

FSB-860B-A02 Reliability Prediction Report (MTBF)

Report NO : 05I070001

01-03-2005

Issue Date

Wenyuan Yang

Manager

Jessica Chou

Test Engineer

Reliability Prediction (MTBF)

I . **Model Name:** 9697860B04 (ASS'Y. FSB-860B-E2.Rev A0.2)

II . **Prediction Date:** Jan. 03, 2005

III . **Prediction Site:** AAEON Q.E. Dept.

IV . **Predicted by :** Jessica Chou

V . **Equipment:** Relex Ver.7.3 Visual Reliability Software

VI. Simulation Environment:

- Temperature: 20.8 degrees C
- Standard: Telcordia (Bellcore) Standard

VII. 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.

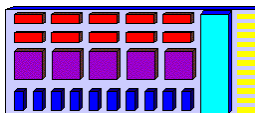
VIII. Prediction Result:

- Failure Rate: 13.086931 ppm
- MTBF: 76,412 Hours

IX. Prediction Table

Standard Reliability Prediction Report

Part Number 9697860B04
Reference Des
Date 一月 3, 2005
Environment GF, GU - Ground Fixed,
Temperature 20.80

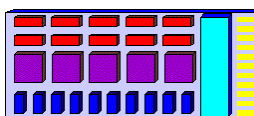


Description Top-level assembly
File Name 9697860B04.RPJ
Time 4:41 下午
Failure Rate 13.086931
MTBF 76,412

Assembly Name	Part Number	Ref Des	Qty	Failure Rate	MTBF
FSB-860B-A02	9697860B04		1.00	13.086931	76,412

Standard Reliability Prediction Report

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Temperature 20.80

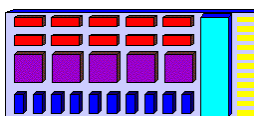


Description Top-level assembly
File Name 9697860B04.RPJ
Time 4:41 下午
Failure Rate 13.086931
MTBF 76,412

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
1655420020	Connection	ATX2	0.227711	1.00	0.227711
1759100002	Miscellaneous	BZ1	0.150000	1.00	0.150000
1655005021	Connection	CN5	0.002277	1.00	0.002277
1653205203	Connection	COM1,COM2	0.113855	2.00	0.227711
1119647191	Capacitor	EC1,EC11-EC14,- EC17-EC21,EC2	0.037856	11.00	0.416413
1655003010	Connection	FAN1,FAN2	0.034157	2.00	0.068313
1653004200	Connection	FP1,FP2	0.091084	2.00	0.182169
1653220208	Connection	IDE1,IDE2	0.018217	2.00	0.036434
1653003201	Connection	JP3	0.068313	1.00	0.068313
1653005201	Connection	USB1,USB2	0.004554	2.00	0.009108
1654515308	Connection	VGA1	0.170783	1.00	0.170783
1653002101	Connection	JP4	0.022771	1.00	0.022771
1652508212	Connection	LAN2	0.003643	1.00	0.003643
1653900034	Connection	CFD1	0.018217	1.00	0.018217
1211101161	Inductor	L2-L5	0.002086	4.00	0.008344
1655404020	Connection	ATX1	0.001822	1.00	0.001822
1750119013	Miscellaneous	BAT1	0.900000	1.00	0.900000
1654606200	Connection	CN4	0.002733	1.00	0.002733
1653005205	Connection	CN6	0.113855	1.00	0.113855
1651592490	Connection	DIMM1,DIMM2	0.083798	2.00	0.167595
1119633211	Capacitor	EC16,EC24,EC3,- EC30,EC31,EC4-- EC8	0.060303	10.00	0.603030
1111618210	Capacitor	EC10,EC29,C9	0.036342	3.00	0.109027
1653217202	Connection	FDD1	0.387108	1.00	0.387108
1653302150	Connection	HSA2,HSA3	0.022771	2.00	0.045542
1653006101	Connection	IR1	0.068313	1.00	0.068313
1653002100	Connection	CN2,CN3,JP5,JP6	0.022771	4.00	0.091084
1653213203	Connection	LTP1	0.296024	1.00	0.296024
1654804100	Connection	USB3	0.045542	1.00	0.045542
1231232720	Miscellaneous	Y3	0.150000	1.00	0.150000
1231214350	Miscellaneous	Y4	0.150000	1.00	0.150000
14S6200400	Integrated Circuit	U23	0.059739	1.00	0.059739
1655003022	Connection	CN1	0.034157	1.00	0.034157
1652510201	Connection	LAN1	0.113855	1.00	0.113855
105A523233	Resistor	R202	0.002086	1.00	0.002086
105A556223	Resistor	R206,R207	0.002086	2.00	0.004172
105A710053	Resistor	R235,R293,R294	0.012517	3.00	0.037550
105A507503	Resistor	R259,R261,R263	0.002086	3.00	0.006258
1540700080	Resistor	RN11,RN13-RN18- ,RN5,RN7,RN9	0.005141	10.00	0.051406
105A700133	Resistor	R127,R146,R16,- R17,R190,R2,R20- ,R205,R242,R27,- R270,R290,R291- ,R32,R40	0.002086	15.00	0.031291
105A700133	Resistor	R44,R464,R467,- R485,R488,R489- ,R493,R521,R65,- R66	0.002086	10.00	0.020861

