

4.7 Video Interfaces

There are a number of video interfaces available on IRIS systems and video options. Most are standard interfaces using standard connectors. Table 4-43 on page 4-92 shows these connections and where they can be found.

The Indy was the first base system to include any video input capability. The O2 builds on this by adding video output along with the video input.

Table 4-43 External Video Input Connections on SGI Systems

Chassis or Video Option	Inputs					
	Composite	S-Video (Y/C)		Component (Y, R-Y, B-Y)	CCIR 601 Serial	CCIR 601 Parallel
	RCA Phono	4 Pin mini-DIN	7 Pin mini-DIN	BNC	BNC	DB-25
Indy	1	1				
Onyx						
O2	1		1			
Onyx2						
Indigo Video	3	3				
Galileo	3	3		1	1 ²	1 ²
Indigo ² Video	3	3			1 ²	1 ²
Indy Video	2	1 ³				
Sirius	1	1		1	2	2
Video Creator	1 (BNC)	1		1		
Video Framer		1		1		1
CG3						

1.This connection only implements the connections required for the IndyCam (i.e. input only).

2.Available only with the Digital Breakout Box (D-BOB) option.

Table 4-44 External Video Output Connections on SGI Systems

Chassis or Video Option	Outputs						I/O		Loopthru
	Composite	S-Video (Y/C)	Component (Y, R-Y, B-Y)	CCIR 601 Serial	CCIR 601 Parallel	Frame Grab	SGI Digital Video		Video Sync
	RCA Phono	4 Pin mini-DIN	BNC	BNC	DB-25	BNC	60 Pin Hi-Den	68 Pin Hi Density	BNC
Indy							1 ¹		
Onyx	2 (BNC)	2				1			
O2	1	1						1	
Onyx2	1	1				1			2
Indigo Video	1	1							
Galileo	1	1	1	1 ²	1 ²	1 ²	1		
Indigo ² Video	1	1		1 ²	1 ²	1 ²	1		
Indy Video	1	1					1 ⁴		
Sirius	1	1	1	1	1	1			
Video Creator	1 (BNC)	1	1						
Video Framer		1	1		1	1			
CG3	1								

4.7.1 Composite Input & Output

These signals comply with NTSC or PAL standards for composite video connections.

The connector type is either an RCA phono style or a BNC. The center conductor carries the signal itself and the outer conductor is used as a ground, or shield connection.

4.7.2 S-Video (Y/C) Input & Output

This signal format is identical to that used in the consumer video marketplace. The connectors used will either be the 4 Pin Mini-DIN type as used on consumer devices, via individual BNC's, or a 7 Pin Mini-DIN connector. On the O2 the 4 Pin Mini-DIN is used for S-Video output while the 7 Pin Mini-DIN is used for input. The additional three pins - SDA, SCL and 12V are used for communicating with external devices using the I²C protocol.

4.7.2.1 Connector Drawing (4 Pin Mini-DIN)

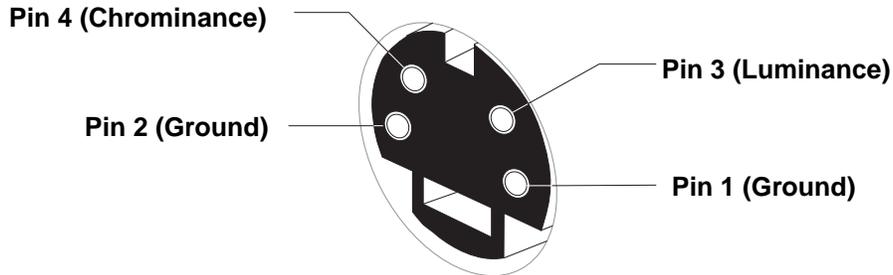


Figure 4-47 4 Pin Mini-DIN S-Video Connector

4.7.2.2 Pinout (4 Pin Mini-DIN)

Table 4-45 4 Pin Mini-DIN S-Video Connector Pinout

Pin	Signal Name	Description
1	GND	Ground
2	GND	Ground
3	Y	Luminance
4	C	Chrominance

