

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.

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.



FEATURES AND CAPABILITIES

Rad-tolerant RAD750 specifications

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% W. C. GEO)
– Latchup-immune

Performance
– >260 Dhrystone 2.1 MIPS at 132 MHz

Temperature range
– -55°C to +125°C

Packaging
– 360-pin ceramic package with column grid array (CGA)

Rad-hard RAD750 specifications

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% W. C. GEO)
– Latchup-immune

Performance
– >400 Dhrystone 2.1 MIPS at 200 MHz

Temperature range
– -55°C to +125°C

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 Virtutech Simics virtual platform

RAD750® custom single-board computers

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