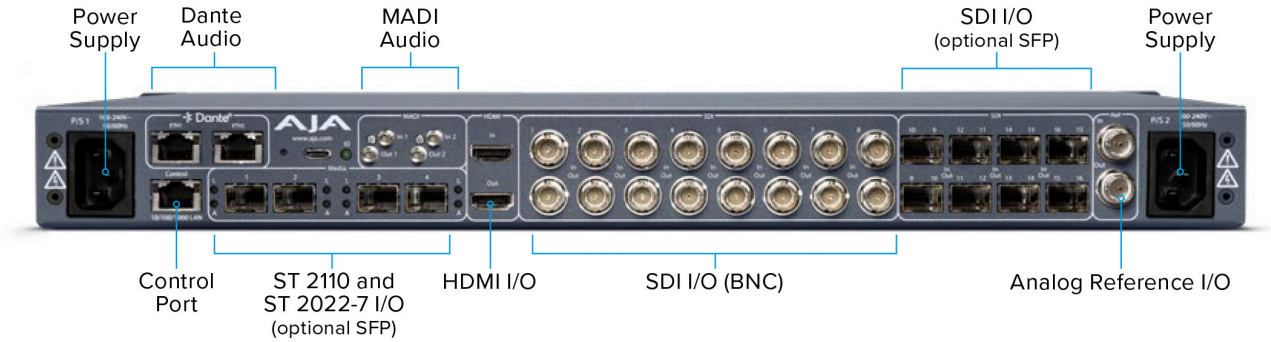
FS8

FS8 is a next-generation AJA frame synchronization and signal-preparation platform for hybrid SDI/SMPTE ST 2110 workflows in dense mobile production, broadcast facilities, live events, and complex color management environments. It's a comprehensive signal preparation platform for synchronization, conversion, color, audio, SDI/IP interoperability, monitoring, with AJA's reputation for production-proven reliability.

$14,995 US MSRP

https://www.aja.com/products/fs8



HDR/WCG Real Time Processor

- HDR Conversions
  - HDR to HDR
  - HDR to SDR
  - SDR to HDR
- Colorimetry
  - BT.709 and BT.2020

Video Processing Transforms

- Each processing channel can independently select from:
  - Colorfront Engine
  - NBCU 3D LUTs
  - BBC HLG 3D LUTs
  - User 3D LUTs
  - Dynamic 3D LUTs

Colorfront Engine (CFE) Advanced HDR Conversions

- Processing Based on Human Perception Model
- Perceptually optimized color volume remapping
- Preserves the original creative intent
- Parametric controls including HDR functions and color corrector
- TV Mode for applications such as television broadcast
- Live Mode for applications such as broadcast, OTT, A/V
- Film Mode for applications such as on-set camera preview and look creation
- SDR to Dolby Vision Preview Mode for applications supporting Dolby Vision grading workflows
- Input Video Dynamic Range/Color Gamut
  - SDR BT.709 100 Nits

- SDR Extended BT.709
  - PQ BT.2020 1000 Nits
  - PQ P3D65 1000 Nits
  - P3D65 Gamma 2.6 (Live mode only)
  - Hybrid Log Gamma BT.2100
  - HLG Extended BT.709
  - HLG Extended BT.2100
  - Sony S-Log3 S-Gamut3
  - Sony S-Log3 S-Gamut3 Cine
  - Sony S-Log3 BT.2020
  - ARRI Log C Wide Gamut
  - ARRI LogC4 Wide Gamut 4
  - Panasonic V-log
  - RED Log3G10 Wide Gamut
  - Canon Log 2
  - Canon Log 3
  - BMDFilm Wide Gamut Gen5 (Live mode only)
  - DJI D-Log D-Gamut (Live mode only)
  - ACEScct (Film mode only)
- Output Video Dynamic Range/Color Gamut
  - SDR BT.709 100 Nits
  - SDR Extended BT.709
  - PQ BT.2020 1000 Nits
  - PQ P3D65 1000 Nits
  - PQ BT.2020 6000 Nits (Live mode only)
  - PQ BT.2020 6000 Nits ConstrainP3 (Live mode only)
  - PQ BT.2020 8000 Nits (Live mode only)
  - PQ BT.2020 8000 Nits ConstrainP3 (Live mode only)
  - PQ BT.2020 10000 Nits (Live mode only)
  - PQ BT.2020 10000 Nits ConstrainP3 (Live mode only)
  - Hybrid Log Gamma BT.2100
  - HLG Extended BT.709
  - HLG Extended BT.2100
  - Sony S-Log3 S-Gamut3
  - Sony S-Log3 BT.2020
  - ARRI Log C Wide Gamut
  - ARRI LogC4 Wide Gamut 4
  - ACEScct (Film mode only)
- SDR Preview mode
- Ambient Light Compensation control
- PQ Output Nit level: 48-10000 Nits
- PQ Output P3 Colorspace Clamp
- Exposure, Color Temp, Tint controls
- TV Mode controls
  - Highlight management: Brightness, Highlight, Super Highlight
  - Color Correction: Lift, Gamma, Gain, Saturation
  - Camera Correction: Exposure, Color Temp, Tint
- Live Mode controls
  - Grading: Lift, Gamma, Gain,
  - SDR Softness control
  - ITU-R BT.2408 control
- Film Mode controls
  - Grading space: LogC, ACEScct, or S-Log3
  - ACES CDL: Offset, Power, Slope, Saturation
  - A/B Look Selection
  - A/B Look Mix
    - MasterLook
    - MasterBroadcast
    - MasterLookBright
    - MasterLookCool
    - MasterLookLowCon
    - MasterLookSoftColor
    - MasterLookVivid
    - MasterLookWarm
    - MasterPastelD60
    - MasterPastelD65
    - Agfa
    - ARRI K1S1
    - Bleach
    - ClassicFilm
    - Ektachrome
    - FilmBlended
    - FilmBlendedLoCon
    - FujiDI
    - FujiXD
    - GenericFilm
    - Kodachrome
    - ReversalClassic
- SDR to Dolby Vision Preview controls
  - Highlights: Low, Mid, High
  - Contrast: Low, Mid, High

