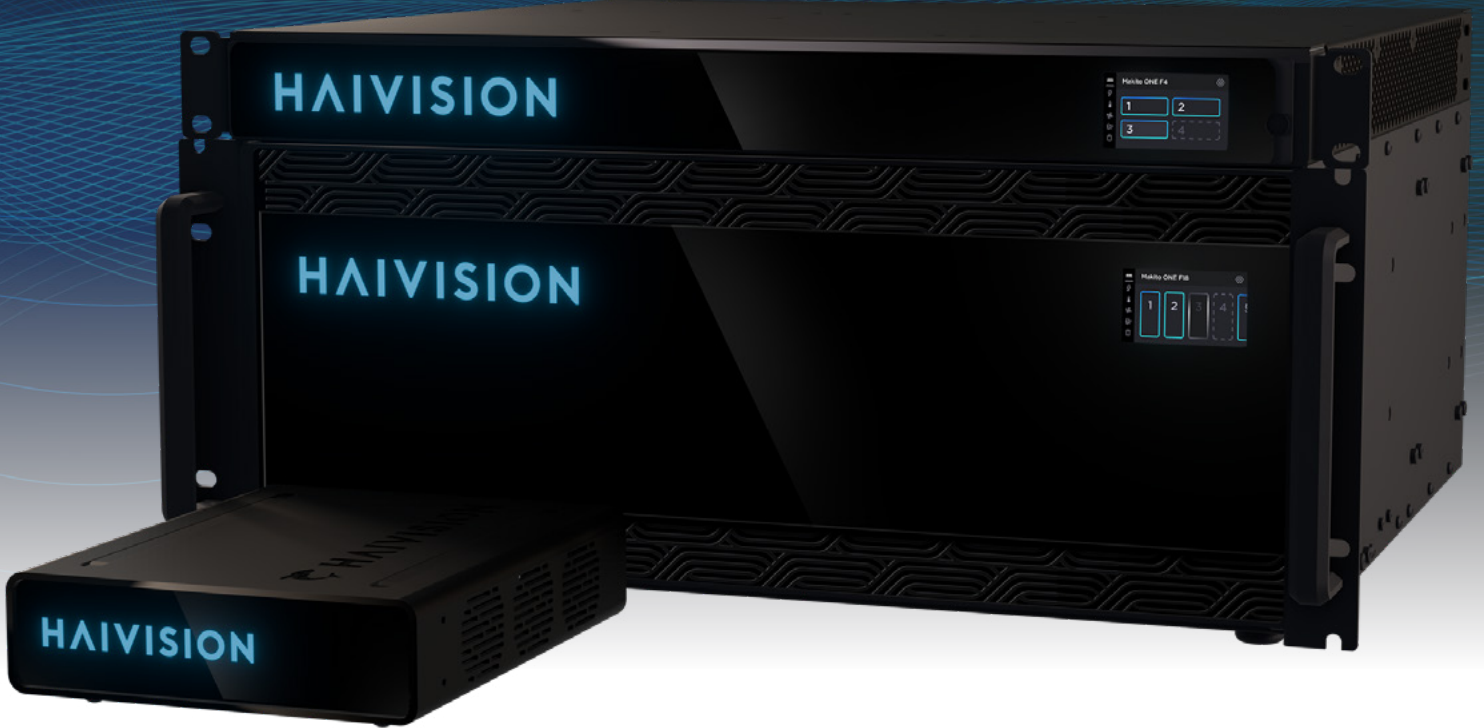


Makito ONE

Video Transport Platform

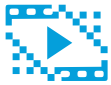


Flexible and Scalable Encoding and Decoding for Broadcast Contribution

Makito ONE is a highly flexible and scalable video transport platform engineered for live production workflows that demand exceptional video quality and ultra-low latency. Purpose-built for the most demanding live broadcast productions, the Makito ONE delivers ultra-low latency encoding and decoding for H.264, HEVC, and JPEG XS workflows. Ideally suited for primary and multi-camera contribution, it supports live video encoding and decoding with 4:2:2 chroma subsampling for accurate color correction and 10-bit processing for wide color gamut and HDR workflows. Support for genlock ensures that every feed stays perfectly in sync for flawless, frame-accurate live production.

Inheriting the award winning Makito blade architecture, each Makito ONE blade features a pair of 12G SDI or 25 Gbps SMPTE ST 2110 interfaces. The system can be deployed as a single blade in a compact desktop chassis, scaled to a 4-blade 1RU rackmount chassis, or expanded to an 18 blade 4RU chassis supporting up to 36 HD/UHD channels. Every channel can be independently configured as an encoder input or decoder output, providing exceptional versatility to meet the needs of a wide range of live broadcast applications.

