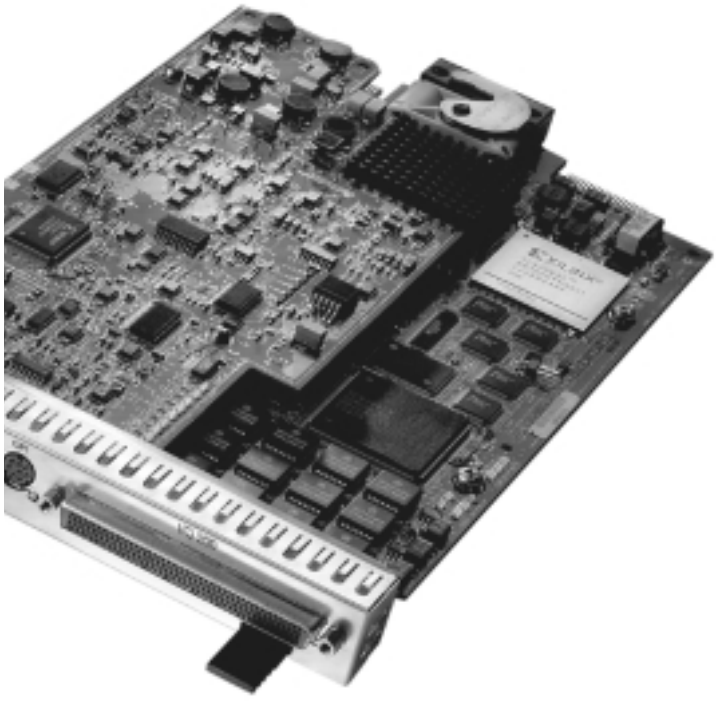
Datasheet

High-Definition I/O

Features

- One in channel and one out channel: real-time independent input and output of uncompressed high-definition video; see chart on back for specific formats supported
- 4:2:2 or 4:4:4 YCrCb video sampling with 8 or 10 bits per component
- Alpha channel (8 or 10 bits) full sampling rate supported
- 8- or 10-bit RGBA
- Parallel I/O at card edge; external third-party serial/parallel converter(s) provide serial I/O
- Up to 48 bits per pixel in memory
- 1920x1080i @ 59.94 Hz and 1280x720P @ 59.94 Hz; staged software releases will enable additional formats
- 16x9 aspect ratio
- User-selectable real-time high-quality color space conversion during input and output support capture and playout of RGB or YCrCb to/from disk arrays
- Genlock input from house HD reference signal, analog trilevel, digital video input stream or stand-alone (free-running) operation
- Fully programmable audio and video synchronization in hardware with SGI Digital Media Libraries (audio I/O supported through add-on PCI cards)
- D-VITC support



Real-Time Uncompressed High-Definition I/O

SGI provides industry-leading graphics workstations and servers leveraged through key solution providers to entertainment and media industries, including video post-production, film special effects, and broadcast. Major influences such as the U.S. FCC mandate to broadcast HDTV are driving the industry toward new digital video formats, including lower-bandwidth compressed digital video and higher-bandwidth large-scale formats listed in the ATSC HDTV specification.

To respond to customer and solution provider demands, SGI is providing the HD I/O on an XIO-based real-time uncompressed input/output board. The high-speed interface is available on Silicon Graphics® Onyx2® workstations and Origin™ servers (including the SGI™ 2000 series and the Origin™ 200 GIGAchannel™ servers). The primary advantage is an all-digital signal path in and out of SGI™ systems while providing real-time capture and playout of HD content to/from disk arrays. This solves a major existing problem of limited capture rate of HD content into Silicon Graphics Onyx2 systems for editing and compositing.

The HD I/O hardware and Onyx2/Origin platforms are capable of bandwidths greater than any of the various formats and field/frame rates specified as ATSC HDTV standards. Specific formats (1920x1080i @ 59.94 Hz and 1280x720P @ 59.94 Hz) and specific platforms (Onyx2 and Origin) are supported. Additional formats and platforms will be enabled in staged software releases. 24P formats including 1080 lines and 720 lines will be supported as soon as possible after 24P equipment such as VTRs becomes available for testing.

