



RIVA 128ZX

Product Overview

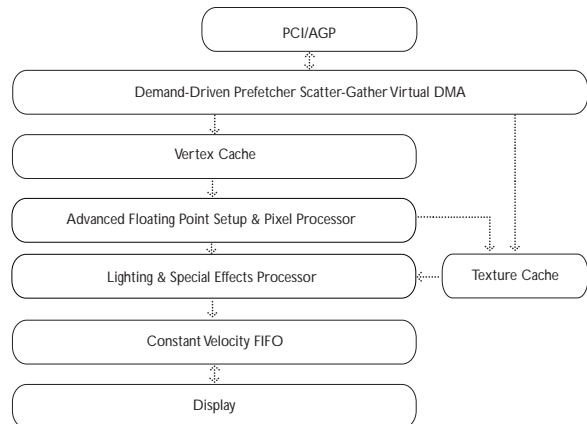
PRODUCT DESCRIPTION

The RIVA 128ZX™ is the first 128-bit 3D processor to offer unparalleled 2D and 3D performance, meeting all the requirements of the mainstream PC graphics market and Microsoft's PC'97 specification. The RIVA 128ZX provides the most advanced Direct3D™ acceleration solution and also delivers leadership VGA, 2D and video performance, enabling a range of applications from 3D games to DVD, and video conferencing.

ARCHITECTURE HIGHLIGHTS

- Massive 1.6GB/sec, 100MHz 128-bit wide frame buffer interface
- 100MHz, 128-bit graphics pipeline
- 250MHz Palette-DAC supporting up to 1600x1200@85Hz
- 100 million pixels/sec peak fill rate
- 5 million triangles/sec peak
- 3.5 million transistors
- 12KB on chip memory
- 20 billion operations/sec
- 0.35 micron 5LM CMOS
- 300 PBGA
- 0.35 micron 5LM
- AGP 2X
- 2-8MB SGRAM/SDRAM frame buffer

RIVA 128ZX BLOCK DIAGRAM



RIVA 128ZX

KEY FEATURES

Visually stunning interactive 3D

- Interactive, Direct3D and OpenGL acceleration with advanced effects

Triangle setup engine

- Setup hardware optimized for Microsoft's Direct3D API
- 5GFLOP floating point geometry processor
- Slope and setup calculations
- Accepts IEEE Single Precision format used in Direct3D
- Efficient on-chip vertex caching

Rendering engine

- Rendering pipeline optimized for Microsoft's Direct3D API
- Perspective correct true-color Gouraud lighting and texture mapping
- Full 32-bit RGBA texture filter and Gouraud lighting pixel path
- Alpha blending for translucency and transparency
- Internal pixel path: up to 24-bits, alpha: up to 8-bits
- Texture magnification filtering with high quality bilinear filtering without performance degradation
- Texture minification filtering with MIP mapping without performance degradation
- LOD MIP mapping: filter shape is dynamically adjusted based on surface orientation
- Texture sizes from 4 to 2048 texels in either U or V
- Textures can be looped and paged in real time for texture animation
- Perspective correct per-pixel fog for atmospheric effects
- Perspective correct specular highlights
- Multi-buffering (Double, Triple, Quad buffering) for smooth 3D animation
- Multipass rendering for environmental mapping and advanced texturing

MAINSTREAM FEATURE SUPPORT

- The RIVA 128ZX has high performance 128-bit 2D/GUI/Direct Draw acceleration
- Fast 32-bit VGA/SVGA
- Accelerated primitives including BLT, transparent BLT, stretch BLT, points, lines, polylines, polygons, fills, patterns, arbitrary rectangular clipping and improved text rendering
- Pipeline optimized for multiple color depths including 32, 24, 15 and 8-bits per pixel
- Execution of all 256 Raster Operations (as defined by Microsoft Windows) at 8, 15, 24 and 30-bit color depths
- 15-bit hardware color cursor
- Multi-buffering (Double, Triple, Quad buffering) for smooth animation

Video Support

- Video acceleration for DirectDraw/DirectVideo, MPEG 1/2 and Indeo® Planar 4:2:0 and packed 4:2:2 Color Space Conversion X and Y smooth up and down scaling with filtering
- NTSC and PAL TV output with flicker-filter
- CCIR-656 video capture port
- Back-end hardware video scaling for video conferencing and playback
- Multi-tap X and Y filtering for superior image quality

Interfaces

- Bus mastering DMA 66MHz Accelerated Graphics Port (AGP) 1.0 Interface
- Bus mastering DMA PCI 2.1 interface

Designed to WHQL compatibility standards

- Windows NT 3.5, 4.0 and 5.0 display drivers
- Windows 95 and 98 Display Driver, DirectDraw, Direct3D, DirectVideo, ActiveX
- Windows 3.x display drivers
- OpenGL ICD for Windows 95 and NT (passes compliance tests)



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