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Find the *Vecima / Spectrum Signal Processing PRO-1900* at our website: *Click HERE*

SPECTRUM SIGNAL PROCESSING BY VECIMA

PRO-1900 / PRO-1901

Intelligent ePMC Carrier Board and I/O Expansion Daughter Board

VME

flexComm

Benefits

- High-speed, low latency, deterministic data paths to and from mezzanine sites and between boards are facilitated by multiple communications fabrics
- Accelerate application development by exploiting communications infrastructure and system control provided by an embedded controller
- Modular architecture supports user-defined combinations of processing and I/O
- Extensive software support simplifies application development, speeds time-to-market and ensures code portability

Applications

- Wireless surveillance, signal monitoring, array antenna applications such as direction finding and co-channel interference mitigation, satellite earth station return link, other signal processing applications

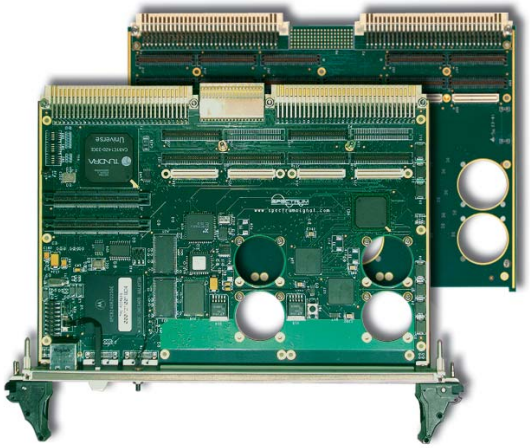
Features

- High-speed communications fabric based on the Solano® Communications IC supports sustained data transfers of over 200 MB/s full-duplex on any link
- Each ePMC site has up to 8 Solano~links to other ePMC sites and the front panel. Each link supports 200 MB/s (full duplex)
- The PRO-1900 contains a Freescale™ MPC8240 PowerPC™ embedded controller with 16 MB flash and 64 MB of SDRAM
- Up to four enhanced PMC (ePMC) sites and a single PMC site
- PRO-1900 and PRO-1901 each have a local 64-bit 33 MHz PCI bus capable of 264 MB/s peak bandwidth
- Software support includes *quic*Comm, VxWorks® 5.5/Tornado II®, and CORBA (TAO ORB)

Description

The *flex*Comm™ PRO-1900 and PRO-1901 provide an intelligent VME-based carrier platform with four enhanced PMC (ePMC) sites and one PMC site. The PRO-1900 employs a 200 MHz MPC8240 PowerPC embedded controller with 16 MB of flash and 64 MB of SDRAM to facilitate network communication and provide support for high-level control and protocol stack processing.

One of the key benefits of the PRO-1900 and PRO-1901 is that they employ several communications fabrics to provide high-speed data flow between system elements. These fabrics include the Solano Communications IC and local PCI buses.

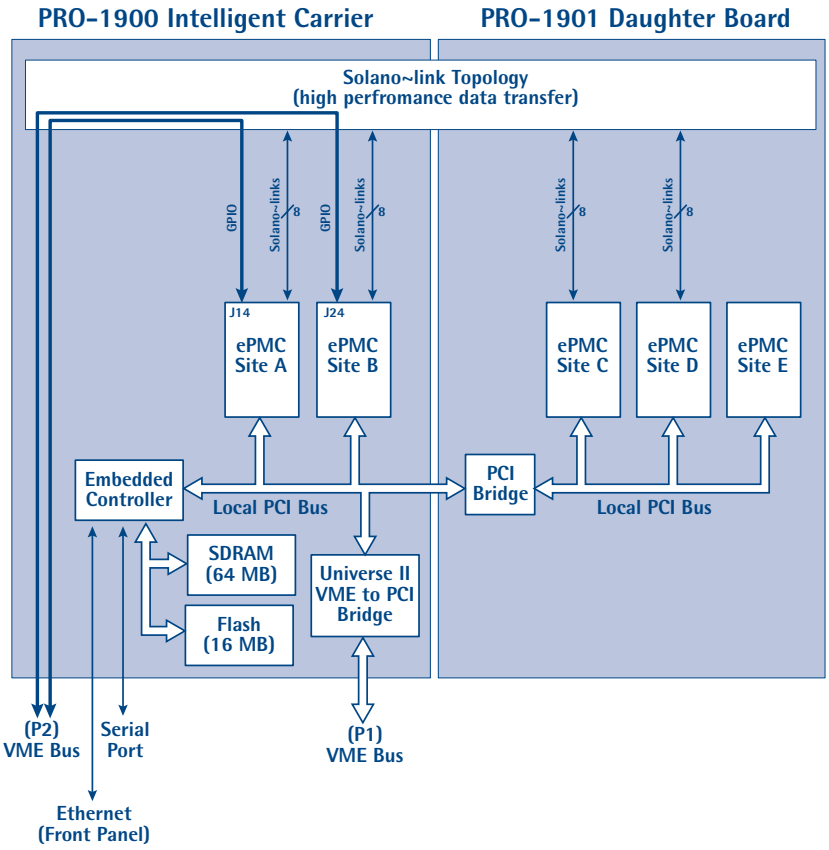


The PRO-1900 can be purchased independently as a single-slot VME solution, or with the PRO-1901 to create a dual-slot solution with a single integrated front panel.

The PRO-1900 and PRO-1901 are part of Spectrum's *flex*Comm product line, which provides a modular and highly scalable architecture to support varying requirements, future capacity upgrades, and technology insertion as higher performance components are introduced to the market.

