



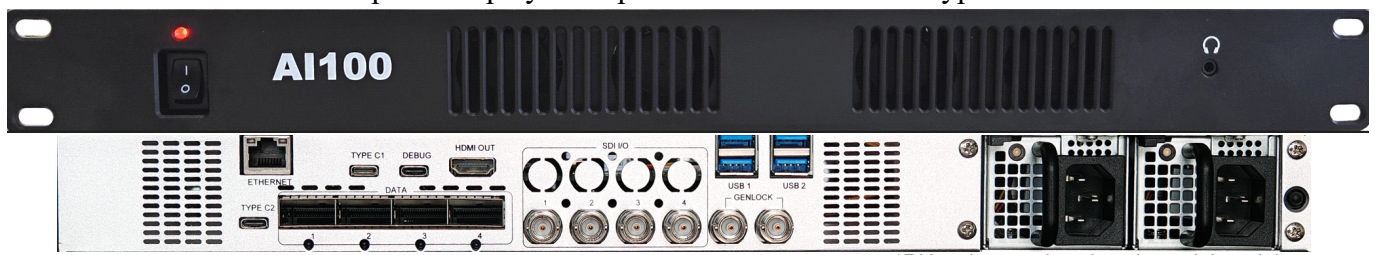
3RU portable 8.3" display model



The AI100 is our unique ST-2110 stream real-time analyzer and generator for compressed JPEG-XS(-22) and uncompressed (-20) video over IP, audio(-30) over IP, and ancillary (-40) IP streams. The AI100 is available in 3RU portable or in a 1RU chassis form factor. It can be operated from a touch panel(\*), from a keyboard/mouse/display or remotely through a web GUI.

## Features

- ST-2110 to SDI real-time converter/decoder (supporting up to 8K, 4x 12G-SDI out)
- Real-time analysis and generation of ST2110-20/21/22/30/40 IP streams, , up to 8K video resolution
- Data analysis of UDP/RTP Payload data
- Status-check and in-depth analysis of JPEG-XS header, code stream, VS(\*1) and CS(\*2) boxes.
- Ethernet PHY layer analysis
- ST2110-21 data buffer analysis
- ST2022-7 IP data status analysis
- PTP (ST-2059 v2) clock analysis as a grand master client
- Visualize the PTP timing accuracy through individual waveforms
- IP stream capture available up to 1GB with the use of an external USB drive
- Support of AMWA NMOS IS-04/-05 for validation and smooth system integration
- Event and alarm logging with SNMP traps generation
- User-friendly graphic interface through keyboard/mouse/display, or web GUI
- Model available in an 8" touch panel display 3RU portable or 1RU chassis type form factor



1RU rack mounting chassis model model

## Hardware Specs

<b>IP I/O Cages</b>	QSFP28 IP CAGES x 4	<b>Display output</b>	HDMI V2.0 x 1
<b>IP Stream Interfaces</b>	SFP+ 10G x 2 SFP28 25G or QSFP28 100G 2 Upgradable	<b>Audio monitor output</b>	3.5mm Stereo TRS Audio Jack
<b>Management, Control, and NMOS Interface</b>	RJ45 Ethernet x 1	<b>Power</b>	3RU: AC100-240V, 70W 1RU: AC100-240V, 70W
<b>Common USB Interfaces</b>	USB x 4	<b>Sizes (W x D x H)</b>	3RU: 212(W) x 353(D) x 165(H)mm 1RU: 435.5(W) x 354(D) x 44.5(H)mm
<b>Maintenance USB Interface</b>	TYPE C x 3	<b>Weight</b>	3RU ~3.4Kg / 11RU ~4.3Kg
		<b>Temperature</b>	0°C~40°C / ≤85 %RH

The PTP timing can be analyzed in real-time, showing network timing delays and phase shifts, as shown below. Depending on the IP domain, it can be locked to the Grandmaster (GM) or the client.

**AI100**
Video: JPEG-XS    Format: 7680x4320p50    Ref: PTP Locked    RTC: 2024-1-1 15:10:20

PTP Status

NO.	Port	Protocol	Bitrate	Src.Address:Port	Dst.Address:Port	Info
1	Data 1	PTP(Gen)	8.90kbps	192.168.1.100:5004	239.101.0.10:5004	Domain:127
2	Data 2	PTP(Gen)	8.90kbps	192.168.1.133:5004	239.101.0.20:5004	Domain:126
-	-	-	-	-	-	-
-	-	-	-	-	-	-

**Primary PTP Status**

Status: Locked  
 GMID: 00:12:12:33:33:44:11:20  
 Domain: 127  
 Profile: ST2059  
 Time (UTC): 2024-1-1 20:00:10  
 Current Time Offset: +60ns  
 ΔT2-T1: 10.980us    ΔT4-T3: 10.868us  
 Time Offset Max: 0.225us    Min: -0.280us