4.7.2.3 Connector Drawing (7 Pin Mini-DIN)

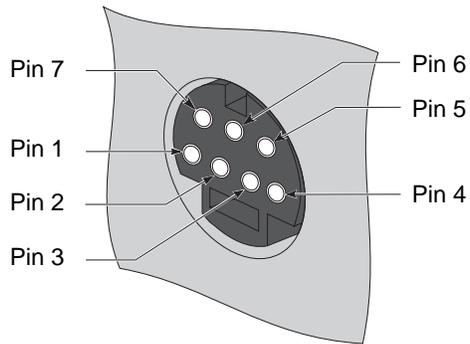


Figure 4-48 7 Pin Mini-DIN S-Video Input Connector

4.7.2.4 Pinout (7 Pin Mini-DIN)

Table 4-46 7 Pin Mini-DIN S-Video Input Pinout

Pin	Signal Name	Description
1	GND	Ground
2	SCL	Serial Clock
3	+5V	+5 Volts
4	GND	Ground
5	Y	Luminance
6	SDA	Serial Data
7	C	Chrominance

4.7.3 Analog Breakout Box Connection

This connection contains several analog video signals that will be broken out in an external breakout box.

4.7.3.1 Connector Drawing

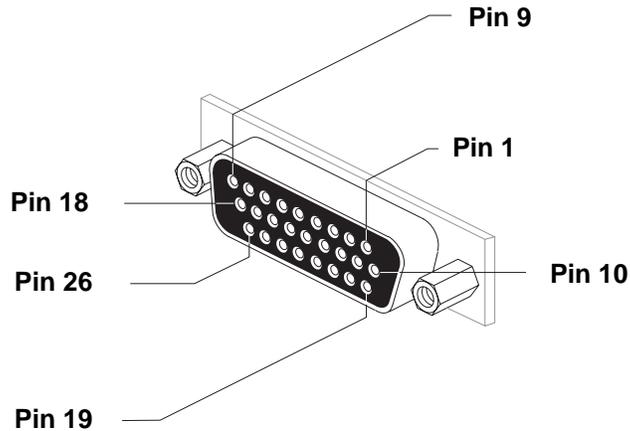


Figure 4-49 Analog Breakout Box Connector

4.7.3.2 Pinout

Table 4-47 Analog Breakout Box Connection

Pin	Signal Name	Description
1	BOUT	Blue Output
2	ROUT	Red Output
3	CSYNC	Composite Sync Out
4	YOUT	Luminance Output
5	COUT	Chrominance Output
6	YIN3	Luminance Input #3
7	CIN2	Chrominance Input #2
8	CIN1	Chrominance Input #1
9	YIN1	Luminance Input #1
10	GND	Ground
11	GND	Ground
12	GND	Ground
13	GND	Ground

Pin	Signal Name	Description
14	GND	Ground
15	GND	Ground
16	GND	Ground
17	GND	Ground
18	GND	Ground
19	GOUT	Green Output
20	GND	Ground
21	COMPOUT	Composite Video Output
22	GND	Ground
23	CIN3	Chrominance Input #3
24	GND	Ground
25	YIN2	Luminance Input #2
26	GND	Ground

4.7.4 Analog Component Video Input & Output

For this kind of connection, there are three signals - Y, R-Y and B-Y. Each signal is carried on an individual BNC connector where the center conductor carries the signal and the outer conductor is the ground, or shield.

4.7.5 CCIR 601 Serial Digital Video Input & Output

This connection is made via a BNC connector.

It complies with the CCIR 601 standard for digital video interfaces. For all options except Sirius Video it implements 8 bit digital video. The Sirius Video option is 10 bit digital video.

4.7.6 Frame Grab Output (BNC)

This signal is currently unused.

4.7.7 Video Sync Loopthru (BNC)

This is a video sync input and output pair. The system used the video sync signal to keep synchronized with external equipment - VTR's and other video gear. The signal loops through the system so it can be passed on to the next piece of equipment.

4.7.8 CCIR 601 Parallel Digital Video Input & Output

This connection is made via a DB-25 connector.

It complies with the CCIR 601 standard for digital video interfaces. For all options but the Sirius Video option it implements 8 bit digital video. The Sirius option uses all 10 bits.

