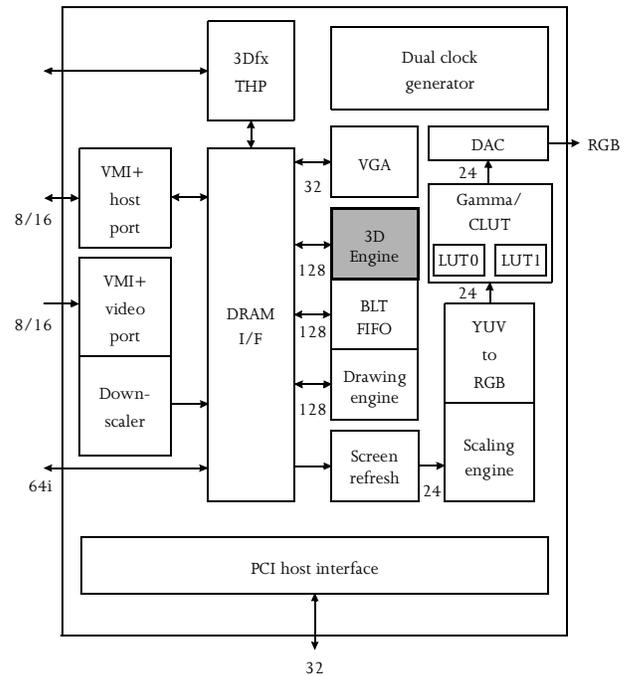




- ◆ Fast 3D rendering
 - Full hardware setup
 - On-chip D3D texture palette
 - Fast DMA palette load
 - True divide-per-pixel perspective
 - Modulated texture mapping
 - Full lighting and fog
 - Full and compressed Z-buffer support
 - Precomputed MIPmap filtering
 - Gouraud shading
- ◆ Advanced upgrade port
 - Glueless 3Dfx Interactive THP interface
 - Upgrade to arcade quality
- ◆ Fast 128-bit GUI engine
 - Optimized 24- and 32-bit truecolor
 - Source and destination transparency
- ◆ No-cost motion video™
 - Smooth scaling and color conversion
 - 64-step bilinear filter with full line buffer
 - DirectDraw/DirectVideo/DCI support
 - Multiple independent video windows
 - Hardware occlusion without loss of quality
- ◆ VMI compatible video port
 - Glueless 7110/7111 support
 - Hardware MPEG support
 - Interpolated downscaling filter
- ◆ Integrated 175 MHz DAC & clockgen
 - Programmable HW gamma & color correction
 - Full 256×24-bit CLUT RAM
- ◆ BetterHalf™ cost-saving technology
- ◆ VESA® standards: VAFC, DPMS, DDC 2.0B
- ◆ High throughput PCI v2.1 interface
- ◆ Programmable bi-endian support
- ◆ Flexible EDO DRAM interface
 - 1, 1.5, 2, 3, 4 MB configurations
 - Single-cycle (1–2 MB) and interleaved (3–4 MB)
- ◆ Programmable resolution to 1600×1200

Block Diagram



Overview

ProMotion-AT3D is a high-performance integrated 3D, 2D, and video accelerator. It incorporates an advanced 3D rendering engine with a powerful Windows graphical user interface accelerator engine, unique motion video acceleration hardware and a high-precision DAC + clock generator, all in a single integrated 208-pin PQFP package. The AT3D is fully pin-compatible with previous-generation ProMotion-6422 and AT24 controllers.

The chip's 128-bit internal architecture and ultra high performance memory interface give the AT3D superior performance in a low-cost mainstream Windows accelerator. Hardware gamma correction and a full 256×24-bit CLUT ensure optimum color quality.

ProMotion-AT3D acts as the central media hub in a feature rich multimedia subsystem. AT3D's video input port implements a superset of the Video Module Interface (VMI) standard. AT3D supports glueless 8/16-bit connection to live video decoders such as 7110 & 7111 with filtered downscaling, and an 8/16-bit video port connects to Intel or Motorola style devices, including audio, MPEG, and video-conferencing codecs. A hardware scaler with bilinear filter and full line buffer smoothly scales playback or capture windows from native size up to full screen at full speed.

