

1 Subject

Affected Products	conga-SA5
Subject	conga-SA5 Benchmark & Power Consumption Comparison
Confidential/ Strictly Confidential (Internal use only)	Confidential
Date (yyyy.mm.dd)	17.10.2017
Author	GAD

2 Affected Article Numbers

2.1 Product Data

Affected Number(s)	Product
050000	conga-SA5/E3950-8G eMMC32
050001	conga-SA5/E3940-4G eMMC32
050002	conga-SA5/E3930-2G eMMC16
050022	conga-SA5/N3350-4G eMMC32
050023	conga-SA5/N4200-8G eMMC32
050024	conga-SA5/J3455-4G eMMC16

3 Information

The following benchmark results help to compare the product variants of the above Intel® Apollo Lake based COMs. The Benchmarks for the Variants 050000, 050001, 050002, 050022 and 050023 were performed on Windows 10 64bit with conga-SA50 A.0 hardware and SA50r019.bin BIOS. The Benchmarks for the Variant 050024 were performed on Windows 10 64bit with conga-SA50 B.0 hardware and SA50r137.bin BIOS.

See the table below for detailed information about the Intel® processors used for these benchmarks.

SKU	#Cores/ Threads	Frequency Base / Turbo	Cache	TDP [W]	Processor Graphic	Memory
E3950	4/4	1.60 GHz / 2.00 GHz	2MB	12W	Intel® HD Graphics 505	8GB 2400MT/s LPDDR4
E3940	4/4	1.60 GHz / 1.80 GHz	2MB	9.5W	Intel® HD Graphics 500	4GB 2400MT/s LPDDR4
E3930	2/2	1.30 GHz / 1.80 GHz	2MB	6.5W	Intel® HD Graphics 500	2GB 2400MT/s LPDDR4
N3350	2/2	1.10 GHz / 2.40 GHz	2MB	6W	Intel® HD Graphics 500	4GB 2400MT/s LPDDR4
N4200	4/4	1.10 GHz / 2.50 GHz	2MB	6W	Intel® HD Graphics 505	8GB 2400MT/s LPDDR4
J3455	4/4	1.50 GHz / 2.30 GHz	2MB	10W	Intel® HD Graphics 500	4GB 2400MT/s LPDDR4

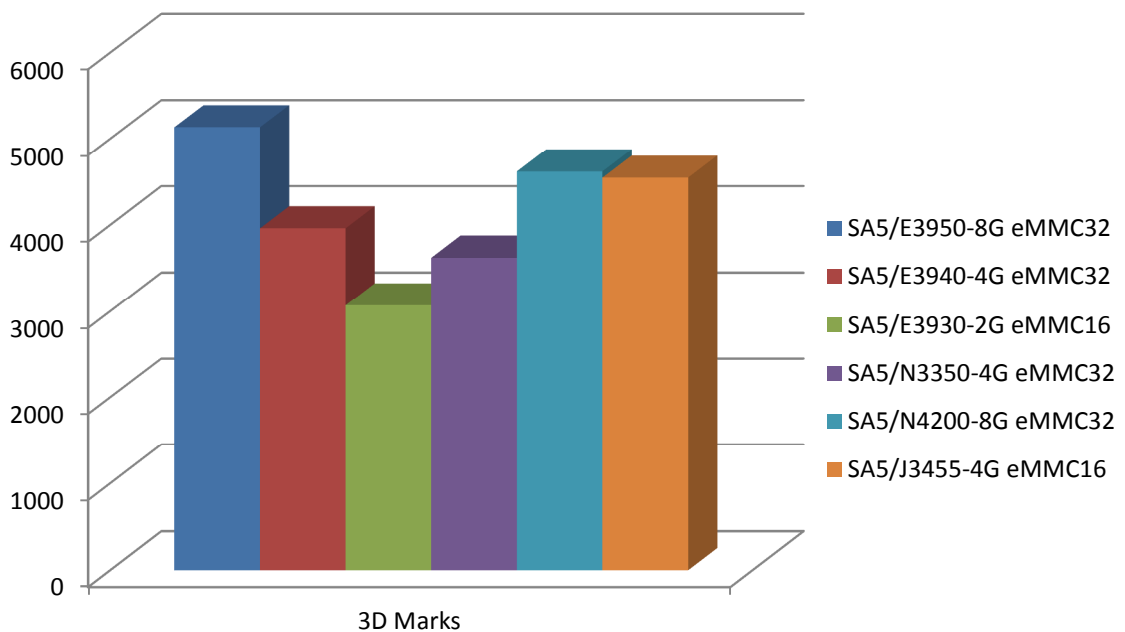


Note

Turbo mode was enabled all variants.

