



ACP-IMX6POS

Reliability Prediction Report

(MTBF)

MTBF Number : EMTBF- ACPIMX6POS001
Release Date : 2014/09/30

Initiated by	Eagle Chen	Job Title	Engineer	Originate Date	2014/09/30
Approved by	Simon Lin	Job Title	Manager	Revision	QD4-069 Rev.A2

Reliability Prediction(MTBF)

I. Model Name : ACP-IMX6POS

Description :

Freescale i.MX6 Cortex-A9 Dual lite/Quad 1GHz CPU, Onboard Up to 1GB(Dual Lite) or 2GB(Qual) DDR3 1066/1333 SDRAM, Dual channel 24bit LVDS , 1 x HDMI, 4~64GB eMMC, Micro SD Socket x1, 1x Mini PCI Express slot (USB signal only), 4 x COM port, 1 x Gigabit Ethernet

Predication Date : 2014/09/30

II. Prediction Site : Avalue Technology Software – DQV Dept.

III. Predicted by : Eagle Chen

IV. Simulation Environment :

— Temperature : 30°C

— Standard : Telcordia Issue 2

V. Prediction Result :

— Failure Rate : See next pages

— MTBF : See next pages

**Reliability Prediction
Summary**

File Name: ACP-IMX6POS.rfp

System: E9697IMX603R

Ref Des:

Calculation Model: Telcordia Issue 2

Failure Rate: 3247.809389

MTBF (hrs): 307,900

Temperature: 30

Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
ACP-IMX6POS	E9697IMX603R		1	3247.809389	307,900

File Name: ACP-IMX6POS.rfp
Assembly: E9697IMX603R
Ref Des:
Description:

Failure Rate: 3247.809389
MTBF (hrs): 307,900
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
E1181656731H	Capacitor	C434,C435	0.376269	2	0.888203
E1183627720H	Capacitor	C439,C440	0.376269	2	0.888203
E1653002202R	Connection	JUART1	5.394945	1	9.340838
E1653005101R	Connection	J12C1	5.394945	1	9.340838
E1653005111R	Connection	JTP1	5.394945	1	9.340838
E1655302020R	Connection	JSPK1,JSPK2	5.394945	2	16.347761
E1655304020R	Connection	JMIC1	5.394945	1	9.340838
E1655305020R	Connection	JBKLT1,JUSB2	5.394945	2	16.347761
E1655X02022R	Connection	BAT-1	5.394945	1	9.340838
E1662520202R	Connection	JCOM3,JCOM4,JLED1,JUSB1	5.394945	4	29.381888
E1662820202R	Connection	JVGA1	5.394945	1	9.340838
E1654805305R	Connection	JMUSB1	5.394945	1	9.340838
E1654808307R	Connection	JUSB3	5.394945	1	9.340838
E1654409106R	Connection	JCOM1,JCOM2	5.394945	2	16.347761
E1654419303R	Connection	JHDMI1	5.394945	1	9.340838
E16G0066400R	Connection	JCASH1	5.394945	1	9.340838
E16G2142300R	Connection	JLAN1	5.394945	1	9.340838
E1652503106R	Connection	JPWR1	5.394945	1	9.340838
E175810301BR	Miscellaneous	BAT-2	102.000000	1	198.214130
E9695IMX603R	Integrated Circuit	SMT1	21.706765	1	42.213622
E10195003CXH	Resistor	R428	0.849013	1	1.180607
E1050501020H	Resistor	R151,R158	0.849013	2	2.163395
E1050501030H	Resistor	R86,R91,R106,R112,R152~R156,R332,R351,R357,R359,R363,R366,R374,R375,R379,R381,R411,R412,R420,R423,R424,R440,R450,R482,R488,R501,R522	0.849013	30	27.223186