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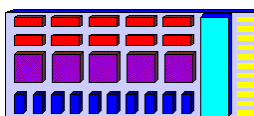


Description Top-level assembly
File Name 9697860B04.RPJ
Time 4:41 下午
Failure Rate 13.086931
MTBF 76,412

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
105A704723	Resistor	R109-R111,R140- ,R142,R145,R147- ,R150,R155,R156- ,R212-R218,R222- ,R23,R236	0.002086	20.00	0.041722
105A704723	Resistor	R239,R240,R243- ,R245,R246,R252- ,R255,R332,R510- ,R511,R6,R62,R6- 3,R95	0.002086	16.00	0.033377
105A756003	Resistor	R48	0.002086	1.00	0.002086
105A511503	Resistor	R50,R518,R527	0.002086	3.00	0.006258
105A703323	Resistor	R52,R55,R61	0.002086	3.00	0.006258
1059702261	Resistor	R148,R154,R157	0.002086	3.00	0.006258
105A700003	Resistor	R102,R104,R112- ,R116,R118,R126- ,R161,R219-R221- ,R223,R226,R241- ,R271	0.002086	14.00	0.029205
105A700003	Resistor	R278,R309,R474- ,R476,R480,R513- ,R57,R98	0.002086	8.00	0.016689
105A515033	Resistor	R59	0.002086	1.00	0.002086
105A513703	Resistor	R433	0.002086	1.00	0.002086
105A706203	Resistor	R317,R473,R479	0.002086	3.00	0.006258
14S5A00700	Integrated Circuit	U2	0.029495	1.00	0.029495
1315970110	Semiconductor	U16-U18	0.140860	3.00	0.422581
14S4655600	Integrated Circuit	U11	0.043470	1.00	0.043470
14S4888800	Integrated Circuit	U24	0.045199	1.00	0.045199
14S4048501	Integrated Circuit	U28,U30	0.043470	2.00	0.086940
105A568163	Resistor	R318,R409	0.002086	2.00	0.004172
105A705603	Resistor	FB11,FB12,R338- ,R339,R342,R344- ,R345,R347,R352- ,R355,R357,R359- ,R363	0.002086	18.00	0.037550
105A705603	Resistor	R370-R372,R374- ,R376,R377-R381- ,R385,R387-R389- ,R494,R503-R509	0.002086	22.00	0.045894
105A500133	Resistor	R392,R393,R43	0.002086	3.00	0.006258
105A524963	Resistor	R396,R397	0.002086	2.00	0.004172
1121747660	Capacitor	CA2,CA29,CA4	0.002469	3.00	0.007408
1129722060	Capacitor	CA15-CA17	0.002648	3.00	0.007943
1653925216	Connection	CFD1	0.022771	1.00	0.022771
1121701050	Capacitor	C10,C4,C7	0.002469	3.00	0.007408
105A503033	Resistor	R201,R516,R525	0.002086	3.00	0.006258
105A512033	Resistor	R203	0.002086	1.00	0.002086
105A537463	Resistor	R258,R260,R262	0.002086	3.00	0.006258
105A702723	Resistor	R264,R265,R277- ,R285,R297,R298- ,R323	0.002086	7.00	0.014603