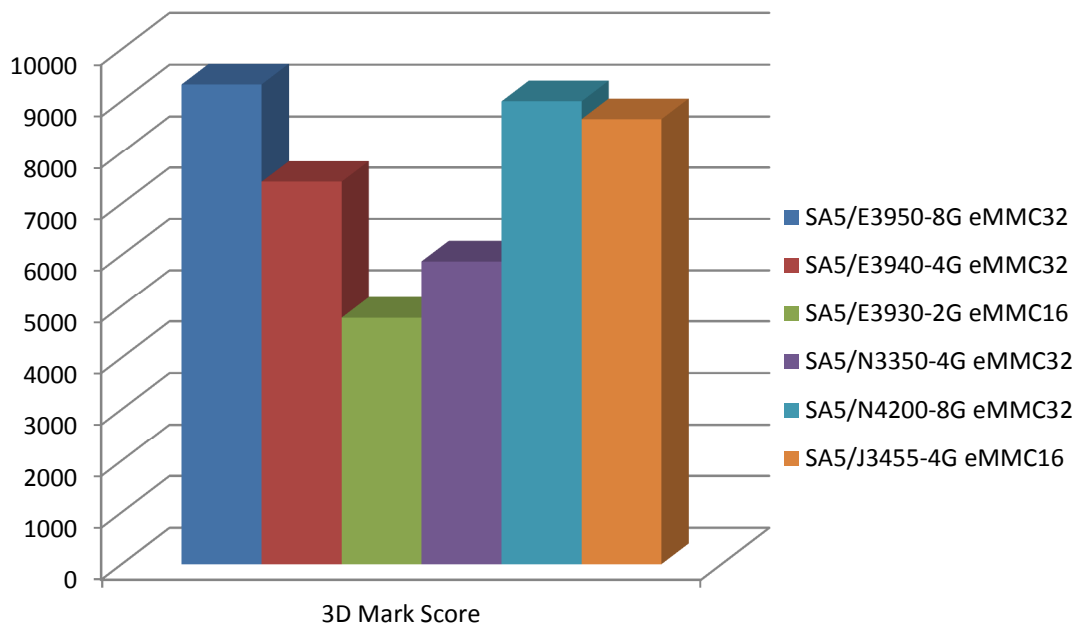
3.1 3D Mark06

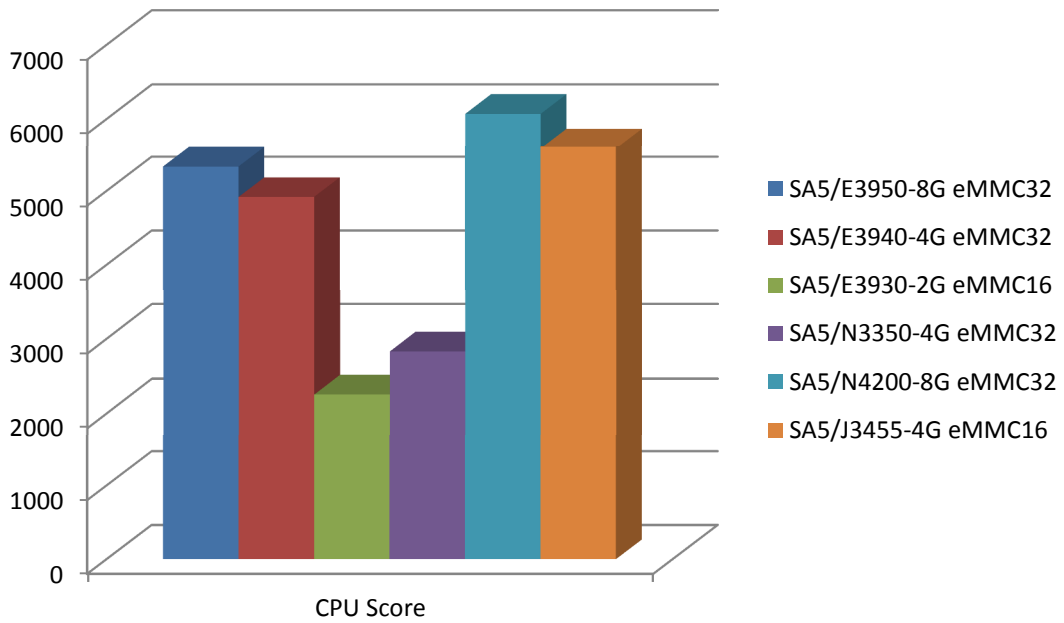
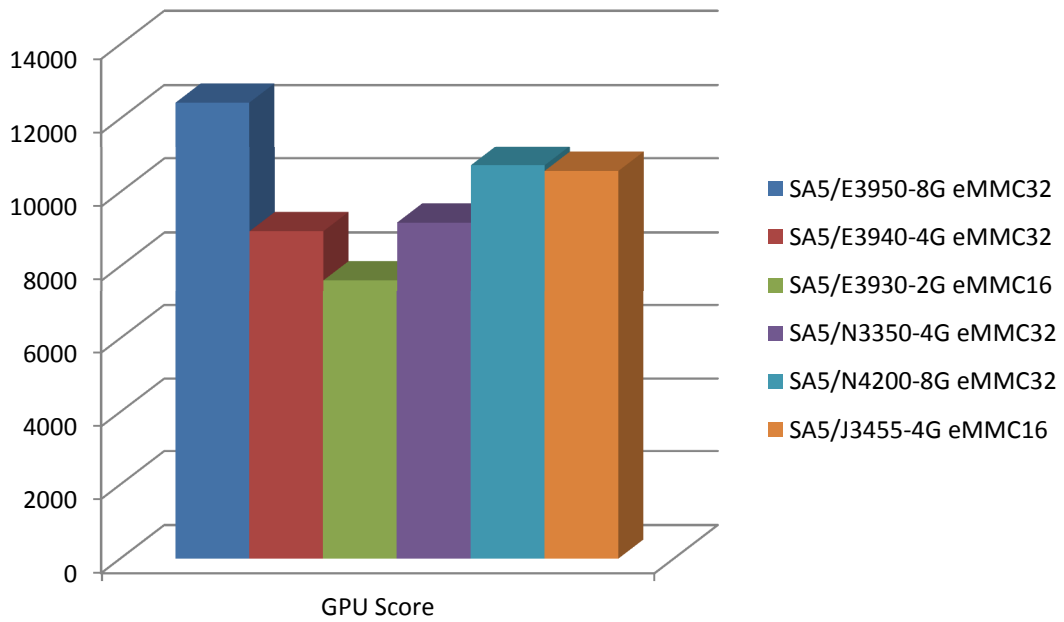
	SA5/E3950-8G eMMC32	SA5/E3940-4G eMMC32	SA5/E3930-2G eMMC16
	050000	050001	050002
3D Marks	5135	3961	3070
SM2.0 Score	1798	1365	1074
HDR/SM3.0 Score	2189	1643	1330
CPU Score	2481	2270	1399
	SA5/N3350-4G eMMC32	SA5/N4200-8G eMMC32	SA5/J3455-4G eMMC16
	050022	050023	050024
3D Marks	3622	4619	4547
SM2.0 Score	1277	1579	1570
HDR/SM3.0 Score	1562	1896	1869
CPU Score	1642	2879	2710



3.2 3D Mark Vantage (Entry)

