



# SightLine

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APPLICATIONS

## ICD-1550-eAB

PN: ICD-1550-eAB

6/4/2020

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**Alerts**

The following notifications are used throughout the document to help identify important safety and setup information to the user:

 **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

 **IMPORTANT:** Identifies crucial information that is important to setup and configuration procedures.

 *Used to emphasize points or reminds the user of something. Supplementary information that aids in the use or understanding of the equipment or subject that is not critical to system use.*



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**Revision History**

Date	Description
5/22/2019	Updated connector callouts.
4/30/2019	Updated EAB-1550 board photos and rev history. Updated 1500-eAB Connector Descriptions table.
3/22/2019	Added Caution statement on board modifications.
2/18/2019	Corrected VIN auxiliary power resistors. Corrected VIN +5V resistors per schematic.
1/12/2019	Add notes about unmanaged switch and network addressing.
6/18/2018	Added 4-pin and 5-pin PiccoBlade cable drawings. Updated connector summary table.
5/11/2018	Updated ICD to new format.



## 1 Overview

Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 1550-eAB networking board.

**⚠ CAUTION:** Any customer modifications to SightLine OEM and adapter boards will void the warranty and can potentially damage the board. Before attempting any modifications, please contact [Support](#).

### 1.1 Associated Documents

[EAN-Startup-Guide-1550-EAB](#): Provides the steps for connecting, configuring, and testing the 1550-eAB networking board.

[EAN-Network Configuration](#): Describes how to assign a static IP address to the board, set telemetry destinations and ports, and provide configuration information for both the 3000-OEM and the 1550-eAB video processing boards.

[EAN-Ethernet and Serial Communication](#): Describes how to setup serial communications for cameras or other payload devices from SightLine hardware.

[EAN-Managing the Parameter File](#): Outlines the differences between dynamic and non-dynamic parameter file settings and how to correctly save them to the board.

[Interface Command and Control \(IDD\)](#): Describes the native communications protocol used by the SightLine Applications product line. The IDD is also available as a PDF download on the [Software Download](#) page.

Panel Plus User Guide: A complete overview of settings and dialog windows in Panel Plus. Located in the Help menu of the Panel Plus application.

### 1.2 SightLine Software Requirements

**ⓘ IMPORTANT:** The Panel Plus software version should match the firmware version running on the board.

## 2 Safe Device Handling

**⚠ CAUTION:** To prevent damage to hardware boards, use a conductive wrist strap attached to a good earth ground. Before picking up an ESD sensitive electronic component, discharge built up static by touching a grounded bare metal surface or approved antistatic mat.



### 3 1550-eAB Overview

The 1550-eAB from SightLine Applications is a networking-focused board that has an integrated 1500-SOM for video processing, along with a 5 port 10/100 Base-T network switch, serial port breakouts, dual analog inputs and an FFC interface for connection to Tau, Quark and Tamarisk cameras.

The network switch is an unmanaged Layer 2 switch. This switch is similar to switches used to manage ports on a desktop that connect a number of other devices together on a Local Area Network (LAN). The network switch does not have an IP address or interface for configuration.

The 1500-SOM integrated into this board occupies one port of this switch. This leaves the 4 remaining ports for user provided devices (one port provides magnetics). Typically, the 1500-SOM will be assigned a static IP address and netmask compatible with the network.