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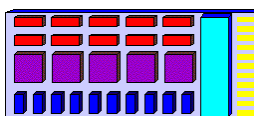


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File Name 9697860B04.RPJ
Time 4:41 下午
Failure Rate 13.086931
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Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
1124501780	Capacitor	C12-C14,C22,C30- ,C31,C66,C74-C7- 8,C95,C96,M73	0.001031	15.00	0.015467
1124510180	Capacitor	C36-C51	0.001031	16.00	0.016498
1121722650	Capacitor	C68	0.002469	1.00	0.002469
1124418080	Capacitor	C20,C21,C79,C80	0.001031	4.00	0.004125
1301005442	Semiconductor	DD1	0.021129	1.00	0.021129
1304101340	Semiconductor	D1	0.003303	1.00	0.003303
1212308054	Inductor	FB1,FB2,FB28,F- B29,FB3,FB34-F- B36FB4,FB5	0.002086	10.00	0.020861
1214309002	Inductor	L10,L6-L9	0.002086	5.00	0.010430
1211106870	Inductor	L12	0.079271	1.00	0.079271
14S2652000	Integrated Circuit	U48,U49	0.043470	2.00	0.086940
105A554903	Resistor	R123,R97	0.002086	2.00	0.004172
1211104760	Inductor	L15,L16	0.079271	2.00	0.158543
1122701680	Capacitor	M1,M100-M103,M- 105-M128,M130-- M169,M17,M170-- M247,M2,M21-M4- 6,M3-M5	0.001554	178.00	0.276562
1122701680	Capacitor	M50-M72,M6,M7,- M8,M80,M82-M86- ,M89,M9,M90-M99	0.001554	44.00	0.068364
1315041210	Semiconductor	Q37,Q38,Q40,Q41	0.140860	4.00	0.563442
1315041210	Semiconductor	Q6	0.184909	1.00	0.184909
1315041210	Semiconductor	Q2	0.181344	1.00	0.181344
1315041210	Semiconductor	Q1	0.179832	1.00	0.179832
1315041210	Semiconductor	Q12	0.198077	1.00	0.198077
1315041210	Semiconductor	Q9	0.215958	1.00	0.215958
1315041410	Semiconductor	Q10	0.140860	1.00	0.140860
1315041410	Semiconductor	Q15	0.196998	1.00	0.196998
1315041410	Semiconductor	Q16	0.204645	1.00	0.204645
1315041410	Semiconductor	Q11	0.202988	1.00	0.202988
1315041410	Semiconductor	Q7	0.200248	1.00	0.200248
1315041410	Semiconductor	Q8	0.191670	1.00	0.191670
1314917313	Integrated Circuit	Q34	0.043470	1.00	0.043470
14S4256200	Inductor	U22	0.155576	1.00	0.155576
14S4871202	Integrated Circuit	U34	0.048994	1.00	0.048994
1540722084	Resistor	RN28,RN29	0.005141	2.00	0.010281
15407103A0	Resistor	RP1,RP10-RP12,- RP15-RP17,RP4-- RP6,RP9	0.006426	11.00	0.070683
105A703303	Resistor	R280,R282,R304- ,R343,R346,R350- ,R351,R364,R367- -R369	0.002086	11.00	0.022947
105A522663	Resistor	R288	0.002086	1.00	0.002086
105A733033	Resistor	R292	0.002086	1.00	0.002086
105A702223	Resistor	R125,R305,R522- ,R82,R89,R96	0.002086	6.00	0.012517
105A715003	Resistor	R334,R335,R475- ,R490	0.002086	4.00	0.008344

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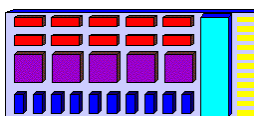


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File Name 9697860B04.RPJ
Time 4:41 下午
Failure Rate 13.086931
MTBF 76,412