Enhances Existing Solutions

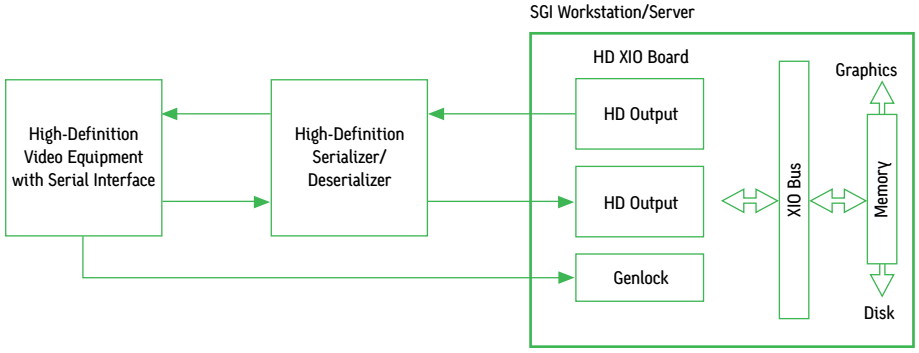
Many standard-definition and high-definition applications already exist on Onyx2 graphics workstations and Origin servers. The HD I/O card complements currently available ITU-R 601 I/O cards, fulfilling real-time video and film (24P) input/output needs. Additionally, Onyx2 workstations provide high-definition output from graphics to external HD converters. Less than real-time HD input and output to/from disk and memory can be done using interfaces such as Ultra SCSI, Fibre Channel, HIPPI, etc. GSN™ (Gigabyte System Network™, formerly Super-HIPPI or HIPPI 6400) will be available and promises to deliver real-time or greater than real-time uncompressed I/O, surpassing even the highest-bandwidth ATSC format (GSN can deliver up to 800MB-per-second bandwidth).

Supported Platforms

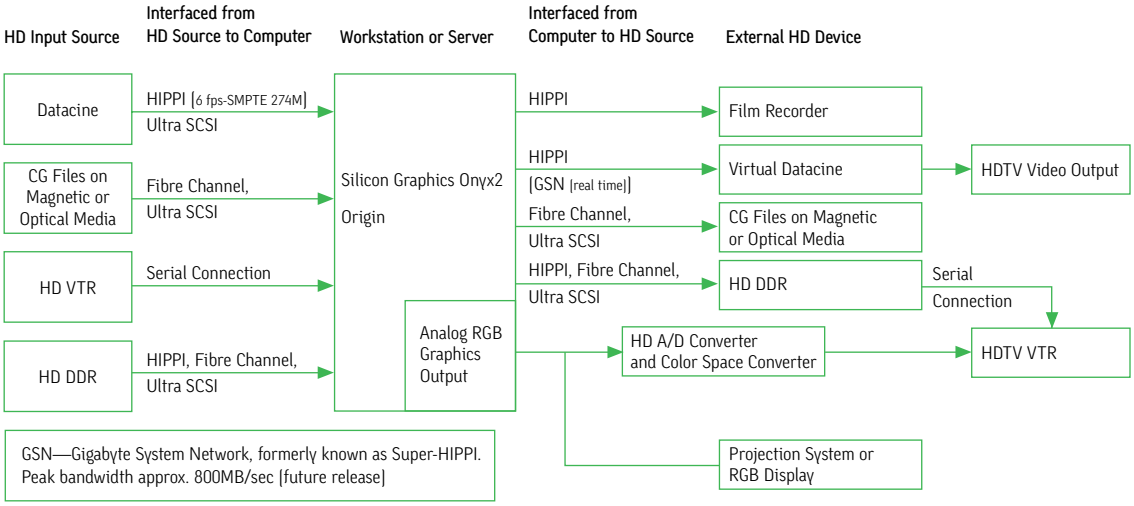
The HD I/O board is supported on Onyx2 and Origin. In future releases, the HD I/O board will be qualified on other Silicon Graphics® platforms, formats, and field/frame rates.

High-Definition Data Flow with HD I/O Board

Serial HD Configuration
Example configuration using high-definition serializer/deserializer to connect high-definition video equipment with a serial interface to the HD XIO interface board. Parallel devices are direct connections.



Additional High-Definition I/O Interfaces (Complementary to XIO-based HD I/O option)



Supported Video Formats (First Software Release)

Serial HD Configuration	Active Samples per Line	Active Lines	Scanning	Field/Frame Rates (Hz)
SMPTE 274M	1920	1080	Interlaced	59.94
SMPTE 296M	1280	720	Progressive	59.94

Note: 24P (1080 lines and 720 lines) will be supported as soon as testing with 24P video equipment is completed.

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