

Benefits

- Facilitates high-performance baseband signal processing using up to four PowerPC G4s
- Embedded controller offloads system control from the PowerPC G4 processors
- High-performance dataflow paths to match processing performance
- Facilitates construction of fault tolerant, high availability systems
- Software architecture emphasizes industry standards and code portability

Applications

- Military communications (e.g. JTRS, ACN), Wireless intelligence and surveillance, Commercial wireless (e.g. Satellite gateways, 3G cellular base stations), Wireless test and measurement, Wireless prototyping, Direction Finding/Beam forming

Features

- 6U CompactPCI® form factor
- IBM 405GP PowerPC-based embedded controller with 32 MB FLASH and 64 MB SDRAM
- Two on-board Motorola PowerPC G4s (500 MHz 7410s), each with 128 MB SDRAM and 2 MB cache
- Solano®-based interprocessor communications network
- Two enhanced PMC (ePMC) sites
- Supports up to two 320 MB/s *flexFabric* Serial RapidIO™ links for board-to-board communications
- 10/100-BaseT Ethernet supported via either PICMG 2.16 packet switched backplane or front panel
- RS-232 front panel port
- Supported by VxWorks®, TAO CORBA and Spectrum's *quicComm* software library

Description

The PRO-3500 is a CompactPCI-based Motorola PowerPC G4 processing engine designed to work as the baseband processing engine in Spectrum's SDR-3000 series platforms. It contains two on-board PowerPC G4s and can support up to two more G4s via its two ePMC sites. Each of these sites can also support standard PMC modules or any of Spectrum's range of ePMC-based mezzanine cards. A combination of Spectrum's *flexFabric* and Solano interconnects provide the exceptionally high data throughput to match the processing capabilities of the PowerPC G4s. A 405GP embedded controller is also provided to run control software and provide seamless networking.