4.7.8.1 Connector Drawing

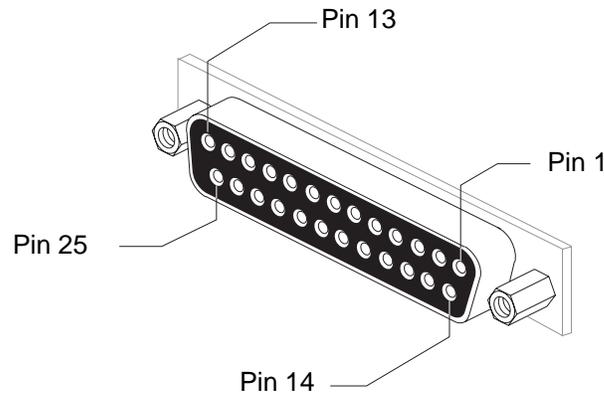


Figure 4-50 CCIR 601 Parallel Digital Video Connector

4.7.8.2 Pinout

Table 4-48 CCIR 601 Parallel Digital Video Connector Pinout

Pin	Signal Name	Description
1	CLK	Clock
2	GND	Ground
3	DATA9	Data Bit 9 (MSB)
4	DATA8	Data Bit 8
5	DATA7	Data Bit 7
6	DATA6	Data Bit 6
7	DATA5	Data Bit 5
8	DATA4	Data Bit 4
9	DATA3	Data Bit 3
10	DATA2	Data Bit 2
11	DATA1	Data Bit 1
12	DATA0	Data Bit 0
13	SHEILD	Cable Shield Connection

Pin	Signal Name	Description
14	CLK RET	Clock Return
15	GND	Ground
16	DATA9 RET	Data 9 Return
17	DATA8 RET	Data 8 Return
18	DATA7 RET	Data 7 Return
19	DATA6 RET	Data 6 Return
20	DATA5 RET	Data 5 Return
21	DATA4 RET	Data 4 Return
22	DATA3 RET	Data 3 Return
23	DATA2 RET	Data 2 Return
24	DATA1 RET	Data 1 Return
25	DATA0 RET	Data 0 Return

4.7.9 SGI Digital Video Interface

The SGI Digital Video Interface is one connector that incorporates two digital video ports. There are two variations on this connection. On the Indy one port is input only, while the other can be used for either input or output. The connector on the Indy is a high density, 60 pin connector. On the O2 one port is input, the other port is output. The connector used on the O2 is a 68 pin connector similar to the connector used for the external SCSI bus on the O2.

This protocol for this interface is similar, but not exactly the same as, the CCIR 601 Parallel Digital Video interface. For more detailed information on this interface, consult the SGI Digital Video Specification.

4.7.9.1 60 Pin Connector Drawing

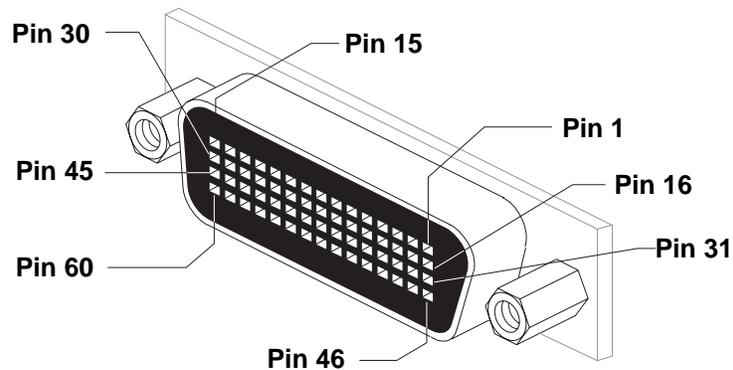


Figure 4-51 SGI Digital Video Connector

4.7.9.2 Connector Drawing (68 Pin)

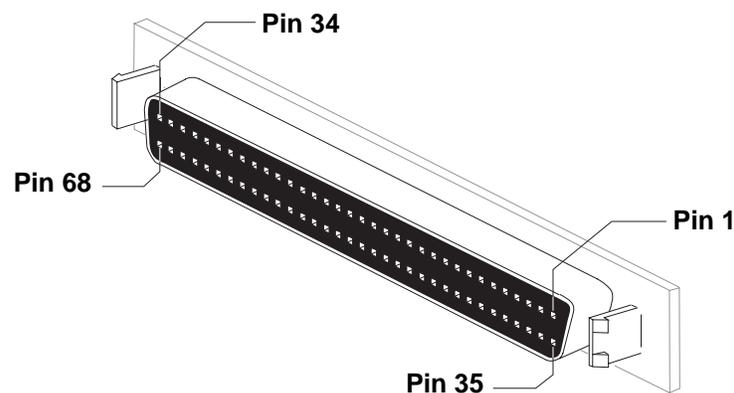


Figure 4-52 68 Pin Digital Video Connector

4.7.9.3 60 Pin Pinout

Table 4-49, shows the pinout for the SGI Digital Video Interface. The pins shown lightly shaded are those pins available at the IndyCam connector. The IndyCam connector does not support the second, input/output channel, of the Digital Video Interface.

