



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

PCM-5330 Rev:A0.3

Reliability Prediction Report

(MTBF)

Release Date: May , 22 , 2003

05-22-2003

Issue Stamp

Wayne Chen

A.V.P

Rex Chang

Test Engineer

Reliability Prediction (MTBF)

- . Model Name: PCM-5330 (Rev.A0.3)
- . Description: Embedded Low power NS Geode GX1-300 MHz PC/104 CPU Modules
- . Prediction Date: MAY. 24, 2003
- . 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.

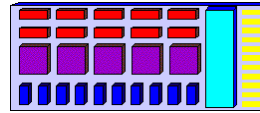
IX. Prediction Result:

Failure Rate: 10.048945 ppm
MTBF: 99,513Hours (about 11.4 years)

X. Prediction Table:

AAEON Reliability Prediction Report

Part Number System
Reference Des
Date 03. 24, 2003
Environment GB, GC - Ground Benign, Controlled
Temperature 30.00

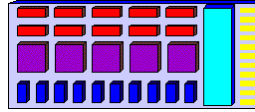


Description Top-level assembly
File Name PCM-5330 A0.3.RPJ
Time 2:33 PM
Failure Rate 10.048945
MTBF 99,513

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
System	System	Bellcore	Method I Case 3	GB, GC - Ground Benign,	100.00	1.00	10.048945	99,513

AAEON Reliability Prediction Report

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Date 03. 24, 2003
Environment GB, GC - Ground Benign, Controlled
Temperature 30.00

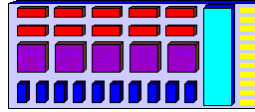


Description Top-level assembly
File Name PCM-5330 A0.3.RPJ
Time 2:33 PM
Failure Rate 10.048945
MTBF 99,513

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1655004110	Connection	CN11	Bellcore Issue 6	Level I		0.001471	1.00	.0146	0.001471	679648591.75
1750119014	Miscellaneous	BT1	Bellcore Issue 6	Level I		0.450000	1.00	4.4781	0.450000	2222222.22
1653003100	Connection	JP4	Bellcore Issue 6	Level I		0.001104	1.00	.0110	0.001104	906198122.33
1653022100	Connection	CN12	Bellcore Issue 6	Level I		0.006253	1.00	.0622	0.006253	159917315.71
1653003101	Connection	JP5-6	Bellcore Issue 6	Level I		0.001104	2.00	.0220	0.002207	906198122.33
1653003201	Connection	JP2	Bellcore Issue 6	Level I		0.001471	1.00	.0146	0.001471	679648591.75
1653002202	Connection	JP3	Bellcore Issue 6	Level I		0.001471	1.00	.0146	0.001471	679648591.75
1653003200	Connection	CN8	Bellcore Issue 6	Level I		0.002207	1.00	.0220	0.002207	453099061.16
