

PCI Express 16-channel H.264 Encoder
Model 819
Hardware Manual
Ver.1.0.1 | March 2015

SENSORAY | embedded electronics



Designed and manufactured in the U.S.A

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Limited warranty

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The warranty provided herein does not cover equipment subjected to abuse, misuse, accident, alteration, neglect, or unauthorized repair or installation. Sensoray shall have the right of final determination as to the existence and cause of defect.

As for items repaired or replaced under warranty, the warranty shall continue in effect for the remainder of the original warranty period, or for ninety days following date of shipment by Sensoray of the repaired or replaced part, whichever period is longer.

A Return Material Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before any equipment will be accepted for warranty work. Sensoray will pay the shipping costs of returning to the owner parts that are covered by warranty. A restocking charge of 25% of the product purchase price will be charged for returning a product to stock.

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Special handling instructions

The circuit board contains CMOS circuitry that is sensitive to Electrostatic Discharge (ESD). Special care should be taken in handling, transporting, and installing circuit board to prevent ESD damage to the board. In particular:

- Do not remove the circuit board from its protective anti-static bag until you are ready to install the board into the enclosure.
- Handle the circuit board only at grounded, ESD protected stations.

Introduction

Model 819 is a multifunctional audio/video codec capable of simultaneous capture from 16 video and 16 audio inputs.

For each input video channel the 819 can provide multiple output streams: two H.264 streams at independently set resolutions, frame rates, bitrates; and an uncompressed (preview) stream. Each channel allows an individually configured multi-window character and graphics overlay and provides real-time motion data.

Individual scalers and deinterlacers facilitate optimal resolutions for each captured stream. For example, a high-resolution, high bitrate stream may be selected for archiving, while a lower resolution, low bitrate stream is preferable for simultaneous streaming to handheld devices, smart phones.

Model 819 includes a 16x4 analog video crosspoint switch. The switch allows connecting any of the 16 video inputs to any of the 4 video outputs via software. The outputs of the crosspoint switch could be individually disabled allowing parallel connection of multiple boards.

Windows and Linux Software Development Kits (SDKs) are provided. Supported features may differ for different operating systems. Please refer to SDK documentation for the details.

System Requirements

Model 819 is an x1 PCI Express board. It will work in any PCIe slot (x1, x4, x8 or x16). Model 819 conforms to PCI Express Specification Rev.1.1 and supports throughputs of up to 2.5 Gbps.

The performance of model 819, especially uncompressed preview feature, depends both on the system memory and video card performance. Please contact Sensoray's Technical Support if you experience performance problems as the .

