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Subject: Abstract

An Overview of NASA's Activities in Micro-Nano Technologies

An examination of just how mass is used in spacecraft design indicates that work to reduce the mass of electronics, both digital and analog, alone will not significantly reduce the mass of spacecraft. Instead work to reduce the mass of electronic packaging, cabling, and connectors by taking advantage of higher levels of integration and three-dimensional design is necessary. To effect this design approach reduced power dissipation, improved thermal conduction, and improvements in specific power generation and specific energy storage are essential elements of NASA's micro-technology program.

Even as these technology directions are being pursued, the United States has begun a National Nanotechnology Initiative, in which NASA is a key participant. As micro-technology matures, it is expected that over the next five years, nano-technology research will be one of the principal elements of the fundamental technology investigations being conducted by NASA.