

L844AE

4x 1Gb RJ45, 2x 25Gb Fiber Optic



PHYSICAL

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|-------------------------------|--|
| Dimensions (W x H x D) | 43.40 cm x 4.28 cm x 66.37 cm 17.09 in x 1.69 in x 26.13 in |
| Weight | 17.21 kg (Unit) 22.21 kg (Gross) |
| ECCN | 4A994 |
| USHTS Code | 8471.50.0150 |

ELECTRICAL

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| Max Potential Power | 396 Watts (Max) |
| Heat Dissipation | 1351.21 BTU/hr (Max) |
| AC Power Option | 100 - 240 VAC (Input Voltage) 50 - 60 Hz (Line Frequency) |

AC PSU Connector C14



DC Power Option -48 to -60 VDC (Input Voltage)

DC PSU Connector Saf-D Grid



DC option ships with two 3m length power cables with a mating Saf-D-Grid connector and terminates to bare leads

ENVIRONMENTAL

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|-----------------------------------|---|
| Operating Conditions | 10 to 35 °C (50 to 95 °F) 10% to 80% RH (non-condensing) |
| Storage Conditions | -40 to 65 °C (-40 to 149 °F) 5% to 95% RH (non-condensing) |
| Noise Level | 63 dBA (Max) |
| Electromagnetic Compliance | EN 55032 EN 55024 EN 61000 |
| Safety Compliance | EN 60950 EN 62311 IEC 60950 |

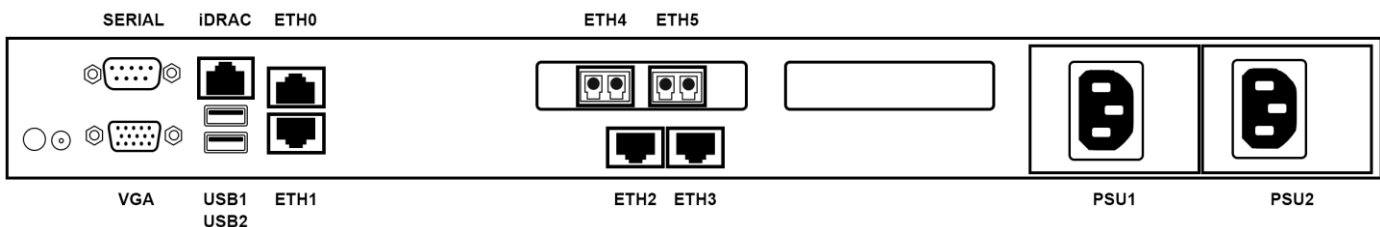
SYSTEM

| | |
|--------------------------|--|
| System Management | iDRAC9 Enterprise |
| Storage Capacity | 240GB Redundant Storage |
| I/O Interfaces | 2x 1Gb RJ45 2x 10Gb SFP+ 2x 25Gb SFP28 |

System ships with:
2x 1000BASE-T RJ45 Transceiver
2x 25GBASE-SR Fiber Optic Transceiver

See next page for qualified SFP add-ons

PORT CONFIGURATION



QUALIFIED SFP ADD-ONS

| Transceiver | Form Factor | Mode | Link Distance | Spare P/N | OEM | OEM Part Number |
|----------------------------------|-------------|-------------|---------------|-----------|----------|-----------------|
| 1000BASE-T RJ45 (Default) | SFP | N/A | 100 m | SP426 | FS | SFP-GB-GE-T |
| 10GBASE-LR Fiber Optic | SFP+ | Single Mode | 10 km | SP431 | Intel | E10GSFPLR |
| 10GBASE-SR Fiber Optic | SFP+ | Multimode | 300 m | SP412 | Intel | E10GSFPSR |
| 25GBASE-SR Fiber Optic (Default) | SFP28 | Multimode | 300 m | SP430 | Mellanox | MMA2P00-AS-SP |