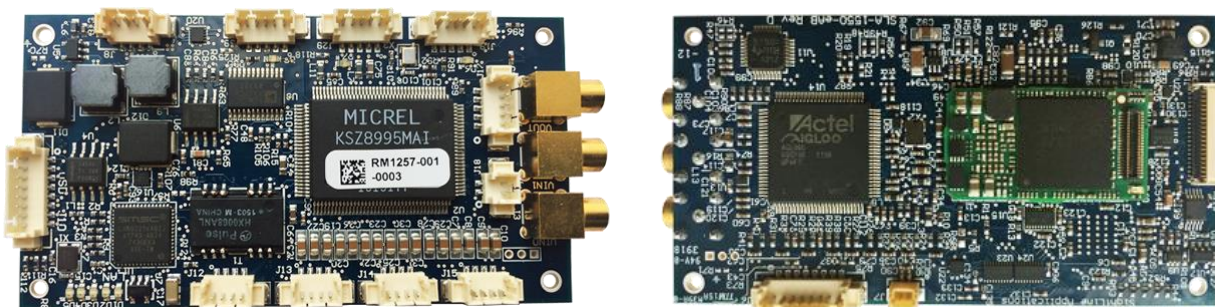


Figure 1: 1550-eAB Overview

#### 3.1 1550-eAB Specifications

<b>Revision:</b>	D
<b>Dimensions:</b>	3.0 in x 1.60 in (76.2 mm x 40.64 mm)
<b>Weight:</b>	23 grams
<b>Drawing:</b>	<a href="#">SLA-1550-eAB</a>
<b>STEP File:</b>	<a href="#">SLA-1550-eAB STEP</a>
<b>Rev History:</b>	B: Initial release D: Improved power input protection. Added in-system FPGA programming functions. FFC camera connector changed to FPC, level shifters and 27Mhz clock. Viosel autodetect added for Airborne camera. Added switch option for TXB to either FPC (camera control) or J39. J9 removed, J17 (I2C3/Power) and J18 (GPIO150) added



## 4 Connector Descriptions

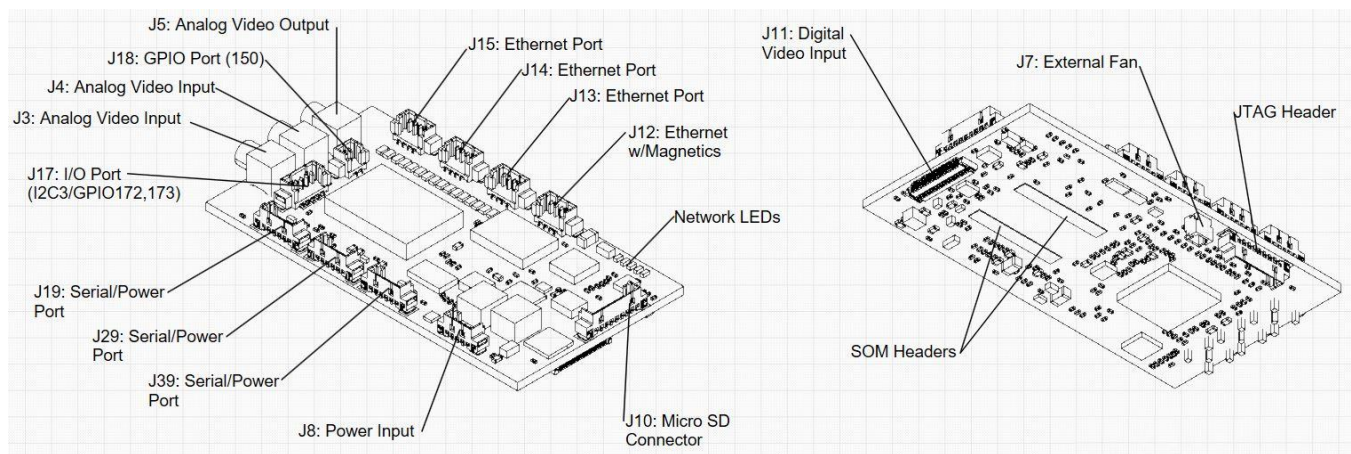
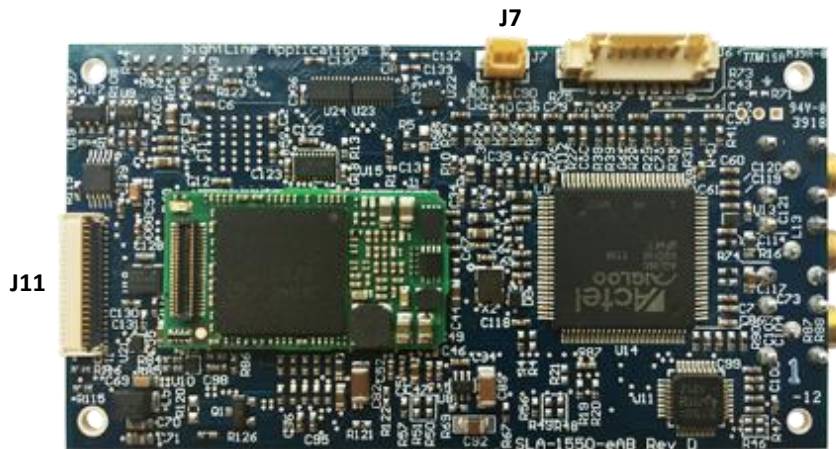
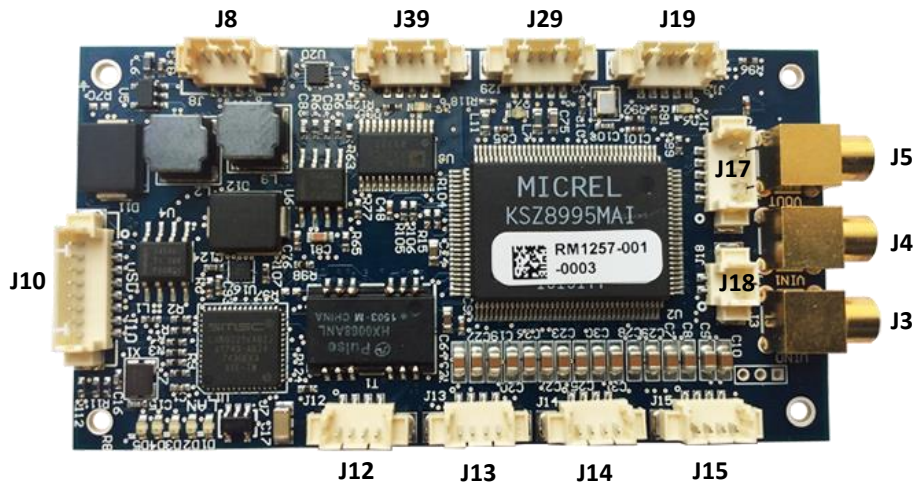


