Active FCB-SE600-HD-SDI INTERFACE MODULE

Active Silicon
COMPUTER IMAGING PRODUCTS

- ■ **HD-SDI digital interface for the Sony FCB-SE600**
- ■ **1080p/1080i/720p high definition video**
- ■ **Built in test pattern facility**
- ■ **RS-232 serial communications**

FEATURES

- ■ HD-SDI interfacing solution for the Sony FCB-SE600.
- ■ Includes interface module, cables and mounting kit.
- ■ Uses the camera's digital output to give optimum image quality.
- ■ Supports all available HD modes –
  1080p, 1080i (PsF) and 720p at 25Hz, 30Hz, 50Hz and 60Hz.
- ■ Compliant with SMPTE 274M and SMPTE 296M.
- ■ Video mode selection switch and built in test pattern.
- ■ RS-232 communications port for camera control.
- ■ Hardware focus and zoom controls.
- ■ Compatible with Active Silicon's frame grabbers.
- ■ RoHS compliant.

OVERVIEW

The **Active FCB-SE600-HDSDI** is a complete interface solution to provide real-time HD-SDI video from the Sony FCB-SE600 camera.

This interface module provides a cost-effective solution to take full advantage of the high definition digital video provided by the Sony FCB-SE600 block camera. The interface board connects directly to the camera's digital output to provide superior image quality. All camera HD video modes are supported: 1080p/30, 1080p/25, 1080i/60 (30 PsF), 1080i/50 (25 PsF), 720p/60, 720p/50, 720p/30 and 720p/25.

A DIP switch located on the rear of the module allows the HD video mode to be changed without the need to send serial commands to the camera. Other convenient hardware control features include the ability to dynamically change the camera's focus and zoom settings, again without the need to send serial commands. See connector J3 for more details.

The **Active FCB-SE600-HDSDI** has a built in test pattern which conforms to the SMPTE RP-219-2002 specification (see Figure 2). The pattern generation feature is controlled via connector J3.

The product is supplied as a kit consisting of the interface module, mounting kit and cables, though the board alone may also be ordered without the mounting kit and cables if required.

The physical outline of the **Active FCB-SE600-HDSDI** precisely matches the rear profile of the FCB-SE600 camera and the supplied mounting kit allows the module to be securely and neatly attached to the camera.

Figure 1: Camera with module fitted

Figure 2: SMPTE RP-219-2002 Test pattern available from the module

Figure 3: Close up of module with camera in normal upright orientation

KIT CONTENTS

The **Active FCB-SE600-HDSDI** contains the following items (listed from left to right in reference to the photo below):