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
105A549963	Resistor	R129-R132,R390- ,R434-R437,R471- ,R81,R83-R85	0.002086	14.00	0.029205
105A510003	Resistor	R134,R135,R391- ,R399,R400,R472	0.002086	6.00	0.012517
105A530103	Resistor	R394	0.002086	1.00	0.002086
105A522603	Resistor	R398	0.002086	1.00	0.002086
105A700103	Resistor	R401,R402	0.002086	2.00	0.004172
1129710050	Capacitor	CA1,CA26,CA3,C- A37,CA38,CA40,- CA41,CA8	0.002648	8.00	0.021181
1129747650	Capacitor	CA10-CA13,CA18- -CA25,CA27,CA28- ,CA31-CA36,CA39- ,CA42-CA44,CA83- ,CA9	0.002648	26.00	0.068838
1129510060	Capacitor	CA45-CA58,CA81- ,CA82,CA84-CA86	0.005865	19.00	0.111441
1129610050	Capacitor	CA64-CA69,CA75- -CA80	0.005865	12.00	0.070384
1129701080	Capacitor	C101,C104,C105- ,C108,C11,C110,- C111,C113,C3,C5- ,C65,C67,C8,C9	0.002648	14.00	0.037066
1124556280	Capacitor	C6	0.001031	1.00	0.001031
1121656080	Capacitor	C112	0.002469	1.00	0.002469
1124547080	Capacitor	C27,C28,C32-C35- ,C61-C64	0.001031	10.00	0.010311
1124510080	Capacitor	C53,C54,C56,C57- ,C59,C60,C81-C94	0.001031	20.00	0.020623
1124515081	Capacitor	C71,C72	0.001031	2.00	0.002062
1121647780	Capacitor	C69	0.002469	1.00	0.002469
1124510280	Capacitor	C15,C25,C26,C97- -C99	0.001031	6.00	0.006187
1124522180	Capacitor	C100	0.001031	1.00	0.001031
121230603E	Inductor	FB6-FB9	0.002086	4.00	0.008344
121230603D	Inductor	FB10,FB13,FB30,- FB31,FB33	0.002086	5.00	0.010430
1301005440	Semiconductor	DD7,DD9	0.021129	2.00	0.042258
1300414840	Semiconductor	D6-D9	0.021129	4.00	0.084516
1211101005	Inductor	L11	0.002086	1.00	0.002086
1211100109	Inductor	L13	0.002086	1.00	0.002086
1211108270	Inductor	L14	0.002086	1.00	0.002086
1211103367	Inductor	L17,L18	0.002086	2.00	0.004172
1121501681	Capacitor	M18-M20,M77-M- 79,M81	0.002469	7.00	0.017285
1752311000	Miscellaneous	P1,P2	0.030000	2.00	0.060000
1314111716	Integrated Circuit	Q36,Q5	0.043470	2.00	0.086940
1310390411	Semiconductor	Q13,Q17,Q20-Q2- 3,Q32,Q35	0.021129	8.00	0.169033
1315700211	Semiconductor	Q14,Q28	0.021129	2.00	0.042258
1540701380	Resistor	RN1,RN3	0.005141	2.00	0.010281
14S2200900	Integrated Circuit	U41	0.043470	1.00	0.043470
14S4280106	Integrated Circuit	U43	0.052767	1.00	0.052767

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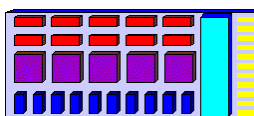


