sgi™

High-Definition Graphics-to-Video Option

Features
- Real-time graphics-to-video output for Silicon Graphics Onyx2 and the SGI Onyx 3000 series
- SD and HD video formats supported
- 4:2:2 YCrCb video sampling with 8 or 10 bits per component
- Alpha channel (8 or 10 bits) full sampling rate supported
- 16x9 or 4x3 aspect ratio
- Fully programmable audio and video synchronization in hardware with SGI Digital Media Libraries

Enabling Digital Broadcasting
The convergence of digital broadcasting, high-definition television, and high-performance computing has led to unique capabilities and demands for content creation. HDTV enables the delivery of extremely high-quality images with high bandwidth and resource requirements. The SGI™ Onyx® family of high-performance graphics systems is the premier graphics and compute platform enabling this convergence.

The High-Definition Graphics-to-Video Option (HD GVO) from SGI allows real-time, uncompressed video to be output from the graphics frame buffer. Various HD or CCIR-601 SD digital video formats are supported, including NTSC, PAL, 1080i, and 720p.

HD GVO connects to the Silicon Graphics® Onyx2® and SGI™ Onyx® 3000 series graphics pipe by a TVO daughtercard. The TVO daughtercard connects to the Video Break-Out Box (VBOB) using TMDS cables supplied by SGI. The VBOB provides industry-standard connections to external video devices via serial digital interfaces.

User-selectable, high-quality, real-time colorspace conversion from RGB graphics enables live broadcast in virtual set or performance animation applications. In addition, editing and compositing applications can directly feed broadcast monitors using HD GVO to provide a reliable preview of color correction and image filtering functions.
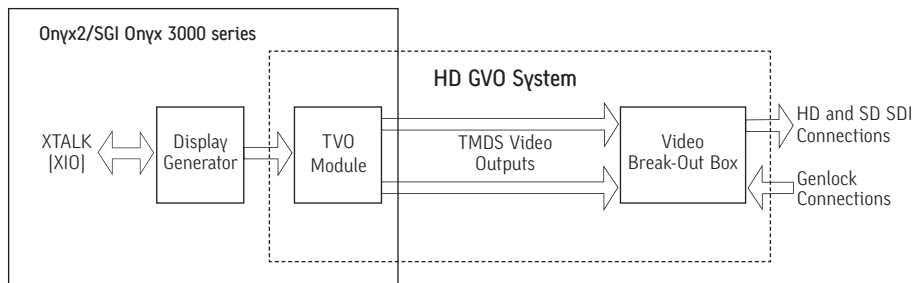
A System with a Future
The SGI Onyx family is uniquely positioned to provide digital broadcasting solutions today with a path for future growth. A wide range of video formats to enable digital broadcasting is supported at first release. Additional formats, field/frame rates, and sampling will be developed and provided as future software upgrades.

High-Definition Graphics-to-Video Option
Technical Specifications

Supported Video Formats (First Software Release)

Video format	Scanning	Field/frame rates (Hz)	Notes
1920x1080	Interlace	59.94	SMPTE 274M
1280x720	Progressive	59.94	SMPTE 296M
720x486	Interlace	59.94	CCIR-601
720x576	Interlace	59.94	CCIR-601

Video Sampling
· 4:2:2 YUV
· 4:2:2:4 YUVA
· 8 or 10 bit

Colorspace Support
· SMPTE 240M
· ITU-R BT.601
· ITU-R BT.709

Supported Platforms
· Silicon Graphics Onyx2 InfiniteReality2™ and InfiniteReality3™
· SGI Onyx 3000 series InfiniteReality2 and InfiniteReality3
· IRIX® 6.5.10 or greater

External Connections

HD Video Output
· SMPTE 292M (dual redundant connections)
· Video and alpha connections

SD Video Output
· SMPTE 259M (dual redundant connections)
· Video and alpha connections

Genlock Input
· House HD reference signal (loop-through)
· Analog trilevel signal (loop-through)
· Stand-alone mode (free-running)

Data Flow with High-Definition Graphics-to-Video System