

The need for radiation hardened electronics is particularly acute in the space industry to enable successful long duration missions whenever any electronics are required. The supply chain for radiation hardened electronics is far more restrictive than commercial off the shelf (COTS) components, the options available for radiation hardened items are far fewer than that from COTS (such as microprocessors) and traditionally, shielding was too expensive in terms of payload SWAP (size, weight and power) criteria. With the cost per kg of orbital packages coming down due to the current commercialization of space delivery systems, making radiation hardened electronics from COTS items might be more attractive. By combining high Z metal oxides particulate into the NASA compliant conformal coating materials, integrated shielding options become a reality. This talk will discuss current theory, progress and testing results that would allow the use of common raspberry pi computers in space as radiation hardened systems that meet SWAP criteria.