1. 10-way ribbon cable for serial communication and control. (Connects to J3)
2. 4-way ribbon cable for power. (Connects to J2)
3. 30-way micro-coax digital video cable.
4. Active FCB-SE600-HDSDI interface board.
5. Mounting kit (including bracket, screws and spacers).
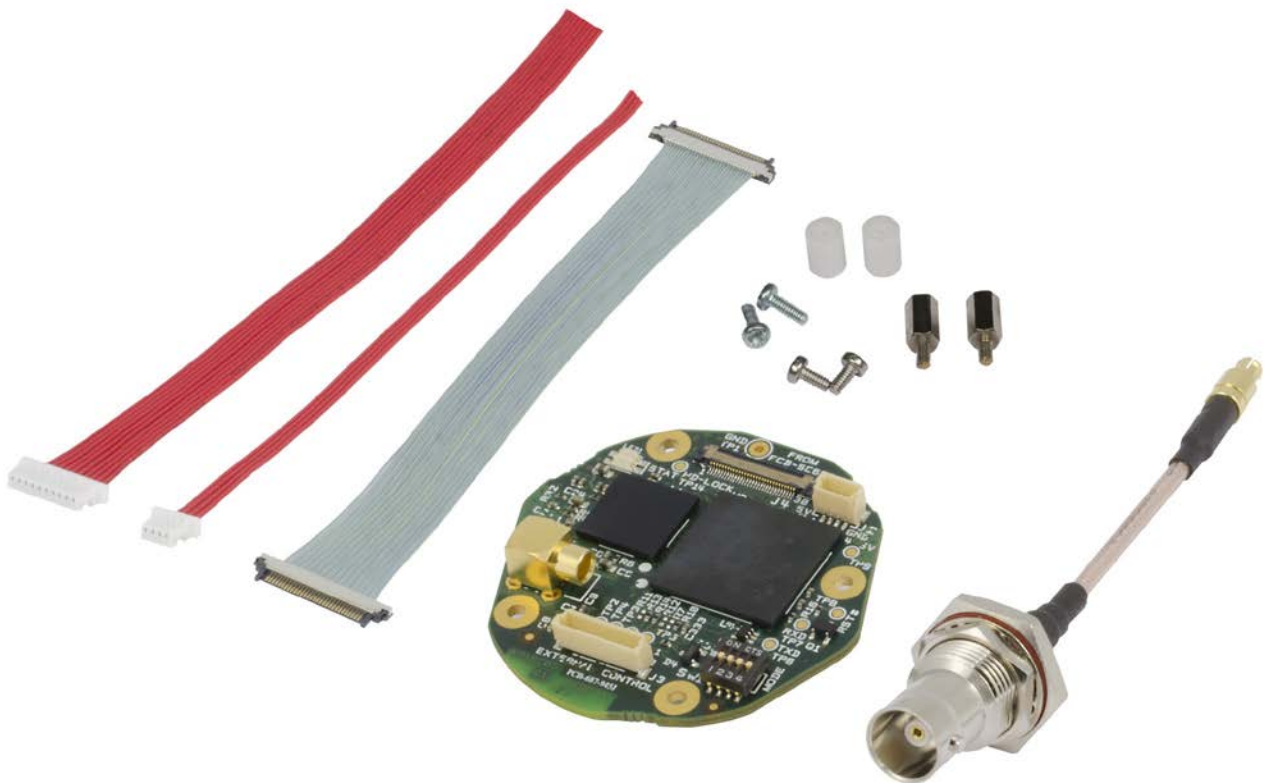6. 75 Ohm MCX to BNC cable. (Other lengths are available on request)

Figure 4: Active FCB-SE600-HDSDI Kit

PC CONNECTIVITY

Active Silicon also manufactures and supplies a range of HD-SDI video capture cards for interfacing to this module if required. As well as zero CPU acquisition, these cards provide serial communications and access to the camera's reset line for control of standby mode. These cards are available in a range of formats – not only standard PC formats (PCI & PCI-Express) but also in embedded form-factors such as PCI/104-Express for embedded applications.

CONNECTOR SPECIFICATION

HD-SDI Connector (J1)

The **Active FCB-SE600-HDSDI** is fitted with a 75 Ohm MCX connector, allowing the use of RG179 coax cable for connection to the interface module.

Connector type: Samtec MCX7-J-P-H-RA-TH1-SKT.

Mating Cable: MCX 75 Ohm plug, typically to RG179 coaxial cable.
(MCX to 75 Ohm bulkhead BNC adapter supplied.)

Power in Connector (J2)

The **Active FCB-SE600-HDSDI** is fitted with an industry standard 4-way connector for power in.

Connector type: JST (Japan Solderless Terminals) BM04B-SRSS-TB.

Mating cable: Suitable cable supplied as part of the kit.

PIN	SIGNAL	LEVEL
1	DC IN	5.0V to 5.5V
2	DC IN	5.0V to 5.5V
3	GND	GND
4	GND	GND

Signal and Control (J3)

The **Active FCB-SE600-HDSDI** is fitted with an industry standard 10-way connector allowing access to the serial port, reset, auto-focus, zoom controls on the camera as well as enabling the module's test pattern mode.

Connector type: JST BM10B-SRSS-TB.

Mating cable: Suitable cable supplied as part of the kit.

PIN	SIGNAL	LEVEL	NOTES
1	TxD	EIA/TIA-562 (Compatible with RS-232) Drive level +/- 4.5V See Note 1	Serial Control (Output from module/camera)
2	RxD	EIA/TIA-562 (Compatible with RS-232) Tolerant to +/- 25V	Serial Control (Input to module/camera)
3	RESET IN	Actively drive high (3.3V) to operate	Reset Camera
4	Pattern Gen Select	Ground short or drive low to operate.	Enable On-board Test Pattern
5	GND	GND	GND
6	ONE PUSH AF	Ground short or drive low to operate.	Select One Push Auto Focus
7	FOCUS FAR	Ground short or drive low to operate.	Change Camera Focus Far
8	FOCUS NEAR	Ground short or drive low to operate.	Change Camera Focus Near
9	ZOOM WIDE	Ground short or drive low to operate.	Change Camera Zoom Wide Angle
10	ZOOM TELE	Ground short or drive low to operate.	Change Camera Zoom Telephoto

Note 1: The serial interface is EIA/TIA-562. This is compatible with RS-232 and also allows low voltage signalling down to +/-3.3V.