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E1050501040H	Resistor	R273,R353,R414,R416,R421,R422,R484,R489,R494	0.849013	9	8.601164
E1050501110H	Resistor	R164	0.849013	1	1.180607
E1050501130H	Resistor	R413	0.849013	1	1.180607
E1050501220H	Resistor	R113	0.849013	1	1.180607
E1050501230H	Resistor	R180	0.849013	1	1.180607
E1050501510H	Resistor	R115,R116,R119,R120,R122,R123	0.849013	6	5.891993
E1050501620H	Resistor	R64	0.849013	1	1.180607
E1050502010H	Resistor	R65,R92,R93	0.849013	3	3.114661
E1050502030H	Resistor	R430,R432,R433,R483,R513~R515,R517~R519,R532,R540	0.849013	12	11.296722
E1050502040H	Resistor	R447	0.849013	1	1.180607
E1050502220H	Resistor	R415	0.849013	1	1.180607
E1050502250H	Resistor	R74	0.849013	1	1.180607
E1050502410H	Resistor	R87~R90,R94	0.849013	5	4.974520
E1050502430H	Resistor	R418	0.849013	1	1.180607
E1050503020H	Resistor	R485,R496	0.849013	2	2.163395
E1050503330H	Resistor	R429	0.849013	1	1.180607
E1050503620H	Resistor	R449	0.849013	1	1.180607
E1050504320H	Resistor	R500	0.849013	1	1.180607
E1050504730H	Resistor	R443	0.849013	1	1.180607
E1050506830H	Resistor	R571,R572	0.849013	2	2.163395
E1050509120H	Resistor	R498	0.849013	1	1.180607
E1050512120H	Resistor	R202	0.849013	1	1.180607
E1050512720H	Resistor	R438	0.849013	1	1.180607
E10505221A0H	Resistor	R165	0.849013	1	1.180607
E1050533230H	Resistor	R404	0.849013	1	1.180607
E1050543220H	Resistor	R491	0.849013	1	1.180607
E1050544220H	Resistor	R446	0.849013	1	1.180607
E1050560420H	Resistor	R434	0.849013	1	1.180607
E1050563410H	Resistor	R436	0.849013	1	1.180607
E1050569810H	Resistor	R486	0.849013	1	1.180607
E1050578710H	Resistor	R554	0.849013	1	1.180607

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E1050700000H	Resistor	R4~R10,R 13~R24,R 27,R29,R3 0,R32,R34 ~R40,R42 ,R43,R45, R53~R63, R73,R76~ R85,R105, R108,R11 1,R141,R1 99,R205,R 207,R222, R249~R2 52,R261~ R263,R26 7,R268,R2 86,R290,R 292,R297, R299~R3 01,R304,R 306,R327, R335,R35 4,R365,R3 67,R372,R 377,R385, R386,R39 1,R398,R4 00~R402, R409,R41 0	0.849013	137	120.060459
E1050701010H	Resistor	R125~R1 30,R132,R 133,R135, R136,R19 8,R266,R4 66,R467,R 474,R477 ~R479	0.849013	18	16.639945

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E1050701020H	Resistor	R2,R138,R143~R146,R148,R150,R206,R208,R212,R220,R221,R223,R248,R270,R272,R274,R276,R281,R282,R303,R319,R328,R339,R344,R358,R362,R376,R380,R393,R516,R530,R531,R538,R539,R553,R568~R570,R574~R579	0.849013	46	41.225047
E1050701030H	Resistor	R98,R101,R139,R140,R147,R160,R166,R169,R170,R174~R179,R183,R184,R190,R191,R194,R211,R219,R246,R247,R265,R269,R271,R275,R277,R320,R321,R323,R325,R329~R331,R338,R340~R342,R348~R350,R360,R364,R378,R382,R389,R390,R394,R408,R437,R452~R454,R456,R457,R459~R462,R	0.849013	78	69.049311