1653132225	Connection	104_1	Bellcore Issue 6	Level I		0.023542	1.00	.2343	0.023542	42478036.98
1653120221	Connection	104_2	Bellcore Issue 6	Level I		0.014713	1.00	.1464	0.014713	67964859.17
1300011200	Semiconductor	U20	Bellcore Issue 6	Level I		0.013753	1.00	.1369	0.013753	72710998.66
1315992600	Semiconductor	U31	Bellcore Issue 6	Level I	24.50	0.086087	1.00	.8567	0.086087	11616117.98
1129710050	Capacitor	C134-135	Bellcore Issue 6	Level I		0.001406	2.00	.0280	0.002811	711449301.06
1315993310	Semiconductor	Q1	Bellcore Issue 6	Level I		0.091687	1.00	.9124	0.091687	10906649.80
1304900040	Semiconductor	LED1	Bellcore Issue 6	Level I		0.003823	1.00	.0380	0.003823	261592266.64
14S4000200	Integrated Circuit	U1	Bellcore Issue 6	Level I	21.30	0.081341	1.00	.8095	0.081341	12293867.05
14S4098300	Integrated Circuit	U15	Bellcore Issue 6	Level I	24.20	0.093815	1.00	.9336	0.093815	10659239.26
14S5515302	Integrated Circuit	U8	Bellcore Issue 6	Level I		0.044082	1.00	.4387	0.044082	22685064.03
14S5800000	Integrated Circuit	U4	Bellcore Issue 6	Level I	16.90	0.062852	1.00	.6255	0.062852	15910285.02
14S5801402	Integrated Circuit	U30	Bellcore Issue 6	Level I		0.025295	1.00	.2517	0.025295	39534043.95
14S5813800	Integrated Circuit	U6	Bellcore Issue 6	Level I		0.025344	1.00	.2522	0.025344	39456527.60
1300581740	Semiconductor	D1	Bellcore Issue 6	Level I	24.80	0.026011	1.00	.2588	0.026011	38445219.35
1653009201	Connection	CN7	Bellcore Issue 6	Level I		0.006621	1.00	.0659	0.006621	151033020.39
1189615181	Capacitor	TC17	Bellcore Issue 6	Level I	23.40	0.004099	1.00	.0408	0.004099	243934945.83
1189618180	Capacitor	TC15	Bellcore Issue 6	Level I		0.007788	1.00	.0775	0.007788	128396931.77
14S4397701	Integrated Circuit	U22	Bellcore Issue 6	Level I		0.026234	1.00	.2611	0.026234	38118760.86
1124410180	Capacitor	C115-117,C74-75	Bellcore Issue 6	Level I		0.000547	5.00	.0272	0.002737	1826769085.82
14S5812501	Integrated Circuit	U17	Bellcore Issue 6	Level I		0.025244	1.00	.2512	0.025244	39613193.55
1540756280	Resistor	RN21-22	Bellcore Issue 6	Level I		0.003910	2.00	.0778	0.007821	255730457.04
1540722084	Resistor	RN23-26	Bellcore Issue 6	Level I		0.003910	4.00	.1557	0.015641	255730457.04
1540727080	Resistor	RN31	Bellcore Issue 6	Level I		0.003910	1.00	.0389	0.003910	255730457.04