BBC HLG 3D LUT HDR Conversions

- Mathematical dynamic range mapping per ITU-R BT.2408
  - SDR/BT.709 Scene Referred to HLG/BT.2100 v1.7
  - SDR/BT.709 Scene Referred to HLG/BT.2100 Strict v1.7
  - SDR/BT.709 Scene Referred UpMap to HLG/BT.2100 v1.7
  - SDR/BT.709 Scene Referred UpMap to HLG/BT.2100 Strict v1.7
  - SDR/BT.709 Display Referred to HLG/BT.2100 v.1.7
  - SDR/BT.709 Display Referred UpMap to HLG/BT.2100 v1.7
  - SDR/BT.2020 Display Referred to HLG/BT.2100 v1.7
  - SDR/BT.2020 Display Referred UpMap to HLG/BT.2100 v1.7
  - PQ 1000 Nits Display Referred to HLG/BT.2100 v1.7
  - PQ 4000 Nits Display Referred to HLG/BT.2100 v1.7
  - S-Log3/BT.2020 100% Scene Referred to HLG/BT.2100 v1.7
  - S-Log3/BT.2020 200% Scene Referred(SR-Live) to HLG/BT.2100 v1.7
  - HLG/BT.2100 to SDR/BT.709 Scene Referred v1.7
  - HLG/BT.2100 to SDR/BT.709 Scene Referred Strict v1.7
  - HLG/BT.2100 to SDR/BT.709 Display Referred Color Appearance Model v1.7
  - HLG/BT.2100 to SDR/BT.709 Display Referred Super White v1.7
  - HLG/BT.2100 to PQ 1000 Nits Display Referred v1.7
  - HLG/BT.2100 to SDR/BT.2020 Display Referred Super White v1.7
  - SDR/BT.709 Scene Referred UpMap to HLG/BT.2100 to SDR/BT.709 Display Referred v1.7

NBCU 3D LUT Processing

- NBCU LUTs developed by NBCUniversal Media, LLC
  - 1-NBCU_SDR2HLG_DL_v1.1, SDR UpMap to HLG using Display Light v1.1
  - 2-NBCU_SDR2HLG_SL_v1, SDR to HLG using Scene Light v1.0
  - 3-NBCU_HLG2SDR_DL_v1.1, HLG to SDR using Display Light v1.1
  - 4-NBCU_SDR2PQ_DL_v1, SDR UpMap to PQ using Display Light v1.0
  - 5-NBCU_PQ2SDR_DL_v1, PQ to SDR using Display Light v1.0
  - 7-NBCU_HLG10002PQ_v1, HLG 1000 Nits to PQ v1.0

User 3D LUT Processing

- Supports custom 33 point .cube format 3D LUTs
- Tetrahedral LUT interpolation
- Configurable Colorimetry, Transfer Characteristic, Signal Range
- Nonvolatile storage of 16 fixed LUTs

Dynamic 3D LUT Processing

- Supports third party apps for automatic loading and processing of 3D LUTs
- Reflects dynamic changes in real time from source software