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E1050701040H	Resistor	R104,R195,R397	0.849013	3	3.114661
E1050701050H	Resistor	R181	0.849013	1	1.180607
E1050702010H	Resistor	R468,R473,R475,R476	0.849013	4	4.049743
E1050702030H	Resistor	R168,R185,R189,R480	0.849013	4	4.049743
E1050702200H	Resistor	R1,R28,R33,R204,R224,R225,R260,R264	0.849013	8	7.711511
E1050702220H	Resistor	R3,R25,R26,R46~R48,R96,R97,R99,R100,R102,R103,R117,R118,R142,R163,R186,R188,R192,R193,R240,R333,R334,R337,R455	0.849013	25	22.825402
E1050703300H	Resistor	R121,R124,R352	0.849013	3	3.114661
E1050703310H	Resistor	R200,R203,R395,R396	0.849013	4	4.049743
E1050704720H	Resistor	R68,R69,R157,R167,R196,R213,R214,R216,R217,R278~R280,R283,R285,R287~R289,R291,R293~R296,R298,R302,R305,R307~R309	0.849013	28	25.465726
E1050704730H	Resistor	R490	0.849013	1	1.180607
E1050705110H	Resistor	R149	0.849013	1	1.180607
E1051501141H	Resistor	R417	0.849013	1	1.180607
E1051502831H	Resistor	R495	0.849013	1	1.180607
E1051520511H	Resistor	R561	0.849013	1	1.180607

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E1051700001H	Resistor	R75,R95,R383,R427,R439,R442,R451,R492,R512,R520	0.849013	10	9.502108
E1051703311H	Resistor	R463~R465,R470~R472	0.849013	6	5.891993
E1051703321H	Resistor	R555~R558	0.849013	4	4.049743
E1060701031H	Resistor	RN3~RN10	0.849013	8	7.711511
E11215224A0H-M1	Capacitor	C2,C5,C8~C12,C15,C16,C18~C21,C23,C25,C26,C28~C37,C39~C45,C48~C51,C53~C59,C61,C63~C65,C67~C72,C75,C77,C78,C80~C82,C139~C149,C544~C546	0.376269	74	28.652761
E1121610610H	Capacitor	C4,C153,C155,C157,C170,C175,C182,C183,C186,C193,C196,C201,C213,C215,C225,C243,C279,C436,C472,C473,C487,C489,C499,C503,C506,C508,C510,C514,C519,C534	0.376269	30	11.803086
E1121622500H	Capacitor	C261,C331,C342,C344,C345,C444,C457	0.376269	7	2.882662

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E1121622610H	Capacitor	C17,C22,C24,C27,C38,C46,C47,C52,C60,C62,C66,C73,C74,C76,C79,C95~C97,C100~C102,C137,C138,C265,C266,C278	0.376269	26	10.262448
E1121647500H	Capacitor	C327,C328,C330,C332,C346,C561	0.376269	6	2.487939
E1122547400H	Capacitor	C423	0.376269	1	0.472828
E1123510400H	Capacitor	C3,C94,C150,C152,C154,C156,C162,C165,C167~C169,C171~C174,C176,C181,C184,C185,C187,C194,C195,C197,C198,C202,C204,C206,C207,C209,C211,C212,C214,C216~C218,C222~C224,C226,C228,C231,C232,C234,C235,C237~C242,C244,C245,C248~C257,C259,C262~C264,C267,C268,C272,C27	0.376269	148	56.831690

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E1123510500H	Capacitor	C151,C166,C178~C180,C188,C205,C219,C220,C227,C233,C236,C247,C258,C269,C271,C333,C339,C347,C349,C351,C359,C365,C367,C372,C381,C383,C387,C396,C403,C406,C456,C466,C475,C479,C481,C482,C484,C485,C490,C504,C505,C526~C529,C531,C533,C556	0.376269	49	19.095377
E1123522400H	Capacitor	C6,C86~C93,C98,C99,C103~C136,C368,C450,C464	0.376269	48	18.712358
E1123610610H	Capacitor	C177,C442	0.376269	2	0.888203
E1125510300H	Capacitor	C462,C501,C511,C517	0.376269	4	1.693136
E1125547300H	Capacitor	C189,C191	0.376269	2	0.888203
E1127410000H	Capacitor	C158,C160,C163	0.376269	3	1.294427