KEL30 Connector (J4)

The **Active FCB-SE600-HDSDI** is fitted with a 30-way miniature connector to link to the matching connector on the FCB-SE600.

Connector type: KEL USL00-30L.

Mating cable: KEL USL20-30SS-010-C.

(Suitable cable supplied as part of the kit).

Video Mode DIP Switch (SW1)

The **Active FCB-SE600-HDSDI** is fitted with a 4-way DIP switch to control the video output modes on the Sony FCB-SE600.

Sw1	Sw2	Sw3	Sw4	Video Format
OFF	OFF	OFF	OFF	External (VISCA)
ON	OFF	OFF	OFF	1080p30
OFF	ON	OFF	OFF	1080p25
ON	ON	OFF	OFF	1080i60 (30 PsF)
OFF	OFF	ON	OFF	1080i50 (25 PsF)
ON	OFF	ON	OFF	720p60
OFF	ON	ON	OFF	720p50
ON	ON	ON	OFF	720p30
OFF	OFF	OFF	ON	720p25
OTHER				Reserved

Notes:

1) External (VISCA): The camera mode is changed by a VISCA serial commands, followed by a Reset.

2) The DIP switches to select the mode are read on power up only. Therefore to change mode, set the switches and then power cycle / power up the camera.

Status LED (LED1)

The **Active FCB-SE600-HDSDI** is fitted with multi-LED to indicate camera status.

Solid Green: Camera and interface board are powered and the camera is sending valid video data.

Solid Red: Interface board is powered but no valid video data is being received from the camera.
This would typically indicate that the 30-way video cable (J4) is not correctly connected.

CONFORMANCE

HD-SDI:	**Active FCB-SE600-HDSDI** is compliant with SMPTE 274M and SMPTE 296M.
Approvals:	The **Active FCB-SE600-HDSDI** has been designed for inclusion in systems meeting the following regulations and standards when housed in a suitable enclosure:

- EU   C€ mark for compliance with EMC EN 55022:1998 (class A) and EN 55024:1998 in accordance with EU directive 89/336/EEC.

- USA   EMC FCC Class A.

RoHS Compliant.

The printed circuit board is manufactured by UL recognized manufacturers and has a flammability rating of 94-V0.

PHYSICAL AND ENVIRONMENTAL DETAILS

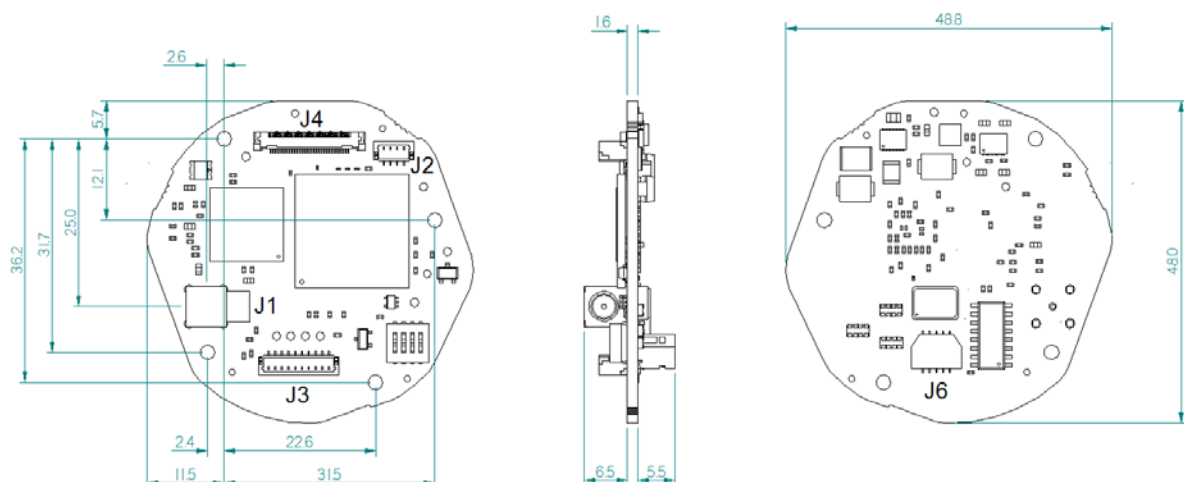|		
Dimensions:	48.8mm by 48.0mm by 13.6mm high.	
	When mounted to the camera using the supplied fixings, the depth of the camera is increased by 15.1mm.	
Weight:	10g (excluding mounting kit). Mounting kit weighs 2g.	
Power consumption:	280mA @ 5V.	Typical current consumption under normal operation conditions for the interface module.
		Camera and interface module combined typically draw 530 mA.
Storage Temperature:	-20°C to +70°C.	
Operating Temperature:	-5°C to +70°C (ambient environment).	
Relative Humidity:	10% to 90% non-condensing (operating and storage).	