Figure 2: 1550-eAB Connector Callouts



Table 1: 1550-eAB Connector Summary

Label	MFG Part Number	Function	Mates with:
J3, J4	1061022-1	Analog Video Input (MCX)	SLA-CAB-P001
J5	1061022-1	Analog Video Output (MCX)	SLA-CAB-P001
J7	BM02B-SRSS-TB(LF)(SN)	External Fan Power	TDB
J8	53398-0471	Input Power	SLA-CAB-1504
J10	53398-0871	External microSD connector	TBD
J12	53398-0471	Ethernet (with Magnetics)	SLA-CAB-0402,0403
J13, J14, J15	53398-0471	Ethernet	SLA-CAB-0402,0403
J11	501912-3990	FPC digital video connector	SLA-FPC-xxxx camera boards
J17	53398-0571	Power/I2C3/GPIO172&173	SLA-CAB-0502,0503
J18	53398-0271	GPIO150	
J19 (S0)	53398-0571	Serial Port 0 (/dev/ttyO0)	SLA-CAB-0502,0503
J29 (S1)	53398-0571	Serial Port 1 (/dev/ttyO1)	SLA-CAB-0502,0503
J39 (S2)	53398-0571	Serial Port 2 (/dev/ttyO2)	SLA-CAB-0502,0503

Table 2: 1500-eAB Connector Descriptions

<b>Connector J3, J4: Analog In</b>	Analog video input 0, 1 (MCX)			
<b>Connector J5: Analog Out</b>	Analog video output (MCX)			
<b>Connector J7: Fan Power</b>	<b>Pin</b>	<b>Signal</b>	<b>Description</b>	
	1	Power Out	3VDC	
	2	Ground		
<b>Connector J8: Power</b>	<b>Pin</b>	<b>Signal</b>	<b>Description</b>	
	1	Power In	9 - 15VDC	
	2			
	3	Ground		
4				
<b>Connector J10: External microSD Connector</b>	<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
	1	SD1DAT2	5	SD1CLK
	2	SD1DAT3	6	GND
	3	SD1OMD	7	SD1DAT0
	4	3.3VDC	8	SD1DAT1
<b>Connector J12: Ethernet (with magnetics)</b>	<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
	1	TX1+	3	RX1+
	2	TX1-	4	RX1-
<b>Connector J13: Ethernet</b>	<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
	1	TX2+	3	RX2+
	2	TX2-	4	RX2-
<b>Connector J14: Ethernet</b>	<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
	1	TX3+	3	RX3+
	2	TX3-	4	RX3-
<b>Connector J15: Ethernet</b>	<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
	1	TX4+	3	RX4+
	2	TX4-	4	RX4-



