



**POLLUX Application Processor**  
**For Portable Navigation and High Performance Embedded Systems**

# POLLUX

## Overview

POLLUX is the 3<sup>rd</sup> generation chip adopting MagicEyes's VRender Technology. Its high performance and low power consumption architecture realize a big differentiation in developing richer-end user applications such as 2D/3D Car Navigation System, Dual display POS System, High resolution Display System with various visual effect and convergence Handheld products such as Multimedia Toy, MP4 Player and etc.

POLLUX 3D graphics engine can be used not only rendering 3D contents such as 3D map but also various color LCD terminal application's needs on splendid user interface and variety of display function through its various visual effects.

POLLUX is a SoC including ARM926EJ 32 bit CPU, 3D Graphics Accelerator, NTSC/PAL Encoder with video DAC and various interfaces like USB 2.0, 4ch UART, 2ch SD/MMC, I<sup>2</sup>C.

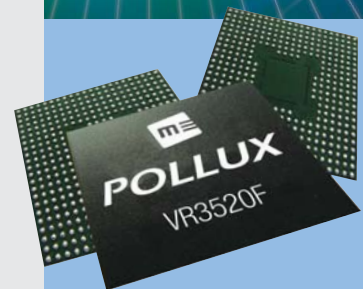
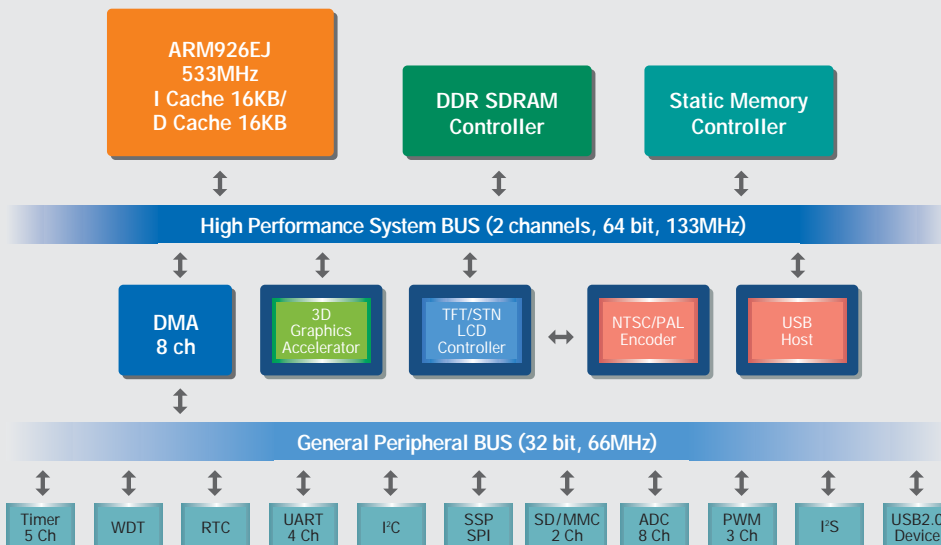
The embedded 3D Graphics engine enables high performance 3D graphics and display functions without sacrificing host CPU power to reserve most CPU power to other application software.

POLLUX provides the powerful display unit enabling simultaneous multi-layer display on digital convergence system:

- Displays 3 layers simultaneously such as background, 3D graphics and video
- Enables low cost system with internal NTSC/PAL encoder with Video DAC
- Supports two different displays (1 digital & 1 analog) simultaneously
- Two separated displays from one terminal can be shown on each monitor simultaneously; one for navigation and another for user interface for audio playback

POLLUX gives designers flexibility in developing system with enough CPU horse power, powerful 3D performance, multi-layering display together with lots of I/O interfaces to realize competitiveness portable/handheld/embedded products.

## Block Diagram



## Key Features

- 533MHz ARM926EJ
- 90nm process
- 3D Graphics : 1,330,000 Polygon/sec
- OpenGL ES 1.1 support
- Enhanced display functions
  - Dual display, 3 layer display
  - NTSC PAL Encoder with Video DAC
  - Visual effect
  - Up to 1280 x 1024@60Hz
- Supports MLC, SLC or One NAND™
- Supports STN, TFT LCD



# POLLUX

## Features

### Technology

- 90 nm Process
- PKG : 288pin FBGA (15mm x 15mm) 0.65mm pitch

### High Performance 32 bit CPU Core

- ARM926EJ - 533MHz (I Cache / D Cache : 16KB/16KB)
- Jazelle Java Hardware Accelerator

