

IC-GRA-PMCa PMC Graphics board

IC-GRA-PMCa is a new family of graphics display controllers. It will improve solutions in embedded graphics applications such as industrial monitoring, marine and airplane displays, medical equipment, night vision systems.

This PMC graphics board bring numerous state-of-art functions to the existing graphics controllers today. It has been optimized for the embedded systems. It means that, in addition to many 2D & 3D rendering functions, there is original flexible layer concepts and particularly some interesting features such as alpha-blending, anti-aliasing, etc.

This graphics controller provides low power-consumption, large temperature range and long-term availability, which is essential in the embedded field.



Description

IC-GRA-PMCa is a PCI Mezzanine Card (PMC) form factor with low power consumption. It is based on the latest highly multimedia Fujitsu graphics processor unit, the MB86297 (Carmine). A large bank of DRAM-DDR provides a fast memory video with 64-bit width.

Carmine is the new high-end extension to the Fujitsu Graphic Controller Family. It is built in CMOS 90nm technology with 8 metal layers. This chip carries a brand new graphics core which provides a high level of performance. All relevant blocks inside the chip are designed and optimized for multimedia applications. Carmine is full compatible to OpenGL ES 1.1. All transformed and lighting functions can be executed in hardware.

IC-GRA-PMCa contains floating point operation pipelines dedicated to graphics processing which allows 2D/3D graphics vertex processing including lighting and also supports hardware acceleration of OpenGL-ES.

IC-GRA-PMCa has two independent display output units. Both can generate individual display timings and resolutions. For each display channel, 8 layers and 4 alpha-planes are available.

IC-GRA-PMCa also features two independent video input channels. Each of them can capture independent YUV and RGB signals. The digital video capture function can store digital video data such as TV in graphics memory. It can display drawn images and video images on the same screen.

IC-GRA-PMCa exists in standard, extended and rugged grades. A conduction-cooled version will be available soon.

Main features

Graphic Processor Unit :

- ▶ Fujitsu MB86297 (Carmine).
- ▶ 128 MBytes 64-bit DDR SDRAM 266 MHz.
- ▶ Host interface PCI rev 2.2 compliant, 32 bits 33/66 MHz.
- ▶ Hardware 2D/3D acceleration (full OpenGL ES 1.1).
- ▶ Up to 10 Millions Polygons per second.
- ▶ Hardware layers :
 - 2x8 layers of overlay display
 - 2x4 alpha planes

Dual Independent Analog and Digital Output :

- ▶ Interlaced and Non Interlaced analog output.
- ▶ Up to 1280x1024@32bpp.
- ▶ Analog output supports sync on green and separate horizontal & vertical sync.
- ▶ DVI output up to 1280x1024@32bpp.
- ▶ NTSC, PAL, Stanag3350 Composite and S-Video.

Dual Independent Video Capture :

- ▶ Capture resolution up to to 800x600.
- ▶ Video Scaler (up / down scaling).
- ▶ RGB, Composite, S-Video and YPbPr video input.

External Synchronization Input Support.

Front Panel and / or PMC Pn4 Rear Panel I/O with Flexible input / output configuration.

Software Support :

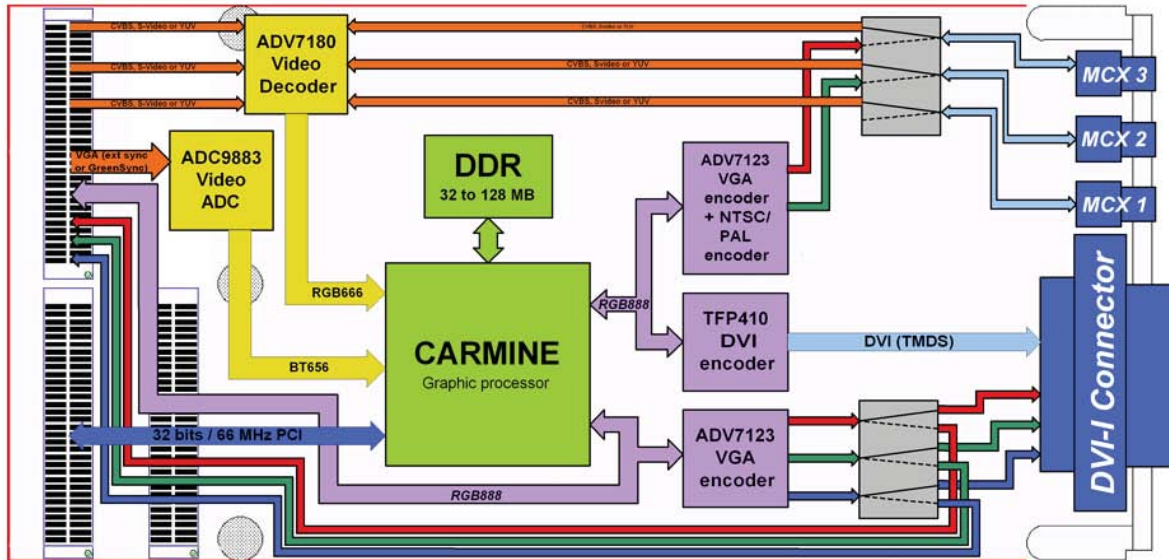
- ▶ Linux : Accelerated X Server with OpenGL ES and Xv video input extensions, Frame buffer driver.
- ▶ Windows 2K / XP drivers with accelerated OpenGL ES.

Full operational consumption is less than 5 W.

IC-GRA-PMCa

PMC Graphics board

Block Diagram



Board specifications

Physical dimensions

PMC Module single width, IEEE P1386 compliant (150 mm * 75 mm).

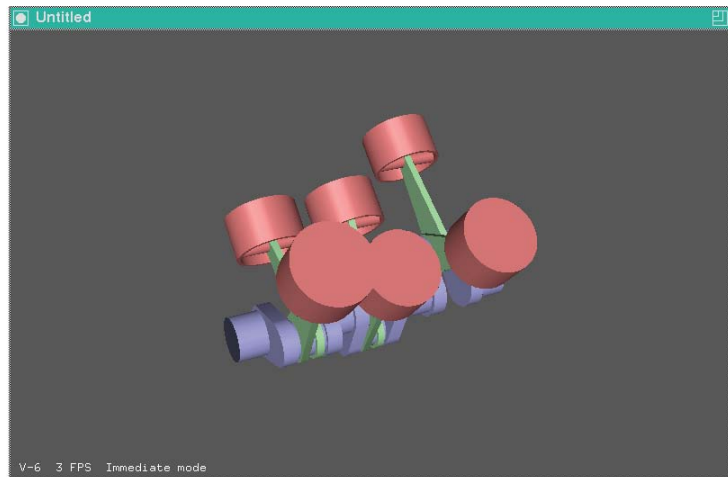
Power requirements

Max 5W on 3.3VDC

EM compatibility

EMC/EMI : 89/336/ECC, EN55022 CIE, EN50082-2

Video example



Environment Specifications:

Please refer to information below.

Ordering Information:

Please consult the **IC-GRA-PMCa datasheet** at www.interfaceconcept.com (listing all products reference and environment grades availability).

This document supersedes any earlier documentation relating to the products referred to herein. The information contained in this document is current at the date of publication. It may subsequently be updated or withdrawn without notice.

