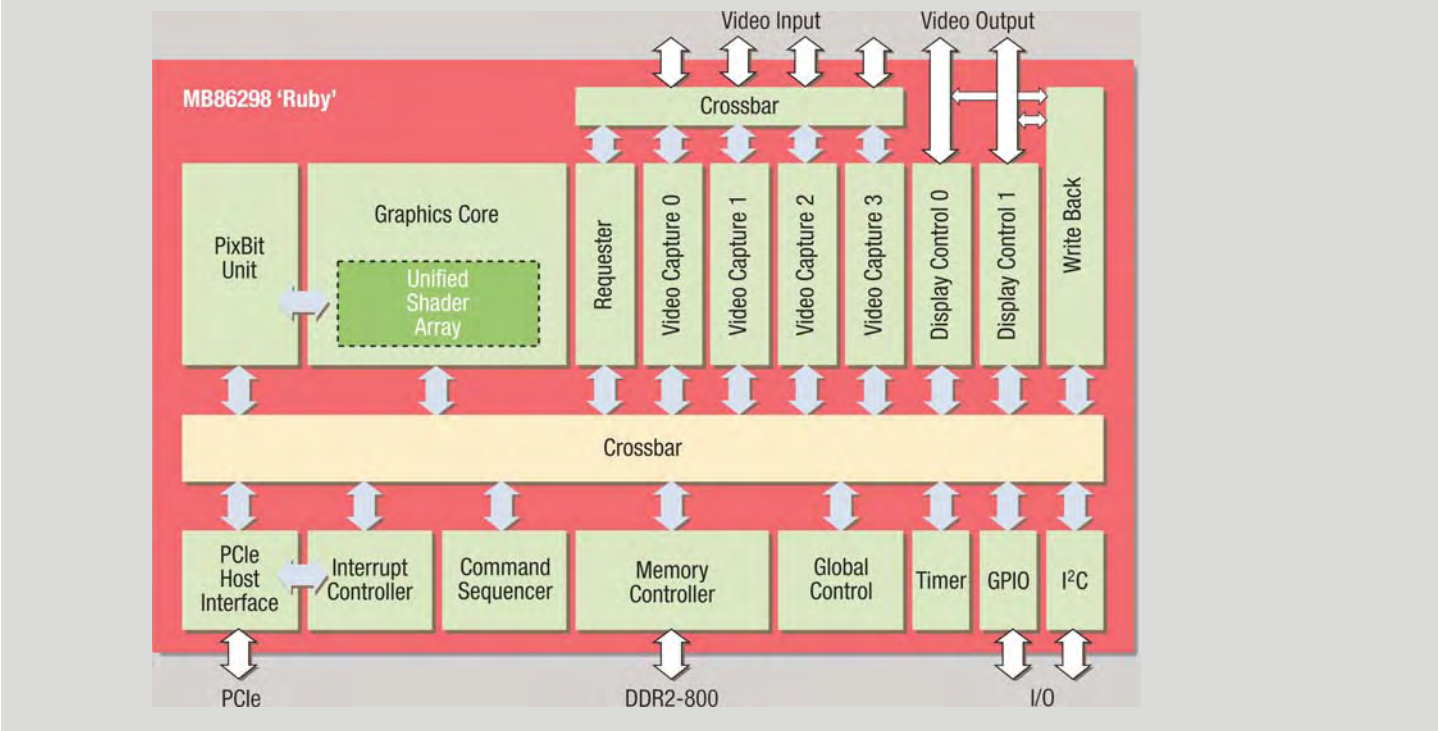
FUJITSU

# MB86298 "RUBY" Graphics Display Controller




## Description

The Fujitsu MB86298 "Ruby" is a standalone graphics display controller (GDC) compliant with the OpenGL® 2.0 standard. This highly integrated GDC, which is compatible with the latest generation of PCI Express MCUs that are available from a growing number of suppliers, provides a broad range of features, functionality and flexible implementation options. It is ideally suited for high-end automotive designs including dashboard systems, head-up displays (HUD), telematics systems, navigation systems and rear-seat entertainment applications. The MB86298 "Ruby" is also ideal for avionics and high-end industrial applications.

This GDC minimizes power consumption to a typical rating of under 2.5W, eliminating the need for heat sinks or active cooling systems. As with all Fujitsu GDCs, the MB86298's design strategically balances performance and power consumption. For example, as with most graphic processing units, it supports full-scene anti-aliasing (FSAA), which requires a lot of memory and, by extension, higher power. Unique to the MB86298 "Ruby" GDC, this FSAA capability can be programmed to occur on a scene-by-scene level, as opposed to only at initialization, providing significant power savings. Hardware support for some functions of the OpenVG 1.1 standard is also included.

