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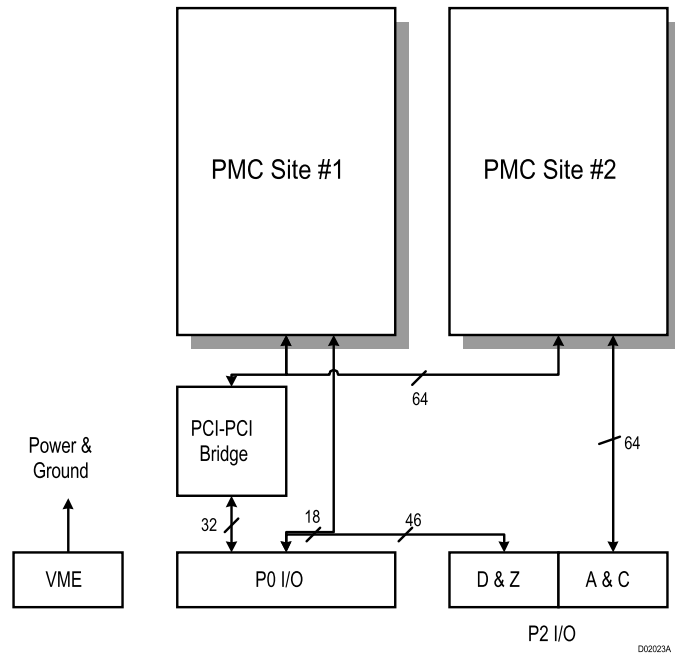


Figure 2: SVME/DMV-210 Carrier Card Block Diagram

Features

- Based on industry-standard Intel 21154 transparent PCI-to-PCI bridge device
- Supports two single width PMC modules or one dual-width module
- Supports 32-bit P0-side PCI bus at up to 33 MHz (132 Mbytes/sec peak data rate)
- 64-bit internal PCI bus, at up to 33 MHz
- Concurrent, independent bus operations on internal PCI bus and P0-side PCI
- P0-side PCI uses only 64 I/O pins on P0
- +5V-only operation
- Optional onboard regulator to provide 3.3 V to PMC modules requiring 3.3 V
- PCI signaling is 3.3V signaling, 5 V tolerant
- Available in three ruggedization grades, level 0 air-cooled, level 200 air-cooled, and level 200 conduction-cooled

PCI-to-PCI Bridge

The '210 incorporates the Intel 21145 device which provides the functions of a standard transparent PCI-to-PCI bridge in accordance with the PCI-to-PCI Bridge Architecture specification.

The P0-side PCI bus of the '210 is a PCI Rev 2.1-compliant bus supporting speeds up to 33 MHz with a bus width of 32 bits. I/O signaling is 3.3V, 5V tolerant. The on-card PCI bus is a 64-bit PCI Rev 2.1-compliant bus operating synchronously to the P0-side bus.

The PCI bus on the '210 can operate concurrently to the P0-side PCI bus, i.e., one PMC module could initiate a transfer to another PMC on the same carrier card at data rates of up to 256 MBytes/sec without impacting the P0-side PCI bus. In addition, a PMC module on one '210 can communicate over the P0-side PCI to a PMC module on another '210 carrier card without affecting the internal PCI bus of the host processor.

Interrupts The '210 supports a single interrupt, INTA#, from each PMC site and combines the two into a single wire-or'd interrupt to the P0-side PCI bus. Via the PMC-605 module a single interrupt is generated to the host processor for all PMCs on all '210 cards controlled from one processor card. When an interrupt is generated the operating system interrupt handler will call the I/O driver for each PMC module in turn. As per PCI guidelines, each driver must check the interrupt status bit of its PMC as its first step and simply return if the interrupt is not for it.

PCI Signaling The 21154 PCI-to-PCI bridge device used on the '210 is a 5 V tolerant device that uses 3.3 V signaling. Since it can accept PMCs that use 5 V signaling, the '210 is keyed as a 5 V signaling host to prevent the inadvertent installation of a 5 V signaling PMC and 3.3 V-only PMC at the same time.

