



AAEON Technology INC.
ISO-9001/ISO-14001 Certified
Industrial Automation PCs

SBC-558P

Reliability Prediction Report

(MTBF)

Release Date: Dec. 27, 2002

Issue Stamp

DV Manager

Test Engineer

Reliability Prediction (MTBF)

. Model Name: SBC-558P

.Description: AIO Half-size CPU Card. Tillamook. SVGA W/Dual LAN, LVDs.

. Prediction Date: Dec. 27. 2002

. Prediction Site: AAeon DV Dept.

. Predicted by : Rex Chang

. Equipment: Relx Ver.7.2 Visual Reliability Software

. Simulation Environment:

Temperature: 25 degrees C(No temperature rise condition)

Standard: Telcordia (Bellcore) Standard

. Term and Definition:

Unit An assembly of device.

Duty Cycle Used to specify the percentage of time that the element is in an on state, and it is equal to the percentage of total time the item is in the active environment.

Quantity The quantity of the selected item.

Failure Rate Used to specify that the failure rate is to be calculated based the selected Calculation models. The multiplier is 1,000,000.

MTBF MTBF is always specified in hours.

IX. Prediction Result:

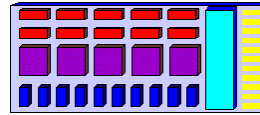
Failure Rate: 8.781115ppm

MTBF: 113,881Hours (about 13.0 years)

X. Prediction Table:

AAEON Reliability Prediction Report

Part Number 9697558016
Reference Des
Date 12. 27, 2002
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

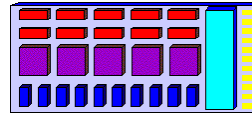


Description Top-level assembly
File Name 558p.rpj
Time 9:06 AM
Failure Rate 8.781115
MTBF 113,881

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
SBC-558P	9697558016	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	8.781115	113,881

AAEON Reliability Prediction Report

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Date 12. 27, 2002
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Temperature 25.00

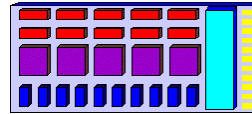


Description Top-level assembly
File Name 558p.rpj
Time 9:06 AM
Failure Rate 8.781115
MTBF 113,881