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Temperature 30.00

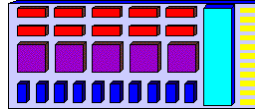


Description Top-level assembly
File Name PCM-5330 A0.3.RPJ
Time 2:33 PM
Failure Rate 10.048945
MTBF 99,513

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1540722280	Resistor	RN32	Bellcore Issue 6	Level I		0.003910	1.00	.0389	0.003910	255730457.04
1540715380	Resistor	RN33	Bellcore Issue 6	Level II		0.001303	1.00	.0130	0.001303	767191371.13
1540733082	Resistor	RN34-36	Bellcore Issue 6	Level I		0.003910	3.00	.1167	0.011731	255730457.04
105A708203	Resistor	R115,R120	Bellcore Issue 6	Level I		0.001249	2.00	.0248	0.002497	800930098.66
105A707503	Resistor	R134-136	Bellcore Issue 6	Level I		0.001249	3.00	.0373	0.003746	800930098.66
14S3115000	Integrated Circuit	U33	Bellcore Issue 6	Level I	45.80	0.710262	1.00	7.0680	0.710262	1407931.91
105A733003	Resistor	R161-163,R165,R175,R185,R190--191	Bellcore Issue 6	Level I		0.001249	8.00	.0994	0.009988	800930098.66
1124447080	Capacitor	C80-83	Bellcore Issue 6	Level I		0.000547	4.00	.0218	0.002190	1826769085.82
1124582280	Capacitor	C121	Bellcore Issue 6	Level I		0.000547	1.00	.0054	0.000547	1826769085.82
1300414840	Semiconductor	D3	Bellcore Issue 6	Level I		0.013753	1.00	.1369	0.013753	72710998.66
1212306033	Inductor	FB1,FB11,FB16,FB3-9	Bellcore Issue 6	Level I		0.001249	10.00	.1242	0.012485	800930098.66
1653017201	Connection	CN3	Bellcore Issue 6	Level I		0.012506	1.00	.1245	0.012506	79958657.85
1315970110	Semiconductor	F1-2	Bellcore Issue 6	Level I		0.091687	2.00	1.8248	0.183374	10906649.80
1653020207	Connection	CN9	Bellcore Issue 6	Level I		0.014713	1.00	.1464	0.014713	67964859.17
1653005202	Connection	CN10,CN6	Bellcore Issue 6	Level I		0.003678	2.00	.0732	0.007357	271859436.70
1653003203	Connection	JP1	Bellcore Issue 6	Level I		0.002207	1.00	.0220	0.002207	453099061.16
1310222210	Semiconductor	Q2	Bellcore Issue 6	Level I		0.013753	1.00	.1369	0.013753	72710998.66
1540710080	Resistor	RN2-6	Bellcore Issue 6	Level I		0.003910	5.00	.1946	0.019552	255730457.04
105A549963	Resistor	R125-128	Bellcore Issue 6	Level I		0.001249	4.00	.0497	0.004994	800930098.66
1174510180	Capacitor	CP1-9	Bellcore Issue 6	Level I		0.000547	9.00	.0490	0.004927	1826769085.82
1124501780	Capacitor	C1-2,C16,C18-27,C29-30,C71	Bellcore Issue 6	Level I		0.000547	16.00	.0872	0.008759	1826769085.82
1124415080	Capacitor	C4-5	Bellcore Issue 6	Level I		0.000547	2.00	.0109	0.001095	1826769085.82
1121501680	Capacitor	C40-41	Bellcore Issue 6	Level I		0.001311	2.00	.0261	0.002622	762806343.57
1129610260	Capacitor	C58	Bellcore Issue 6	Level I		0.000368	1.00	.0037	0.000368	2718958522.59
1129701080	Capacitor	C113-114,C119,C66,C79	Bellcore Issue 6	Level I		0.000547	5.00	.0272	0.002737	1826769085.82
1301005440	Semiconductor	D5-6	Bellcore Issue 6	Level I		0.013753	2.00	.2737	0.027506	72710998.66
1212306032	Inductor	FB12-15,FB19-21	Bellcore Issue 6	Level I		0.001249	7.00	.0870	0.008740	800930098.66
105A516513	Resistor	R168	Bellcore Issue 6	Level I		0.001249	1.00	.0124	0.001249	800930098.66
14S4021300	Integrated Circuit	U24-27	Bellcore Issue 6	Level I		0.042535	4.00	1.6931	0.170138	23510284.61
14S3000201	Inductor	TRSF1	Bellcore Issue 6	Level I	16.10	0.100092	1.00	.9960	0.100092	9990831.30

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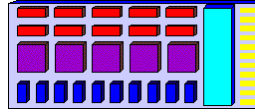


Description Top-level assembly
File Name PCM-5330 A0.3.RPJ
Time 2:33 PM
Failure Rate 10.048945
MTBF 99,513