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14S4284505	Integrated Circuit	U44	0.030590	1.00	0.030590
14S3260700	Integrated Circuit	U45	0.162164	1.00	0.162164
1651608990	Connection	U46	0.010930	1.00	0.010930
14S9080900	Semiconductor	U47	0.031792	1.00	0.031792
1124522080	Capacitor	C23,C24	0.001031	2.00	0.002062
1231325050	Miscellaneous	Y1	0.150000	1.00	0.150000
1231325050	Miscellaneous	Y2	0.150000	1.00	0.150000
105A515003	Resistor	R395,R49	0.002086	2.00	0.004172
105A561903	Resistor	R122,R99	0.002086	2.00	0.004172
105A524903	Resistor	R39,R41,R51,R5-20	0.002086	4.00	0.008344
14S6334610	Integrated Circuit	U20,U21	0.022405	2.00	0.044810
14S4255100	Integrated Circuit	U19	0.056475	1.00	0.056475
1540782280	Resistor	RN20-RN27	0.005141	8.00	0.041124
1540710080	Resistor	RN30,RN33,RN36- ,RN38,RN40,RN4- 1,RN44,RN45,RN- 48,RN49,RN52,R- N53,RN56	0.005141	13.00	0.066827
1540710080	Resistor	RN57,RN59,RN61	0.005141	3.00	0.015422
1540756080	Resistor	RN31,RN32,RN34- ,RN35,RN37,RN3- 9,RN42,RN43,RN- 46,RN47,RN50,R- N51,RN54	0.005141	13.00	0.066827
1540756080	Resistor	RN55,RN58,RN60- ,RN62,RN63	0.005141	5.00	0.025703
106B501031	Resistor	RT1-RT3	0.009108	3.00	0.027325
105A733003	Resistor	R128,R13,R133,- R3,R302,R7	0.002086	6.00	0.012517
10AS701003	Resistor	R120,R336,R337- ,R340,R341,R348- ,R349,R356,R358- ,R365,R366,R373- ,R375	0.002086	13.00	0.027119
105A701003	Resistor	R382-R384,R386- ,R4,R438-R441,R- 444,R446,R455,R- 5,R514,R526,R8	0.002086	16.00	0.033377
105A702233	Resistor	R189,R196,R26,- R34	0.002086	4.00	0.008344
105A510203	Resistor	R528	0.002086	1.00	0.002086
1059701001	Resistor	R53	0.002086	1.00	0.002086
105A502033	Resistor	R54	0.002086	1.00	0.002086
105A500233	Resistor	R56,R60	0.002086	2.00	0.004172
105A730033	Resistor	R58	0.002086	1.00	0.002086
105A701033	Resistor	R108,R119,R124- ,R143,R158-R160- ,R163,R165,R170- ,R174,R224,R227- ,R229	0.002086	14.00	0.029205
105A701033	Resistor	R442,R64,R67,R- 68	0.002086	4.00	0.008344
14S5A01400	Integrated Circuit	U31	0.043470	1.00	0.043470

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14S3128420	Integrated Circuit	U33	0.075376	1.00	0.075376
105A560463	Resistor	R427-R430	0.002086	4.00	0.008344
105A540263	Resistor	R432	0.002086	1.00	0.002086
105A547503	Resistor	R462	0.002086	1.00	0.002086
105A530003	Resistor	R77,R78,R94	0.002086	3.00	0.006258
105A530003	Resistor	R477	0.002353	1.00	0.002353
105A505103	Resistor	R481,R482,R491- ,R497-R500	0.002086	7.00	0.014603
14S1035801	Integrated Circuit	U8	0.043470	1.00	0.043470
14S9660100	Integrated Circuit	U13	0.146683	1.00	0.146683
14S9660100	Integrated Circuit	U12	0.197632	1.00	0.197632
14S9660100	Integrated Circuit	U14	0.235389	1.00	0.235389
1314918110	Integrated Circuit	U15	0.043470	1.00	0.043470
1651203291	Connection	U23	0.014573	1.00	0.014573
14S5A23200	Integrated Circuit	U25	0.043470	1.00	0.043470
14S4021310	Integrated Circuit	U29	0.077562	1.00	0.077562
105A756033	Resistor	R71,R72,R74	0.002086	3.00	0.006258
105S747033	Resistor	R69,R70,R73	0.002086	3.00	0.006258
105A708223	Resistor	R136-R139,R149- ,R166,R237,R274- ,R279,R281,R283- ,R286-R289,R320- -R322	0.002086	17.00	0.035464
105A708223	Resistor	R319	0.002367	1.00	0.002367
105A708223	Resistor	R324-R326,R329- ,R417-R421,R423- ,R426,R431,R463- ,R465,R466,R469- -R470	0.002086	17.00	0.035464
105A708223	Resistor	R468	0.002317	1.00	0.002317
105A747003	Resistor	R144,R153	0.002086	2.00	0.004172
105A702203	Resistor	R151,R327,R328- ,R443,R445,R447- -R454,R456-R461	0.002086	19.00	0.039636
105A705133	Resistor	R167,R168	0.002086	2.00	0.004172
105A501033	Resistor	R181-R183,R197- -R199,R208,R210- ,R211,R501,R502	0.002086	11.00	0.022947
105A506823	Resistor	R200,R204	0.002086	2.00	0.004172
14S5812500	Integrated Circuit	U50	0.029436	1.00	0.029436