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E1127410100H	Capacitor	C273,C275,C282,C354,C356~C358,C361~C363,C369,C371,C373,C375~C379,C384,C392~C395,C407,C408,C410,C411,C500	0.376269	28	11.033085
E1127420000H	Capacitor	C13,C14,C229,C230	0.376269	4	1.693136
E1127422000H	Capacitor	C159,C161,C164	0.376269	3	1.294427
E1127427000H	Capacitor	C276,C277	0.376269	2	0.888203
E1127510200H	Capacitor	C190,C192,C260,C451,C452,C477	0.376269	6	2.487939
E1127510410H	Capacitor	C280,C281,C348,C350,C399,C412,C426,C429,C432,C433,C443,C453,C459,C461,C469,C492,C542	0.376269	17	6.784265
E1127510630H	Capacitor	C478	0.376269	1	0.472828
E1127522200H	Capacitor	C445,C463	0.376269	2	0.888203
E1127533200H	Capacitor	C521,C522	0.376269	2	0.888203
E1127547200H	Capacitor	C502	0.376269	1	0.472828
E112X510230H	Capacitor	C535,C555	0.376269	2	0.888203
E1181610761H	Capacitor	C497,C515,C520	0.376269	3	1.294427
E1181X15780H	Capacitor	C208,C210,C221,C246,C474	0.376269	5	2.091602
E1186622620H	Capacitor	C424,C425,C427,C428,C470,C494	0.376269	6	2.487939
E1186639630H	Capacitor	C454	0.376269	1	0.472828

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E1212201023H	Inductor	L2	1.648084	1	2.153859
E121220102AH	Inductor	L5	1.648084	1	2.153859
E121220102BH	Inductor	L1	1.648084	1	2.153859
E1212202220H	Inductor	L6,L7	1.648084	2	4.006359
E1212202226H	Inductor	L4	1.648084	1	2.153859
E1212203329H	Inductor	L3	1.648084	1	2.153859
E1213009003H	Inductor	B8~B11,B 29,B32~B 34,B37,B3 8,B42	1.648084	11	19.756361
E1213101210H	Inductor	B69,B70	1.648084	2	4.006359
E1213103000H	Inductor	B1~B7,B1 2~B14,B1 7,B19~B2 4,B27,B28 ,B31,B35, B40,B41,B 44~B50,B 53~B58,B 67,B68,FB 1~FB4	1.648084	42	72.399565
E1213103001H	Inductor	B15,B16,B 18,B36,B3 9,B43,B62 ~B66	1.648084	11	19.756361
E1231302463H	Miscellaneous	Y1,Y2	6.400000	2	37.647547
E1231302568H	Miscellaneous	Y4	6.400000	1	13.979603
E1231332722H	Miscellaneous	Y3	6.400000	1	13.979603
E1300009940H	Semiconductor	D6	2.597804	1	3.591671
E1301016041R	Semiconductor	D2,D5	2.597804	2	6.590468
E1301024040H	Semiconductor	D12,D13	2.597804	2	6.590468
E1301075140R	Semiconductor	D7,D18,D 19,D21~D 23	2.597804	6	17.978704
E1304000041H	Optical Device	E1	26.334452	1	51.304367
E1304100040H	Optical Device	D14	26.334452	1	51.304367
E1304200042H	Optical Device	D15	26.334452	1	51.304367
E1305063040H	Semiconductor	D28	2.597804	1	3.591671
E1305422040H	Semiconductor	D29,ESD1 ~ESD9	2.597804	10	29.012552
E1305428440H	Semiconductor	D3,D4	2.597804	2	6.590468
E1310390412H	Semiconductor	Q115~Q1 19	7.487787	5	44.139356