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate. Unit	Quantity	Failure Rate. %	Failure Rate	MTBF. Unit
1124412080	Capacitor	C67-68	Bellcore Issue 6	Level I		0.000547	2.00	.0109	0.001095	1826769085.82
1129747650	Capacitor	C70,TC9-10	Bellcore Issue 6	Level I		0.002822	3.00	.0842	0.008466	354356744.52
1654040000	Connection	CN5	Bellcore Issue 6	Level I		0.014713	1.00	.1464	0.014713	67964859.17
1211103360	Inductor	L1	Bellcore Issue 6	Level I	24.20	0.001909	1.00	.0190	0.001909	523749667.20
1231332721	Miscellaneous	X3	Bellcore Issue 6	Level I		0.075000	1.00	.7463	0.075000	13333333.33
1653925210	Connection	CFD1	Bellcore Issue 6	Level I		0.018392	1.00	.1830	0.018392	54371887.34
1122701680	Capacitor	C6-15,C100-109,C111-112,C120,C-122-123,C17,C28,C3,C31-36,C42--43,C45-46,C48,C54-56,C62-65,C69-C72,C73-C76,C77-C85,C86-89,C90-C93	Bellcore Issue 6	Level I		0.000825	67.00	.5500	0.055265	1212335760.74
1124410080	Capacitor	C37-39	Bellcore Issue 6	Level I		0.000547	3.00	.0163	0.001642	1826769085.82
1653008202	Connection	CN1	Bellcore Issue 6	Level I		0.005885	1.00	.0586	0.005885	169912147.94
1213106008	Inductor	LN1-6	Bellcore Issue 6	Level I		0.001249	6.00	.0745	0.007491	800930098.66
1124422080	Capacitor	C118,C59,C61,C78	Bellcore Issue 6	Level I		0.000547	4.00	.0218	0.002190	1826769085.82
1122722780	Capacitor	C44,C47	Bellcore Issue 6	Level I		0.000825	2.00	.0164	0.001650	1212335760.74
105A704723	Resistor	R109,R140-141,R145-147,R150-152,R158-160,R174,R86-89,R95	Bellcore Issue 6	Level I		0.001249	18.00	.2236	0.022474	800930098.66
14S2303700	Integrated Circuit	U34	Bellcore Issue 6	Level I	27.30	0.250243	1.00	2.4902	0.250243	3996111.53
1540747282	Resistor	RN37	Bellcore Issue 6	Level I		0.003910	1.00	.0389	0.003910	255730457.04
105A702203	Resistor	R1-4,R116-119,R138-139,R144,R8-2,R91-92	Bellcore Issue 6	Level I		0.001249	14.00	.1739	0.017480	800930098.66
105A747033	Resistor	R10,R12-16,R18-21,R23-25,R27-29-,R31-35,R37,R39-52,R5,R54,R56--57,R59,R6,R61,R63,R65,R68,R9	Bellcore Issue 6	Level I		0.001249	47.00	.5840	0.058682	800930098.66
1231325050	Miscellaneous	X2	Bellcore Issue 6	Level I		0.075000	1.00	.7463	0.075000	13333333.33
105A700003	Resistor	FB10,FB17-18,FB110,R142-143,R-148,R157,R182,R195,R90	Bellcore Issue 6	Level I		0.001249	11.00	.1367	0.013734	800930098.66
1231314350	Miscellaneous	X1	Bellcore Issue 6	Level I		0.075000	1.00	.7463	0.075000	13333333.33
1653022202	Connection	CN2	Bellcore Issue 6	Level I		0.016185	1.00	.1611	0.016185	61786235.61
1653013202	Connection	CN4	Bellcore Issue 6	Level I		0.009564	1.00	.0952	0.009564	104561321.81
1540710380	Resistor	RN1	Bellcore Issue 6	Level I		0.003910	1.00	.0389	0.003910	255730457.04
1540782280	Resistor	RN7-10,RN13-20	Bellcore Issue 6	Level I		0.003910	12.00	.4670	0.046924	255730457.04
105A701033	Resistor	R113,R123,R130-131,R154,R156,-R167,R67-69	Bellcore Issue 6	Level I		0.001249	10.00	.1242	0.012485	800930098.66
105A701003	Resistor	R73,R75,R77-78,R80-81,R83-85	Bellcore Issue 6	Level I		0.001249	9.00	.1118	0.011237	800930098.66

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Temperature 30.00



Description Top-level assembly
File Name PCM-5330 A0.3.RPJ
Time 2:33 PM
Failure Rate 10.048945
MTBF 99,513