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A700003	Resistor	L27-32,R15,R48,R73,R78,R119,R1-30,R138-139,R208,R210,R218,R2-33,R239	Bellcore Issue 6	Level I		0.002268	19.00	.4907	0.043086	440974090.03
105A702233	Resistor	R137,R215	Bellcore Issue 6	Level I		0.002268	2.00	.0516	0.004535	440974090.03
105A702723	Resistor	R64,R90,R102,R110,R124,R128-1-29,R132,R141,R144-145,R162,R1-68-169,R230	Bellcore Issue 6	Level I		0.002268	15.00	.3874	0.034016	440974090.03
105A706233	Resistor	R103,R173	Bellcore Issue 6	Level I		0.002268	2.00	.0516	0.004535	440974090.03
105A710033	Resistor	R99,R107,R178-179,R229	Bellcore Issue 6	Level I		0.002268	5.00	.1291	0.011339	440974090.03
105A747033	Resistor	R3,R9	Bellcore Issue 6	Level I		0.002268	2.00	.0516	0.004535	440974090.03
105A756033	Resistor	R2,R10,R223	Bellcore Issue 6	Level I		0.002268	3.00	.0775	0.006803	440974090.03
105A722033	Resistor	R224	Bellcore Issue 6	Level I		0.002268	1.00	.0258	0.002268	440974090.03
105A705623	Resistor	R27,R30,R45,R151	Bellcore Issue 6	Level I		0.002268	4.00	.1033	0.009071	440974090.03
105A707503	Resistor	R16-17,R32-33,R187-190	Bellcore Issue 6	Level I		0.002268	8.00	.2066	0.018142	440974090.03
105A708223	Resistor	R131,R133,R146,R150,R154,R158-R165,R217	Bellcore Issue 6	Level I		0.002268	8.00	.2066	0.018142	440974090.03
105A710003	Resistor	R57	Bellcore Issue 6	Level I		0.002268	1.00	.0258	0.002268	440974090.03
105A701033	Resistor	R70,R123,R126-127,R136,R140,R-153,R205,R216,R227	Bellcore Issue 6	Level I		0.002268	10.00	.2582	0.022677	440974090.03
105A701533	Resistor	R13-14	Bellcore Issue 6	Level I		0.002268	2.00	.0516	0.004535	440974090.03
105A722003	Resistor	R147	Bellcore Issue 6	Level I		0.002268	1.00	.0258	0.002268	440974090.03
105A727003	Resistor	R116-117	Bellcore Issue 6	Level I		0.002268	2.00	.0516	0.004535	440974090.03
105A733003	Resistor	R28,R47,R67,R148,R152,R155-156-R183-184	Bellcore Issue 6	Level I		0.002268	9.00	.2324	0.020409	440974090.03
105A747003	Resistor	R1,R49,R56	Bellcore Issue 6	Level I		0.002268	3.00	.0775	0.006803	440974090.03
106B501030	Resistor	J7	Bellcore Issue 6	Level I		0.011379	1.00	.1296	0.011379	87878027.07
1124601660	Capacitor	C21,C37	Bellcore Issue 6	Level I		0.001060	2.00	.0241	0.002120	943198589.05
1121747660	Capacitor	C6,C8,C15-16,C25-26,C60,C63,C7-4,F3,O1-O10,O12-19,O22-28,O30--48,O52	Bellcore Issue 6	Level I		0.002539	55.00	1.5903	0.139646	393852661.82
1124410080	Capacitor	C19-20,C24,C67	Bellcore Issue 6	Level I		0.001060	4.00	.0483	0.004241	943198589.05
1124510280	Capacitor	C1,C10	Bellcore Issue 6	Level I		0.001060	2.00	.0241	0.002120	943198589.05
1124415080	Capacitor	C22-23	Bellcore Issue 6	Level I		0.001060	2.00	.0241	0.002120	943198589.05
1124518180	Capacitor	CC5-21	Bellcore Issue 6	Level I		0.001060	17.00	.2053	0.018024	943198589.05
1124420080	Capacitor	C17-18	Bellcore Issue 6	Level I		0.001060	2.00	.0241	0.002120	943198589.05

AAEON Reliability Prediction Report

Part Number 9697558016
Reference Des
Date 03. 13, 2002
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

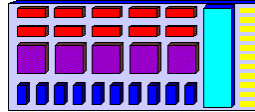


Description Top-level assembly
File Name 558p.rpj
Time 9:06 AM
Failure Rate 8.781115
MTBF 113,881