Block diagrams

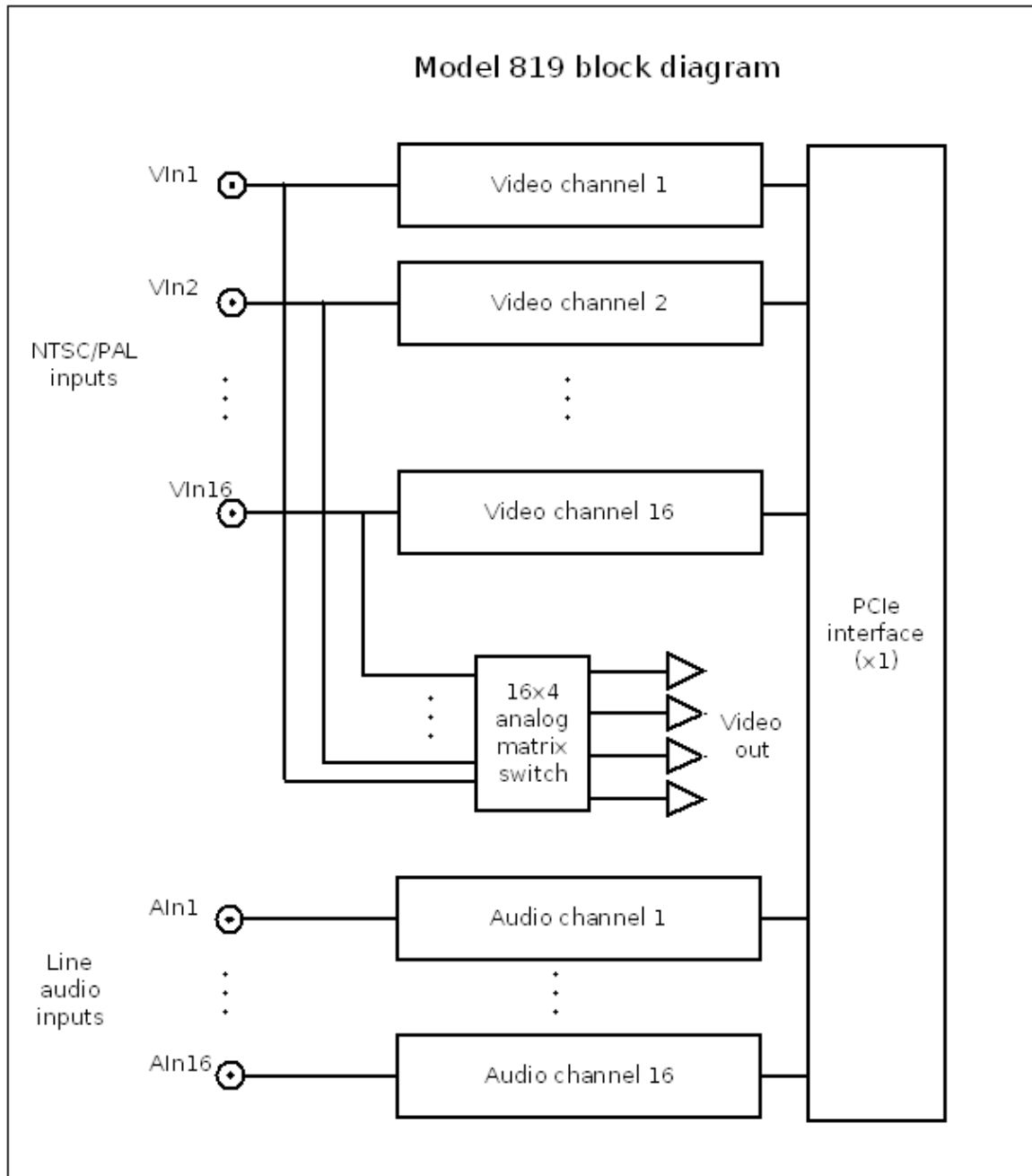


Fig.1. Model 819 block diagram.