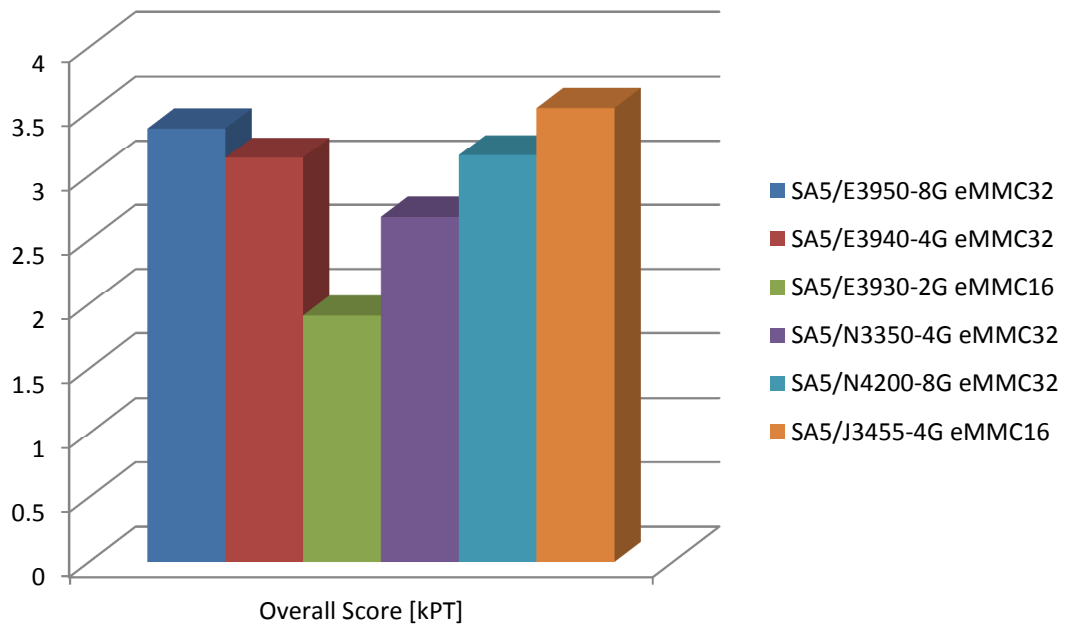
	SA5/E3950-8G eMMC32 050000	SA5/E3940-4G eMMC32 050001	SA5/E3930-2G eMMC16 050002
3D Mark Score	9323	7427	4773
GPU Score	12432	8941	7615
CPU Score	5332	4919	2252
	SA5/N3350-4G eMMC32 050022	SA5/N4200-8G eMMC32 050023	SA5/J3455-4G eMMC16 050024
3D Mark Score	5878	8996	8651
GPU Score	9176	10721	10569
CPU Score	2828	6068	5601