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1124447080	Capacitor	CC1-4,C34	Bellcore Issue 6	Level I		0.001060	5.00	.0604	0.005301	943198589.05
1124547180	Capacitor	C9,C29	Bellcore Issue 6	Level I		0.001060	2.00	.0241	0.002120	943198589.05
1124501780	Capacitor	C44,C65,C77,C83	Bellcore Issue 6	Level I		0.001060	4.00	.0483	0.004241	943198589.05
1121501680	Capacitor	C40,C64,C73,C75-76,C78,C84-97	Bellcore Issue 6	Level I		0.002539	20.00	.5783	0.050780	393852661.82
1124412080	Capacitor	C12,C35	Bellcore Issue 6	Level I		0.001060	2.00	.0241	0.002120	943198589.05
1129610260	Capacitor	C32,C36	Bellcore Issue 6	Level I		0.000712	2.00	.0162	0.001425	1403854412.74
1129701080	Capacitor	C7,C33,C70,C102	Bellcore Issue 6	Level I		0.005466	4.00	.2490	0.021862	182961702.19
1122701680	Capacitor	C98,C100-101,M1-10,M12-13,M15--56,M58-67,M70-75,M77-81,M84,M86-89,M91-96,M98-123,M125-128,-M130-134,M136-143,M145,M147-1-50,M154	Bellcore Issue 6	Level I		0.001598	138.00	2.5107	0.220463	625953979.55
1174510180	Capacitor	NC1-2,NC7-8	Bellcore Issue 6	Level I		0.001060	4.00	.0483	0.004241	943198589.05
1174547080	Capacitor	NC10	Bellcore Issue 6	Level I		0.001060	1.00	.0121	0.001060	943198589.05
1174510080	Capacitor	NC5-6,NC11-12	Bellcore Issue 6	Level I		0.001060	4.00	.0483	0.004241	943198589.05
1174547180	Capacitor	NC3-4,NC9	Bellcore Issue 6	Level I		0.001060	3.00	.0362	0.003181	943198589.05
1119610295	Capacitor	C2,C28	Bellcore Issue 6	Level I		0.071121	2.00	1.6199	0.142243	14060484.33
1119610291	Capacitor	C3-5,C13-14,C27,F1-2	Bellcore Issue 6	Level I		0.075338	8.00	6.8637	0.602705	13273483.15
1142610060	Capacitor	C30-31	Bellcore Issue 6	Level I		0.001587	2.00	.0361	0.003174	630075050.70
1149633190	Capacitor	C11	Bellcore Issue 6	Level I	51.70	0.005099	1.00	.0581	0.005099	196117869.54
1149633190	Capacitor	C103	Bellcore Issue 6	Level I		0.004933	1.00	.0562	0.004933	202722669.92
1231314321	Miscellaneous	Y2	Bellcore Issue 6	Level I		0.150000	1.00	1.7082	0.150000	6666666.67
1231332721	Miscellaneous	Y1	Bellcore Issue 6	Level I		0.150000	1.00	1.7082	0.150000	6666666.67
1233325053	Miscellaneous	OSC2-3	Bellcore Issue 6	Level I		0.360000	2.00	8.1994	0.720000	2777777.78
1233314350	Miscellaneous	OSC1	Bellcore Issue 6	Level I		0.360000	1.00	4.0997	0.360000	2777777.78
1211102460	Inductor	L3	Bellcore Issue 6	Level I	47.60	0.002163	1.00	.0246	0.002163	462384415.82
1212308050	Inductor	L1-2,L4-5,L7,L10,L13-16,L20,L22-2-6,L33,L46-47	Bellcore Issue 6	Level I		0.002268	19.00	.4907	0.043086	440974090.03
1212306031	Inductor	L6,L8-9,L11-12,L17-19,L21,LL1-4	Bellcore Issue 6	Level I		0.002268	13.00	.3357	0.029480	440974090.03
1212308053	Inductor	L48-51	Bellcore Issue 6	Level I		0.002268	4.00	.1033	0.009071	440974090.03
1251011010	Integrated Circuit	U4	Bellcore Issue 6	Level I	51.70	0.067180	1.00	.7651	0.067180	14885298.78
14S3000201	Inductor	TF1-2	Bellcore Issue 6	Level I		0.136062	2.00	3.0990	0.272125	7349568.17
1314101010	Integrated Circuit	Q2	Bellcore Issue 6	Level I	50.90	0.063394	1.00	.7219	0.063394	15774449.75

AAEON Reliability Prediction Report

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Reference Des
Date 12. 27, 2002
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

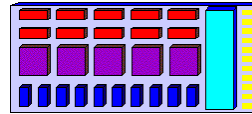


Description Top-level assembly
File Name 558p.rpj
Time 9:06 AM
Failure Rate 8.781115
MTBF 113,881

