

RAD750®

Radiation-hardened PowerPC microprocessor



The RAD750® radiation-hardened PowerPC microprocessor is the best space microprocessor available today by any selection criterion — performance, cost, availability, or flight heritage.

Description

Based on re-engineered commercial technology, it is a licensed, rad-hard version of the IBM PowerPC 750. With nearly 10 times the performance of current rad-hard space processors, the RAD750® processor is the most powerful radiation-hardened general-purpose microprocessor ever developed.

This chip's architecture supports the industry leading performance of >400 MIPS operating at 200 MHz.

The first RAD750® flight units were launched in 2005 on Deep Impact, XSS-11, and Mars Reconnaissance Orbiter missions. Since those first flights, 28 additional RAD750® microprocessors have been launched.

Specifications

Rad-tolerant RAD750*

Technology	0.25 µm radiation-hardened bulk CMOS
Speed	110 to 132 MHz
Radiation-hardness	Total dose: 200 Krad (Si) SEU: <1.6 E-10 errors/bit-day (90 percent W. C. GEO) Latchup-immune
Performance	>260 Dhrystone 2.1 MIPS at 132 MHz
Temperature range	-55 degrees celsius to +125 degrees celsius
Packaging	360-pin ceramic package with column grid array (CGA)

Rad-hard RAD750*

Technology	0.15 µm radiation-hardened bulk CMOS
Speed	200 MHz
Radiation-hardness	Total dose: 1Mrad (Si) SEU: <1.6 E-10 errors/bit-day (90 percent W. C. GEO) Latchup-immune
Performance	>400 Dhrystone 2.1 MIPS at 200 MHz
Temperature range	-55 degrees celsius to +125 degrees celsius
Packaging	360-pin ceramic package with CGA

RAD750® family of products

RAD750® radiation-hardened PowerPC microprocessor
RAD750® 6U CompactPCI single-board computer
RAD750® 6U CompactPCI extended single-board computer
RAD750® 3U CompactPCI single-board computer

RAD750® space computers Wind River Simics virtual platform
RAD750® custom single-board computers

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