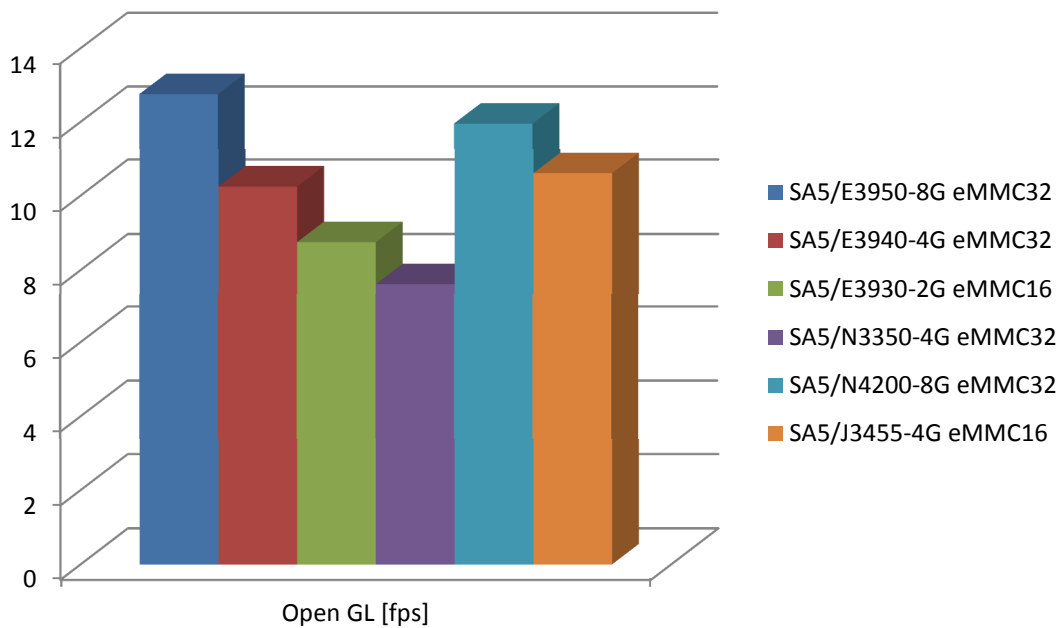
3.3 Sisoft Sandra Lite Platinum

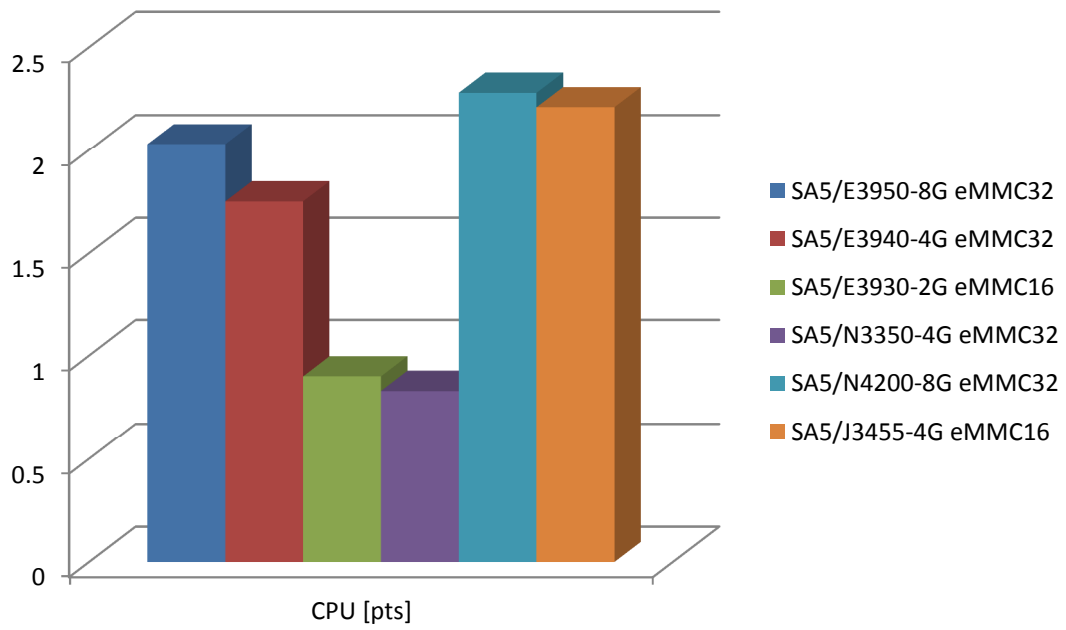
	SA5/E3950-8G eMMC32	SA5/E3940-4G eMMC32	SA5/E3930-2G eMMC16
	050000	050001	050002
Processor Multi-Media [Mpixl/s]	52.57	47.15	23.14
Cryptography [GB/s]	2.425	2.169	1.085
Financial Analysis [kOPT/s]	5.85	5.41	2.70
Scientific analysis [GFLOPS]	5.98	4.12	2.98
.NET Arithmetic [GOPS]	8.25	7.81	3.89
Memory Bandwidth [GB/s]	9219	10.191	6.450
Memory latency [ns]	46.8	52.1	52.4
File System Bandwidth [MB/s]	347.698	524.781	360.983
File System I/O [IOPS]	5194.3	5442.3	3133.5
GP Processing [Mpixl/s]	52.54	32.21	29.64
Cryptography GP [GB/s]	0.719	0.378	0.348
GP Financial Analysis [kOPT/s]	52.31	18.32	16.82
Media Converting [MB/s]	5.007	4.598	4.024
GP Bandwith [GB/s]	10.547	10.341	4.233
GP Memory latency [ns]	506.6	524.1	510
Overall Score [kPT]	3.37	3.14	1.91
	SA5/N3350-4G eMMC32	SA5/N4200-8G eMMC32	SA5/J3455-4G eMMC16
	050022	050023	050024
Processor Multi-Media [Mpixl/s]	29.83	52.66	57.03
Cryptography [GB/s]	1.378	2.411	2.655
Financial Analysis [kOPT/s]	3.46	6.12	6.33
Scientific analysis [GFLOPS]	3.92	4.33	4.70
.NET Arithmetic [GOPS]	4.88	9.66	8.22
Memory Bandwidth [GB/s]	7.899	12.094	11.493
Memory latency [ns]	46.2	44.6	46.0
File System Bandwidth [MB/s]	359.984	521.988	498.489
File System I/O [IOPS]	3755.6	6381.1	5643.1
GP Processing [Mpixl/s]	34.23	51.06	54.41
Cryptography GP [GB/s]	0.401	0.725	0.425
GP Financial Analysis [kOPT/s]	19.45	51.49	23.73
Media Converting [MB/s]	4.780	4.973	5.470
GP Bandwith [GB/s]	9.760	10.821	10.401
GP Memory latency [ns]	500	513.5	482.8
Overall Score [kPT]	2.68	3.16	3.53