- Supported by Pomfort Livegrade Pro

Video Formats

- (4K) 4096x2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (UltraHD) 3840x2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (2K) 2048x1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920x1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920x1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 1920x1080i 50, 59.94, 60
- (HD) 1280x720p 50, 59.94, 60

Video Inputs

- 8x 12G-SDI inputs, 8x BNC
  - 12G/6G/3G/HD, SMPTE 292/424/2081/2082
    - YCbCr, 4:2:2, 10-bit
    - Single Link 12G/6G-SDI
    - Single Link 3G-SDI Level A, SMPTE 425
    - Single Link 1.5G-SDI
- 8x Fiber or HD-BNC (optional SFP modules)
  - SFP coax module, 12G/6G-SDI, dual HD-BNC
  - SFP fiber module, 12G/6G-SDI, Single Mode, dual LC or single LC, SMPTE 297
  - SFP fiber module, 3G-SDI, Single Mode, dual LC, single LC, or single SC, SMPTE 297
  - SFP fiber module, 3G-SDI, Multi-Mode, dual LC or single LC, SMPTE 297
- 4x UHD or 8x HD, SMPTE ST 2110-20 Video
  - YCbCr 4:2:2 10-bit
  - RX support for Class-A, B, C, D SMPTE ST 2022-7 redundancy
  - Rx support for Narrow and Wide Senders

Video Outputs

- 8x 12G-SDI outputs
  - 12G/6G/3G/HD, SMPTE 292/424/2081/2082
    - YCbCr, 4:2:2, 10-bit
    - Single Link 12G/6G-SDI
    - Single Link 3G-SDI Level A, SMPTE 425
    - Single Link 1.5G-SDI
- 8x Fiber or HD-BNC (optional SFP modules)
  - SFP coax module, 12G/6G-SDI, dual HD-BNC
  - SFP fiber module, 12G/6G-SDI, Single Mode, dual LC or single LC, SMPTE 297
  - SFP fiber module, 3G-SDI, Single Mode, dual LC, single LC, or single SC, SMPTE 297
  - SFP fiber module, 3G-SDI, Single Mode, dual LC, SMPTE 297
  - SFP fiber module, 3G-SDI, Multi-Mode, dual LC or single LC, SMPTE 297
- 4x UHD or 8x HD, SMPTE ST 2110-20 Video
  - YCbCr 4:2:2 10-bit
  - Tx support for SMPTE ST 2022-7
  - Tx senders are Narrow Gapped

Media Interfaces (In-Band)

- 4x SFP28 Cages
  - Supports 10 GigE and 25 GigE SFPs (SFPs not included)
- Uncompressed media (SMPTE ST 2110-20, 30, 40)
- PTP
- NMOS Discovery, Registration, and Control
  - NMOS Tx/Rx support according to standards IS-04 v1.3 and IS-05 v1.1
  - LLDP
  - In-Band and Out-of-Band
  - L2, L3 with SSM
  - IGMP v2, v3

Operating Modes

- SDI Only Mode: Supports up to 16x16 12G-SDI (8x8 SDI BNC and 8x8 SDI SFPs, optical and HD-BNC)
- Hybrid Mode 1: Supports mix of 8x8 12G-SDI BNC and ST 2110
- Hybrid Mode 2: Supports mix of 8x8 12G-SDI SFPs (optical and HD-BNC) and ST 2110

IP Gateway

- 8x HD (where "x" is a gateway in or out)
- 4x UHD

Examples:

- 4+0, 2+2, 0+4 UHD (where 4+0 is 4 IP inputs to 4 UHD Vid Procs to 4 SDI and or IP outputs and 0 SDI to IP gateways)
- 8+0, 4+4, 0+8 HD (where 8+0 is 8 IP inputs to 8 HD Vid Procs to 8 SDI and or IP outputs and 0 SDI to IP gateways)

Video Processing

- Frame synchronization
- Up, Down, Cross conversion
- Frame rate conversion
- Motion adaptive deinterlacer
- Proc amp controls
- Color corrector
- Color transforms
- Legalizer
- Freeze (manual or on input signal loss)
- Matte generator for background fill
- Test signal generator, SDR and HDR patterns, moving box, text overlay
- Nominal video delay 2 frames
- Adjustable delay (0-30 frames UHD, 0-60 frames HD) with H and V timing controls in pixels and lines