ProMotion-AT3D also drives a proprietary "THP" upgrade port jointly developed with 3Dfx Interactive, Inc., for high-performance seamless upgradability to arcade-quality 3D hardware acceleration.



Software drivers and BIOS

- ◆ Microsoft® Windows 95™
- ◆ Direct3D™, DirectDraw™ & DirectVideo™
- ◆ Major 3D APIs
 - 3Dfx interactive GLIDE™
 - Argonaut Brender
 - Criterion Renderware
- ◆ Windows™ 3.X with DCI
 - Resolution on the fly
 - Virtual desktop to 1600×1200
 - Director's Chair™
- ◆ Microsoft Video for Windows
- ◆ AutoDesk® ADI
- ◆ Microstation™
- ◆ WordPerfect® 6.0
- ◆ OS/2™ Warp, 2.11, 2.1
- ◆ Windows NT™ 4.0, 3.5x
- ◆ SCO Open Desktop™
- ◆ Industry standard Phoenix® VGA BIOS
 - VESA DPMS power management
 - DDC 2.0B
 - VESA BIOS extensions

⇒ Complete, high-performance, robust

Alliance supports the ProMotion family with high-quality flat-model optimized driver software. ProMotion drivers take full advantage of ProMotion-AT3D hardware and the latest software technology to accelerate real performance of real applications, from word processing and spreadsheets to the most demanding CAD programs and multimedia software.

The same driver set supports all register-compatible ProMotion controllers: 32xx, 64xx, ATxx, EDxx.

The ProMotion driver set accelerates all major operating environments, graphics-intensive software, and motion video applications. With 100% VGA and VESA compatibility, ProMotion controllers can also run standard DOS and VBE-compatible applications directly without driver software.

Source code to ProMotion drivers and BIOS are available to permit customization and differentiation.

Flexible memory interface

	256 colors	32K/64K colors	16M colors
1 M	1152×864	800×600	640×480
1.5 M	1152×864	800×600	800×600
2 M	1600×1200	1152×864	800×600
3 M	1600×1200	1152×864	1024×768
4 M	1600×1200	1600×1200	1280×1024

ProMotion's proprietary BetterHalf™ cost-saving technology enables high-resolution truecolor modes with unique 1.5 and 3 MB memory configurations. An optimized memory interface delivers high-quality truecolor at up to 1280×1024 resolution, using economical EDO DRAM.

Manufacturing package

- ◆ Reference PCB designs
- ◆ OEM software utilities
- ◆ Customer software utilities

⇒ Full customer support

ProMotion reference designs, OEM tools, and application notes reduce time-to-market. Alliance's OEM support and quality standards, developed over years as a high-volume system supplier to the PC industry, meet the strictest requirements.

Advance information. Alliance reserves the right to make changes at any time to provide the best product possible.



3Dfx Interactive THP interface

- ◆ Voodoo Graphics 'VG-96' module
 - 40+ MPixel/second fill rate
 - Bilinear filtered and advanced filtered textures
 - Polygon anti-aliasing
 - Alpha blending
 - Programmable fog table
 - GLIDE™ low-level software API
 - Strong developer support