3.4 Cinebench Release 11.5

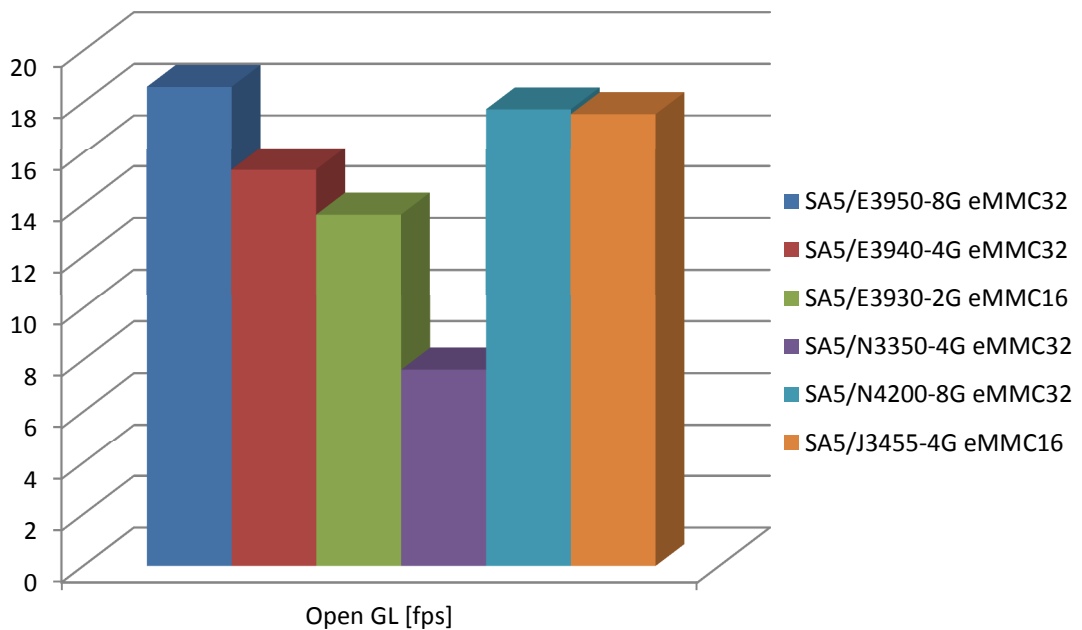
	SA5/E3950-8G eMMC32	SA5/E3940-4G eMMC32	SA5/E3930-2G eMMC16
	050000	050001	050002
Open GL [fps]	12.76	10.24	8.75
CPU [pts]	2.03	1.75	0.9
	SA5/N3350-4G eMMC32	SA5/N4200-8G eMMC32	SA5/J3455-4G eMMC16
	050022	050023	050024
Open GL [fps]	7.62	11.96	10.60
CPU [pts]	0.83	2.28	2.21