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Block Diagram



Architecture

[MPC8240 Embedded Controller]

In a typical signal processing system, one of the signal processing elements performs system setup and maintenance functions, reducing its efficiency as a signal processor. The MPC8240 embedded on the PRO-1900 solves this problem by providing a system resource to manage the communication infrastructure, as well as system control, eliminating this overhead from the signal processors. The MPC8240 can also be utilized to process higher levels of the protocol stack that do not require the real-time horsepower of a signal processor. With the 16 MB of flash memory, it can also operate as an effective system controller for completely embedded applications.

Each Solano provides four 200 MB/s full-duplex links



[Enhanced PMC sites and Solano~links]

The Enhanced PMC standard is fully compatible with the IEEE P1386.1 PMC standard but offers the additional benefit of dedicated Solano~links between ePMC compliant carriers and mezzanine modules. On the PRO-1900 and PRO-1901, the Solano~links interconnect the ePMC sites and provide access to the front panel, with each Solano~link supporting over 200 MB/s (full-duplex).

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[Local PCI Buses]

Both the PRO-1900 and PRO-1901 have a local 64-bit 33 MHz PCI bus that provides 264 MB/s peak transfer rates. The PCI bridge between the PRO-1900 and PRO-1901 is 32-bit 33 MHz and provides a 132 MB/s PCI interface between the two boards.

[Rear Panel GPIO]

The PRO-1900 board provides 32 bits of general-purpose I/O (GPIO) from each of its ePMC sites to the VME P2 connector for user-defined GPIO. These GPIO signals can be brought out to the rear panel using a rear transition module such as the TM0-1902 board.

[PCI to VME Bridge]

A Universe II bus bridge chip provides a VME-to-PCI bridge between the 64-bit local PCI bus on the PRO-1900 and the external host VME bus, enabling data transfers between the two.

Software

[*quic*Comm Software Development Kit (SDK)]

*quic*Comm software equips users with basic link level access and control of Spectrum's *flex*Comm products. The *quic*Comm API is standard across all Spectrum products, which simplifies the programming model and ensures code portability to protect your investment in software development.

*quic*Comm software:

- Allows configuration and control of the PMC, ePMC, and/or XMC modules mounted on the platform
- Manages high-performance data transfers
- Manages interrupts
- Allows seamless control of the I/O
- Provides numerous examples that serve as a starting point for application development

[Tornado II and VxWorks RTOS]

The PRO-1900 supports Tornado II, the development toolset for the VxWorks 5.5 real-time operating system (RTOS). The Board Support Package (BSP) for the PRO-1900 is fully compatible with Tornado II and its associated tools.

[CORBA via the TAO ORB]

Spectrum provides CORBA support via the TAO open-source ORB. CORBA provides an industry standard model for distributed computing, and is a requirement in SCA-compliant software radios.

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Specifications

[general]	Form Factor	6U VME64x, single-slot with PRO-1900 only, dual-slot with PRO-1900/PRO-1901. A VME64x chassis with P0 is required, and 3.3V and 5V must be supplied.
	Mezzanine Sites	Two ePMC sites on the PRO-1900, two ePMC sites on the PRO-1901, and one PMC site on the PRO-1901
	Embedded Controller	Freescale MPC8240 Embedded Controller running at 200 MHz
	Memory	16 MB flash on the PRO-1900 64 MB SDRAM on the PRO-1900
	Local PCI buses	64-bit 33 MHz Local PCI bus on both the PRO-1900 and PRO-1901. 32-bit 33 MHz bridge between the two boards.
[external interfaces]	Solano~links	Front Panel: Two Solano~links to the front panel, one from ePMC site A and one from ePMC site B on the PRO-1900.
	Ethernet	RJ45 10/100 BaseT Ethernet accessible from the front panel
	VME	VME64x with P0 for both the PRO-1900 and PRO-1901
	Serial Port	A single RS-232 header on the board allows connection to the serial port on the MPC8240
	JTAG	A JTAG connection is available for debug support
[software]	*quic*Comm	*quic*Comm libraries provide functions for: • Configuration and control of the mounted modules • Initiating PCI data transfers • Managing interrupts
	VxWorks/Tornado	A Board Support Package (BSP) is provided with support for VxWorks 5.5 and Tornado II
	Software Examples	Examples include: • Processor read-write test • Flash LED
[electrical]	Power	Supply Voltage +5V ± 5% and +3.3V ± 5% 3.3V current, Amps (min): PRO-1900 draws 3.1 A; PRO-1900/01 draws 3.13 A 5V current, Amps (min): PRO-1900 draws 0.23 A; PRO-1900/01 draws 0.34 A Power, Watts (min): PRO-1900 draws 11.4 W; PRO-1900/01 draws 12.0 W Power, Watts (max): PRO-1900 draws 18.5 W; PRO-1900/01 draws 19.2 W (Maximum estimate with MPC8240 running floating-point calculations and no I/O present)
[mechanical]	Size	233 mm (height) x 160 mm (length)
[environmental]	Temperature	Operating temperature range of 0° to 50° C Humidity: 10% to 80% non-condensing Storage temperature of -20° to 85° C
	RoHS	0 of 6 compliant For other RoHS options, please contact Spectrum Sales

[ordering information]	Part Numbers	Description
	600-00420	PRO-1900 Board
	600-00385	PRO-1901 Daughter Board
	100-00493	HCDR-10XX SDK
	202-05629	PRO-1900 Cable Kit

[other configurations]	
	Spectrum can integrate these products with other hardware and software products to create a subsystem solution that can be purchased under a single part number. Please contact Spectrum Sales for more details.

Spectrum Signal Processing by Vecima tel +1/604.421.5422 or +1.800.663.8986 fax +1/604.421.1764 www.spectrumsignal.com

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