

Mars 400 MTBF

Ambedded Technology

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Simulation Result

	MTBF (Hours) @ 25C
Mars 400 with 1 micro server + MTBF revised by IC and PSU suppliers	122,770

Major Changes

1. PSU supplier revise new MTBF data by following MIL-217F standard. It is 276,127 hours in stead of the general data 10K hours.
2. Use CPU, Switch controller and BMC processor MTBF data provided by manufacture instead of using general data of MIL-217 database.
3. The major MTBF influencer is the Power Supply Unit.

MIL-217 MTBF Prediction

- MIL-HDBK-217 is very well known in military and commercial industries. It is probably the most internationally recognized empirical prediction method, by far.
- The MIL-HDBK-217 predictive method consists of two parts; one is known as the *parts count method* and the other is *called the part stress method*. The parts count method assumes typical operating conditions of part complexity, ambient temperature, various electrical stresses, operation mode and environment (called *reference conditions*).
- *The Parts Count Method will usually result in a higher failure rate or lower system reliability, a more conservative result than the Parts Stress Method would produce.*
- The predicted failure rate results will normally be more harsh using the Parts Count method than using the Part Stress analysis. The Parts Count analysis does not factor in the numerous variables and uses worst case generic or base failure rates and pi factors.
- http://www.reliabilityeducation.com/intro_mil217.html

**** Simulation usually use “Part count” method. “Parts Stress” method requires a lot of samples to do the testing****