OXYGEN® VX1 AGP4X

Industrial Strength Graphics for Next Generation Workstations

Oxygen VX1 with AGP4X harnesses the next-generation of high performance Intel Pentium 4 CPUs and supporting core logic motherboards to deliver high-quality, workstation-class graphics. It boosts the productivity of design professionals with best-of-class 2D and 3D performance through innovative technology such as Virtual Texturing. System performance is further scaled with PowerThreads™ OpenGL® drivers, designed to exploit single and multiple CPUs to enhance productivity using the latest professional 2D and 3D applications. Oxygen VX1 benefits from 3Dlabs' extensive Software Certification Program - ensuring that all Oxygen boards work optimally with your key professional applications.

Pentium 4 Ready!

- **Highly-optimized, Multi-Threaded PowerThreads OpenGL Drivers**
  3Dlabs' new-generation PowerThreads OpenGL drivers are fully optimized for the new Intel Pentium 4, Pentium III and AMD Athlon processors to maximize your geometry throughput. The multithreaded architecture of PowerThreads unleashes the power of your current single or multiple CPU system, scaling geometry performance as more CPU processing power is added.

- **Virtual Textures Allow You to Manipulate up to 256MB of Textures**
  An industry first that lets you manipulate up to 256MB of textures in a single scene, shattering the limitations of on-board graphics memory. Oxygen VX1 implements a full demand-paged virtual texture sub-system in hardware, using on-board graphics memory to cache huge textures stored in main system memory.

- **Legendary, Workstation-class 3Dlabs Drivers**
  16 years of 3Dlabs' OpenGL experience provides you quality you can trust - backed by the industry's most extensive application certification program.

- **Sophisticated Rendering Pipeline**
  The GLINT R3 graphics processor accelerates 100% of OpenGL 1.2 and DirectX 7.0 primitives, including filtered volumetric rendering, advanced bump-mapping with per pixel lighting and multiple textures in a single pass.

- **Fully Accelerated Windows 98/ME and Direct3D Drivers**
  Oxygen VX1 ships with 100% natively accelerated drivers for Windows 98 with OpenGL and Direct3D support to give you the flexibility to run all the latest leading professional applications.

- **AGP4X/2X Support**
  Take advantage of the superior bandwidth capacity provided with AGP4X. Developed to address the ever-increasing bandwidth needs of graphics accelerators, Oxygen VX1 with AGP4X allows a maximum of 1GB/sec. data transfers over the AGP bus, unleashing the graphics performance of the latest workstation-class PC architecture.

PRAISE FOR OXYGEN VX1

"In the workstation market, users require total systems solutions which seamlessly integrate processor and graphics functionality. 3Dlabs is already working with Intel to provide graphics solutions for the upcoming line of 64-bit processors, and this puts 3Dlabs in a good position to grow in this market."

Kara Yokley
Research Analyst, IDC

3Dlabs

Technical Specifications

GLINT R3 Rasterization Processor
- Virtual Texture memory management unit
- 256MB Virtual Texture address space
- Texture Unit with single pass, multi-texture capability
- Integrated 300MHz RAMDAC
- High-speed 128-bit Memory interface
- 7 independent DMA engines
- 2D/3D Raster Engine
- Integrated SVGA Controller

PowerThreads OpenGL Drivers
- PowerThreads™ OpenGL ICD with full Pentium III/4 SSE and AMD Athlon 3DNow! optimizations
- OpenGL 1.1 ICD (OpenGL 1.2 ready)
- Multiprocessor system optimized

Professional 3D Rendering
- Complete OpenGL 1.2 functionality in silicon
- Virtual Texturing in silicon
- Up to 256MB Virtual Texture space
- 2048x2048x32 maximum individual texture size
- Single pass bump-mapping, per-pixel lighting
- Gouraud shading
- Perspectively correct bilinear and trilinear filtering
- Perspectively correct per pixel MIP-mapping
- Dual bilinear mip-mapped textures in a single pass
- Volumetric rendering with up to 8-way filtering
- Source and destination alpha blending
- Fogging and depth cueing
- Anti-aliased lines and polygons
- Full-scene anti-aliasing
- Scissoring and stippling
- Overlay and stencil buffers
- 32 bit Z-buffering
- GID clipping

Hardware Performance
- Fill rate - 220Mtexels/sec dual bilinear mip- map textures
- Fill rate - 110Mpixels/sec trilinear mip-map texture
- Polygon rate - 2M lit, transformed, displayed, polygons/sec
- Viewperf Awadvs - 28.44 (1280x1024 true color)
- Viewperf Light-02 - 3.34 (1280x1024 true color)

Test system: Duel Intel Pentium III 933MHz, Intel® 840 Chipset with 133Mhz FSB, 512MB of RAM, 75Hz refresh rate. The board used for the tests was the Oxygen VX1 with Windows NT driver version 2.16-0388.

