

MTBF Prediction Report

PRODUCT NAME : LS-571TXD

The following report follows the Bellcore Technical Reference; TR-332(Issue 6 ,December 1997)" Reliability Predication Procedure for Electronic Equipment "Document. Which describes what are termed permanent or hard component failure and intermittent component failures confirmed or conformable by failure analysis,that is,the date gathered for TR-332 only counts confirmend physical failures. The failure tates described are only for confirmed or conformable failure mechanisms such as dielectric breakdown , dlectromigration,ionic contamination corrosion, ---etc.The predictions are based solely on the Method I , PartsCount Procedure.

MODEL: LS-571TXD

Component	FITs	Q'ty	Duty Cycle @Power On (Percent)	FITs with Duty Cycle	Note	Data From
CPU Board	7952	1	100	125752	*1	
TOTAL FITs				7952		
MTBF(Hours).Ground ,Fixed,Controlled)GB),50 degree Celsius.				125752		

NOTE:

1. The FIT Values of all parts of Mainboard are on the next two pages.
2. FIT: Failure in Time; A "Steady_State" failure rate.
"Steady-State" is that phase of the product's Operating Life during which the failure rate is constant.Herein the steady-state phase is assumed preceded by an infant mortality phase characterized by a decreasing Failure Rate.
3. Troubles caused bu transient faults ,software problms,procedural errors .or unexpected operating environments can have a significant impact on System Level Reliability.therefore Thos Report could only be used to Predict System Hardware Failures.

4. The System is modeled as a "serial system " of all components.
i.e the failure of any component will cause a failure of the system.
5. All the failure rates in this report are expressed as failure per 10^9 operating hours denoted as FITs.
6. MTBF= 10^9 /FITs(hours)

The MTBF of LS-571TXD CPU Board

DEVICE TYPE	Quantity	G.F.R	PI-Q	PI-T	PI-S	FITs SubTotal
C-R Network (Pair)	14	1.5	1	1	1	21
Capacitors discrete fixed Aluminum<400UF		15	1	1.6	1	
Capacitors discrete fixed Aluminum 400~12000UF		25	1	1.6	1	
Capacitors discrete fixed Aluminum>12000UF		40	1	1.6	1	
Capacitors discrete,SMT,fixed Ceramic	578	1	1	1	1	578
Capacitors discrete fixed Plastic		1	1	1	1	
Capacitors discrete,SMT,fixed Tantalum solid	33	1	1	1.1	1	36.3
Capacitors discrete fixed Tantalum solid Non-Ceramic Resonator		5	1	1	1	
		2.5	1	1	1	
Connector Socket(Pins)	1146	0.2	1	1.6	1	366.72
Connector Mutil-Pin(Pins)	389	0.2	1	1.6	1	124.48
Printed Board,Edge		0.2	1	1.6	1	
Digital IC Bipolar (1~20 Gates)	9	21	1	1.5	1	283.5
Digital IC CMOS (1~20 Gates)	10	15	1	1.7	1	255
Digital IC CMOS (2000~3000 Gates)	2	20	1	1.7	1	68
Digital IC CMOS (50000~100000 Gates)	1	29	1	1.7	1	49.3
INTEL ICH8M	1	197	1	1.7	1	334.9
INTEL GME965	1	91	1	1.7	1	154.7
Intel 82573L	2	97.7	1	1.7	1	332.18
Diode Silicon General Purpose 1~20 AMP		6	1	1.7	1	
Diode Silicon General Purpose > 20 AMP		9	1	1	1	
Diode Voltage Regulator <=0.5W	4	3	1	1	1	12
Diode Voltage Regulator 0.6 ~1.5W	2	6	1	1.1	1	13.2
Diode Voltage Regulator > 1.5W	8	9	1	1.1	1	79.2
Dynamic RAM , CMOS , 524288K Bits/64MBytes		64	1	1	1	
Field Effect Transistor , Silicon , Line		40	1	1.2	1	
Field Effect Transistor , Silicon , Switch	13	20	1	1.2	1	312
Field Effect Transistor , Silicon , High-Frequency	14	170	1	1.2	1	2856
Fan Assembly and Motor		150	1	1	1	
Fuse <=30A	4	5	1	1	1	20
Fuse or Battery Holder	1	5	1	1.6	1	8
Inductive , Tranformer , Pulse Low Level		4	1	1.1	1	
Inductive , Tranformer , Pulse High Level		19	1	1.1	1	
Inductive , Coil , Power Filter	9	19	1	1.1	1	188.1
Linear IC (1~32 Transistirs)	4	19	1	1.9	1	144.4
Linear IC (33~90 Transistirs)		33	1	1.9	1	

Linear IC (91~170 Transistirs)		46	1	1.9	1	
Linear IC (721~860 Transistirs)		95	1	1.9	1	
Jack		1	1	1.6	1	
USB Connector		11	1	1.6	1	
Light Emitter Diode (LED)		3	1	2.2	1	
Quartz Crystal	4	25	1	1	1	100
ROM/EEPROM , CMOS , 64Bits		10	1	1.9	1	
ROM/EEPROM , CMOS , 512Bits		13	1	1.9	1	
ROM/EEPROM , CMOS , 1KBits	2	14	1	3.5	1	98
ROM/EEPROM , CMOS , 4096KBits	1	99	1	2.2	1	217.8
Resistors , Fixed , Accurate < 1Mohm	89	0.5	1	1.1	1	48.95
Resistors , Fixed Film(carbon,oxide,metal)<=	330	0.5	1	1.1	1	181.5
Resistors , Fixed Film(carbon,oxide,metal)>		3	1	1.1	1	
Resistors , Film , Power(>1W) <= 1Mohm		3	1	1	1	
Resistors , Film , Power(>1W) > 1Mohm		7	1	1	1	
Resistors ,Networks ,THICK or THIN Film	96	0.5	1	1.5	1	72
Resistor ,Variable ,Film,<=200Kohm		25	1	1	1	
Resistor ,Variable ,Film,>200Kohm		40	1	1	1	
Resistors,Variable,Low		35	1	1	1	
Resistors,Variable,Low		50	1	1	1	
Resistors,Variable,Precision,<=200KOhm		25	1	1	1	
Resistors,Variable,Precision,>200KOhm		40	1	1	1	
Speaker,Inductive,Audio	1	7	1	1.1	1	7.7
Startic RAM,CMOS,4096KBits/512KBytes		155	1	1	1	
Startic RAM,CMOS,8192KBits/1MBytes		187	1	1	1	
Switches,Toggle or PushButton		10	1	1	1	
Switches,Rocker or Slide(4x2=8 Contanct pairs)		15	1	1.6	1	
Thermistor , Bead	82	4	1	1.6	1	524.8
Thermistor , Positive or Negative Temp.(PTC,NTC)	2	10	1	1	1	20
Transistors , Silicon ,NPN <=0.6W	43	4	1	1.2	1	206.4
Transistors , Silicon ,NPN 0.61~6.0W		6	1	1	1	
Transistors , Silicon ,NPN >6.1W		10	1	1	1	
Transistors , Silicon ,PNP <=0.6W		4	1	1	1	
Transistors , Silicon ,PNP 0.61~6.0W	12	6	1	1	1	72
Transistors , Silicon ,PNP >6.1W		10	1	1	1	
Connector General Purpose , Power	2	5	1	1.6	1	16
Battery Lithium	1	150	1	1	1	150
PI-E						
FITs	7952					
MTBF (Hours),GB,50 degree Celsius	125752					