(1500-eAB Connector Descriptions continued)

Connector J16: FPC Connector	Pin	Signal	Pin	Signal	Pin	Signal
	1	GPIO178	14	CAM_VS	27	CAMD_02
	2	GND	15	CAM_HS	28	GND
	3	5V	16	SW_RX	29	GND
	4	3.3V	17	SW_TX	30	CAMD_01
	5	3.3V	18	CAMD_11	31	CAMD_00
	6	VIOSEL_IN	19	CAMD_10	32	I2C2SCL
	7	5V	20	CAMD_09	33	I2C2SDA
	8	5V	21	CAMD_08	34	NC
	9	GND	22	CAMD_07	35	CAMD_15
	10	MCLK	23	CAMD_06	36	GPIO174
	11	GND	24	CAMD_05	37	CAMD_14
	12	CAM_PCLK	25	CAMD_04	38	CAMD_13
	13	AIRBORNE_DET	26	CAMD_03	39	CAMD_12

Connector J17: Power/I2C3/GPIO172&173	Pin	Signal	Description
	1	3.3V/GPIO172	Defaults to 3.3V (w/R74 on). GPIO172 (at 3.3V) is available by removing R74 and adding R72(0 Ohms).
	2	GND	
	3	GPIO173	GPIO 173 (at 3.3V)
	4	I2CSDA	I2C Bus 3 SDA
	5	I2C3SCL	I2C Bus 3 SCL

Connector J18: GPIO150	Pin	Signal	Description
	1	GPIO	GPIO 150 (at 3.3V)
	2	GND	

Connector J19, J29, J39: RS-232 + Power	Power can be supplied over the 5-pin Molex connectors (J19, J29, or J39) by populating resistors on the bottom (DSP side) of the board. Use any 0402 0Ω resistor. When using these ports to power devices the current limit is 0.5A total for all three ports combined.		
	Serial 1 on J29 is diverted to camera J16 by default. Remove R119, R126 and add R117, R122, & R125 (0 Ohms) to change.		
Pin	Signal	Description	
1	Power Out	Option	Description
		0	Not Connected (default)
		1	+5V (populate R47, R49, R51)
		2	Vin (populate R46, R48, R50)
2	Ground	RS-232C	
3	Ground		
4	Transmit (TX)		
5	Receive (RX)		