**Secondary PTP Status**

Status: Locked  
 GMID: 00:12:12:33:33:44:11:21  
 Domain: 126  
 Profile: ST2059  
 Time (UTC): 2023-06-15 10:33:00  
 Current Time Offset: +30ns  
 ΔT2-T1: 10.980us    ΔT4-T3: 10.868us  
 Time Offset Max: 0.230us    Min: -0.220us

Run Time: 0 day, 21:30:00 Clear

IP
Video
Audio
ANC
PTP
System
LOG
Presets
Capture
Screenshot

The graphical user interface can show multiple views simultaneously: IP, Video, Audio, ANC, and PTP, and include some in-depth views for JPEG-XS data analysis

In-depth JPEG-XS video data analysis according to the ISO/IEC 21122 including [Payload Header], [Video Support Box](\*1), [Color Specification Box](\*2), and [Codestream data]

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Video: JPEG-XS    Format: 7680x4320p50    Ref: PTP Locked    RTC: 2024-1-1 15:10:20

NO.	Port	Protocol	Bitrate	Src.Address:Port	Dst.Address:Port	Info
1	Data 1	PTP(Gen)	8.90kbps	192.168.1.100:5004	239.101.0.10:5004	Domain:127
2	Data 2	PTP(Gen)	8.90kbps	192.168.1.133:5004	239.101.0.20:5004	Domain:126

Link Status	Link Status
Link Status: 100	Link Status: 2000
MAC Status: 1	MAC Status: 1
IP Status: 1	IP Status: 1
RTT Status: 1	RTT Status: 1
TX Queue Status: 1	TX Queue Status: 1
RX Queue Status: 1	RX Queue Status: 1

NO.	Port	Protocol	Bitrate	Src.Address:Port	Dst.Address:Port	Info
1	Data 1	PTP(Gen)	8.90kbps	192.168.1.100:5004	239.101.0.10:5004	Domain:127
2	Data 2	PTP(Gen)	8.90kbps	192.168.1.133:5004	239.101.0.20:5004	Domain:126

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**AI100**
Video: JPEG-XS    Format: 7680x4320p50    Ref: PTP Locked    RTC: 2024-1-1 15:10:20

Picture
RTP Payload
Video Support Box
Colour Specification Box
Codestreams Data

Field	Data 1	Data 2	Value
LBox (Box Length)	0x0000002a (42 Byte)	0x0000002a (42 Byte)	4 Byte Size Field
TBox (Box Type)	0x6a707873 (pvs)	0x6a707873 (pvs)	4 Byte Size Field
LBox (Box Length)	0x00000016 (22 Byte)	0x00000016 (22 Byte)	4 Byte Size Field
TBox (Box Type)	0x6a707869 (pvt)	0x6a707869 (pvt)	4 Byte Size Field
brat (Bit Rate)	0x01002633 (11059)	0x00002633 (11059)	4 Byte Size Field
frat (Frame Rate)	0x01000032	0x01000032	4 Byte Size Field
- Decoder Frame Rate	50	50	50, 59.94, 60
- Interlaced_Mode	0 (Progressive)	0 (Progressive)	0 (Progressive), 1 (Interlaced first field), 2 (Interlaced second field), 3 (Reserved)
- FrameRate_Denominator	2 (1.001)	2 (1.001)	1 (1.000), 2 (1.001)
schcr (Sample Characteristics)	0x8090	0x8090	2 Byte Size Field
- Valid_Flag	1	1	0 (Invalid), 1 (Valid)
- Sample Bitdepth	10	10	10
- Chrominance Sampling	0x0 (4:2:2 YCbCr)	0x0 (4:2:2 YCbCr)	0x0 (4:2:2 YCbCr)
trcod (Time Code)	0x00000000	0x00000000	4 Byte Size Field
LBox (Box Length)	0x0000000c (12 Byte)	0x0000000c (12 Byte)	4 Byte Size Field
TBox (Box Type)	0x6a70709c (ppl)	0x6a70709c (ppl)	4 Byte Size Field
Ppilh (Codestream Profile)	0x4440 (High 444, 12)	0x4440 (High 444, 12)	2 Byte Size Field
Play (Codestream Level)	0x3404	0x3404	2 Byte Size Field
- Level	Bk-2	Bk-2	
- Sublevel	Sublevel3ppp	Sublevel3ppp	

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(\*1) Video Support (VS) box: An ISO video support box, as defined in [ISO21122-3], that includes metadata required to play back a JPEG XS stream; such metadata could include its maximum bit rate, its subsampling structure, its buffer model, and its frame rate.

(\*2) Color Specification (CS) box: An ISO color specification box defined in [ISO21122-3] (JPEG XS Part 3) that includes color-related metadata required to correctly display JPEG XS video frames, such as color primaries, transfer characteristics, and matrix coefficients.