Table 4-49 SGI Digital Video Connector Pinout

Pin	Signal Name	I/O	Pin	Signal Name	I/O
1	XDATAIO.0	I/O	31	XDATAIN.3	I
2	XDATAIO.0_RET	I/O	32	XDATAIN.3_RET	I
3	XDATAIO.1	I/O	33	XDATAIN.4	I
4	XDATAIO.1_RET	I/O	34	XDATAIN.4_RET	I
5	XDATAIO.2	I/O	35	XDATAIN.5	I
6	XDATAIO.2_RET	I/O	36	XDATAIN.5_RET	I
7	SDA_SEND	O	37	+12V_REC	I
8	DIR_SEND	O	38	+5V_REC	I
9	SCL_SEND	O	39	-12V_REC	I
10	TRIGIN_RET	I	40	SPAREAIO_RET	I/O
11	TRIGIN	I	41	SPAREAIO	I/O
12	XCLKIN_RET	I	42	XDATAIO.7_RET	I/O
13	XCLKIN	I	43	XDATAIO.7	I/O
14	SPAREBIN_RET	I	44	XDATAIO.6_RET	I/O
15	SPAREBIN	I	45	XDATAIO.6	I/O
16	XDATAIO.3	I/O	46	XDATAIN.0	I
17	XDATAIO.3_RET	I/O	47	XDATAIN.0_RET	I
18	XDATAIO.4	I/O	48	XDATAIN.1	I
19	XDATAIO.4_RET	I/O	49	XDATAIN.1_RET	I
20	XDATAIO.5	I/O	50	XDATAIN.2	I
21	XDATAIO.5_RET	I/O	51	XDATAIN.2_RET	I
22	+12V_SEND	O	52	SDA_REC	I
23	+5V_SEND	O	53	DIR_REC	I
24	-12V_SEND	O	54	SCL_REC	I
25	SPAREAIN_RET	I	55	TRIGOUT_RET	O
26	SPAREAIN	I	56	TRIGOUT	O
27	XDATAIN.7_RET	I	57	XCLKIO_RET	I/O
28	XDATAIN.7	I	58	XCLKIO	I/O
29	XDATAIN.6_RET	I	59	SPAREBIO_RET	I/O
30	XDATAIN.6	I	60	SPAREBIO	I/O

4.7.9.4 68 Pin Digital Video Pinout

Table 4-50 68 Pin Digital Video Connector Pinout

Pin	Signal Description	Pin	Signal Description
1	+5V	35	+5V
2	I ² C_SCL	36	I ² C_SDA
3	GPI IN	37	GPI OUT GND
4	GPI IN GND	38	GPI OUT
5	OUTDATACLK	39	CAM MIC POS
6	OUTDATACLKGND	40	CAM MIC NEG
7	INDATA9GND	41	OUTDATA9
8	INDATA9	42	OUTDATA9GND
9	INDATA8GND	43	OUTDATA8
10	INDATA8	44	OUTDATA8GND
11	INDATA7GND	45	OUTDATA7
12	INDATA7	46	OUTDATA7GND
13	INDATA6GND	47	OUTDATA6
14	INDATA6	48	OUTDATA6GND
15	INDATA5GND	49	OUTDATA5
16	INDATA5	50	OUTDATA5GND
17	INDATA4GND	51	OUTDATA4
18	INDATA4	52	OUTDATA4GND
19	INDATA3GND	53	OUTDATA3
20	INDATA3	54	OUTDATA3GND
21	INDATA2GND	55	OUTDATA2
22	INDATA2	56	OUTDATA2GND
23	INDATA1GND	57	OUTDATA1
24	INDATA1	58	OUTDATA1GND
25	INDATA0GND	59	OUTDATA0
26	INDATA0	60	OUTDATA0GND
27	INDATACLK	61	RESERVED
28	INDATACLKGND	62	RESERVED
29	RESERVED	63	RESERVED
30	-12V	64	+12V
31	RESERVED	65	RESERVED
32	RESERVED	66	RESERVED
33	RESERVED	67	RESERVED
34	RESERVED	68	RESERVED