### DDR SDRAM Controller

- 133MHz DDR SDRAM memory x 16 bit
- Up to 128MB , Peak Memory Bandwidth : 533MByte/sec

### Static Bus Controller

- 16 bit data bus
- Supports 8 bit NAND Flash and 8/16 bit SRAM
- Supports SLC/ MLC NAND
- Boot from NAND Flash or NOR Flash
- IDE interface with PIO mode

### Display Subsystem

- Supports screen size up to 1280 x 1024@60Hz
- Supports Flat Panel I/F : Color TFT at 16, 18, 24 bit/pixel, STN-LCD
- Display Layers
  - RGB Layer : 2 Layer, 8/16/24bpp Format
  - YUV Layer : YUV4:2:0, 2D/Linear Format, Scale Up/Down
- Effects : Color Key, Priority, Alpha Blending(16 Levels)
- Color Control : Brightness, Contrast, Hue, Saturation
- Output Format
  - CCIR 601/656, RGB, M-RGB(Multiplexed RGB)
- Supports NTSC/PAL Encoder with Analog DAC
  - CVBS Output
- Independent Dual Display Output

### Advanced 3D Graphics

- BitBLT with 256 3-operand raster operation(ROP)
- 3D Texture Mapping, Lighting, Shading, Fogging
- Z-Buffer, Alpha Blending
- 3D Performance : 133M Texel/sec, 1.33M Polygon/sec
- 4 Programmable Floating Vector Processors
- Open GL ES 1.1 support

### Integrated Peripherals

- 5Ch Timers (1 Watchdog Timer)
- 4Ch UARTs
- USB 1.1 Host, USB 2.0 Device
- 2 Ch I<sup>2</sup>C Interface
- I<sup>2</sup>S serial audio codec Interface
- 2 Ch SD/SDIO/MMC controllers
- 3 Ch PWM
- 3 Ch SSP/SPI
- 8 Ch general purpose ADC
- GPIOs (84)

### Power Management Modes

- Individual block dynamic power controller
- Supports various power down mode
  - Idle / Stop

### Operating Temperature

- 0°C ~ 70°C

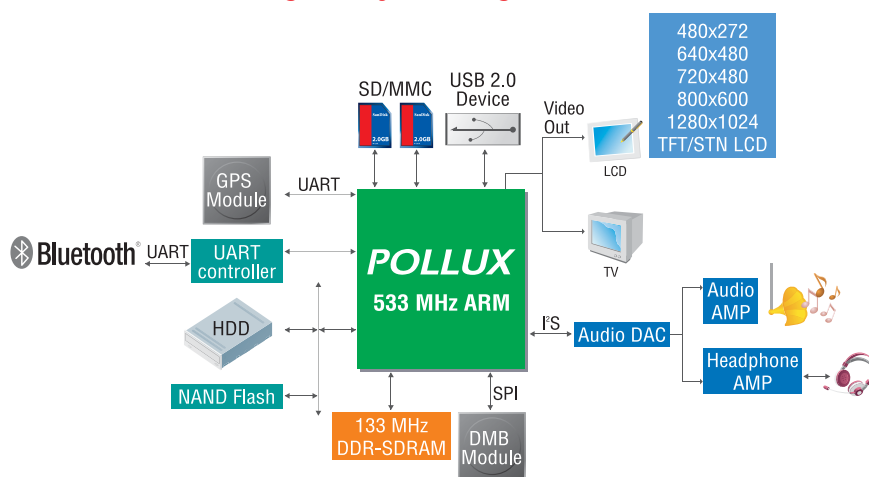
### Operating System

- Microsoft® Windows® CE 5.0/6.0
- Linux®

### Target Applications

- 2D/3D Car Navigation System
- Multimedia Toy / MP4 Player
- AD Terminal / Digital Frame / Pos
- Consumer Electronics with Color LCD
- Portable 2D/3D Game Machine
- Multimedia Handheld Device
- \* Mobile TV Supports
  - : T-DMB (SW)

## POLLUX Car Navigation System Diagram



Since MagicEyes, headquarter in Korea, was established in 1997 as a high-end SoC & multimedia system solution provider, it has introduced several chips targeted for digital-convergence and digital ubiquitous systems. Now MagicEyes is recognized as one of leading companies in multimedia SoC market through its outstanding technical achievements.



463-824 4F. Uniquet Bldg., 271-2 Seohyeon-Dong, Bundang-Gu, Seongnam-City, Gyeonggi-Do, Korea  
TEL:82-31-788-0300 FAX:82-31-707-5765  
Email : sales@mesdigital.com www.mesdigital.com