INPUT SUPPORT

Live Input

- Single and Multiple Program Transport Streams (SPTS, MPTS) over UDP/IP and RTP/IP with FEC and SMPTE ST 2022-7 seamless protection switching
- TR-01 with JPEG-2000 compression, PCM audio, and captions
- SMPTE ST 2110-20 (uncompressed video), 2110-30 (PCM), 2110-31 (AC3, EAC3), 2110-40 (Ancillary Data) with SMPTE 2022-7 seamless protection switching, NMOS IS-04 discovery & registration, and NMOS IS-05 device connection management
- SMPTE ST 2022-6 with SMPTE 2022-7 seamless protection switching
- SDI (uncompressed), optional: SD-SDI, HD-SDI, 3G-SDI, Quad 3G-SDI (4K), Interleave (4K)
- AWS Elemental MedicaConnect, SRT protocol (caller mode)
- Packaged network inputs: Apple HLS TS with muxed audio and video
- Video codecs:
 - H.264 up to 4:2:2 10 bit
 - H.265 up to 4:2:2 10 bit including High Dynamic Range (HDR)
 - MPEG-2
 - Apple ProRes®
 - RAW
 - JPEG-2000
- Audio codecs:
 - AC-3 (Dolby Digital)
 - EAC-3 (Dolby Digital Plus) *
 - Dolby E *
 - AAC
 - MPEG-1 Layer II
 - PCM

Live Input Redundancy

- Input integrity: Generate repeat, black, slate, or color when input is missing
- Input failover, including seamless Hot Backup up to 4K ** (dual decode, single encode)

Live Input Redundancy Trigger Conditions

- User-configurable
- Time-based errors ("Input Loss", "Video Loss", "Audio Silence", "Video Freeze", "Video Black")
- Event-based errors ("Transport Error Indicator Flag", "Continuity Counter Errors", "RTP Packet Loss")

File Input

- Containers: MXF (AS-02, OP-1a-c, OP-2a-c, OP-3c), QuickTime, MPEG-4
- Packaged files: HLS
- Discrete audio and caption inputs
- OP-47 captions from 436M track of input MXF files

File Input Features

- Separate audio and video files
- Audio delay offset
- Audio PID tracking
- Audio language tracking
- Audio track selection
- MPEG-2 deblocking
- Source file clipping
- Fast seek
- Merge multiple sources to single output
- Channel selection for multitrack inputs
- Audio only input
- Amazon S3 support
- Static image overlay per input

Multichannel Audio Input

- Per clip audio channel assignment
- Unlimited audio tracks

Timecode

- Time code source embedded
- Time code source use local system clock
- Override time code date
- Start encoding at specified timecode
- External reference connector

Captions

- Ancillary, DVB-Sub, SCTE-20, null, SCC, SMI, SRT, STL, Teletext, TTML, ARIB, EBU-TT-D
- Source CC channel
- 608 to 708 upconvert
- SCTE-27 pass-through support

Ad Avail

- ESAM
- SCTE-35 splice insert
- SCTE-35 with APOS
- SCTE-35 Pullup
- SCTE-104 digital cue tone passthrough
- Ad avail blanking
- Black-out capability

Nielsen

- Nielsen ID3 certification
- Nielsen RTVOD C3/C7 watermarking *

Notifications

- Web callback
- Email

Scripting

- Pre and post processing scripts
- Blank output during ad avail

608 Extended Data Services

- Line 21 passthrough, rewrite, strip, insert

Copy and Redistribution Control Packets

- Line 21 passthrough, rewrite, strip, insert

OUTPUT FORMATS

| | |
|----------------------------------|--|
| Video | <ul style="list-style-type: none"> - H.264 (Baseline, Main, High up to 4:2:2*), 4:2:2 High Profile Intra 10 bit * - H.265 (Main, Main10 up to 4:2:2*) including HDR 10, HLG, and Dolby Vision HDR * - MPEG-2 - Apple® ProRes (up to 4:2:2 10 bit) - Frame capture to JPEG (thumbnail creation) - I-frame only mode - Uncompressed |
| Audio | <ul style="list-style-type: none"> - AAC-LC, AAC-HEV1, AAC-HEV2 (MPEG-2, MPEG-4, LATM/LOAS) - Uncompressed WAV, AIFF - AC-3 (Dolby Digital) *, AC-3 passthrough - EAC-3 (Dolby Digital Plus) *, EAC-3 passthrough - Dolby Atmos passthrough - DTS Express * - MPEG-1 Layer II - Audio only output support (TS, HLS, MSS, RTMP) |
| Multichannel Audio Output | <ul style="list-style-type: none"> - Per clip audio channel assignment - Unlimited audio tracks |
| Multilanguage Support | <ul style="list-style-type: none"> - Follow input type (ISO 639) - Insert audio type (ISO 639) - Follow language code - Insert language code |
| Output Locking | <ul style="list-style-type: none"> - Apple HLS, Microsoft Smooth, and TS outputs |

