SCS750®
Single Board Computers for Space

Connectivity Power Control

Product Brief

Models: SCS750, SCS750G4

DDC's space-proven SCS750® Single Board Computer, featuring the best single event performance, seamless error correction, a wide range of processing power, and the highest design margin, is now available with SpaceWire and NAND Flash. Since inception, more than 20 years ago, our electronic components and single board computers have experienced zero failures in space!

Key Features

- Proven in Space, TRL-9
- Wide Range of Operating Capability
  - 200 to 1800 MIPS
  - 7 to 30 Watts Typical
- Outstanding SBC Radiation Hardness
  - TID Greater than 100krad (Si)
  - SEU Hard; 1 Board Upset Every 80/115 Years (GEO/LEO)
  - SEL Immune
- VxWorks®, RTEMS, and Linux Development Platforms
- 4 SpaceWire Ports (SCS750G4 Only)
  - Up to 200Mbps Each
- Optional 1553 Interface Available
- 64 GBytes of BCH Corrected NAND Flash (SCS750G4 Only)

Custom Design Capability - DDC can customize designs for all cards, ranging from simple modifications of standard products to fully customized solutions for commercial, military, aerospace, and industrial applications.

Benefits

- DDC's SCS750 Products Utilize Reliable Silicon-on-Insulator Power PC Processors, & Radiation Hardened Parts, Including DDC's RAD-PAK® Memories, In Conjunction with Triple Redundant Processing Algorithms that Provide Comprehensive Error Detection and Correction.
- DDC's Single Board Computers Achieve the Best SEE Performance (Less than One Error in 80 years)
- Enables Satellite Design to Dramatically Increase Error-free, On-board Data Processing, Mission Planning, and Critical Decision Making
- Speed and Power Settings Can be Managed via Software in Real Time - No Reboot Required
- DDC's SCS750 has Become the Benchmark Against Which All Space Processor Boards are Measured
- Operates in a cPCI System Targeting High Performance Computing for the most Demanding Space Applications

Applications

- Launchers
- Satellites
- Payload Processing
- Command & Control

For more information: www.ddc-web.com/SCS750 | www.ddc-web.com/SCS750G4

Printed on recycled paper.

Quick Specs

FEATURE	DESCRIPTION
(3) Fully TMR Protected Processors	PowerPC 750FX™ silicon on insulator (SOI), 0.13µm 2.32 Dhrystone MIPS/MHz >1800 Dhrystone MIPS @ 800MHz 400 to 800MHz – Software selectable core clock rate **L1 Cache**: 32Kb instruction with parity, 32Kb Data with parity **L2 Cache**: 512Kb on-chip with ECC @ CPU core clock rate
Memory	**Volatile**: 256 MByte SDRAM – Reed-Solomon protected – Double Device Data Correction
	Non-Volatile: **SCS750 Only: 8 MByte EEPROM – ECC Corrected** 7.0 MByte EEPROM available to user 0.5 MByte Primary SuROM 0.5 MByte Secondary SuROM (autoswap on primary failure) **SCS750G4 Only: 4 MByte EEPROM – ECC Corrected** 3.0 MByte EEPROM available to user 0.5 MByte Primary SuROM 0.5 MByte Secondary SuROM (autoswap on primary failure) **64 GByte NAND Flash BCH – ECC Corrected**
Radiation Tolerance	One board upset every 80 years in GEO orbit and 115 years in LEO orbit **TID**: > 100 krad (Si) – orbit dependent **SEL (th)**: 84 MeV-cm^2/mg (room temp)
Interfaces	**SpaceWire***: 4 active, up to 200Mbps, supports RMAP & DMA/Descriptors **cPCI Bus**: 6U, 3.3V, 32 bit, 33MHz, Master/Target & Syscon/Peripheral **1553**: BC/RT/MT, SEU Immune **Serial**: 2 UART (LVDS or RS422*), 2 Serial Communications Controllers (SCC) - Sync or Asynch (LVDS or RS422*) **Programmable I/O**: 32/64* LVCMOS general purpose I/O (GPIO), Input, Output, or Interrupt Input
Power	8 - 38 watts (typical) dependent on clock rate/MIPS requirements
Operating System	VxWorks®, RTEMS, Linux (contact factory)

FEATURE	DESCRIPTION
Temp Range	-30°C to +65°C Acceptance, -40°C to +70°C Qual
Size/Weight	6u x 160mm / 1.5 Kg (3.3 Lbs.) Max

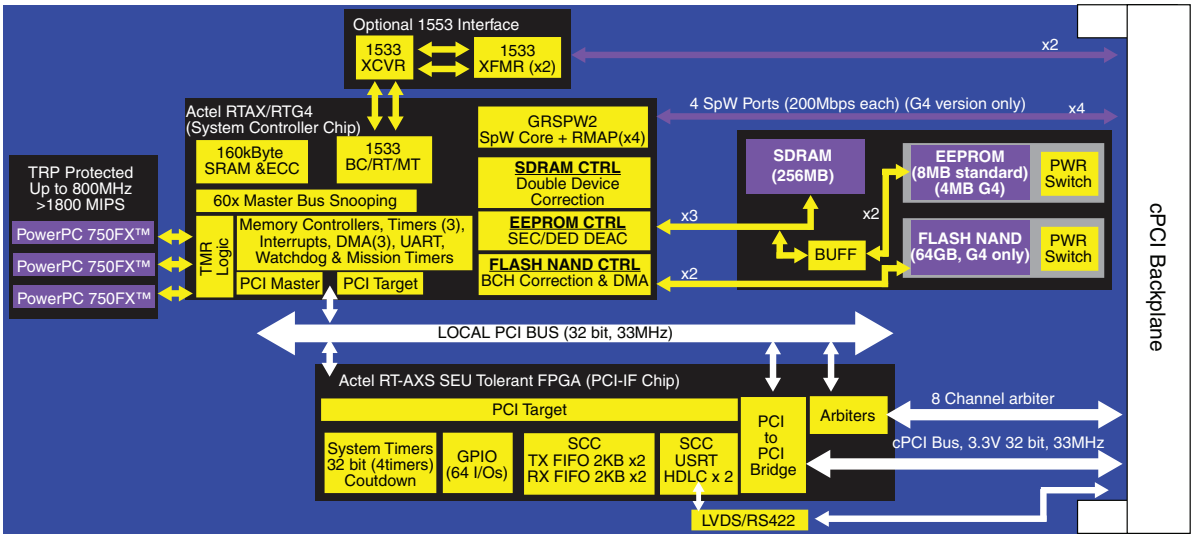
*Note: Available on G4 version only

Ordering Information

SCS750XX X

- **Configurations:**
  - **F** = Flight Configuration:
    - Rad-Tolerant, Class S or equivalent components
    - Conduction Cooled
    - Flight cPCI Connectors
  - **E** = Engineering Configuration (EM):
    - Parts Identical to Flight, but not screened to flight level
    - Conduction Cooled
    - Flight cPCI Connectors
  - **D** = Engineering Development Configuration (EDM):
    - Commercial Components
    - Full Hardware & Software compatibility with E and F models
    - Conduction or Convection Cooled
  - **P** = Software Development Board:
    - Commercial Components
    - Software Compatibility with E, D, and F Models
    - Convection Cooled
- **Product Versions:**
  - **G4** = SCS750G4 version with SpaceWire and NAND Flash
  - **(blank)** = SCS750 version

Block Diagram



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