DESKTOP SOLUTIONS

BLADE T64 ™

- 64-Bit Memory Bus at 166 MHz Clock
- Pentium-4 AGP-4X Bus
- DirectX 7.0 Cubic Mapping
- 256-bit 3D Graphics Engine
- Multi-Displays
- True Video De-Interlacing
- DVD Assist with IDCT, MC
- PC2001 Compliant

AGP Bus Interface

- Full AGP 2X/4X support at up to 1.06 GBytes/sec transfer rate
- DMA bus mastering support with scatter gather
- Execute mode for direct textures, video, and DVD
- Special impedance matching circuit for 1.5v AGP-4X signalling

DirectX 7.0

- MICROSOFT® graphics standard for Windows® 2000
- Hardware support of cubic mapping reflections, refractions and lighting
- Hardware support of environment and emboss bump mapping
- Hardware support of texture compression
- Hardware support of all data formats for setup processing
- Adaptive sharing of transform & lighting processing with CPU

3D Graphics Engine

Setup

- Up to 166 MHz clock
- Hardware interface to DirectX 7.0, software interface to DirectX 8.0
- 32-bit IEEE floating point precision
- 1/16 sub-pixel positioning accuracy for better image quality

Rendering

- Dual independent 128-bit pixel pipelines (256-bit total)
- Single-pass processing of diffused, specular lighting and fog
- Enhanced gouraud shading & phong-like environmental lighting
- Fast order-independent scene anti-aliasing support
- Fully OpenGL-compliant blending including fog & depth cueing
- Hidden surface removal with 16, 24 or 32-bit Z buffer or W buffer
- Color format includes 16, 24 or 32-bit per pixel
- Supports 8-bit stencil buffer

Texturing

- Single-pass processing of up to 4 textures per clock
- Single-pass bi-linear, tri-linear and anisotropic texture filtering
- Non-linear magnification and sharpening texture filtering
- Multi-format texture cache
- Palletized texture format of 1, 2, 4 and 8-bit per pixel
- Non-palletized texture size of 16 or 32-bit per pixel
- Pallete data format with 565, 1555 or 4444 for ARGB
- Texture color keying & enhanced filtering for translucent objects

2D GUI

- 128-bit graphics engine
- Supports 256 raster operations (ROP)
- Color format includes 8, 16, 24 or 32-bit per pixel
- Hardware support for all 2D functions (bitBLT, fills, clipping ...)
- Built-in 32x32 or 64x64 hardware cursor

Overview

- Low-cost desktop graphics solution for Pentium® 4 systems
- Based on advanced 0.18um CMOS technology
- Standard 457 BGA package (31mm x 31mm)
- Low power (2.1 watts maximum power dissipation)
- Power supply: 1.5v, 2.0v and 3.3v
- 1.8 million gates complexity

Performance

- Up to 166 MHz system clock
- Pixel processing rate: 332 million pixels/sec
- Texel access rate: 1,328 million texels/sec
- Supports 32MB of SDRAM at up to 166 MHz memory clock
- 230 MHz RAMDAC for 1600 x 1200 resolution
- DVD playback in real-time (30 fps) with 75% of CPU headroom

Memory Bus Interface

- 64-bit SDRAM/SGRAM memory bus at up to 166 MHz clock
- Up to 32 MBytes of local frame buffer
- Supports 1Mx32, 2Mx32, 1Mx16, 2Mx16 and 4Mx16 memory
- Fully programmable timings for RAS, CAS, refresh, etc.

Trident

BLADE T64™ Application Diagram

VCR*

TV*

DVI

CRT

MPEG/Tuner/Video

VIP/Capture

Data

AGP/PCI BUS

Address

RGB

*via Digital TV Encoder

DVI Flat Panel Support

- Direct DVI digital interface to external TMDS driver
- 12-bit TMDS digital interface at up to 170 MHz pixel clock
- Frame rate control & spatial dithering for increased color depth
- Gamma correction for color enhancement
- Auto expansion and centering
- Single or double pixel/clock interface for up to 1600 x 1280 UXGA

Video Engine

- State-of-the-art video de-interlacing (beyond bob-and-weave)
- Capable of supporting HD0 HDTV resolution (1280 x 720)
- TrueVideo® bilinear interpolation with proprietary edge recovery scaling
- Dual apertures for simultaneous access to graphics and video display memory areas
- Dual color space converters (CSC)
- Accelerates YUV planar format

DVD Support

- Supports Microsoft's DirectX Video Acceleration (DXVA)
- THAMA™ architecture enables full DVD player support
- Requires no extra frame buffer and minimum AGP bandwidth
- Includes both motion compensation and IDCT hardware assist
- Real-time playback (30 fps) of 9.8 Mbps MPEG-2 video bitstream with 80% CPU headroom for other applications
- Alpha blending for subpicture
- Advanced error recovery & concealment
- Programmable multi-tap filtering
- Pan and scan support
- Anti-tearing support

Video Bus

- Supports either VIP 2.0 bus or motion video capture port (ZV)
- VIP bus includes 16-bit data bus and 8-bit host bus
- VIP data bus up to 150 MBytes/sec transfer rate
- ZV port input data format RGB, YUV 4:2:2, and YUV 4:2:0
- Compatible to CCIR 656/CCIR 601
- VBI (Intercast™) interface can separate vertical blank interval data for transmission to CPU

Advanced Power Management

- 7 GPIOs, suspend and standby modes
- Internal clock gating on each functional block
- PCIPM (H/W PCI initiated)
- AGP clock busy/stop and PCI clock run
- ACPI and DPMS support

Multiple/Simultaneous Display

- Different images with independent refresh rates on separate displays
- Supports up to 2 displays: Panel/TV and CRT
- Microsoft® Windows® 98 multi-head and multi-display

Digital TV Out

- 8-bit Digital TV output interface to standard NTSC/PAL encoder
- Direct interface to TRIDENT's TVXpress family or CHRONTEL's NTSC/PAL TV encoder

Software

- Windows® XP, ME, 98, 2000, NT 4.0 and 5.0
- DirectX 8.0, 7.0 and 6.0
- DirectX Video Acceleration (DXVA)
- DirectShow 3.0 and 4.0
- OpenGL ICD 1.0 and 1.2
- Linux
- Up to 256 KB of Flash PROM BIOS

Technical Support

- Evaluation Board
- Technical Reference Manual (TRM)
- Software Programmer's Guide (SPG)
- Application notes
- On-line website