Trident

3DImàge 975™ with DVD

Product Brief

3D Accelerator with Optional DVD Player

Features

High Performance rCADE3D™ Accelerator

- Point Sampled or Bi-Linear Filtered Texture Maps are palletized and/or perspective corrected
- Gouraud or flat shading
- OpenGL compliant blending operations
- High performance: Peak of 1.2 million polygons/second and 67 million rendered pixels/second drawing rates
- On-chip set-up engine: 1.4M polygon/s transform rate. Includes backface culling, tri-strip and sub-pixel positioning

Optional DVD Player Support

- THAMA™ architecture enables full DVD player support with AC3 in MMX enabled Pentium 166 and higher.
- Requires no extra frame-buffer
- Supports freeze, fast-forward, slow motion, reverse

64-bit 2D GUI Accelerator

- 265 Raster Operations (ROPs) for 8 bits per pixel (PsuedoColor), 15/16 bits per pixel (HiColor), and 24/32 bits per pixel (True Color) graphic modes
- Enhanced graphics engine for BitBLT's, line draws, short stroke vector draws, clipping and text transfers
- Built-in hardware cursor and pattern register
- 24 bit packed True Color acceleration

Integrated Features for ClearTV™ Display

- NTSC/PAL interlaced display for 640x480 (NTSC) or 800x600 (PAL) resolutions using standard Window 3.1 and Windows 95 modes in all color depths
- NTSC/PAL display for DOS games (320x240)
- 3 Line Flicker Removal filter for output to interlaced monitors (NTSC/PAL)
- Interpolated vertical scaling from 480 or 600 lines to 400 for NTSC or 576 for PAL resolutions
- Overscan/underscan to TV display
- Direct interface to external NTSC/PAL Encoder

Dual Video Windows for Videoconferencing

- 2 independent scalers and CSC's for separate local and remote video window control
- Video data path selection from video port or PCI bus

High Quality Video Accelerator

- Accelerates DirectDraw functions with color keying, sprites, and double buffering for page flipping
- On-chip Color Space Converter (CSC), True Video® horizontal/vertical interpolation with proprietary edge recovery scaling, and overlay control for 30 fps software MPEG/video CODEC acceleration
- Direct Interface to MPEG and Video Decoders with True Video® Scaling
- Anti-tearing support
- Dual apertures for simultaneous access to graphics and video display memory areas
- CCIR 656 and YUV planar

Extended Display Resolutions

- High resolution non-interlaced display through 1600x1200-256, 1280x1024-64K, 1024x768-16M, 800x600-16M, or 640x480-16M colors
- Extended text modes (80 or 132 columns by 25, 30, 43, or 60 rows)

Video Module Interface (VMI) and Vertical Blank Interval (VBI) Support

- VMI compliant hardware interface to MPEG or video decoders for live video inputs (TV, Camera, VCR,.etc.)
- VBI (Intercast) interface can separate vertical blank interleaved data for transmission to the CPU

Highly Integrated Design

- Fully integrated 24 bit True Color DAC with color look-up table, 170MHz clock synthesizer, read cache, command FIFO, 100% IBM compatible VGA core GUI and Video Accelerators
- 256x18 color look-up table with HiColor and True Color bypass mode support
- Two wire interface to EEPROM or VESA DDC

Simple Bus Interface

- PCI and 66mhz PCI support
- 32 bit "glueless" connection
- Big-endian and little-endian data formats
- Host write buffer and read cache
- PCI burst mode support
- PCI 2.1 compliant

Packaging

- 208 PQFP

Overview

The 3DImàge product line brings together "best of breed" features in every category of VGA, 3D, 2D, MPEG I/II acceleration, VideoConferencing and TV-Out. It establishes the highest level of 3D performance in the PC mass-market, creates a new bar to beat in 2D benchmark performance, produces sharp smooth dual video windows using Trident's famed TrueVideo™ technology, and now introduces ClearTV™ technology. An innovation to place an entire CRT display into a PAL/NTSC mask without loss of edges or corners, and without flicker.

3D

The 3DImàge 975 breaks the 3D bottleneck with new rCADE technology. It achieves a sustained 1.2MB Polygon/Second 3D rendering rate. Also, for the first time, in an affordable mass-market graphics engine, an on-chip setup engine balances the 3D pipe by offloading the CPU from over 50% of the 3D computing task. Texture features include mip-mapped lookup of palletized texels which may be bi-linearly interpolated. Both depth-cued and constant fog effects are controlled by the hardware with OpenGL compliant blending operations. The 16-bit Z and image buffers can be fast cleared using the block-write function of 83 or 100MHz SGRAM's. Careful conservation of bandwidth is attained using queue based pixel processing to maximize the time available for pixel drawing operations.

DVD Collaborative Player

A complete DVD player is included in the 3DImàge 975DVD for full-frame (30FPS) video with AC3 in collaboration with an MMX enabled Pentium 166 CPU or higher. The 3DImàge 975DVD anticipates the trend in the industry to DVD CDROM format and enables the playback of video from this format for very little cost premium.

2D

The fast 2D GUI acceleration of the 3DImàge 975 exceeds performance benchmarks of any 2D GUI accelerator in the industry today. Fast 2D GUI operation is increasingly important as refresh rates increase to 120Hz, resolutions to 1280x1024 and higher, and pixel depths to 16 and 24 bits per pixel. Standard innovations include deep FIFO's for maximum bandwidth utilization in its 256 BLT operations, single-cycle read/write support of 83/100MHz SGRAM's, transparent BLT and support for Window95 font operations.

Video Conferencing

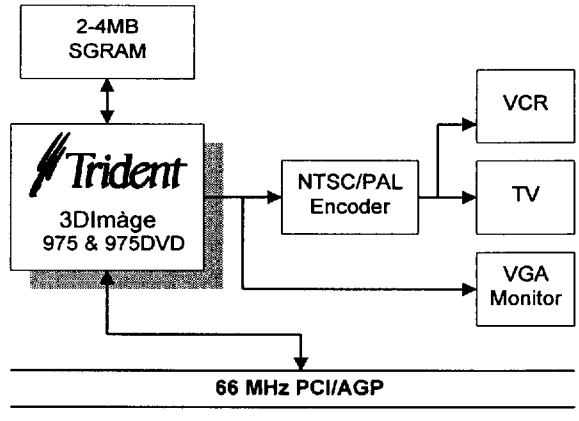
The 3DImàge 975 offers two hardware video windows which reduce CPU loading and increase frame-rate by as much as 30% when processing the local and remote dual videoconferencing data streams. Key applications include inter-home POTs (Plain-Old-Telephone) conferencing using inexpensive software that implements H.324 such as Intel's latest version of Proshare(m). Each 3DImàge 975 window is independent with its own YUV to RGB conversion and on-the-fly display side scaling through TrueVideo image enhancement hardware.

TV Output

On chip ClearTV™ technology in the 3DImàge 975 scales the CRT image into an NTSC/PAL TV without loss of edge and corner data and without flicker. TV display is one of the compelling display devices to enable movement of PC's from the home study to the home living room.

Legacy VGA

The 3DImàge 975 contains one of the fastest and proven VGA cores in the industry. Even as Direct3D (D3D) begins to attract 3D games developer's, many developer's continue to support legacy DOS modes for performance and backwards compatibility to the installed base of slower PC's. VGA innovations include single-cycle PCI bus transfers, single cycle frame-buffer read/writes and 64-bit operation.



3DImàge 975 Application Diagram