The MB86298 "Ruby" GDC, which can drive four displays of varying resolutions (1600 x 600 or 1289 x 1024), is the first product of its kind to support the dual-view display panels. These panels, which are becoming popular in center-stack applications, allow one display panel to show both driver information and active entertainment content while hiding the latter from the driver's view. The new GDC also supports dithering for improved image quality and gamma correction, which compensates for variations in display panels.

The MB86298 incorporates a fully programmable unified vertex and fragment shader architecture to meet the OpenGL® 2.0 standard. State-of-the-art interfaces to the host (PCI Express, single lane) and graphic memory (64 bit DDR2-800) provide the necessary bandwidth for data throughput for future high-end graphics applications.

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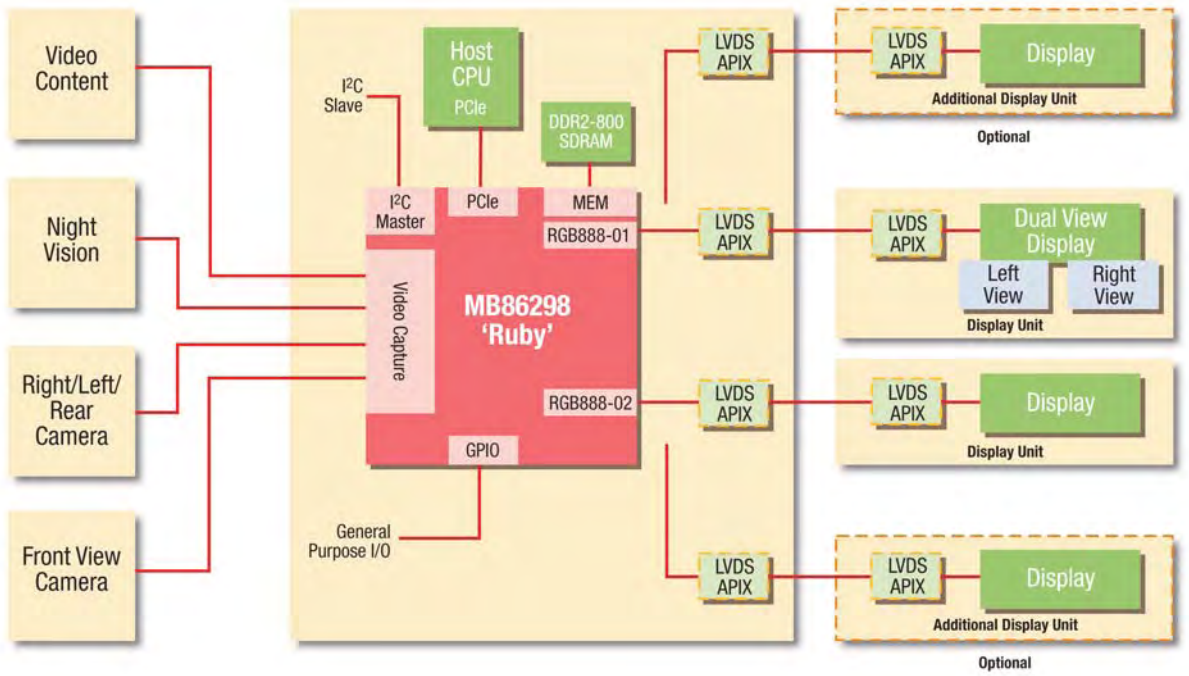
## System Diagram




## Applications

**Automotive**
- Infotainment systems
- Driver information
- Driver assistance
- Rear-seat entertainment

**Avionics and marine**
- Primary flight displays
- Moving map displays
- Marine instrumentation

**Industrial**
- Medical equipment
- Control terminals
- Gaming machines

## Features

- CMOS 90nm technology
- Programmable unified shader architecture
- OpenGL ES 2.0 compliance
- 32/64-bit ext. DDR2-800 SDRAM interface
- PCI Express host interface
- Dual independent display outputs (each supporting two displays for a total of four)
- MB86298 "Ruby" (TEBGA543 package)
- Dual-view display support
- Four independent digital video inputs
- Full-scene anti-aliasing (4 x 4)
- Temperature range 0°C to +60°C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