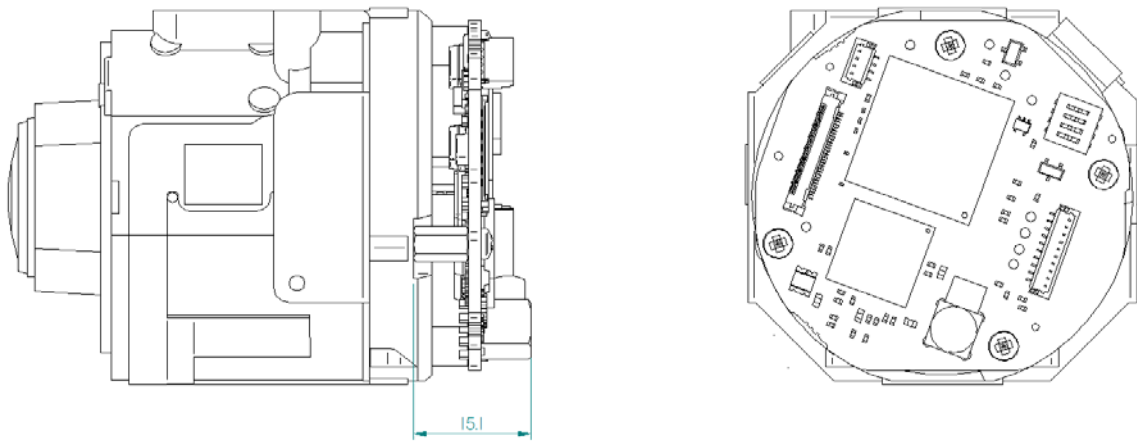**Figure 5: PCB mechanical details (top, side and bottom).**

Figure 6: Module attached to camera (side and rear view).

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
AS-HDSDI-002-IFKIT-A	HD-SDI interface kit for Sony FCB-SE600. Includes interface module, cables and mounting kit. *Note: SE600 cameras can also be purchased with interface kit pre-fitted.*
AS-HDSDI-002-IF-A	Interface module only (no mounting kit) for Sony FCB SE600 camera.
AS-PHX-D10HDSDI-PE1	HD-SDI frame grabber to connect to one Sony FCB-SE600 with an **Active FCB-HDSDI.** PCI Express bus with single lane (x1) bus interface.
AS-PHX-D20HDSDI-PE4H	HD-SDI frame grabber to simultaneously connect to two Sony FCB-SE600s fitted with **Active FCB-HDSDI** modules**.** PCI Express bus with four lane (x4) bus interface.
AS-CBL-VDM230-xM	HD-SDI and CoaXPress cable *x* meters in length. Standard stock lengths are 3m, 5m, 10m and 20m. Higher flex rating cables also available.
AS-PHX-SDK-xxx-CD	Software Development Kit for frame grabber system integration, operating system denoted by "xxx". (E.g. Windows, Linux, Mac OS X etc). For a full list of all supported operating systems please refer to the SDK datasheet, or contact your distributor.

THE FCB INTERFACE RANGE

The following products are also available in the range:

- HD-SDI interface modules for the full range of Sony HD FCB cameras. e.g. FCB-EH3300, FCB-EH3400, FCB-EH6300, FCB-EH6500, FCB-EH4300, FCB-H11, FCB-EH3150.
- CoaXPress interface module for Sony FCB-H11. (Single coax solution carrying power, data and control all on one coax cable for up to 130m cable length.)

Active Silicon also provides a range of capture cards designed for use with the above interface modules.

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