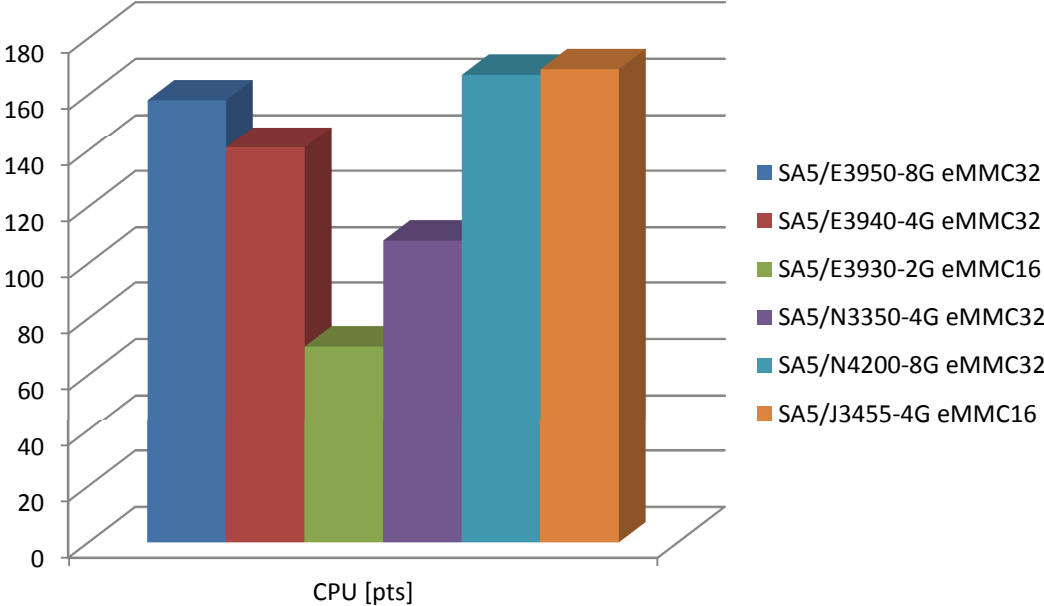




3.5 Cinebench Release 15

	SA5/E3950-8G eMMC32	SA5/E3940-4G eMMC32	SA5/E3930-2G eMMC16
	048000	048001	048002
Open GL [fps]	18.6	15.35	13.61
CPU [pts]	158	141	70
	SA5/N3350-4G eMMC32	SA5/N4200-8G eMMC32	SA5/J3455-4G eMMC16
	050022	050023	050024
Open GL [fps]	7.62	17.73	17,54
CPU [pts]	1.08	167	169