I/O Routing The 64 PMC I/O signals from PMC site #2 (nearest P2 connector) are routed to the A and C rows of the P2 connector in accordance with IEEE P1386, Table 6.2. For PMC site #1, 48 of the 64 I/O signals are routed to the D and Z rows of P2 in accordance with IEEE P1386, Table 6.3, with the other 18 of the 64 I/O signals being routed to the P0 connector.

For support of high-bandwidth signals such as Fibre Channel, 8 of the 64 I/O lines for PMC site #2 are implemented as 4 pairs of 150 ohm (nominal) differential impedance traces matching the PMC-642A1 pin-out.

Power Routing Options The SVME/DMV-210 itself only uses +5 V, which is used to power the bridge device through a 3.3v regulator. Backplane +5 V, +/-12 V, and, optionally, +3.3 V power connections are routed to the PMC sites. PMC modules that require 3.3 V can optionally be provided with 3.3 V from an onboard regulator, up to a maximum of 4 A total.

Mechanical Format The SVME/DMV-210 is a standard 6U format VME card. The only electrical connection to the VME bus is for power and ground. Air-cooled modules provide appropriate front-panel openings for PMC bezels.

Conduction-cooled modules conform to the IEEE 1101.2 standard for a conduction-cooled VME card. The thermal interface details of the PMC sites are in accordance with VITA 20-200x, Conduction-Cooled PCI Mezzanine Card Draft Standard. The cooling surfaces provided are the Primary Thermal Interface Regions and the side 1 Secondary Thermal Interface Regions.

Ruggedization Levels

Functionally identical versions of the PMC-605 are available in DY 4 ruggedization level 0 air-cooled, and air-cooled and conduction-cooled level 200. Level 200 in the case of the SVME/DMV-210 refers to card-edge temperatures from -40 to +85C.

Outreach Backplanes

DY 4's Outreach sub-backplanes (BPL-605-002/003) provide a fast and efficient interconnect method for systems using Outreach components such as the PMC-605 PCI-P0 bridge and the SVME/DMV-210 PMC carrier card. These sub-backplanes push directly onto the P0 connector of standard VME64x backplanes and span either two or three slots.

Features

- Standard units span two and three slots, contact DY 4 for custom requirements
- No interference with adjacent slots, or above or below P0 area
- Extended tails on non-PCI signals allow cable connection for I/O signals
- Four configuration jumpers to set PCI-P0 options provided for each slot
- Intended for use in standard development chassis

Firmware & BSP Components

See individual processor card data sheet for details on their support for the Outreach PCI/PMC Expansion System.

Table 1: Outreach Specifications

RUGGEDIZATION LEVELS

(Refer to *Ruggedization Guidelines* data sheet for more details)

Air-cooled modules	Available in levels 0 and 200*
Conduction-cooled modules	Available in levels 200*

Level 200 in the case of the SVME/DMV-210 refers to card-edge temperatures from -40 to +85C.

POWER REQUIREMENTS SPMC/DPMC-605 BRIDGE MODULE

+5 V	1.0 A (maximum)	0.8 A (typical)
+12 V	0 A	0 A
-12 V	0 A	0 A
3.3 V	Only routed to the PMC sites, not used by the base card.	

DIMENSIONS SPMC/DPMC-605 BRIDGE MODULE

	Size	Weight
Air-cooled module (SPMC)	per ANSI/VITA 1-1994 IEEE P 1386/P1386.1	<300 g
Conduction-cooled modules (DPMC)	per IEEE 1101.2 VITA 20-200X	<300 g

POWER REQUIREMENTS SVME/DMV-210 CARRIER CARD

(Does not include PMC modules)

+5 V	1.0 A (maximum)	0.8 A (typical)
+12 V	0 A	0 A
-12 V	0 A	0 A

DIMENSIONS SVME/DMV-210 CARRIER CARD

	Size	Weight
Air-cooled module (SVME)	per ANSI/VITA 1-1994	<500 g
Conduction-cooled modules (DPMC)	per IEEE 1101.2	<600 g

The information in this document is subject to change without notice and should not be construed as a commitment by DY 4 Systems Inc. While reasonable precautions have been taken, DY 4 Systems Inc. assumes no responsibility for any errors that may appear in this document.

References to other documents of the exact issue, or if not shown, the issue in effect at the time of publication form a part of this specification to the extent referenced herein. In the event of a conflict, this specification will be considered a superseding requirement.

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