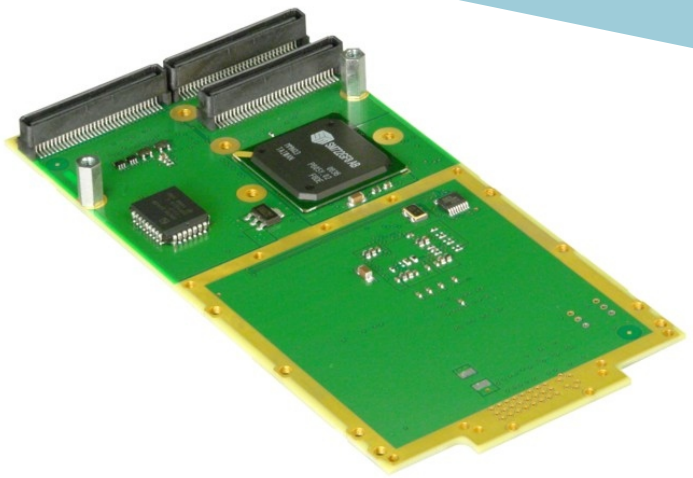
PMC Module
Ruggedized

IO PMC/722-RC

R - Series

PMC Graphics Adaptor, Rugged Conduction-Cooled



RoHS 2002/95/EC

APPLICATIONS

The IO PMC/722-RC is a versatile ruggedized conduction-cooled graphics adaptor suitable for any PMC compliant host board (CompactPCI®, VME etc). The on-board Silicon Motion SM722 3D/2D dual display controller manages the graphics processing. The adaptor supports, via PMC P4, digital flat panel (DFP) displays with a Transition Minimized Differential Signaling (TMDS) interface and CRT monitors with an analog RGB interface. Each interface is capable of displaying resolutions up to 1280 x 1024 with up to 24-bit color depth. They can be driven simultaneously with the same or different images. Market applications are varied, but include the industrial, control, transportation, defense and security sectors. The IO PMC/722-RC is rear plug compatible with the IO PMC/722-RA and IO PMC/722 boards.

HIGHLIGHTS

- Ruggedized PMC Graphics Adaptor:
  - conduction-cooled to ANSI/VITA 20-2001 (R2005)
  - conformally coated
  - -40°C to +85°C operating temperature
- High performance 3D/2D dual display controller:
  - 8 Mbytes of internal DRAM
  - supports resolutions up to 1280 x 1024 pixels
  - supports color depth up to 24-bit
  - supports refresh rates up to 85Hz
- Supporting CRT and DFP interfaces:
  - with simultaneous CRT/DFP and DFP/DFP capability
  - CRT and DFP PanelLink® TMDS™ interfaces available via PMC P4
- PMC (PCI Mezzanine Card) format:
  - single size CMC (Common Mezzanine Card)
  - 33MHz, 32-bit PCI bus interface
  - 3.3V and 5V PCI signaling supported
- 64 Kbytes EPROM for video BIOS
- Ruggedized air-cooled version (RA-Series) also available:
  - -40°C to +75°C
  - conformally coated
  - see separate IO PMC/722-RA datasheet
- Non-ruggedized version also available:
  - rear plug compatible with the ruggedized versions
  - useful for bench development
  - use in commercial (non-rugged) applications
  - see separate IO PMC/722 datasheet
- Supported by Windows® 2000, Windows® XP, Windows® XP Embedded, Linux® and QNX®
- For use with ruggedized VME bus, CompactPCI and other PMC host boards

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Specification

Ruggedized PMC Graphics Adaptor
- conduction-cooled to ANSI/VITA 20-2001 (R2005)
- conformally coated
- air-cooled version also available:-
  - ➔ see IO PMC/722-RA datasheet
- non-ruggedized version also available:-
  - ➔ see IO PMC/722 datasheet

Graphics Processor
- utilizes Silicon Motion™ SM722 3D/2D dual display controller, which provides:-
  - ➔ dual display capability
  - ➔ resolutions up to 1280 x 1024
  - ➔ 24-bit true color
  - ➔ picture rotation of 90°, 180° or 270°
  - ➔ embedded 8 Mbytes DRAM
  - ➔ integrated 235MHz RAMDAC
  - ➔ 128-bit graphics engine
  - ➔ hardware accelerated support for Microsoft® DirectX 9
  - ➔ supports OpenGL 2.0 under Windows® and Linux®
  - ➔ PCI bus interface