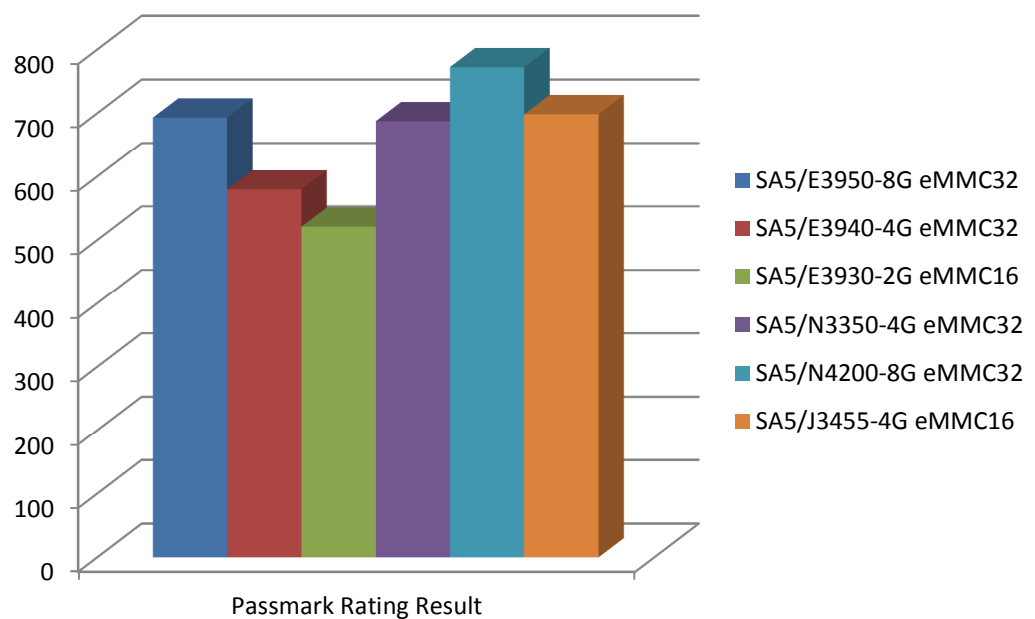




3.6 Passmark Performance Test 7.0

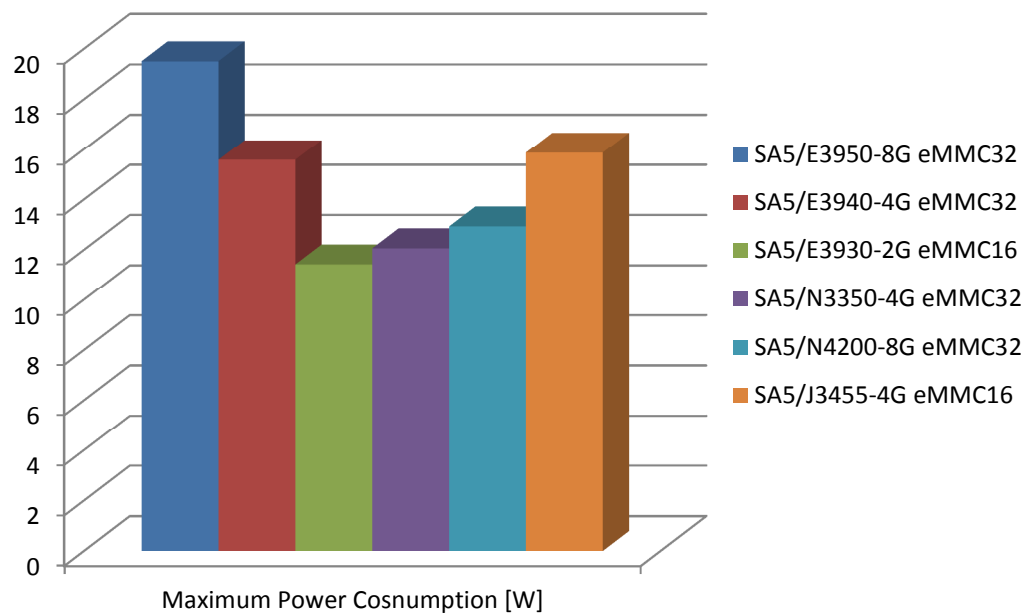
	SA5/E3950-8G eMMC32 048000	SA5/E3940-4G eMMC32 048001	SA5/E3930-2G eMMC16 048002
Passmark Rating Result	693.3	579.7	521
CPU-Mark	1110.7	1011.7	973.1
2D-Grafics-Mark	143.3	120	124.6
3D-Grafics-Mark	382.4	302.8	212.9
Memory-Mark	876.0	534.7	367.7
Disk-Mark	3477.1	3412.7	3224.6

	SA5/N3350-4G eMMC32 050022	SA5/N4200-8G eMMC32 050023	SA5/J3455-4G eMMC16 050024
Passmark Rating Result	687.6	772.6	698,6
CPU-Mark	1271	1375.5	1232,1
2D-Grafics-Mark	155.1	145.9	141,7
3D-Grafics-Mark	247.9	311.2	337,6
Memory-Mark	625.4	1137.1	708
Disk-Mark	3417.6	4529.4	3617



3.7 Power Consumption

	SA5/E3950-8G eMMC32	SA5/E3940-4G eMMC32	SA5/E3930-2G eMMC16
	050000	048001	048002
Desktop Idle [W]	1.87	2.01	1.95
100% CPU [W]	8.49	7.38	5.43
100% GPU[W]	14.6	11.13	8.99
100% CPU & 100% GPU[W]	19.51	15.58	11.42
Maximum Power Consumption [W]	19.51	15.58	11.42
Suspend to RAM [W]	0.61	0.49	0.49
	SA5/N3350-4G eMMC32	SA5/N4200-8G eMMC32	SA5/J3455-4G eMMC16
	050022	050023	050024
Desktop Idle [W]	1.95	1.95	2.23
100% CPU [W]	7.87	11.02	12.36
100% GPU[W]	11.77	12.93	15.87
100% CPU & 100% GPU[W]	12.06	12.29	15.38
Maximum Power Consumption [W]	12.06	12.93	15.87
Suspend to RAM [W]	0.67	0.68	0.39



4 Revision History

Revision	Date (yyyy-mm-dd)	Author	Changes
1.0	2017-10-17	GAD	Initial release
1.1	2019-05-28	SSE	Added values for SA5/J3455-4G eMMC16 050024