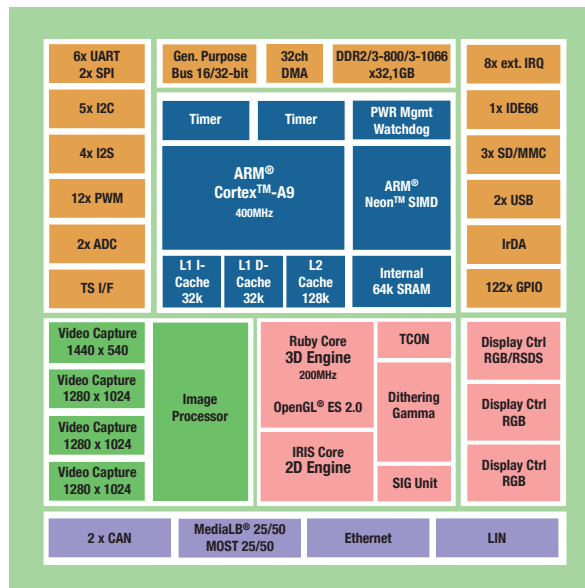


System Package for Industrial High End Graphic Display Applications



Block diagram MB86R11 'Emerald-L'

An 'Emerald' device is a System-on-Chip (SoC) that combines ARM's latest Cortex™-A9 CPU core with four video inputs, up to three parallel display outputs and various standard and automotive-specific peripheral interfaces for a wide range of applications. Rendering performance using their independent 2D and 3D graphics engines, positions the 'Emerald' devices as industry leaders in graphics controller chips for automotive applications. The Emerald L comes with an binary OpenGL ES 2.0 graphic driver.

Main processor

- ARM® Cortex™-A9
- 2.5 DMIPS/MHz
- 400 MHz
- 32kB D-/I-cache
- 28kB L2-cache

SIMD engine

- ARM® NEON™
- General-purpose SIMD engine
- Accelerates multimedia and signal processing algorithms

2D Graphics processor

- Independent 2D Graphics Engine
- Rotate, Blend, Scaling and Copy
- Extra 300 MPix/s for 2D

3D Graphics processor

- Unified Shader 3D Engine
- OpenGL ES 2.0

High memory bandwidth

- DDR2/3-800 (400MHz)
- Buswidth x16/x32, 1GB
- NAND, mNAND, NOR

Image processor

- Hue, Color, Brightness, Contrast Enhancement

Multiple video capturing

- 4x Video Inputs
- ITU601/656, RGB666/RGB888
- 360° Wrap Around View

Multiple display output

- 3 independent channels
- Flexible resolution up to 1600x1200
- Refresh rates up to 100Hz

- RGB/ITU
- RSDS/TTL
- 8-fold layer per controller
- DualView Display Support
- Integrated TCON
- Signature Unit (checksum)
- Dithering, Gamma Correction

Standard peripherals

- 5x I2C
- 4x I2S (2 channels/port)
- 2x SPI, 1x Quad-SPI
- 6x USART/UART
- 3x SDIO/MMC
- 1x USB (Host/Func)
- General Purpose Bus (32/16bit)
- 122x GPIO
- 12x PWM
- 2x 12bit-ADC
- 1x IrDA
- 1x TS Interface
- 1x IDE66 (ATA/ATAPI-5)
- Ethernet (10/100/1000)

Automotive I/F

- 2x CAN
- 1x MediaLB 25/50

Package

- PBGA544
- 1.0 ball pitch
- Ta: -40 to +85C

Samples

- MB86R11FPB-UGL-GE1: Available

Evaluation board

- Modular Starter kit
- CPU Board with the SoC
- Base Board providing the Connectors and Interfaces

BSP Software

Operating system support

- Linux (including fast boot mechanism)
- Integrity, QNX (tbd)

Graphic Driver

Operating System Support

- OpenGL ES2.0 graphic driver (binary format is included, source code or support is to be licensed separately)

CGI Studio

CGI Studio "Scene Composer"

- Modern 2D/3D HMI scene editing for automotive applications

CGI Studio "Player"

- Application development & verification
- Widget design & verification

Candera 3D Engine

- Full support of OpenGL 2.0 ES feature set
- 3D Animation Framework
- OS & application independent
- Hardware independent

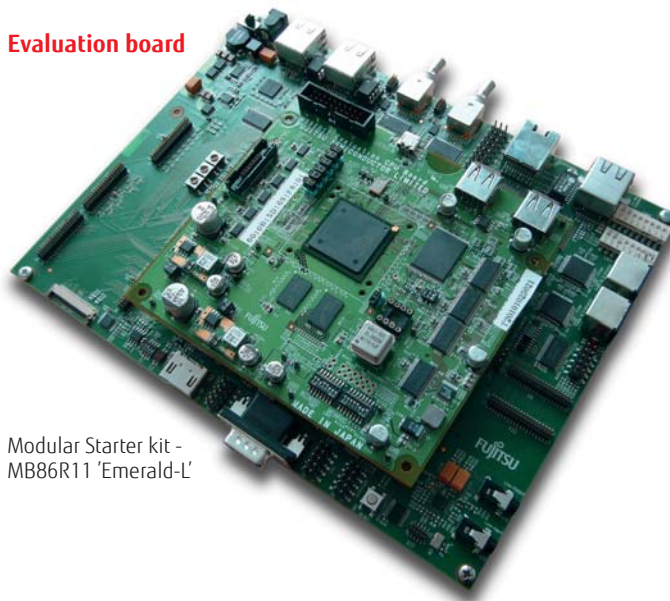


CGI Studio scene composer

Candera 2D Engine

- Customizable effects on scene graph nodes like shadows and transparency
- 2D animation effects (scale, rotate and translate)
- 2D scene composition support
- Supports interaction with Candera 3D engine

Evaluation board



Modular Starter kit - MB86R11 'Emerald-L'

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