

XMC Graphics Adaptor, Rugged Conduction-Cooled



APPLICATIONS

The XM 403/x33-RC is a high performance ruggedized conduction-cooled graphics adaptor suitable for any XMC compliant host board (CompactPCI®, VME, VXS, VPX etc). The on-board 3D/2D triple display controller manages the graphics processing. The XM 403/x33-RC independently supports, via a Pn4 or Pn6 connector, a digital flat panel (DFP) display with a Transition Minimized Differential Signaling (TMDS) interface, up to 2560 x 1600 pixel resolution, and a CRT with an RGB

interface, up to 2048 x 1536 pixel resolution. The interfaces can be driven with the same or two different images. Applications include industrial, control, transportation and defense sectors. Examples include high resolution color graphics, CAE/CAD/CAM, image processing as well as mapping systems. This board is rear I/O plug compatible with the commercial and ruggedized air-cooled versions.

HIGHLIGHTS

- Ruggedized XMC Graphics Adaptor:
 - conduction-cooled to ANSI/VITA 20-2001 (R2005)
 - conformally coated
 - -40°C to +85°C operating temperature
- High performance 3D/2D triple display controller:
 - 256 Mbytes of gDDR2 DRAM
 - resolutions up to 2560 x 1600
 - color depth up to 32-bit
- Supports DVI, VGA and TV-out:
 - DVI-I, VGA, TV-out (PAL, NTSC) and HD TV (1080p) output via rear I/O Pn4 connector
- Supports composite video capture via TV-in:
 - PAL, NTSC and SECAM formats
 - video overlay capability
- Two independent display engines:
 - simultaneous display on any two interfaces
- 1 Mbits Flash EPROM for video BIOS
- XMC (Switched Mezzanine Card) format:
 - single size CMC (Common Mezzanine Card)
 - x8 PCI Express® interface
- Ruggedized air-cooled version (RA-Series):
 - -40°C to +75°C, conformally coated
 - see separate XM 403/x33-RC-RA datasheet
- Non-ruggedized air-cooled versions:
 - see XM 403/x33 datasheet
 - rear plug compatible with ruggedized versions
 - useful for bench development
 - use in commercial (non-rugged) applications
- Supported by Windows® XP, Windows® XP Embedded, Windows® 2000 and Linux®
- For use with ruggedized VME, VXS, CompactPCI, and other XMC host boards

Ruggedized XMC Graphics Adaptor

- conduction-cooled to ANSI/VITA 20-2001 (R2005)
- conformally coated
- non-ruggedized version:-
→ see XM 403/x33 datasheet
- air-cooled version:-
→ see XM 403/x33-RA datasheet

Graphics Processor

- utilizes S3 Graphics 2300E 3D/2D triple display controller, which provides:-
→ 2 independent display engines
→ multi-display capability
→ digital resolutions up to 2560 x 1600
→ analog resolutions up to 2048 x 1536
→ 32-bit true color
→ 256 Mbytes of 64-bit dual channel gDDR2 DRAM
→ dual integrated RAMDAC
→ 128-bit graphics engine
→ PCI Express® interface
→ supports video overlay
- 350MHz graphics engine clock:-
→ depending on the application the RC-Series can be run at a reduced clock rate
- 375MHz gDDR2 memory clock:-
→ depending on the application the RC-Series can be run at a reduced clock rate