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A708223	Resistor	R100,R122,R124,R133,R93-94	Bellcore Issue 6	Level I		0.001249	6.00	.0745	0.007491	800930098.66
105A768003	Resistor	R97	Bellcore Issue 6	Level I		0.001249	1.00	.0124	0.001249	800930098.66
105A704703	Resistor	R101-102	Bellcore Issue 6	Level I		0.001249	2.00	.0248	0.002497	800930098.66
105A705623	Resistor	R121,R132	Bellcore Issue 6	Level I		0.001249	2.00	.0248	0.002497	800930098.66
105A514703	Resistor	R137	Bellcore Issue 6	Level I		0.001249	1.00	.0124	0.001249	800930098.66
14S4048500	Integrated Circuit	U28-29	Bellcore Issue 6	Level I		0.042535	2.00	.8465	0.085069	23510284.61
105A702223	Resistor	R164,R197	Bellcore Issue 6	Level I		0.001249	2.00	.0248	0.002497	800930098.66
105A512003	Resistor	R169,R171	Bellcore Issue 6	Level I		0.001249	2.00	.0248	0.002497	800930098.66
1139710060	Capacitor	TC11-12,TC16,TC3-4,TC7-8	Bellcore Issue 6	Level I		0.001406	7.00	.0979	0.009839	711449301.06
14S3128420	Integrated Circuit	U23	Bellcore Issue 6	Level I		0.042535	1.00	.4233	0.042535	23510284.61
105A700133	Resistor	R104-105,R112,R114,R155,R166,-R170	Bellcore Issue 6	Level I		0.001249	7.00	.0870	0.008740	800930098.66
14S5A01400	Integrated Circuit	U21,U36	Bellcore Issue 6	Level I		0.042535	2.00	.8465	0.085069	23510284.61
1651203291	Connection	U19	Bellcore Issue 6	Level I		0.011771	1.00	.1171	0.011771	84956073.97
14S6334610	Integrated Circuit	U16	Bellcore Issue 6	Level I	18.10	0.073414	1.00	.7306	0.073414	13621392.65
105A501033	Resistor	R98	Bellcore Issue 6	Level I		0.001249	1.00	.0124	0.001249	800930098.66
105A703303	Resistor	R99	Bellcore Issue 6	Level I		0.001249	1.00	.0124	0.001249	800930098.66
105A530003	Resistor	R103,R106-108	Bellcore Issue 6	Level I		0.001249	7.00	.0870	0.008740	800930098.66
105A710053	Resistor	R111	Bellcore Issue 6	Level I		0.007491	1.00	.0745	0.007491	133488349.78
14S5824500	Integrated Circuit	U5	Bellcore Issue 6	Level I	17.30	0.064873	1.00	.6456	0.064873	15414761.17
14S4911216	Integrated Circuit	U9	Bellcore Issue 6	Level I		0.026234	1.00	.2611	0.026234	38118760.86
1304100540	Semiconductor	LED2	Bellcore Issue 6	Level I		0.003823	1.00	.0380	0.003823	261592266.64
105A510033	Resistor	R194	Bellcore Issue 6	Level I		0.001249	1.00	.0124	0.001249	800930098.66
14S4070610	Integrated Circuit	U35	Bellcore Issue 6	Level I	20.90	0.169660	1.00	1.6883	0.169660	5894124.51
1212308054	Inductor	FB23	Bellcore Issue 6	Level I		0.001249	1.00	.0124	0.001249	800930098.66
105A507503	Resistor	R176-179	Bellcore Issue 6	Level I		0.001249	4.00	.0497	0.004994	800930098.66
14S6811102	Integrated Circuit	U13	Bellcore Issue 6	Level I	24.70	1.430690	1.00	14.2372	1.430690	698963.25
14S6202002	Integrated Circuit	U19	Bellcore Issue 6	Level I		0.106747	1.00	1.0623	0.106747	9367974.40
14S5515302	Integrated Circuit	U2	Bellcore Issue 6	Level I	16.40	0.087716	1.00	.8729	0.087716	11400365.85
14S5515302	Integrated Circuit	U3	Bellcore Issue 6	Level I	18.20	0.094193	1.00	.9373	0.094193	10616460.29
14S5824500	Integrated Circuit	U7	Bellcore Issue 6	Level I	16.90	0.063564	1.00	.6325	0.063564	15732127.77

