

Silicon Graphics® O2® Digital Video Option

Features

- Professional digital media option for Silicon Graphics O2
- Uncompressed digital video I/O
- Analog audio support

Professional Video I/O

The Digital Video option extends the Silicon Graphics O2 visual workstation's baseline video, audio, and compression features to professional levels by providing uncompressed digital video I/O. The O2 Digital Video board provides two independent input and two identical output streams of CCIR601, SMPTE 259M serial digital video with PAL or NTSC timing at 8 or 10 bits. One output channel may be selected to provide a 4:0:0 alpha signal, enabling a real-time feed to an external downstream switcher or keyer.

Performance for Uncompressed Video

The flexibility of the O2 Unified Memory Architecture allows video to stream directly to memory through dedicated DMA channels, enabling uninterrupted video and audio streaming. The built-in Ultra Fast/Wide SCSI interface enables uncompressed video capture to an external array of disks. If an application supports compressed video formats, the Imaging and Compression Engine provides real-time motion-JPEG compression and decompression on the video stream.

Synchronization

The Silicon Graphics O2 synchronization capabilities add to its strengths as a digital media content creation platform. The Unadjusted System Time/Media Stream Counter support synchronizes recording and playback of audio and video signals to within ± 200 microseconds (a few video lines) of each other or to external timecode signals such as LTC or VITC. Applications can synchronize audio and video signals to incoming or outgoing serial or MIDI signals to within ± 1 millisecond, which is useful for field-accurate RS-422 video deck control and audio-, video-, or MIDI timecode-synchronized sequencing.

Audio

Audio support includes two independent stereo analog input and output channels with a stereo headphone output and a mono microphone input. The system allows programmable control of gain, attenuation, mute, and sampling rates in 1 KHz increments between 5.5 and 48 KHz.

For professional audio applications, the optional PCI Digital Audio board from SGI offers eight channels of 24-bit ADAT optical I/O with stereo 24-bit AES3, AESII synchronization I/O, professional jitter attenuation, and video composite sync loop-through to lock audio and video together.



Silicon Graphics O2 Digital Video Option Technical Specifications

System Compatibility

O2 Digital Video is compatible with all O2 systems and occupies the digital media option slot

Input Format and Connectors

• Two independent 8 or 10 bit serial CCIR601/SMPT E 259M signals [75 ohm BNC terminated, unbalanced]

Output Format and Connectors

• Two identical 8 or 10 bit serial CCIR601/SMPT E 259M signals [75 ohm BNC terminated, unbalanced]

O2 Digital Video Formats

| Format | Resolution | Number of Inputs | Number of Outputs | Timing |
|---------|--------------|------------------|-------------------|----------|
| 4:2:2 | 8 or 10 bits | 2 | 2 | PAL/NTSC |
| 4:2:2:4 | 8 or 10 bits | 1 | 1 | PAL/NTSC |

525/60 NTSC 13.5 MHz pixel rate and 625/50 PAL 13.5 MHz pixel rate

Input Characteristics

• Return loss 15 dB @ 270 MHz
• Cable length 300 m for input

Output Characteristics

• Amplitude 800 mV +/-10%
• Rise and fall time 400 to 1,500 ps
• Comparison rise Within 500 ps and fall time
• Overshoot rise and fall No more than 10% of amplitude, 77 mV
• Clock jitter Less than 20% of UI, 741 ps
• Unit interval 3.704 ns
• Cable length 300 m for output

Genlock

• Genlock to video input signal, external house reference signal, or internal reference

GPI Input/Output

• Input Active low, optically isolated
• Output Open collector, optically isolated, active low

Audio Specifications

• One 16-bit stereo analog line-level output [stereo 3.5 mm]
• One 16-bit stereo analog line-level input [stereo 3.5 mm]
• Mono microphone input [3.5 mm]
• Stereo headphone output [3.5 mm]
• Supports all sample rates from 5.5 KHz to 48 KHz with 1 Hz resolution
• Audio sample rates can be slaved to video inputs or outputs at 32, 44.1, 44.056, or 48 KHz sample rates
• Sample-accurate timing information for precise synchronization

Regulatory Requirements

• FCC Class A

Marketing Code

• VIDEO-601-02

Other O2 Digital Media Products

• SGI™ Digital Audio option
• Silicon Graphics O2 DVLink option



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