Ancillary Data

- All embedded ANC packets pass-through when output format equals input format
- Ancillary Timecode (LTC, VITC1, VITC2) pass-through for wide range of conversions
- SCTE-104 and Closed Captioning pass-through for wide range of conversions
- Configurable output VPID / SDP for Colorimetry, Transfer Characteristic, and Signal Range
- SMPTE ST 2110-40 Ancillary

Scaling

- Supported in 4K/UltraHD/2K/HD formats
  - Zoom in and out
  - Reposition
  - Region of Interest (ROI)
  - Video processor layering, max 2

Audio Inputs

- 48 kHz sample rate
- 16x SDI embedded inputs (16-channels each)
  - 128-channels, 24-bit, 48 kHz synchronous, SMPTE 299

- 4x UHD or 8x HD SMPTE ST 2110-30 Audio input streams
  - 1x16, 2x8, 4x4 modes, up to 16-channels audio per stream, 24-bit, 48 kHz synchronous
  - 1ms and 125us timing
- DANTE input, 2x RJ-45 (Primary and Secondary)
  - 64-channels, 44.1kHz, 48kHz, 88.2kHz, 96kHz (Sample Rate Converted to 48 kHz)
  - PCM 16, PCM 24, PCM 32
- 2x MADI inputs, (56 or 64-channels each), 2x HD-BNC
  - 128-channels, 24-bit, AES-10

Audio Outputs

- 48 kHz sample rate
- 1x embedded output per Video Processor (16-channels each)
  - 128-channels, 24-bit, 48 kHz synchronous, SMPTE 299
- 4x UHD or 8x HD ST 2110-30 Audio output streams
  - 1x16, 2x8, 4x4 modes, up to 16-channels audio per stream, 24-bit, 48 kHz synchronous
  - 1ms and 125us timing
- DANTE output, 2x RJ-45 (Primary and Secondary)
  - 64-channels, 48kHz synchronous
  - PCM 16, PCM 24, PCM 32
- 2x MADI outputs, 2x HD-BNC
  - 128-channels, 24-bit, AES-10

Audio Processing

- 459 x 448 mono audio matrix, route 1 to 1, 1 to many
  - Inputs: 256 SDI embedded, 128 SMPTE 2110-30, 64 DANTE, 128 MADI, 4 stereo mixdowns (8-channels), 3 tone generators
  - Outputs: 128 from Vid Procs (to SDI embedded and ST 2110-30 streams), 64 DANTE, 128 MADI
- Input adjustment controls for each channel
  - Gain +18 to -18 dB in 0.5 dB steps
  - Phase invert
- Input adjustment controls for each channel
  - Delay 0sec to +0.25sec in 20.8 us steps
- Audio delay can automatically follow video timing delay adjustments
- Four independent 5.1 or 7.1 to stereo mixdown processors with gain adjust
- High quality Sample Rate Conversion supported on all audio inputs
- SRC bypass for non-PCM audio (e.g. Dolby E, AC-3, etc)
- Output adjustment controls for each channel
  - Gain +18 to -18 dB in 0.5 dB steps
  - Phase invert
- Output adjustment controls for each channel
  - Delay 0sec to +2.5sec in 20.8 us steps
- Test signal generator (Silence, 400 Hz, 1 kHz)
- Audio group control

Analog Reference Input

- External, 1x BNC
  - Blackburst or tri-level sync

Analog Reference Output

- External, 1x BNC
  - Blackburst or tri-level sync
  - Configurable

Genlock

- Analog Reference Input
- PTPv2 SMPTE ST 2059-2 / IEEE 1588-2008
  - In-Band only
- Free run

Control Network Interfaces

- 1x RJ-45, 10/100/1000 Ethernet
  - Embedded web server for remote control
  - REST Interface
- 2x RJ-45, 10/100/1000 Ethernet
  - DANTE Controller
- 4x SFP28 Media Interfaces
  - NMOS Discovery, Registration, and Control

User Interfaces

- AJA webUI
- DANTE Controller, Dante Domain Manager & Network Management Applications
- Color LCD Display with backlit button keypad
- Two rotary/push knobs
- LED alarm indicators

Presets

- System, Video Processor, Audio Processor, User 3D LUT, IP Config, and component levels within

Size (w x d x h)

- 17.5" x 16.0" x 1.75" (1RU) (444.5 x 406.4 x 44.45 mm)

Weight

- 7.9 lb (3.6 kg)

Power

- 100-240 VAC 50/60 Hz (Dual, redundant power supplies), 70W typical; 90W max.

Environment

- Safe Operating Temperature: 0 to 40 C (32 to 104 F)
- Safe Storage Temperature (Power OFF): -40 to 60 C (-40 to 140 F)
- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)