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E1315013810R	Semiconductor	Q2~Q8,Q 12,Q13,Q 23,Q29~Q 32,Q36,Q 45,Q47,Q 49,Q56,Q 61,Q63,Q 69,Q76,Q 86,Q90,Q 100~Q10 2,Q106,Q 107,Q109, Q111	7.487787	32	256.226444
E1315031210H	Semiconductor	Q80,Q81	7.487787	2	19.251025
E1315155310H	Semiconductor	Q17~Q19	7.487787	3	27.677838
E1315231710H	Semiconductor	Q9~Q11, Q14,Q22, Q27,Q35, Q38,Q54, Q84,Q85, Q88,Q103 ~Q105	7.487787	15	123.693868
E1315422610H	Semiconductor	Q39	7.487787	1	10.534322
E1315493500R	Semiconductor	Q40,Q42, Q50,Q52, Q57,Q59, Q64,Q66, Q72,Q73	7.487787	10	84.167204
E1315520710H	Semiconductor	Q82	7.487787	1	10.534322
E1315700214H	Semiconductor	Q41,Q51, Q53,Q58, Q60,Q65, Q67,Q68, Q70,Q71, Q91~Q98	7.487787	18	147.243113
E1315760810H	Semiconductor	Q78,Q83	7.487787	2	19.251025
E1315769410H	Semiconductor	Q79,Q89	7.487787	2	19.251025
E1314111713H	Semiconductor	Q20	7.487787	1	10.534322
E1314111714H	Semiconductor	Q28	7.487787	1	10.534322
E1314523310H	Integrated Circuit	U40	26.018600	1	39.136734
E1314532510H	Integrated Circuit	U42	26.018600	1	39.136734
E1322040211H	Semiconductor	D8~D11, D20	7.487787	5	44.139356
E14S0120800H	Integrated Circuit	U18	26.018600	1	39.136734
E14S2705500H	Integrated Circuit	U7	26.018600	1	39.136734
E14S2845100H	Integrated Circuit	U56	26.018600	1	39.136734
E14S3122000H	Integrated Circuit	U39	26.018600	1	39.136734
E14S3213000H	Integrated Circuit	U46,U47	26.018600	2	70.451049
E14S3215100H	Integrated Circuit	U13,U57	26.018600	2	70.451049

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E14S3219100H	Integrated Circuit	U12,U14, U16	26.018600	3	100.507298
E14S3321900H	Integrated Circuit	U43	26.018600	1	39.136734
E14S3462000H	Integrated Circuit	U44	26.018600	1	39.136734
E14S3506900H	Integrated Circuit	U41	26.018600	1	39.136734
E14S3533600H	Semiconductor	Q99	7.487787	1	10.534322
E14S3896200H	Integrated Circuit	U22	26.018600	1	39.136734
E14S4000608H	Integrated Circuit	U1	26.018600	1	39.136734
E14S4033900H	Integrated Circuit	U25,U27	26.018600	2	70.451049
E14S4251700H	Integrated Circuit	U15	26.018600	1	39.136734
E14S4324300H	Integrated Circuit	U29,U31	26.018600	2	70.451049
E14S4903100H	Integrated Circuit	U19	26.018600	1	39.136734
E14S4955501H	Integrated Circuit	U48	26.018600	1	39.136734
E14S5900800H	Integrated Circuit	U55	26.018600	1	39.136734
E14S5910800H	Integrated Circuit	U10	26.018600	1	39.136734
E14S5912600H	Integrated Circuit	U8,U9	26.018600	2	70.451049
E14S5C10801H	Integrated Circuit	U24,U33, U35,U45, U54	26.018600	5	158.926759
E14S5C13200H	Integrated Circuit	U38	26.018600	1	39.136734
E14S5F00200H	Integrated Circuit	U26,U28, U30,U32	26.018600	4	129.921093
E14S6104G50H	Integrated Circuit	U3~U6	11.063278	4	56.293658
E14S6200041H	Integrated Circuit	U17	26.018600	1	39.136734
E14S9068200H	Integrated Circuit	U37,U49	26.018600	2	70.451049
E14S9069200H	Integrated Circuit	U36	26.018600	1	39.136734
E14S9600000H	Integrated Circuit	U11	26.018600	1	39.136734
E1600020201R	Connection	JBTS1	5.394945	1	9.340838
E1654640000R	Connection	JLVDS1	5.394945	1	9.340838
E1651X00600H	Connection	SIM1	5.394945	1	9.340838
E1651X00902H	Connection	JMSD1	5.394945	1	9.340838
E1654252132H	Connection	MPCIE1	5.394945	1	9.340838
E1752507500H	Miscellaneous	PS1,PS2	0.800000	2	2.315704
E1752511004H	Miscellaneous	PS3~PS7	0.800000	5	5.120242
E1907IMX602RO-W1	Connection	PCB1	6.375844	1	12.150056