RAD750® 6U CompactPCI extended single-board computer

The 6U CompactPCI extended single-board computer employs the PowerPC RAD750® microprocessor, the radiation-hardened version of the IBM PowerPC750 microprocessor. The companion PowerPC bridge ASIC provides access to the memory and the PCI version 2.2 backplane bus. Additional on-board interfaces include SpaceWire and 1553.

Key features

- Example startup ROM and VxWorks boardsupport package provided for all hardware configurations
- Green Hills Software's INTEGRITY real-time operating system as an alternate boardsupport package
- Hardware reference manuals and software users guide provided
- Software developed for the RAD6000® processor is easily ported to RAD750® computers
- All compilers currently available for the commercial PowerPC 750 are fully compatible with the RAD750® processor
- Operating systems for PowerPC 750-based computers are easily ported to RAD750® computers
- Virtutech offers a RAD750® simulator

Supports variable memory configurations:

- SRAM:
  - 16-MB standard with options to 44 MB and ECC device-sparing
- SUROM:
  - 64 kB and ECC
  - EEPROM for engineering units (256 kB)
  - PROM for flight units (64 kB)
- EEPROM:
  - 4 MB and ECC
## Specifications

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<th>Feature</th>
<th>Details</th>
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<tr>
<td><strong>Form factor</strong></td>
<td>CompactPCI 6U (233 mm x 220 mm)</td>
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<tr>
<td><strong>Weight</strong></td>
<td>&lt;2.0 kilograms</td>
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| **Memory**               | SRAM: configurable 8 MB to 36 MB and EDAC and device-sparing  
                          SpW SRAM: configurable 4 MB to 8 MB  
                          SUROM: 256 or 64 kB and EDAC  
                          256 kB EEPROM for engineering use  
                          64 kB RH-PROM for flight use  
                          EEPROM: 4 MB and EDAC |
| **Interfaces**           | Dual 1553 interfaces  
                          Four-port SpaceWire interface for high-speed data rate of up to 132 Mb/second |
| **Radiation-hardness**   | Total dose: >100 Krad (SI)  
                          Latchup-immune |
| **Performance**          | SPECmark (est.): 5.8 SPECint95 at 132 MHz  
                          3.5 SPECfp95 at 132 MHz  
                          Dhrystone 2.1: 260 MIPS at 132 MHz |
| **Power supply**         | 5V ± 10 percent and 3.3 volts ± 5 percent (2.5 volts generated by on-board regulator) |
| **Power dissipation**    | <25 watts |
| **Rail temperature range** | -20 degrees Celsius to +50 degrees Celsius |

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### RAD750® extended flexible architecture

![RAD750® extended flexible architecture diagram](image_url)

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### 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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### For more information contact:

BAE Systems  
9300 Wellington Road  
Manassas, Virginia 20110-4122  
T: 571 364 7777  
W: baesystems.com/spaceproducts  

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