OUTPUT CONTAINERS

| | |
|-------------------------------|--|
| Live Streaming Outputs | <ul style="list-style-type: none"> - Adobe RTMP Streaming (RTMP, RTMPS) - Apple HTTP Adaptive Streaming (HLS) - Microsoft Smooth Streaming (ISMV) - MPEG DASH (ISOBMFF) - MPEG-2 Part 1, Systems, CableLabs compliant (EBIF passthrough, EBP, PSI, RAI segmentation marker) (MPEG-TS) - Real Time Protocol (RTP) - Single and Multiple Program Transport Streams (SPTS, MPTS) over UDP/IP and RTP/IP with FEC - SMPTE ST 2110-20 (uncompressed video), 2110-30 (PCM), 2110-31 (AC3, EAC3), 2110-40 (Ancillary Data) with SMPTE 2022-7 seamless protection switching, NMOS IS-04 discovery & registration, and NMOS IS-05 device connection management ** - AWS Elemental MediaConnect, Zixi push protocol |
| File Outputs | <ul style="list-style-type: none"> - Apple QuickTime and ProRes (MOV) - Sony XDCAM MXF (XDCAM) - RAW YUV or RGB formats (Uncompressed) - MPEG-4 Part 10 (MP4) |

Apple HTTP Adaptive Streaming (HLS)

- TS or fMP4 segment types
- Byte range offset
- Single file / multiple segments
- Segment length
- Minimum segment length
- Auto upload to CDN
- Content base URL
- Manifest base URL
- Use subdirectories
- Disable caching
- Floating point manifests
- Resolution tag
- Compressed manifests
- Use Pantos 7 CODEC identifiers
- Program-Date-Time flag
- Closed-caption tag
- Ad markers - Adobe
- Ad markers - Simple
- Ad markers - SCTE-35 enhanced
- SMPTE ST 2038 ancillary data
- Alternate manifest destination
- File transfer protocols (HTTP push, Akamai, Webdav) with ULL chunked transfer

Encryption

- AES CBC, CTR, EBC
- Key providers - 1Mainstream, Conax, Inside Secure, Irdeto, Pikel, PlayReady, Secure media, Cisco, Verimatrix, SPEKE

MPEG DASH (ISOBMFF)

- Single file / multiple segments with ULL chunked transfer
- Fragment length
- Segment length
- ULL chunked encoding
- HbbTV 1.5 support
- Base URL
- Minimum buffer time

Encryption

- DASH-CENC
- Key providers - Widevine, Pikel, SPEKE, PlayReady

Microsoft Smooth Streaming (ISMV)

- Manifest level encoding (UTF-8, UTF-16)
- Collapse identical audio streams

Encryption

- AES CTR
- PlayReady support
- Key providers - Conax, Inside Secure, Seachange, Pikel, Irdeto, SPEKE

Reliable TS Output

- Deliver to AWS Elemental MediaConnect
- Zixi push protocol

Encryption

- AES-128, AES-192, AES-256

SMPTE ST 2110 **

- SMPTE ST 2110-20 uncompressed video (SD, HD, 4K)
- SMPTE ST 2110-30 PCM audio
- SMPTE ST 2110-31 AC3 and EAC3 audio
- SMPTE ST 2110-40 ancillary data
- SMPTE ST 2022-7 seamless protection switching
- SCTE 35 to SCTE 104 passthrough
- Precision Time Protocol (PTP)
- NMOS IS-04 discovery & registration
- NMOS IS-05 device connection management

SYSTEM CONTROL

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|-------------------------------------|--|
| CDN | - Integrated CDN support: Basic PUT, WebDav, and Akamai |
| Load Balancing | - Manual or automated load balancing options - Notifications and alerts |
| Monitoring | - System resource and statistics monitoring |
| User Authentication | - Multiple authentication tiers, Amazon S3 public and private keys |
| AWS Elemental Conductor Live | - Separate management system for control, monitoring and worker failure recovery in a multi-system configuration - Provision and operate channels using templates |
| Network Management | - SNMP version 2c |
| Real-time Controls | - Stop, pause and resume individual streams as well as archived files - Audio gain adjustment for real-time control of audio volume - Video and audio preview |

