OXYGEN™ GVX1 PCI

Multi-Head and PCI Flexibility from the Oxygen Family

Oxygen GVX1 PCI workstation accelerator from 3Dlabs® enables systems without an AGP slot to benefit from the Oxygen family's award-winning quality and performance. The Oxygen GVX1 PCI provides 100% OpenGL 1.2 geometry and lighting acceleration in hardware and full Virtual Texturing - delivering outstanding workstation productivity even on older systems, to significantly extend their useful life. Additionally, AGP and PCI Oxygen GVX1's can be combined in a single system to seamlessly drive up to four fully 3D-accelerated displays - providing a maximum effective desktop space of 8192x1536.

- **100% OpenGL Geometry and Lighting Acceleration in Hardware**
  Oxygen GVX1 PCI integrates complete OpenGL geometry and lighting acceleration and workstation-class rasterization in a single PCI slot. Optimal 3D geometry performance is achieved by dynamically balancing complex polygon throughput between the on-board Glint Gamma G1 Geometry and Lighting Processor and the system CPU, providing significant graphics performance in older machines without an AGP slot delivering state-of-the-art productivity.

- **Virtual Textures Bring the Advantages of AGP Texturing to PCI**
  Virtual Texturing technology seamlessly integrates on-board and system memory into a large hardware-managed virtual texture store - and works seamlessly over the PCI bus - bringing the benefits of fast AGP texture access and unified memory to PCI systems.

- **Seamless and Flexible Multi-display Capability in Windows NT 4.0**
  The new Oxygen drivers that ship with the Oxygen GVX1 PCI add significant multi-screen power and flexibility to Windows NT® 4.0. From one to four AGP and PCI Oxygen GVX1 cards can be installed in a single machine and easily configured to provide a desktop up to four screens wide. All screens are fully 3D-accelerated - and 2D and 3D windows can be dragged to any position on any screen without interrupting accelerated operation.

- **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.

- **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.

- **Drop-in Dual-head Bundle**
  3Dlabs offers a bundle of an AGP and a PCI Oxygen GVX1 for plug-and-play dual screen workstation productivity on an AGP machine.

- **Flexible Display Capability**
  Up to 2048x1536x32 display resolutions, up to four monitors with mix and match AGP and PCI boards, direct connection to digital flat panels up to 1280x1024 and true-color quad-buffered stereo up to 1280x1024 resolution.

- **Optional Multi High-resolution Digital Flat Panel Output**
  Oxygen GVX1 PCI includes a Digital Flat Panel connector, enabling multi-head high resolution DFP displays - an industry first.

PRAISE FOR OXYGEN GVX1

"The Oxygen GVX1 PCI provides compelling 3D acceleration for the highly interactive, complex modeling requirements of Softimage users. Oxygen GVX1 is a high-performance, cost-effective solution for serious 3D animators."

Patrick de Grasse
Program Manager, hardware environment, SOFTIMAGE - an AVID company

3Dlabs®

Technical Specifications

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

GLINT Gamma G1 Geometry Processor
- 100% OpenGL Transforms and Lighting
- Hardwired processor provides three times the geometry perfomance of a Pentium III
- 16 simultaneous light sources
- 4.75 Million lit, transformed triangles/second

PowerThreads SSE OpenGL Drivers
- PowerThreads™ SSE OpenGL ICD with full Pentium III and AMD Athlon 3DNow! optimizations
- Dynamic Load Balancing distributes geometry and lighting load between GLINT Gamma G1 and host CPU
- 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 - 230Mtexels/sec dual bilinear mip-map
- Fill rate - 115Mpixels/sec trilinear mip-map texture
- Polygon rate - 4.75M lit, transformed polygons/sec (50% backface culled)
- Viewperf
  – DRV-05 score - 13.04 (1024x768 true-color 75Hz)
  – Light-02 score - 2.16 (1280x1024 true-color 75Hz).
- 2D Winbench 99 HE 393 (1024x768 true color)*
- 2D Winbench 99 BG 117 (1024x768 true color)*

Test system: Intel Pentium III 600MHz, Intel SE440BX motherboard, 512MB of RAM, 75Hz refresh rate. The board used for the tests was the Oxygen GVX1 PCI with Windows NT driver version 2.15-0141.

Board Physical
- Half-length ATX form-factor
- AGP - AGP Version 2.0 Compliant
- PCI - 32-bit 33/66 MHz Version 2.1

Memory
- 32MB of unified SGRAM 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

Multi-head Capable
- Drive up to 4 displays using multiple PCI and AGP Oxygen boards

Stereo Support
- True quad-buffered Stereo support up to 1280x1024 true-color, 118Hz refresh rate

Digital Flat Panel Output
- MDR20 (DFP) output connector, supporting digital flat panels up to 1280x1024@60Hz

Drivers
- Windows NT 4.0 and PowerThreads SSE OpenGL ICD
- Windows 98, DirectX 7.0 and PowerThreads SSE OpenGL ICD
- Windows 2000

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

Value-added Software Bundles
- Soft Engine 4, from Vibrant, for up to 400% AutoCAD performance boost (a $300 value)
- Colorific, from E-Color, Inc. for accurate color calibration and matching (a $50 value)

Video
- Bilinear filtered re-scaling
- Hardware YUV-RGB conversion
- Hardware MPEG-2 Motion Compensation

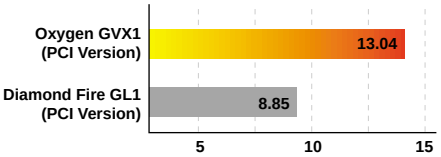
Connectors
- DB-15 analog connector
- 3-pin Mini-din stereo connector
- MDR20 DFP-Digital Flat Panel Connector

System Requirements
- 100% IBM-compatible PC
- Intel Pentium, AMD Processor or compatible
- IBM-Compatible motherboard with PCI 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

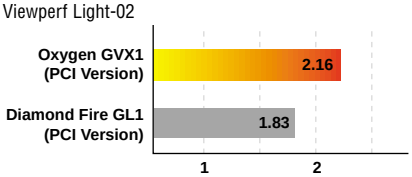
Warranty
- Three (3) years parts and labor limited waranty

Outstanding Performance on Industry-leading Benchmarks

Viewperf DRV-05



Viewperf Light-02



Supported Screen Resolutions

Display Resolution	Color Depth	Refresh Rates
640x480	8-bit, 16-bit, True-color	100, 85, 75, 60Hz
800x600	8-bit, 16-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

Software Bundles to increase your productivity

- Vibrant's Soft Engine 4 improves display performance of AutoCAD by up to four times
- Colorific from E-Color, Inc. calibrates your screen for display and printing consistency

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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