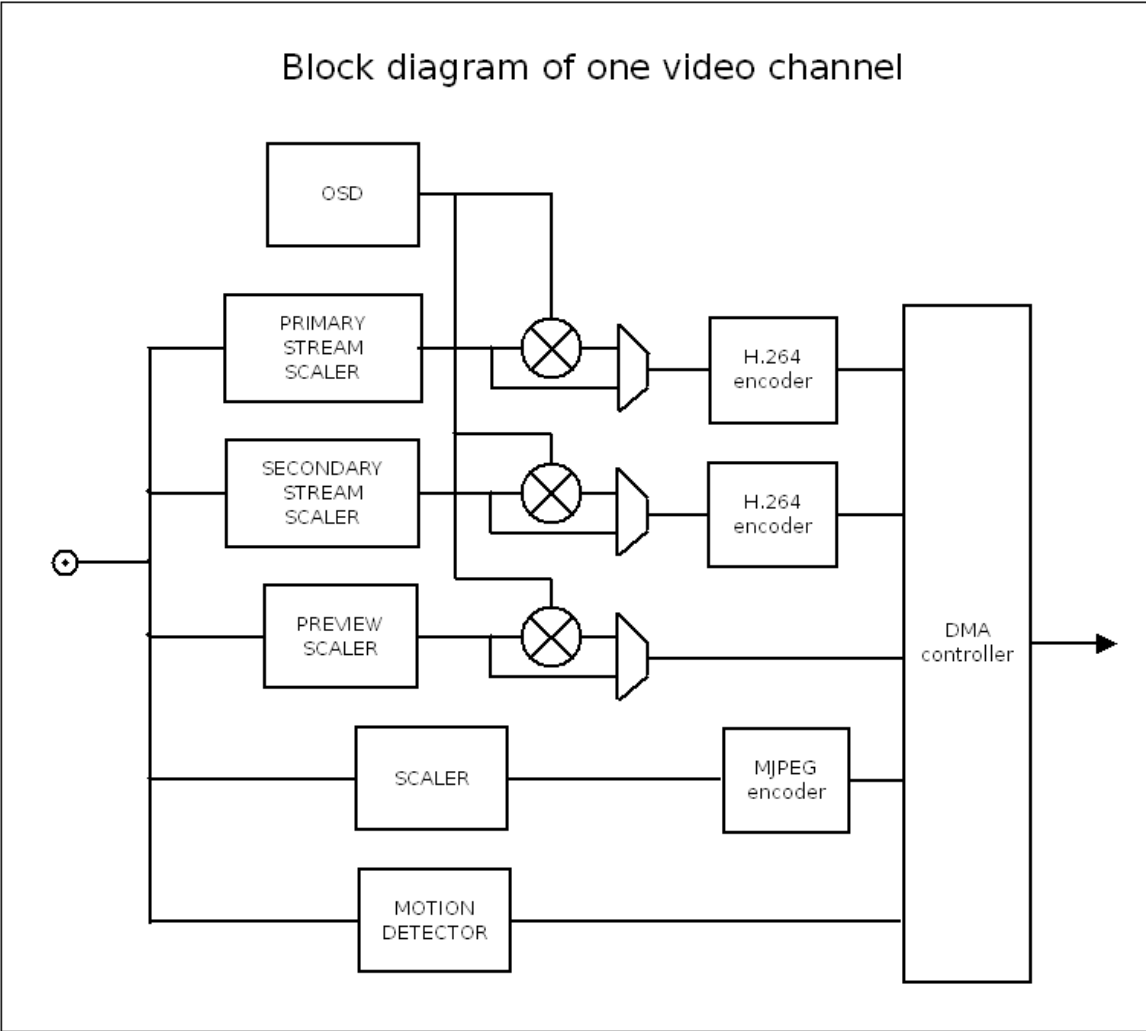


Fig 2. A single video channel block diagram.

Connectors

Video input/output (DB37 female), P2.

Pin	Signal	Pin	Signal
1	Video out 3	20	Video out 2
2	GND	21	Video out 1
3	Video out 0	22	Video in 16
4	GND	23	Video in 15
5	GND	24	Video in 14
6	GND	25	Video in 13
7	GND	26	Video in 12
8	GND	27	Video in 11
9	GND	28	Video in 10
10	GND	29	Video in 9
11	GND	30	Video in 8
12	GND	31	Video in 7
13	GND	32	Video in 6
14	GND	33	Video in 5
15	GND	34	Video in 4
16	GND	35	Video in 3
17	GND	36	Video in 2
18	GND	37	Video in 1
19	GND		

Audio input, 40-pin 0.1" header.

Pin	Signal	Pin	Signal
1	GND	21	Audio in 1
2	GND	22	Audio in 2
3	GND	23	Audio in 3
4	GND	24	Audio in 4
5	GND	25	Audio in 5
6	GND	26	Audio in 6
7	GND	27	Audio in 7
8	GND	28	Audio in 8
9	GND	29	Audio in 9
10	GND	30	Audio in 10
11	GND	31	Audio in 11
12	GND	32	Audio in 12
13	GND	33	Audio in 13
14	GND	34	Audio in 14
15	GND	35	Audio in 15
16	GND	36	Audio in 16
17	GND	37	reserved
18	GND	38	reserved
19	GND	39	reserved
20	GND	40	reserved

Specifications

Inputs	
Video, analog	16, composite, 75 Ω , NTSC/PAL
Audio, analog	16, mono, line level, 10 k Ω
Outputs	
Video, analog	4, composite, 75 Ω , NTSC/PAL
Encoding	
Video	H.264, BP@L3, video elementary stream with timestamps, .mp4 stream;
Audio	G.726
Electrical	
Host Interface	PCIe, v.1.1, x1 slot
Power	3.3 V from PCIe bus; 12 W
Mechanical and Environmental	
Dimensions	6.6 x 4.2 inch
Operating temperature	0° to 55° C

Revision history

Release	Notes
Ver.1.0.1, March 2015	References to JPEG removed.
Ver.1.0.0, July 2013	Initial release.