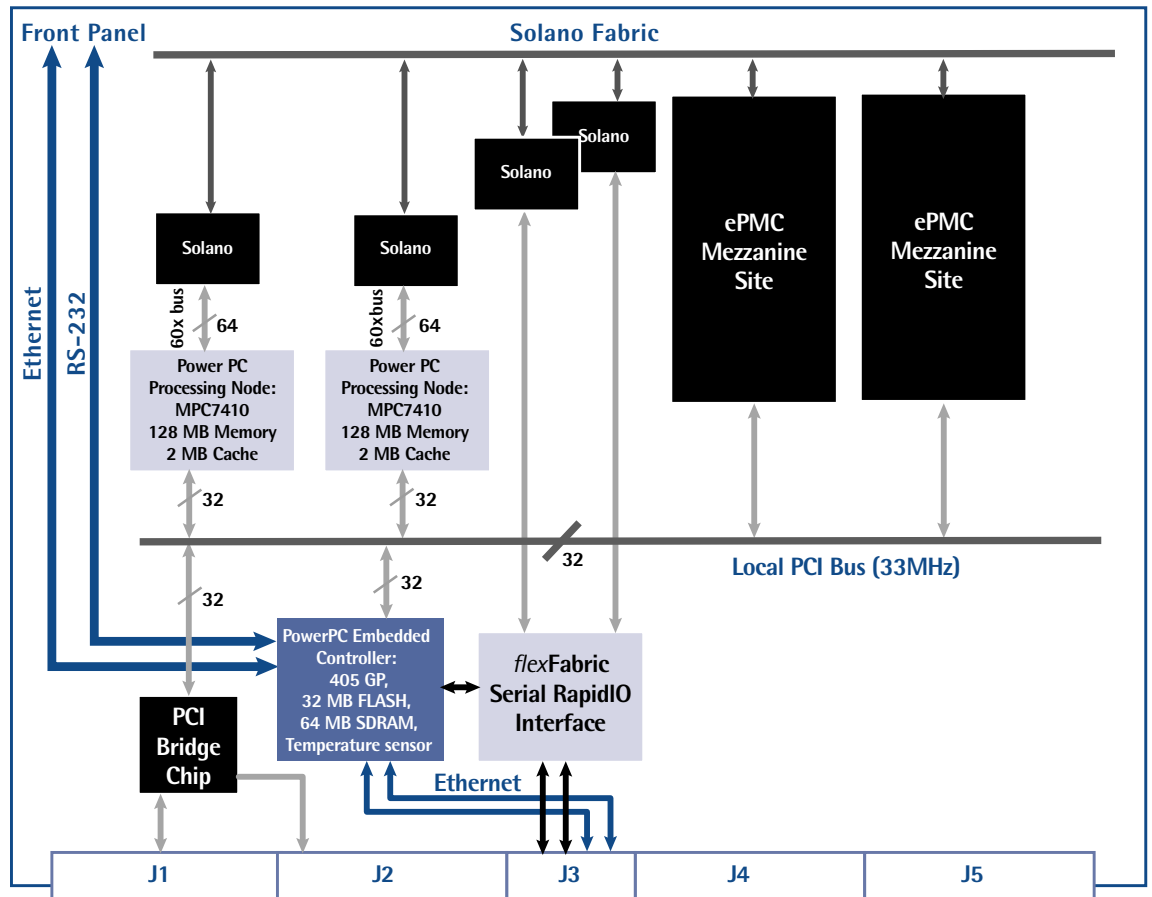


Figure 1. Block diagram of PRO-3500

Processors

[PowerPC G4s]

The onboard 500 MHz PowerPC 7410 G4s (7410s), each with 128 MB of SDRAM and a 2 MB cache, are supplied for performing computationally intensive baseband signal processing tasks. Irrespective of how many PowerPC G4s are installed, each G4 has a direct 200 MB/s full-duplex link to every other G4 via Solano. This allows even the most complex data flows to be achieved with very high throughput and low latency.

[405GP Embedded Controller]

The PRO-3500 contains an embedded PowerPC 405GP controller to offload system control from the G4 processors, allowing them to remain dedicated to signal processing functions. It also provides a seamless network interface. The 405GP embedded controller supports 32 MB FLASH and 64 MB SDRAM.

Interfaces

[ePMC Sites]

Two ePMC sites are provided on the PRO-3500 to provide support for additional PowerPC G4s, standard PMC modules, or any of Spectrum's range of Solano enhanced ePMC modules. A 33 MHz 32-bit PCI interface is supported¹.

[flexFabric]

The PRO-3500 has two *flexFabric* (Serial RapidIO) links. This means that up to two 320 MB/s full-duplex packet switched data paths are supported between the PRO-3500 and other PRO-3100 or PRO-3500 boards in the system.

In fault tolerant applications, this feature can be used to provide redundancy by allowing the PRO-3500 to communicate with two PRO-3100s, one of them being redundant.

[Ethernet]

The 10/100-BaseT Ethernet port of the 405GP embedded controller is brought out to both the front panel as well as the PICMG 2.16 compliant packet-switched backplane connection².

Software

Please see the SDR-3000 series data sheet for a full software description.

¹ Please note that PMC connector JN4 is not enabled by default but it can be enabled as an ordering option if required.

² PICMG 2.16 will be supported in a future release.

Specifications

[general]	Form Factor	6U CompactPCI bus card	
	Processors	Two 500 MHz Motorola PPC 7410 PowerPC G4s with 128 MB SDRAM and 2 MB cache per processor 200 MHz IBM PowerPC 405GP embedded controller with 32 MB FLASH and 64 MB SDRAM	
[buses]	Host	6U CompactPCI bus card (32-bit /66 MHz)	
	Board	All onboard and ePMC-based PowerPC G4s interconnected via 200 MB/s Solano-links. Embedded controller has a PCI connection to all other processors	
[external interfaces]	flexFabric	Two 320 MB/s flexFabric Serial RapidIO links (to CompactPCI backplane)	
	ePMC	Dual 33 MHz, 32-bit PMC sites with Solano enhanced capability	
	Ethernet	10/100-BaseT Ethernet supported via either: PICMG 2.16 packet switched backplane or front panel	
	Serial Port	RS-232 port of embedded controller is routed to the front panel, 9 pin DSUB	
	LEDs	Four per processor (PowerPC G4s and 405GP embedded controller)	
[performance]	Peak Data Transfer Rates	Between PowerPC G4 nodes via Solano	200 MB/s per link
		From PRO-3500 to other boards via flexFabric	320 MB/s per link
[software]	Please refer to the SDR-3000 datasheet		
[electrical]	Power	+3.3V Supply Voltage: 3.2A max +5.0V Supply Voltage: 5.4A max Total Power Dissipation: 37.7W max	
[mechanical]	Size	160 mm (height) x 233 mm (length)	
[environmental]	Temperature	Operating temperature range of 0 to 45 °C, forced air cooling of 600 LFM	
[quality]	MTBF	271,430 hours	
[ordering information]	600-00423 PRO-3500 Dual 7410		
[custom configurations]	For custom configuration options, please contact Spectrum Sales		



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