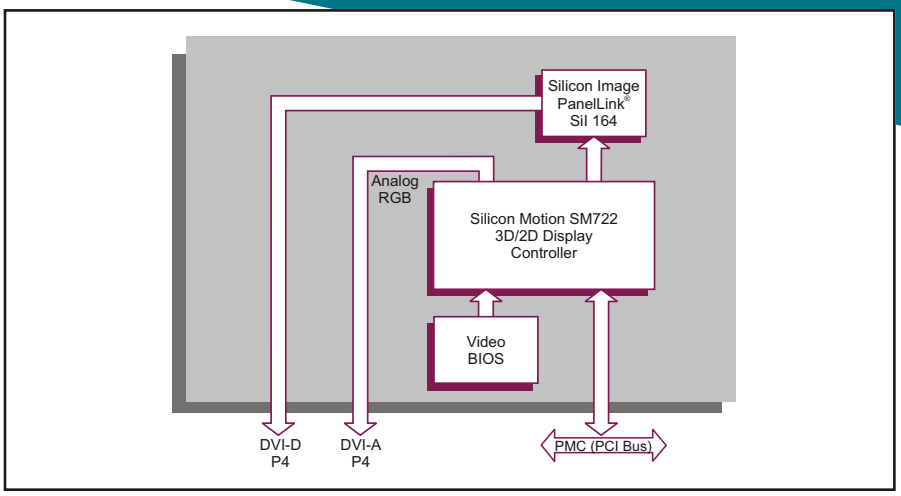
CRT Interface
- up to 1280 x 1024 pixels, 24-bit color @ 85Hz refresh rate
- supports analog RGB compliant displays via PMC P4

Flat Panel Interface
- PanelLink® interface provided by Silicon Image SiI 164 utilizing TMDS™ (Transition Minimized Differential Signalling):-
  - ➔ supports active matrix (TFT) and passive (DSTN) panels
  - ➔ up to 1280 x 1024 pixels @ 60Hz refresh rate
  - ➔ up to 24-bit color
  - ➔ supports twisted-pair cable, up to 5 meters in length
- supports Digital Flat Panel (DFP) displays via PMC P4

Dual Display Operation
- DFP and CRT displays can be driven simultaneously with:-
  - ➔ the same or different images
  - ➔ the same resolution
  - ➔ the same or different refresh rate
- dependent on operating system software
- maximum recommended settings:-
  - ➔ 1024 x 768 pixels for one image and 1280 x 1024 for the other
  - ➔ 16-bit color depth
- option to specify maximum flat panel resolution when using dual displays (see Note 1)

PMC Interface
- complies with PCI protocol and electrical specification:-
  - ➔ 33 MHz, 32-bit PCI bus interface
  - ➔ supports 3.3V and 5V signaling levels

BIOS EPROM
- 8-bit wide 64 Kbyte Flash EPROM



Software Support
- support for Windows 2000, Windows XP, Windows XP Embedded, Linux and QNX

Electrical Specification
- requires 3.3V and 5V supplies
- +5V @ 0.22A; +/-5% (typical)
- +3.3V @ 0.4A; +/-5% (typical)
- +12V and -12V supplies not utilized

Safety
- PCB (PWB) manufactured with flammability rating of 94V-0

Environmental Specification
- operating temperatures:-
  - ➔ -40°C to +85°C
- storage temperatures:-
  - ➔ -45°C to +100°C
- Relative Humidity, non condensing (operating and storage):-
  - ➔ 5% to 95%
  - ➔ includes conformal coating
- altitude (operating):
  -1,000 to 50,000 feet (-305 to 15,240 meters)
- non-ruggedized wide temperature versions available:-
  - ➔ see separate IO PMC/722 datasheet
- ruggedized air-cooled version available:-
  - ➔ see separate IO PMC/722-RA datasheet

Mechanical Specification
- single size CMC (Common Mezzanine Card) 74mm x 149mm
- 10mm height stack module
- shock:
  40g, 11ms, ½ sine (operating)
- sine vibration:
  5Hz-2000Hz at 5g, peak (operating)
- random vibration:
  0.1 g^2/Hz (10Hz-1KHz);
  -6dB/octave (1KHz-2KHz) (operating)
- rear plug compatible with commercial non-ruggedized IO PMC/722:-
  - ➔ see separate IO PMC/722 datasheet
- rear plug compatible with ruggedized air-cooled IO PMC/722-RA:-
  - ➔ see separate IO PMC/722-RA datasheet

Note1: As there is only one set of DDC signals in the SM722 device, drivers cannot automatically determine the resolution of both displays independently. To overcome this, the board may be ordered with one of several pre-configured maximum display resolutions for the Digital Flat Panel Interface. The video BIOS firmware will use this resolution as the default setting for the digital display at startup. Operating system drivers may override this setting but can normally only reduce the resolution from this maximum size.

ORDERING INFORMATION

Order Number	Product Description (Hardware)
IO PMC/722-4yRC	Ruggedized conduction-cooled PMC Graphics Adaptor with DFP and VGA interfaces via PMC P4

Replace the order number suffix (y) with selection from the following:
Where y = maximum flat panel resolution *
1 - 640 x 480
2 - 800 x 600
3 - 1024 x 768
4 - 1280 x 1024
* see Note 1 above

For ruggedized air-cooled version, see separate IO PMC/722-RA datasheet
For non-rugged version, see separate IO PMC/722 datasheet

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Specification subject to change; E and OE. RoHS 2002/95/EC compliant.

Datasheet Code 1566/0509
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