Trends and methods for insertion of Advanced Microelectronics in Space Applications

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Abstract:

New space system implementations require the use of advanced microelectronic devices in critical applications. System demands such as increases in functionality and reduction of mass, power and volume make the need for such advanced microelectronic devices more pressing. However, newly developed advanced microelectronic devices typically lack the traditional reliability and characterization data necessary for qualification for insertion into space systems. In order to collect the reliability and characterization data required for space qualification, an in-depth understanding of the material characteristics, fabrication processes, and relevant failure mechanisms of the technology is necessary. This presentation will provide a general description of the methods used for insertion of advanced microelectronics in NASA/JPL flight applications and the methodology necessary to ensure the desired reliability.