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1314101010	Integrated Circuit	Q9	Bellcore Issue 6	Level I		0.059366	1.00	.6761	0.059366	16844654.92
1314108312	Integrated Circuit	Q1	Bellcore Issue 6	Level I	66.70	0.188782	1.00	2.1499	0.188782	5297125.05
1300003240	Semiconductor	D1	Bellcore Issue 6	Level I	49.20	0.023337	1.00	.2658	0.023337	42850897.67
1300103540	Semiconductor	D2	Bellcore Issue 6	Level I	51.30	0.024786	1.00	.2823	0.024786	40345245.92
1300414840	Semiconductor	D4,D7-8	Bellcore Issue 6	Level I		0.023881	3.00	.8159	0.071643	41874327.58
1301005440	Semiconductor	D3,Q3	Bellcore Issue 6	Level I		0.023881	2.00	.5439	0.047762	41874327.58
1300581740	Semiconductor	D9,D11	Bellcore Issue 6	Level I		0.023881	2.00	.5439	0.047762	41874327.58
1301005442	Semiconductor	D5	Bellcore Issue 6	Level I		0.023881	1.00	.2720	0.023881	41874327.58
1304100540	Semiconductor	LED1	Bellcore Issue 6	Level I		0.004877	1.00	.0555	0.004877	205063180.81
1315442010	Semiconductor	U3	Bellcore Issue 6	Level I	49.40	0.078240	1.00	.8910	0.078240	12781243.88
1310390410	Semiconductor	Q7-8	Bellcore Issue 6	Level I		0.023881	2.00	.5439	0.047762	41874327.58
14S5503200	Integrated Circuit	U45	Bellcore Issue 6	Level I	48.90	0.061740	1.00	.7031	0.061740	16196895.71
14S5324500	Integrated Circuit	U23	Bellcore Issue 6	Level I		0.066775	1.00	.7604	0.066775	14975683.42
14S5801400	Integrated Circuit	U12,U43	Bellcore Issue 6	Level I		0.037889	2.00	.8630	0.075778	26392869.26
14S5507400	Integrated Circuit	U44	Bellcore Issue 6	Level I	47.30	0.058277	1.00	.6637	0.058277	17159292.52
14S4911216	Integrated Circuit	U41-42	Bellcore Issue 6	Level I		0.039296	2.00	.8950	0.078592	25448028.36
14S3914810	Integrated Circuit	U20	Bellcore Issue 6	Level I	52.50	0.045461	1.00	.5177	0.045461	21996785.72
14S5A70800	Integrated Circuit	U32	Bellcore Issue 6	Level I		0.039296	1.00	.4475	0.039296	25448028.36
14S4026600	Integrated Circuit	U9	Bellcore Issue 6	Level I	49.50	0.038156	1.00	.4345	0.038156	26208416.20
14S8416803	Integrated Circuit	U21,U33-34	Bellcore Issue 6	Level I		0.039296	3.00	1.3425	0.117887	25448028.36
14S6202000	Integrated Circuit	U22	Bellcore Issue 6	Level I		0.136173	1.00	1.5508	0.136173	7343591.05
14S6025630	Integrated Circuit	U16	Bellcore Issue 6	Level I	47.20	0.160517	1.00	1.8280	0.160517	6229874.74
14S6046400	Integrated Circuit	U5	Bellcore Issue 6	Level I	53.00	0.478322	1.00	5.4472	0.478322	2090642.24
14S3006000	Integrated Circuit	DN1	Bellcore Issue 6	Level I		0.059366	1.00	.6761	0.059366	16844654.92
14S3128420	Integrated Circuit	U8	Bellcore Issue 6	Level I		0.059366	1.00	.6761	0.059366	16844654.92
14S4021300	Integrated Circuit	U7,U14	Bellcore Issue 6	Level I		0.059366	2.00	1.3521	0.118732	16844654.92
14S4382300	Integrated Circuit	U25	Bellcore Issue 6	Level I		0.059366	1.00	.6761	0.059366	16844654.92
14S4048500	Integrated Circuit	U1-2	Bellcore Issue 6	Level I		0.059366	2.00	1.3521	0.118732	16844654.92
14S4237120	Integrated Circuit	U18	Bellcore Issue 6	Level I		0.039296	1.00	.4475	0.039296	25448028.36
14S4255900	Integrated Circuit	U11A,U27A	Bellcore Issue 6	Level I		0.039296	2.00	.8950	0.078592	25448028.36
14S4378100	Integrated Circuit	U19	Bellcore Issue 6	Level I		0.039296	1.00	.4475	0.039296	25448028.36

AAEON Reliability Prediction Report

Part Number 9697558016
Reference Des
Date 12. 27, 2002
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00



Description Top-level assembly
File Name 558p.rpj
Time 9:06 AM
Failure Rate 8.781115
MTBF 113,881

