



Features

◆ High performance GUI accelerator

- Optimized BLT/pattern engine
- Fast CAD & drawing operations
- Color expansion
- Line draw

◆ No-cost motion video™

- Smooth scaled video at 30 fps
- Hardware scaling up to full screen
- YUV to RGB conversion
- DirectDraw™ and DCI support
- Graphics + 24-bit video in 1MB buffer

◆ Integrated DAC and clock generator

- Pixel clock to 135 MHz
- Gamma correction

◆ BetterHalf™ cost-saving technology

◆ VESA® standards support

- Advanced Feature Connector (VAFC)
- Power management (DPMS)
- Bi-directional monitor data (DDC-2B)

◆ High performance host interface

- Glueless PCI 2.0
- VESA VL-bus
- Efficient memory mapped addressing

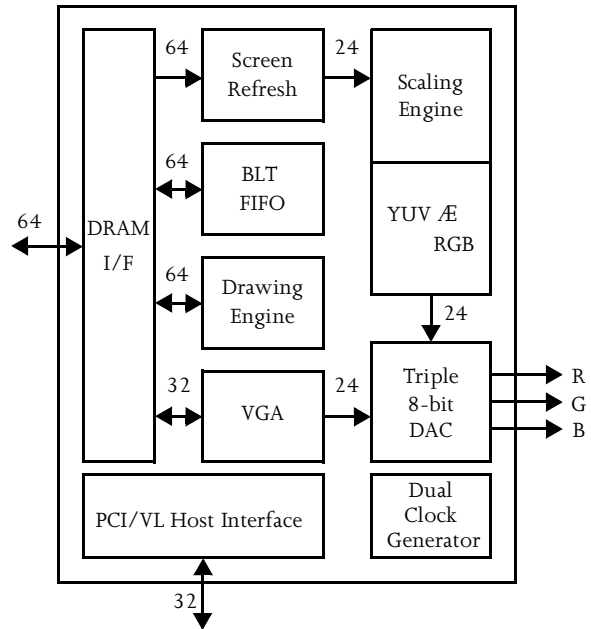
◆ Fast 64-bit DRAM interface

- 240MB/second peak bandwidth
- 1MB, 2MB, 4MB standard DRAM
- ×4, ×8, ×16 DRAM support

◆ Programmable resolution to 1600×1200

	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

Block Diagram



Overview

ProMotion-6422 is a highly-integrated member of Alliance Semiconductor's family of high-performance MultiMedia User Interface accelerators. It incorporates 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 chip's 64-bit internal architecture and memory bus give the 6422 superior performance in a low-cost DRAM-based accelerator. Proprietary BetterHalf™ technology cuts cost by reducing system memory requirements, enabling 1024×768 accelerated truecolor display with just 3MB standard DRAM.

The chip's advanced multimedia acceleration engine enables high quality motion video playback at no cost premium over graphics-only solutions. The engine includes an on-chip color space converter to accelerate decompression, and a hardware scaler with full bilinear filter and line buffer, to scale smoothly from native size up to full screen at full speed. The engine delivers smooth display of motion video data at 30 fps, at full SIF resolution under DirectDraw™, DirectVideo™, and other interfaces. Supported standards include MPEG-1, Video for Windows™, Indeo™, TrueMotion™, DCI, and other video applications and codecs.



Software Drivers

- ◆ **Microsoft® Windows 95™**
- ◆ **Microsoft DirectDraw™ & DirectVideo™**
 - Codec-neutral, multi-vendor standards
- ◆ **Microsoft Windows™ 3.x with DCI**
 - Flat model optimized drivers
 - Switch resolutions on-the-fly
 - Virtual desktop to 1600×1200
- ◆ **Microsoft Video for Windows™**
- ◆ **AutoDesk® ADI for AutoCAD®**
- ◆ **MicroStation™**
- ◆ **WordPerfect® 6.0**
- ◆ **OS/2™ Warp, 2.11, 2.1**
- ◆ **Windows NT™**
- ◆ **NeXTStep™**
- ◆ **SCO Open Desktop™**

→ *Complete, high performance, robust*

VGA BIOS

- ◆ **Industry standard Phoenix® BIOS**
- ◆ **100% IBM® compatible**
- ◆ **VESA DPMS power management**
- ◆ **VESA BIOS Extensions**
- ◆ **Menu-driven configuration management**

→ *Compatible, user-friendly*

Manufacturing package

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

→ *Full customer support*

Alliance supports the ProMotion family with high-quality flat-model optimized driver software. ProMotion drivers take full advantage of ProMotion-6422 hardware and of 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 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 applications and VBE-compatible applications without additional driver software.

Source code to ProMotion drivers is available, to permit customization and differentiation.

