XOR 0xFF	3×3 Filter -2 -2 -2 -2 16 -2 -2 -2 -2 -------- 1 Offset 0x00 Threshold UD XOR 0xFF	UD=User Defined

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。