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
14S4397700	Integrated Circuit	U15	Bellcore Issue 6	Level I		0.039296	1.00	.4475	0.039296	25448028.36
14S4900010	Integrated Circuit	U10	Bellcore Issue 6	Level I	48.40	0.035750	1.00	.4071	0.035750	27971981.98
14S4243910	Integrated Circuit	U17	Bellcore Issue 6	Level I	52.40	0.045199	1.00	.5147	0.045199	22124364.40
14S6334610	Integrated Circuit	U6,U29	Bellcore Issue 6	Level I		0.030598	2.00	.6969	0.061196	32681842.61
1540701380	Resistor	RN8,RN36,RP3	Bellcore Issue 6	Level I		0.006246	3.00	.2134	0.018738	160102772.00
1540715380	Resistor	RN15	Bellcore Issue 6	Level I		0.006246	1.00	.0711	0.006246	160102772.00
1540727280	Resistor	RN17,RN22,RP7,RP10	Bellcore Issue 6	Level I		0.006246	4.00	.2845	0.024984	160102772.00
1540733082	Resistor	RN18	Bellcore Issue 6	Level I		0.006246	1.00	.0711	0.006246	160102772.00
1540747282	Resistor	RN2,RP11-12,RP15,RP22,RP28-29	Bellcore Issue 6	Level I		0.006246	7.00	.4979	0.043722	160102772.00
1540756280	Resistor	RP26	Bellcore Issue 6	Level I		0.006246	1.00	.0711	0.006246	160102772.00
1540775080	Resistor	RN1	Bellcore Issue 6	Level I		0.006246	1.00	.0711	0.006246	160102772.00
1540710080	Resistor	RN12-13,RN16,RN19-21,RN24-28	Bellcore Issue 6	Level I		0.006246	11.00	.7824	0.068706	160102772.00
1540722080	Resistor	RN3-7,RN9-11,RN29-35	Bellcore Issue 6	Level I		0.006246	15.00	1.0669	0.093690	160102772.00
1540700080	Resistor	LN1-9,RP30-34	Bellcore Issue 6	Level I		0.021861	14.00	3.4854	0.306053	45743649.14
1540782280	Resistor	RN14,RN23,RP1-2,RP4-6,RP8-9,RP13-14,RP16-21,RP23-25,RP27	Bellcore Issue 6	Level I		0.006246	21.00	1.4937	0.131166	160102772.00
1653130424	Connection	PCI1	Bellcore Issue 6	Level I		0.068276	1.00	.7775	0.068276	14646337.85
1653120225	Connection	CN13	Bellcore Issue 6	Level I		0.022759	1.00	.2592	0.022759	43939013.54
1653132220	Connection	CN12	Bellcore Issue 6	Level I		0.036414	1.00	.4147	0.036414	27461883.46
1654606303	Connection	CN14	Bellcore Issue 6	Level I		0.004552	1.00	.0518	0.004552	219695067.68
1655005021	Connection	CN3	Bellcore Issue 6	Level I		0.002845	1.00	.0324	0.002845	351512108.28
1653006100	Connection	J10	Bellcore Issue 6	Level I		0.003414	1.00	.0389	0.003414	292926756.90
1653002101	Connection	FAN1	Bellcore Issue 6	Level I		0.001138	1.00	.0130	0.001138	878780270.71
1653005201	Connection	CN2	Bellcore Issue 6	Level I		0.005690	1.00	.0648	0.005690	175756054.14
1653005101	Connection	J8	Bellcore Issue 6	Level I		0.002845	1.00	.0324	0.002845	351512108.28
1653002201	Connection	J13,J9	Bellcore Issue 6	Level I		0.002276	1.00	.0259	0.002276	439390135.35
1653003202	Connection	J2-6	Bellcore Issue 6	Level I		0.003414	5.00	.1944	0.017069	292926756.90
1653013202	Connection	CN4	Bellcore Issue 6	Level I		0.014793	1.00	.1685	0.014793	67598482.36
1653022202	Connection	CN9	Bellcore Issue 6	Level I		0.025035	1.00	.2851	0.025035	39944557.76
1653025202	Connection	CN1	Bellcore Issue 6	Level I		0.028449	1.00	.3240	0.028449	35151210.83
1651032220	Connection	U13	Bellcore Issue 6	Level I		0.018207	1.00	.2073	0.018207	54923766.92

