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Subject: : AmigaOS4

Topic: : SAM440 - R9250 vs HD 7750 benchmarks

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Hello benchmarks maniacs 🤪

After success with a HD7750, I have made several tests, Here we go...

System Information:

OS: AmigaOS Release 4.1 - Final Edition Update 2

Motherboard: Sam440EP

CPU: AMCC PPC440EP, 1.3 @ 800 MHz

L1 Cache Size: 32768, L2 Cache Size: 0, L3 Cache Size: 0

Total RAM: 1 GiB

External Bus (FSB) Speed: 133.333 MHz

Exec.library version: 54.30

Graphics.library version: 54.248

Intuition.library version: 54.28

Picasso96API.library version: 54.18

Rtg.library version: 54.90

Board name: **Radeon R9250**.....Board name: **Radeon HD 7700 Series**

VRAM: 127.984 MiB.....VRAM: 1008 MiB

Display mode: 1920x1200@60 (32 bpp).....Display mode: 1920x1200@60 (32 bpp)

Copy from RAM to VRM:

copy32: 56.425 MiB/s (took 0.153558 seconds).....copy32: 39.349 MiB/s (took 0.220196 seconds)

copy64: 57.757 MiB/s (took 0.150017 seconds).....copy64: 39.285 MiB/s (took 0.220559 seconds)

copy64f: 55.978 MiB/s (took 0.154784 seconds).....copy64f: 38.405 MiB/s (took 0.225609 seconds)

copy64x2: 57.679 MiB/s (took 0.150220 seconds).....copy64x2: 39.285 MiB/s (took 0.220557 seconds)

copy64fx2: 57.878 MiB/s (took 0.149703 seconds).....copy64fx2: 39.327 MiB/s (took 0.220323seconds)

copy64fx2PF: 57.847 MiB/s (took 0.149784 seconds)...copy64fx2PF: 39.290 MiB/s (took 0.220526seconds)

copy64fx4PF: 57.873 MiB/s (took 0.149717 seconds)...copy64fx4PF: 38.521 MiB/s (took 0.224932 seconds)

useMemcpy: 101.914 MiB/s (took 0.085018 seconds)...useMemcpy: 103.002 MiB/s (took 0.084120 seconds)

useExecCopyMem: 101.907 MiB/s (took 0.085024 s)....useExecCopyMem: 103.005 MiB/s (took 0.084118

seconds)

copyToVRAM: 55.979 MiB/s (took 0.154783 seconds)..copyToVRAM: 39.280 MiB/s (took 0.220586 seconds)

WritePixelFormat: 103.528 MiB/s (took 0.083693 sec).....WritePixelFormat: 103.147 MiB/s (took 0.084002

seconds).

Copy from VRAM to RAM:

copy32: 27.113 MiB/s (took 0.319570 seconds).....copy32: 19.691 MiB/s (took 0.440016 seconds)  
copy64: 29.123 MiB/s (took 0.297516 seconds).....copy64: 21.107 MiB/s (took 0.410510 seconds)  
copy64f: 31.129 MiB/s (took 0.278344 seconds).....copy64f: 22.470 MiB/s (took 0.385610 seconds)  
useMemcpy: 29.946 MiB/s (took 0.289340 seconds).....useMemcpy: 21.134 MiB/s (took 0.409989 seconds)  
useExecCopyMem: 29.956 MiB/s (took 0.289241 sec).....useExecCopyMem: 21.425 MiB/s (took 0.404411 seconds)  
copyFromVRAM: 35.935 MiB/s (took 0.241120 seconds)....copyFromVRAM: 24.170 MiB/s (took 0.358477 seconds)  
ReadPixelArray: 35.912 MiB/s (took 0.241270 seconds).....ReadPixelArray: 24.518 MiB/s (took 0.353399 seconds).

FillRect:

Size	Time (s)	Ops/s	MPixel/s	Size	Time (s)	Ops/s	MPixel/s
(16, 16)	0.035	283029.548	69.099	(16, 16)	0.329	30381.285	7.417
(32, 32)	0.059	170404.199	166.410	(32, 32)	0.319	31371.663	30.636
((64, 64)	0.157	63628.208	248.548	(64, 64)	0.314	31814.610	124.276
(128, 128)	0.427	23416.626	365.885	(128, 128)	0.329	30363.205	474.425
((256, 256)	1.325	7545.217	471.576	(256, 256)	0.340	29445.714	1840.357
(512, 512)	4.783	2090.561	522.640	(512, 512)	1.052	9503.201	2375.800
(1024, 1024)	19.337	517.149	517.149	(1024, 1024)	3.936	2540.941	2540.941

BltBitMap:

Size	Time (s)	Ops/s	MPixel/s	Size	Time (s)	Ops/s	MPixel/s
(16, 16)	0.050	201146.535	49.108	(16, 16)	0.320	31294.889	7.640
(32, 32)	0.075	133365.341	130.240	(32, 32)	0.336	29801.729	29.103
(64, 64)	0.220	45538.792	177.886	(64, 64)	0.325	30762.700	120.167
(128, 128)	0.684	14625.977	228.531	(128, 128)	0.321	31194.630	487.416
(256, 256)	2.517	3973.370	248.336	(256, 256)	0.372	26883.527	1680.220
(512, 512)	9.733	1027.381	256.845	(512, 512)	1.075	9302.499	2325.625
(1024, 1024)	38.590	259.074	259.074	(1024, 1024)	4.026	2484.158	