## 5 LEDs

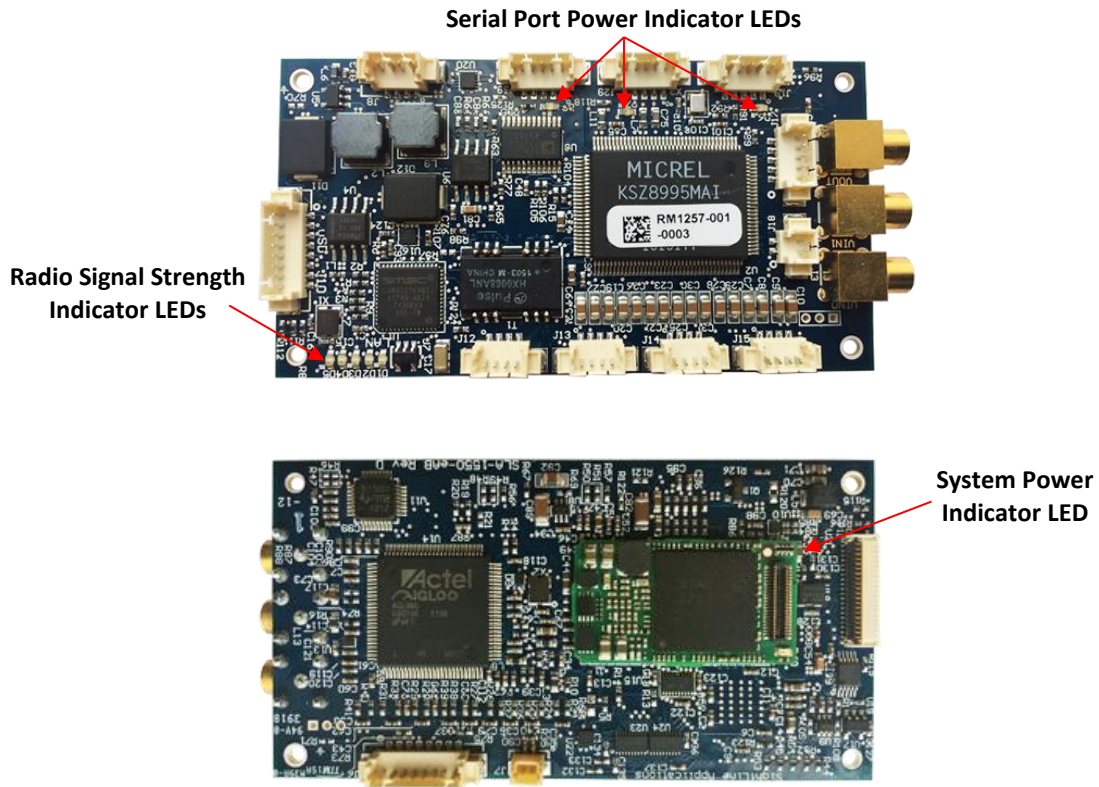


Figure 3: 1550-eAB LED Locations

Table 3: 1550-eAB LED Descriptions

Label	Function	Label	Function
D6	Serial Port 0 Power is hot	D3	LED3-2 (J14)
D7	Serial Port 1 Power is hot	D4	LED4-2 (J15)
D8	Serial Port 2 Power is hot	D5	LED5-2 (SLA-1500-SOM)
D1	LED1-2 (J12)	D13	Main Power In
D2	LED2-2 (J13)		



## 6 SOM Orientation

The SOM hardware is a small profile (15 x 27 mm) and low power (2.25W) Beacon EmbeddedWorks Torpedo 3730 System-on-Module (p/n: SOMDM3730-20-1780AGIR).

**ⓘ IMPORTANT:** Do not insert the SOM in the wrong orientation.

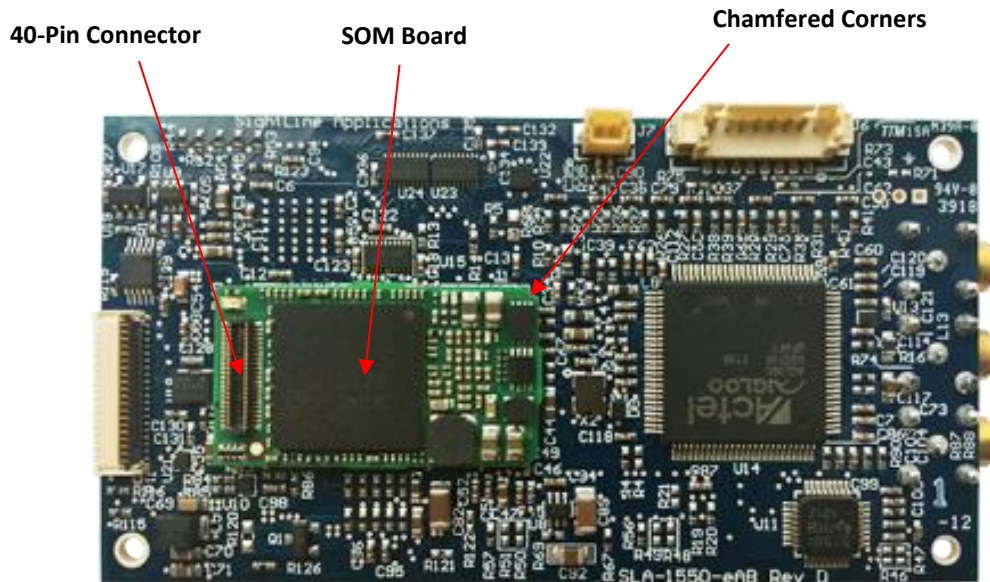


Figure 4: 1500-SOM Orientation

## 7 Questions and Additional Support

For questions and additional support, please contact [Technical Support](#). Additional support documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications [website](#).