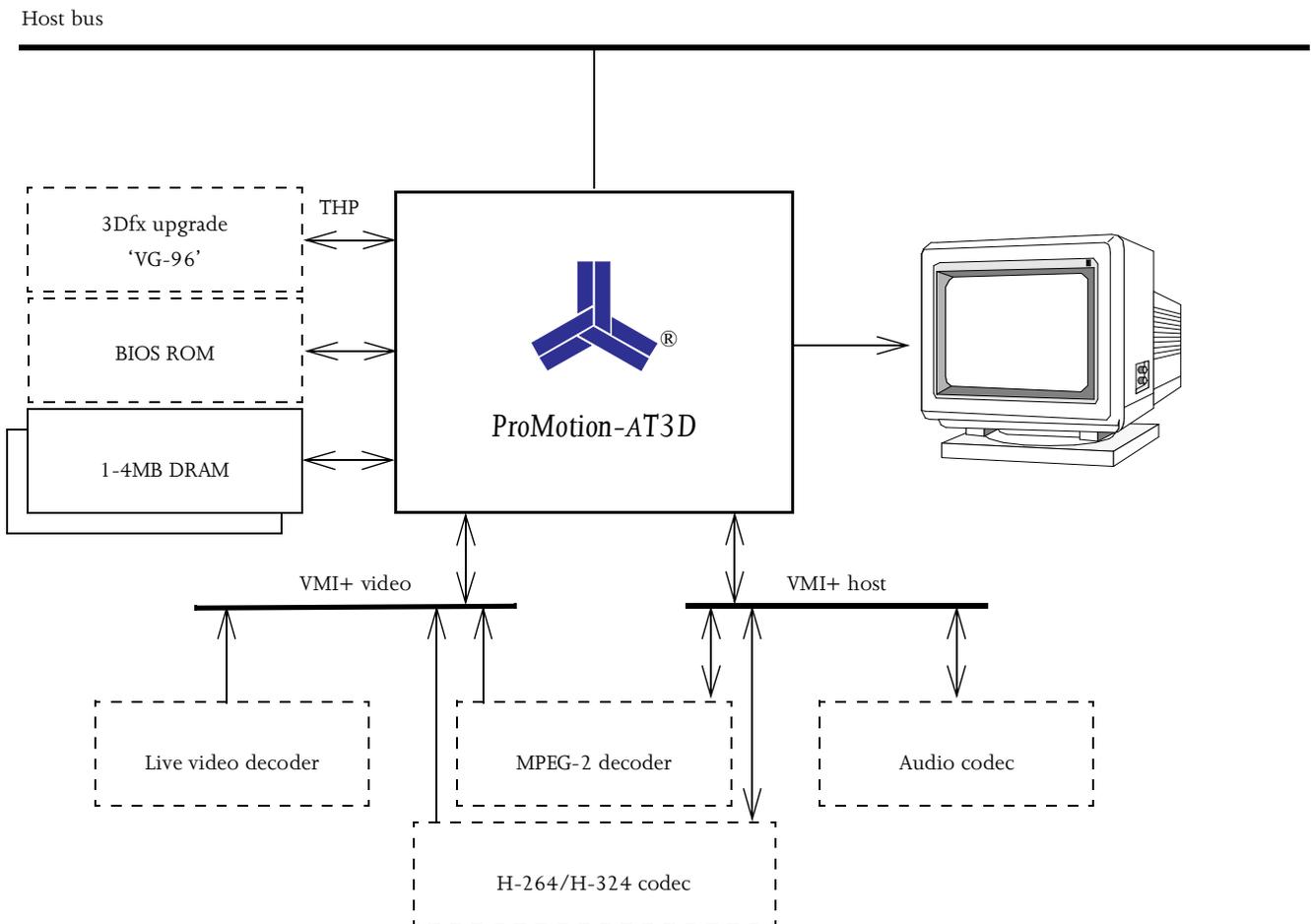
⇒ Upgrade path from mass-market to leading-edge

Thanks to Alliance Semiconductor's unique partnership with 3Dfx Interactive, Inc., the ProMotion accelerator family offers unmatched flexibility and upgradability. ProMotion-AT3D's proprietary 'THP' upgrade port, jointly developed by Alliance and 3Dfx, supports glueless interface to the 3Dfx 'VG-96' chipset, for super-advanced PC rendering performance and special effects.

Motherboards and adapters designed with ProMotion-AT3D and outfitted with the inexpensive THP upgrade connector can be upgraded using a daughtercard module based on the VG-96 chipset. Direct3D™ and GLIDE™ based software titles for AT3D can transparently take advantage of VG-96 capabilities.

The VG-96 upgrade represents just one possible use of the THP port. THP is an extensible platform suitable for new Alliance and 3Dfx offerings, ensuring that manufacturers' designs and users' systems will not face early obsolescence.

System block diagram





Part numbering system

ProMotion	-AT	3D	-	-
MMUI accelerator family	32 = 32-bit engine 64 = 64-bit engine AT = 128-bit "Alliance Truecolor" ED = Embedded DRAM	Device	TBA	TBA

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