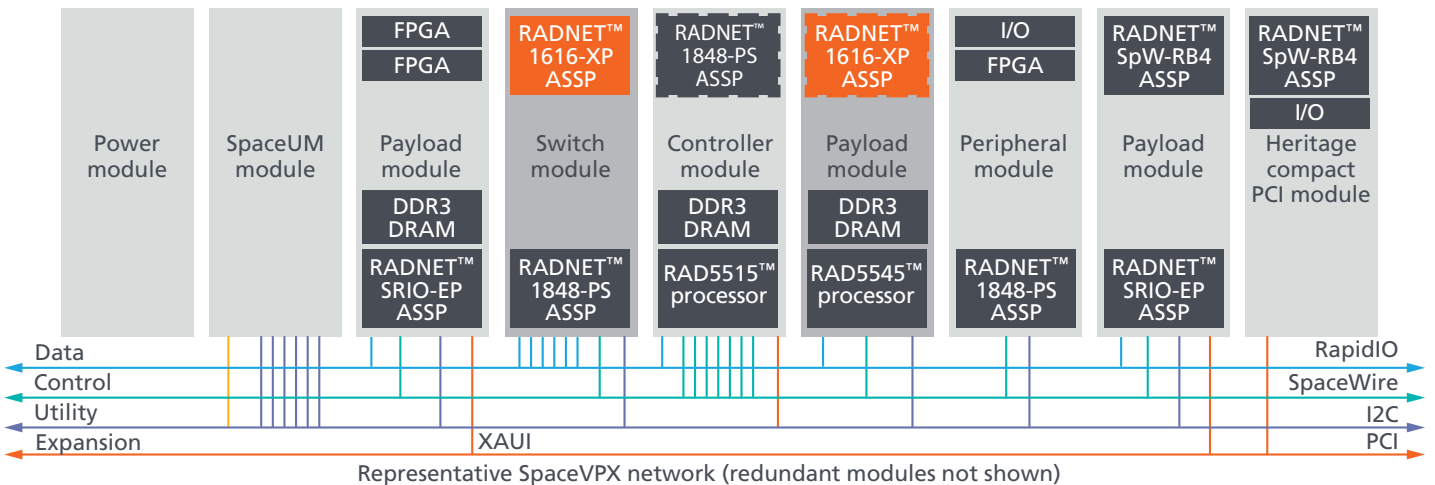
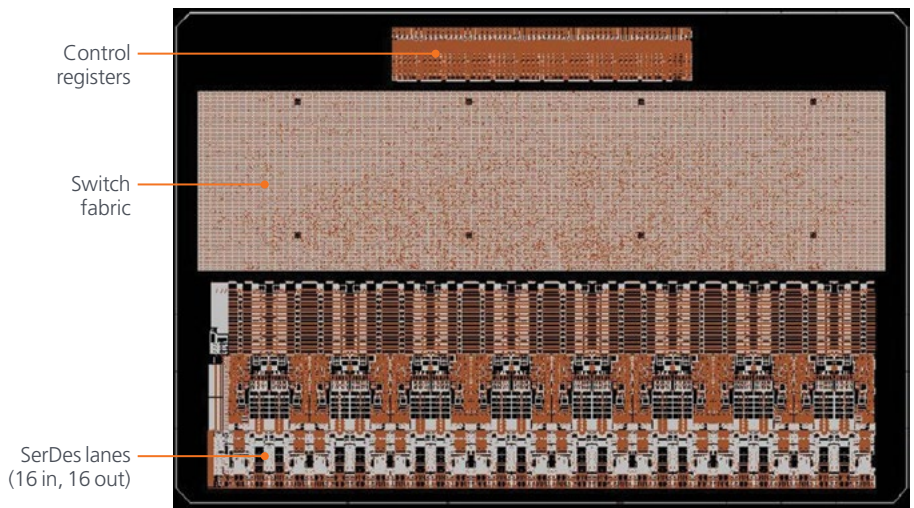


RADNET™ 1616-XP radiation-hardened serializer/deserializer crosspoint switch ASSP

The RADNET 1616-XP application specific standard product (ASSP) provides protocol agnostic connections to support use with serializer/deserializer (SerDes) based protocols such as XAUI and RapidIO®.

The RADNET 1616-XP ASSP is a member of the RADNET family of high-performance radiation-hardened networking products, providing a SerDes crosspoint switch device for general application in SerDes-based networks. This single radiation-hardened 45 nanometer ASSP provides broadcast, multicast, and unicast circuit switching for 16 input to 16 output SerDes lanes on a lane-by-lane basis with low latency.



Key features and benefits

- Supports popular SerDes protocols including serial RapidIO and XAUI
- Configured through JTAG and inter-integrated circuit (I2C) interfaces
- Receivers have programmable input equalizers and automatic termination calibration
- Drivers have programmable de-emphasis, programmable output drive levels, and integrated 50 Ohm output impedance
- Usages include SerDes lane redundancy switch, signal replication, external redrive, test port signal insertion or replication, and circuit switched SerDes networks
- Broadcast, multicast, and unicast circuit switching are supported with lower latency and lower power dissipation than packet switches
- Routing changes can be made without affecting other existing connections
- Contains built-in test and debug capability and consumes less power than a typical packet switch
- Can be directly applied to many switching applications

Hardware block diagram



Specifications

Technology	Radiation-hardened by design RH45® circuit library Trusted foundry 45nm silicon-on-insulator (SOI) process 269-pin, 16mm x 19mm ceramic column grid array package
Temperature	Operating at -55 to +125 degrees Celsius
Radiation-hardness	Total ionizing dose: 1 Mrad (Si) Single event upset (SEU): <1E-10 upsets/bit-day Latch-up immune
Power Supply	0.95 V +/- 5 percent core 1.5 V +/- 5 percent core 3.3 V CMOS, +/- 10 percent I/O
Power dissipation	3 watts at 95 degrees Celsius and +5 percent voltage Unused lanes can be powered down
Interfaces	
SerDes	16 SerDes receivers supporting up to 5 Gbps rates with programmable input equalizer and integrated 50 Ohm termination 16 SerDes signal drivers supporting up to 5 Gbps rates with programmable drive level, programmable de-emphasis and integrated 50 Ohm output impedance
Input and output	I2C port up to (1 Mbaud) JTAG test port

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