ProMotion-6422 controls an external VGA BIOS ROM for add-in card applications. Binary and source code for the Phoenix BIOS are available from Alliance.

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



No-cost motion video™

◆ Motion video application explosion

- Entertainment
- Education
- Training
- Communications

◆ Specialized requirements

- Color space conversion
- vWindow™ scaling and pixel interpolation
- 3× throughput by offloading CPU

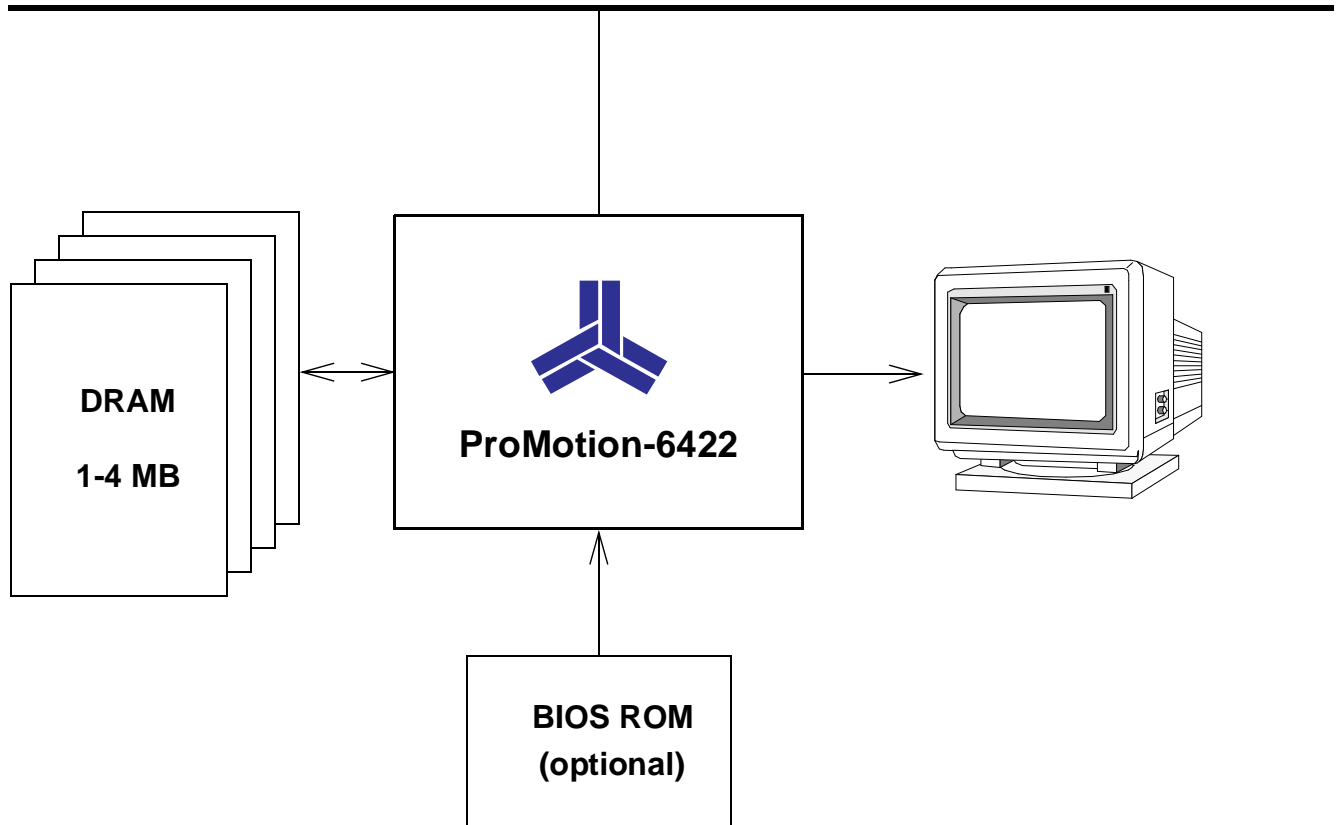
→ 30 fps full-screen, full-motion display

Today's shift to multimedia user interface has created a need for motion video acceleration, just as the shift from text-based to graphical user interface created a need for GUI acceleration. As new graphics+video systems enter the market, graphics-only displays are going the way of yesterday's text-only terminals.

Motion video playback requires a small set of specialized operations which are CPU-intensive but can be accelerated with dedicated hardware. For a typical stored-video codec, offloading color space conversion and scaling from the host CPU can increase throughput threefold, increasing frame rates and eliminating jerky dropped frames. ProMotion provides this acceleration, along with state of the art graphics performance, at no additional cost above graphics-only solutions.

System Block Diagram

Host bus: PCI/VL





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