OverlappedBltBitMap:

Size	Time (s)	Ops/s	MPixel/s	Size	Time (s)	Ops/s	MPixel/s
(16, 16)	0.081	246041.803	60.069	(16, 16)	1.515	13204.414	3.224
(32, 32)	0.164	122148.594	119.286	(32, 32)	1.616	12377.540	12.087
(64, 64)	0.471	42465.460	165.881	(64, 64)	1.637	12220.046	47.735
(128, 128)	1.432	13963.165	218.174	(128, 128)	1.655	12081.533	188.774
(256, 256)	5.117	3908.805	244.300	(256, 256)	1.718	11643.036	727.690
(512, 512)	19.483	1026.556	256.639	(512, 512)	2.877	6951.674	1737.918
(1024, 1024)	76.737	260.631	260.631	(1024, 1024)	9.809	2038.921	2038.921

Composite:

Size	Time (s)	Ops/s	MPixel/s	Size	Time (s)	Ops/s	MPixel/s
(16, 16)	0.264	37893.716	9.251	(16, 16)	0.406	24654.711	6.019
(32, 32)	0.419	23853.369	23.294	(32, 32)	0.409	24471.238	23.898
(64, 64)	0.983	10170.074	39.727	(64, 64)	0.395	25296.539	98.815

(128, 128) 3.165 3159.434 49.366.....(128, 128) 0.401 24908.710 389.199  
(256, 256) 12.060 829.196 51.825.....(256, 256) 0.557 17951.033 1121.940  
(512, 512) 52.079 192.016 48.004.....(512, 512) 1.834 5451.623 1362.906  
(1024, 1024) 203.857 49.054 49.054.....(1024, 1024) 6.995 1429.653 1429.653

CompositeSrcMask:

Size	Time (s)	Ops/s	MPixel/s	Size	Time (s)	Ops/s	MPixel/s
(16, 16)	0.282	35465.772	8.659	(16, 16)	0.437	22890.838	5.589
(32, 32)	0.459	21777.952	21.268	(32, 32)	0.432	23167.293	22.624
(64, 64)	1.059	9439.136	36.872	(64, 64)	0.446	22402.638	87.510
(128, 128)	3.417	2926.611	45.728	(128, 128)	0.433	23096.502	360.883
(256, 256)	12.890	775.768	48.485	(256, 256)	0.594	16839.014	1052.438
(512, 512)	55.847	179.061	44.765	(512, 512)	1.904	5250.907	1312.727
(1024, 1024)	223.099	44.823	44.823	(1024, 1024)	7.291	1371.593	1371.593

Random:

Time (s)	Ops/s	MPixel/s	Time (s)	Ops/s	MPixel/s
376.538	212.462	<b>71.58</b>	98.150	815.081	<b>274.627</b>

Overall: **992.06**.....Overall: **4376.28**

Cow3D Warp3D: **35 fps**.....Cow3D Nova: **250 fps**

shaderjoy 1.19: xxxxxxxx.....shaderjoy 1.19 (project\_test.sjp: window, size 800x600): **30 fps**

SantasMonsterShootout :

R9250: **39-49 fps**.....HD7750: **249-262 fps**

Movies. **No UVD yet**

Small video:

R9250:

VO: [p96\_pip] 480x270 => 480x270 Planar YV12

BENCHMARKs: VC: 99.801s VO: 27.742s A: 0.000s Sys: 1.719s = 129.262s

BENCHMARK%: VC: 77.2081% VO: 21.4619% A: 0.0000% Sys: 1.3300% = 100.0000%

CPU do 87%

HD7750:

VO: [comp\_yuv2] 480x270 => 480x270 Planar YV12

BENCHMARKs: VC: 100.925s VO: 21.162s A: 0.000s Sys: 1.885s = 123.971s

BENCHMARK%: VC: 81.4101% VO: 17.0698% A: 0.0000% Sys: 1.5202% = 100.0000%

Internal COMP YUV2 - FPS 50

CPU do 83%

HD video:

R9250:

VO: [p96\_pip] 1280x720 => 1280x720 Planar YV12

BENCHMARKs: VC: 747.945s VO: 192.421s A: 0.000s Sys: 2.668s = 943.034s

BENCHMARK%: VC: 79.3127% VO: 20.4044% A: 0.0000% Sys: 0.2829% = 100.0000%

HD7750:

VO: [comp\_yuv2] 1280x720 => 1280x720 Planar YV12

BENCHMARKs: VC: 726.262s VO: 149.076s A: 0.000s Sys: 3.171s = 878.510s

BENCHMARK%: VC: 82.6698% VO: 16.9692% A: 0.0000% Sys: 0.3610% = 100.0000%

Internal COMP YUV2 - FPS 7

...so, was it worth it? YEAH! 🎉. And you know what? Since geennaam has probably removed his mighty Radeon from his SAM440, according to GfxBench2D site, I have the fastest SAM440 on the planet! 🎉 😊

PS. Waiting for UVD support for SI 😊