



NASA SBIR 2009 Phase I Solicitation

S4.01 Radiation Hardened High-Density Memory, High Speed Memory Controllers, Data Busses

Lead Center: ARC

There has been considerable progress in the development of low cost high-density memory in the consumer electronics industry. However, spacecraft memory capacities can be orders of magnitude smaller than a desktop computer hard drive. Therefore, NASA has an interest in the development of low cost, high-density memory suitable for spaceflight applications including operations in near and deep space radiation and temperature environments. High-density, radiation-tolerant memory can be beneficial for Astrophysics, Earth Sciences, Heliophysics and Planetary missions where instruments, such as large-scale imagers and spectrometers can quickly produce large amounts of data.

Proposals are sought for radiation-tolerant high-density memory systems that can address or consider the following performance parameters:

- Storage capabilities of up to 192 Gigabytes of data on single 3U card form factor, suitable for inclusion within integrated avionics units and 3U chassis;
- Units that utilize the Space Plug and Play Architecture (SPA) developed at AFRL (See <http://www.dukeworks.org>);
- Tolerate standard internal spacecraft bus operating temperatures of -25°C to 40°C ;
- Tolerate space radiation with Total Ionizing Dose (TID) of 10-400kRad (Si) with an average goal of 100kRad (Si);
- Capable of surviving space launch environments.

Although these are baseline goals, proposals that are able to achieve near comparable values will also be considered.

The proposer to this subtopic is advised that the products proposed may be included in a future small satellite flight opportunity.

