



# 6U VPX RADIATION MITIGATED ARM COMPUTER

## OVERVIEW

The 6U VPX IDEAS-TEK Radiation Mitigated ARM Computer (RMAC) provides computing capabilities to space payloads and spacecraft targeting 2-to-4-year nominal lifetime missions. It integrates a dual-redundant quad-core ARM processing system with Radiation Tolerant Triple-Modular redundant (TMR) Flash memory to offer high performance computing for a wide range of space applications. In addition, it includes a Rad-hard (RH) microcontroller providing fault mitigation to the computing engine. The RMAC is implemented in a 6U x 160mm SpaceVPX for factor with a clamshell that provides conduction cooling and 2mm of aluminum shielding.

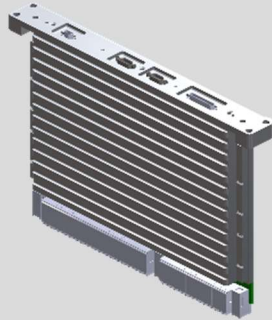
## COMPLIANCE

The RMAC is compliant to SpaceVPX (VITA 78) to facilitate re-use and interoperability during the implementation of fault-tolerant, high-performance systems for spacecraft and other high-availability applications.

## APPLICATIONS

The RMAC is designed with computing and networking in mind. It can provide 10Gbase-KR x2, 1000Base-KX x4 lanes, PCIe x3 lanes, and SATA x1 lanes to the backplane. In addition, the module provides the following lower speed communication interfaces: I2C, RS-485, Spacewire. The module is ideal for the following applications:

- Command and Data Handling
- Machine Learning
- Image Processing
- Data Processing
- Networking



## KEY FEATURES

### CPU Architecture

- Quad core ARM processor
- Up to 1GHz core operating frequency
- Integrated Security Engine

### Microcontroller

- RH ARM Cortex M4

### General

- Backplane connector family per TE Connectivity MULTIGIG RT
- Integrity RTOS, Linux, and VxWorks in development.

### Environmental Resiliency

- -20°C to 50°C operating temperature

### Radiation Tolerance

- 40KRAD TID (estimated)
- SEL-mitigated up to 60MeV (estimated)

### Power Supply

- +5 VDC (provided by VPX backplane)

## DISCLAIMER

Product data is current as of the publication date. This document gives only a general description of the product and, except where expressly provided otherwise, shall not form any part of any contract. From time to time, changes may be made in the products or the conditions of supply.

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