



DESKTOP SOLUTIONS

- 64-Bit Memory Bus at 125 MHz
- AGP-2X Bus with Sideband Addressing
- Real-Time DVD Playback with THAMA™
- True Video® Processor
- TVExpress

**Overview**

- Very low-cost graphics solution for desktop PCs
- Based on 0.25um CMOS technology
- Power supply: 2.5v and 3.3v
- 800,000 gates complexity

Performance

- System clock: 125 MHz
- Pixel processing rate: 125 million pixels/sec
- Texel access rate: 125 million texels/sec
- Supports 8MB of SDRAM at up to 125 MHz memory clock
- 170 MHz RAMDAC for 1400 x 1024 resolution
- DVD playback in real-time (30 fps)

Memory Bus Interface

- 64-bit SDRAM/SGRAM memory bus at 125 MHz clock
- Up to 8 MBytes of local frame buffer
- Supports 2Mx16, 1Mx16 and 512Kx16 memory
- Fully programmable timings for RAS, CAS, refresh, etc

Product Highlights

- AGP-2X with sideband addressing
- PCI version 2.1 with bus mastering
- 64-bit single cycle 2D/3D graphics engine
- Up to 8 MByte frame buffer clocked at 125 MHz
- Real-time DVD MPEG-2 and AC-3 playback
- TrueVideo® processor with true bilinear filtering
- I²C serial interface
- Integrated 24-bit 170 MHz true color DAC
- Extended screen resolutions up to 1400 x 1024
- Extended text modes 80 or 132 columns by 25/30/43/60 rows
- DirectX 5.0, 6.0 and OpenGL ICD API
- PC99 compliant

High Performance 2D/3D Accelerator

- 32 entry command queue, 32 entry data queue
- 4Kbyte texture cache with over 90% hit rates
- Pipelined single cycle setup/texturing/rendering engines
- DirectDraw™ acceleration
- Multiple buffering and page flipping, including triple buffering
- 125 Mpixels/sec peak fill rate

Setup

- Enhanced 32-bit IEEE floating point input data
- Slope and vertex calculations
- Back facing triangle culling
- 1/16 sub-pixel positioning

Rendering

- High performance single-pass execution
- Diffused and specular lighting
- Gouraud and flat shading
- Full scene super sampling anti-aliasing
- OpenGL compliant blending for fog and depth-cueing
- 16-bit Z-buffer
- 8/16/32 bit per pixel color formats

Texturing

- 1/2/4/8-bits per pixel compact palletized textures
- 16/32-bits per pixel quality non-palletized textures
- Pallet formats in ARGB 565, 1555, or 444
- Tri-linear, bi-linear, and point-sampled filtering
- DX6 anisotropic filtering
- DX6 texture compression
- Mip-mapping with multiple level-of-detail (LOD) calculations and perspective correction
- Color keying for translucency

BLADE 3D™ Application Diagram



*via Digital TV Encoder

2D GUI

- 8/15/16/24/32-bits per pixel color formats
- 256 raster operations (ROPs)
- Accelerated drawing: bitBLTs, lines, polygons, fills, patterns, clipping, bit masking
- Panning, scrolling, clipping, color expansion, sprites
- 32x32 and 64x64 hardware cursor
- DOS graphics and text modes

DVD with THAMA™

- Trident hardware-assisted MPEG-2 architecture for DVD with AC-3
- Simultaneous motion compensation and front-end processing (parsing, decryption and decode)
- Supports full DVD 1.0, VCD 2.0 and CD-Karaoke
- Microsoft® DirectShow 2.x native support, backward compatible to MCI
- No additional frame buffer requirements
- Dynamic frame and field de-interlace filtering for high quality play-back on VGA monitors (bob and weave)
- Tamper-proof software CSS implementation
- Freeze, fast-forward, slow motion, reverse
- Pan-and-scan support for 16:9 sequence

TrueVideo® Processor

- On-chip color space converter (CSC)
- Anti-tearing via two frame buffer based capture surfaces
- Minifier™ with bilinear filtering for true video stream compression and filtering
- Horizontal/vertical interpolation bilinear filtering with Trident edge recovery technique (TERT)
- Dual frame buffer apertures for independent memory access for graphics and video
- YUV 4:2:2/4:1:1 and RGB formats
- Video module interface (VMI) to MPEG and video decoder
- Vertical blank interval for InterCast™

- Overlay differing video and graphic color depths
- Minifier™ video module interface (VMI) to MPEG and video decode
- Display two simultaneous video streams from both PCI and VMI
- Two scalars and color space converters (CSC) for independent windows

Optional TVExpress Video Encoder

- Direct interface to TVExpress video encoder for NTSC/PAL output
- ClearTV™ for clean corners and edges of scaled images
- Interlaced display for 640 x 480 (NTSC) or 800 x 600 (PAL) resolutions
- Flicker reduction filter
- Overscan and underscan
- Interpolated vertical scaling from 480 or 600 lines to 400 (NTSC) and 576 (PAL)
- Dot crawl filter
- MacroVision version 7.01 copy protection support

Software Support

- Microsoft® Windows XP, ME, 2000, 95, 98, NT4.0, NT5.0
- DirectX 5.0, 6.0 including Direct3D and DirectShow
- OpenGL ICD 1.0
- BIOS development kit

SDRAM/SGRAM Configurations	Number of Chips		
	2Mbyte	4Mbyte	8Mbyte
4Mbit, 256K x 16	4	8	
8Mbit, 512K x 16		4	8
16Mbit, 1MB x 16			4
8Mbit, 256K x 32	2	4	8
16Mbit, 512K x 32		2	4
32Mbit, 1MB x 32			2

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