



Radiation hardened DPU for JGO / PEP

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An international consortium under the lead of the Swedish Institute for Space Physics in Kiruna is proposing a Particle Environment Package (PEP) for the Jupiter Ganymede Orbiter (JGO). The Finnish Meteorological Institute is responsible for the development of the central data processing unit (DPU) suitable for the expected harsh environment in the vicinity of the largest planet of our solar system, Jupiter. Especially the radiation environment requires new concepts to make a light-weight but complex instrument like the multi-detector instrument package PEP feasible.

The preliminary results of the design study will be presented. We envisage using Flash-PROM-technology based Field Programmable Gate arrays with embedded processor modules, memory and interface controllers as well as a special development for analog monitoring components. Self-correcting redundancy concepts will increase the immunity against radiation caused damage. The resulting small dimensions will allow effective spot-shielding of sensitive component parts without excess mass penalties.