IMAGE ENHANCEMENT

| | |
|-------------------------------|---|
| Anti-aliasing Scaling | - Reduce distortion artifacts when downscaling |
| Lanczos Scaling | - Multivariate interpolation |
| Deblocking and Denoise | - Remove common blocking and noise video artifacts |
| Deinterlacing | - Motion adaptive interpolation - Motion adaptive blend - Motion adaptive interpolation with ticker |
| Inverse Telecine | - Removes 2-3 frame format, restores original 24 fps frame rate |
| Telecine | - None, soft or hard |
| Adaptive Quantization | - Intraframe perceptual QP variation, Machine Learning driven auto Adaptive Quantization mode |
| Scene Change | - Scene change detection |
| Look Ahead | - Look ahead rate control |

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|---------------------------------|---|
| Gaming Optimizations | - Fast complexity changes and rapid quality recovery during transitions |
| Noise Reduction | - Noise filtering capability (Bilateral, Mean, Gaussian, Lanczos, Sharpen, Conserve, Perceptual) |
| Static Logo Insertion | - Up to eight static image overlays (BMP, PNG or TGA format), SDR or HDR - Apply image overlay to a single input, a single output, or globally - Specify z-order and opacity |
| Motion Logo Insertion | - Motion graphic overlay (HTML, MOV, PNG sequence or SWF format), SDR or HDR - Overlay HTML motion graphics generated by third party authoring tools. Switch overlays on or off with SCTE-35 signals. - Using SWF and Adobe® ActionScript® code, manipulate the video for effects such as squeezeback |
| Thumbnail Creation | - Create thumbnail JPEG images for any single frame or at custom intervals |
| Color Correction | - Brightness, contrast, hue, saturation - Full swing range or passthrough - 601, 709 color space conversion - HDR to SDR down conversion |
| MPEG-2 Error Concealment | - Temporal pixel substitution |
| Cropping | - Select pixel locations to crop |
| Timecode Burn In | - Text, font size, position |

AUDIO ENHANCEMENT

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|-----------------------------------|---|
| Level Adjustment | - Volume control |
| Audio Loudness Management | - Audio loudness monitoring and correction; results stored to file (CALM compliant) * |
| Channel Mixing and Mapping | - Manual audio remixing - Broadcaster mixed AD |
| Rate Conversion | - Adjust audio sample rate and frequency |
| Formats | - Encode multiple formats simultaneously |
| Multiple Audio Tracks | - Support for multiple audio streams for each video stream (SAP) |
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| Formats | - Encode multiple formats simultaneously |
| Multiple Audio Tracks | - Support for multiple audio streams for each video stream (SAP) |

OTHER FEATURES

Metadata

- VBI passthrough (V-Chip, CGMS-A)
 - KLV Data
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Caption Extraction and Passthrough

- Inputs:
 - Embedded
 - SCC
 - Teletext
 - Transcaption Outputs:
 - CFF-TT
 - DVB-sub
 - Embedded
 - Embedded+SCTE-20
 - SCTE-20+Embedded
 - SCC
 - SMI
 - SMPTE-TT
 - SRT
 - Teletext
 - TTML
 - WebVTT
 - Open caption support
 - Caption burn in
 - Language flag insertion
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Processing

- Rate control
 - CBR encoding
 - QVBR (Quality-Defined Variable Bitrate) encoding
 - VBR encoding
 - Statmux encoding *
- Insert / respond to AFD
- Scene change detect
- Minimum I-frame interval
- Force interlace mode
- Variable GOP support
- Content-adaptive B frames
- HDR 10 support (ST.2084, ST.2086, MaxFALL, MaxCLL)
- HLG (Hybrid Log Gamma) BT.2020
- Dolby Vision (Certified for Profile 5 and Profile 8.1) *
- Conversion between SDR, HDR 10, and HLG
- Rec.2020 color support
- RTMP metadata insertion
- EBIF passthrough
- EBP, PSI, RAI segmentation marker

* Available with Optional License

** Hardware Dependent