Digital Interface

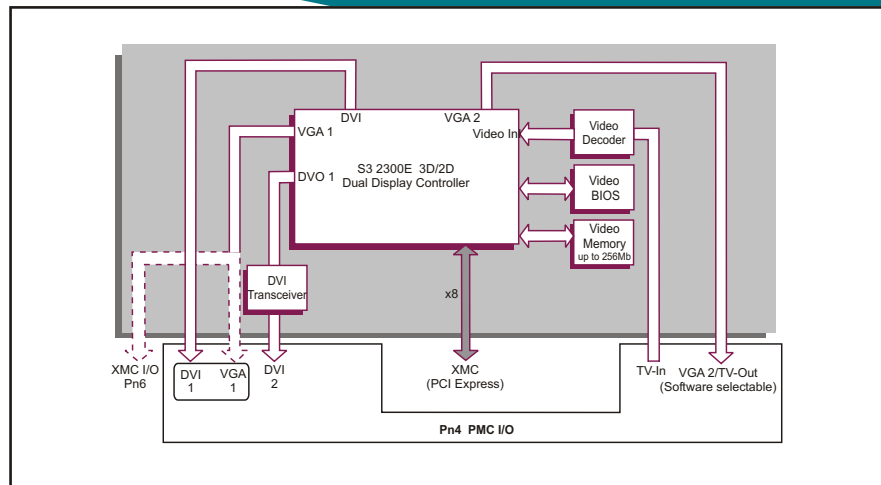
- supports 2 x TMDS compliant displays via:-
→ DVI 1 accessible via rear I/O PMC Pn4 connector
→ DVI 2 accessible via rear I/O PMC Pn4 connector
- supports active matrix (TFT) and passive (DSTN) panels
- up to 2560 x 1600 pixels
- up to 32-bit color
- 60Hz refresh rate

Analog Interfaces

- supports 2 x RGB compliant display:-
→ VGA 1 interface configured to either the rear I/O PMC Pn4 connector or the rear I/O XMC Pn6 connector
→ VGA 2 interface to rear I/O PMC Pn4 connector
- VGA 2 interface cannot be used simultaneously with TV output interface:-
→ uses same Pn4 pins
→ software selectable
- up to 2048 x 1536 pixels
- up to 32-bit color

TV Output Interface

- composite, S-Video or YPbPr (YUV) outputs via rear I/O PMC Pn4 connector:-
→ HD-TV capable
→ internal CE class encoder for, NTSC, PAL and HD-TV (all 18 DTV ATSC and DVB standards, including 1080p)
- TV output interface cannot be used simultaneously with VGA 2 interface:-
→ uses same Pn4 pins
→ software selectable



Multiple Displays

- 2 independent display engines:-
→ up to 2 displays driven simultaneously with the same or 2 different images
→ the same or 2 different resolutions
→ the same or 2 different refresh rates
- dependent on operating system software
- using multiple displays lowers the maximum available resolution, color depth and refresh rate

TV Input Interface

- supports multiple standards including PAL, NTSC and SECAM
- automatic detection, supports 50Hz and 60Hz field frequency
- suitable for video capture and video stream input
- supports video overlay

XMC Interface

- complies with PCI Express 1.1 protocol and electrical specification:-
→ supports link training for x1 to x8 lane widths

BIOS EPROM

- 1 Mbits Flash EPROM

Software Support

- support for Windows® XP, Windows® XP Embedded, Windows® 2000, and Linux®

Electrical Specification

- requires 3.3V and 5V supplies only:-
→ +5V @ 1.5A; +/-5% (typical)
→ +3.3V @ 500mA; +/-5% (typical)
- -12V supply not utilized
- +12V supply cannot be used

Safety

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

Environmental Specification

- operating temperature (VITA 47 Class CC4):-
→ -40°C to +85°C
- storage temperatures (VITA 47 Class C4):-
→ -55°C to +105°C
- 5% to 95% Relative Humidity, non condensing (operating and storage)
- altitude (operating):
-1,000 to 50,000 feet (-305 to 15,240 metres)
- ruggedized and commercial air-cooled versions, see separate datasheets:-
→ rear plug compatible
→ air-cooled: XM 403/x33-RA
→ commercial: XM 403/x33

Mechanical Specification

- single size CMC (Common Mezzanine Card) 74mm x 149mm
- 10mm height stack module
- operating shock (VITA 47, conduction-cooled): 40g, 11ms, 1/2 sine
- operating random vibration (VITA 47 Class V3): PSD increasing at +3dB/octave (5Hz to 100Hz) PSD = 0.1 g²/Hz (100Hz to 1kHz) PSD decreasing at -6dB/octave (1kHz to 2kHz)

(PSD = Power Spectral Density)

ORDERING INFORMATION

Order Number **Product Description (Hardware)- for the order number options (p and y) please contact your local sales office**

XM 403/p33-1yRC XMC Graphics Adaptor, S3 Graphics 2300E 3D/2D triple display controller

where p = option for VGA 1 via Pn4 PMC or via Pn6 XMC I/O connector

For commercial or ruggedized air-cooled versions, see separate datasheets or contact your local sales office