Board Physical
- Short-card AGP NLX/ATX form-factor
- AGP4X/2X - AGP Version 2.0 Compliant

Memory
- 32MB of unified SDRAM framebuffer, Z-buffer and texture memory
- Up to 256MB of host memory used as a Virtual Texture store

Display
- True color resolutions up to 1920x1200 or 2048x1536 with 32-bit Z
- 60Hz-150Hz screen refresh rates (monitor dependant)
- Softimage-compliant 8-bit double-buffered overlay planes
- DDC2B support on all operating systems

Drivers
- Windows NT 4.0 and PowerThreads OpenGL ICD
- Windows 98/ME, DirectX 7.0 and PowerThreads OpenGL ICD
- Multi-threaded and thread safe
- Windows 2000 with PowerThreads Open GL ICD and DirectX 7.0

Advanced Control Panel
- Point and click automatically optimize system configuration for each professional application

Connectors
- DB-15 analog connector

System Requirements
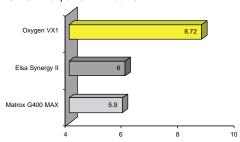- 100% IBM-compatible PC
- Intel Pentium, AMD Processor or compatible
- IBM Compatible motherboard with AGP slot
- Compatible with Microsoft Windows NT 4.0 with Service Pack 3 or higher, Windows 98 or Windows 2000
- 64MB system memory
- 16MB free disk space

Warranty
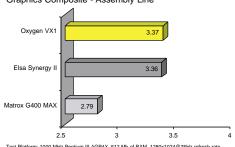- Three (3) years parts and labor limited warranty

Outstanding Performance on Industry-leading Benchmarks

OpenGL Performance
SPEC™Viewperf 6.1.2 - MedMCAD

Oxygen VX1	8.72
Elsa Synergy II	6
Matrox G400 MAX	5.9

Test Platform: 933 MHz Pentium III AGP4X, 512 Mb of RAM, 1280x1024@75Hz refresh rate

SPECapc℠ SolidWorks 99™
Graphics Composite - Assembly Line

Oxygen VX1	3.37
Elsa Synergy II	3.36
Matrox G400 MAX	2.79

Test Platform: 1000 MHz Pentium III AGP4X, 512 Mb of RAM, 1280x1024@75Hz refresh rate

Supported Screen Resolutions

Display	Resolution	Color	Depth	Refresh Rates
640x480	8-bit	16-bit	True-color	100, 85, 75, 60Hz
800x600	8-bit	6-bit	True-color	100, 85, 75, 60Hz
1024x768	8-bit	16-bit	True-color	100, 85, 75, 60Hz
1152x864	8-bit	16-bit	True-color	100, 85, 75, 60Hz
1280x960	8-bit	16-bit	True-color	100, 85, 75, 60Hz
1280x1024	8-bit	16-bit	True-color	100, 85, 75, 60Hz
1600x1200	8-bit	16-bit	True-color	100, 85, 75, 60Hz
1920x1080	8-bit	16-bit	True-color	100, 85, 75, 60Hz
1920x1200	8-bit	16-bit	True-color	76Hz
2048x1536	8-bit	16-bit	True-color	60Hz

Fully Tested on all Leading Professional Applications

3D Studio Max	3D Studio Viz	Houdini
Lightscape	LightWave	3D Maya NT
Mirai	MultiGen Creator	Softimage/3D
AutoCAD	CATIA	I-DEAS
MicroStation	Pro/ENGINEER	Solid Edge
SolidDesigner	SolidWorks	Unigraphics

The Complete Family of Oxygen Professional Graphics Accelerators

Seamless driver interoperability allows you to select the Oxygen board that suits your project and your budget.

Oxygen GVX420 — 128MB dual-head DVI with hardware geometry

Oxygen GVX210 — 64MB dual-head with hardware geometry

Oxygen GVX1 Pro — 64MB DVI with hardware geometry

Oxygen GVX1 — 32MB with hardware geometry PCI and AGP

Oxygen VX1 — 32MB with Power Threads OpenGL PCI and AGP

Oxygen VX1-16 — 16MB with Power Threads OpenGL

3Dlabs

Contacts, Service and Support

For more information and online technical support, visit us at www.3dlabs.com. Buy online at www.3dlabs.com/store.

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