Featuring video preview thumbnails and real-time performance statistics, the browser-based user interface simplifies monitoring and configuration, while the front-panel touch screen on the multi-blade chassis provides at-a-glance visibility into system status. Regardless of the size or complexity of your live production workflow, the Makito ONE delivers high-quality, low-latency video from any location to any destination.



DUAL-CHANNEL ENCODING/DECODING

Configure two channels of live video encoding or decoding for flexible broadcast productions.



ULTRA-LOW LATENCY

Support advanced remote production workflows with ultra-low latency encoding, decoding, and streaming.



4K VIDEO QUALITY

Process high-quality 4K UHD and HD video with HDR, 10-bit color and 4:2:2 chroma subsampling.



GENLOCK SUPPORT

Ensure precise and frame-accurate synchronization for multi-camera productions.



MULTI-CODEC

Encode and decode H.264, HEVC, and JPEG XS video for different broadcast production requirements.



NATIVE SRT

Secure and reliable streaming at low latency with the Haivision SRT protocol.



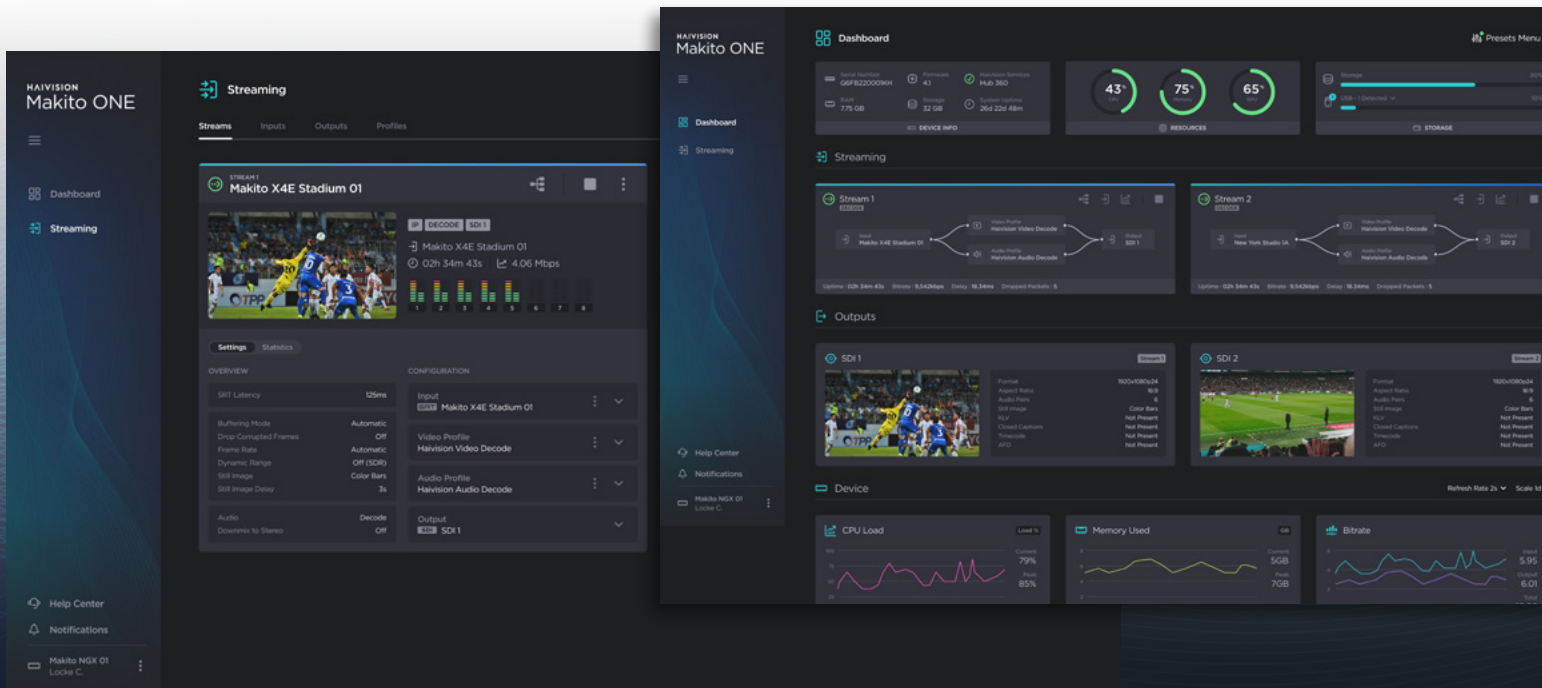
SDI & ST 2110

Available as a dual channel SDI or ST 2110 video processing blade for digital, IP, and hybrid workflows.



HAIVISION ECOSYSTEM

Part of the Haivision Ecosystem of Broadcast Contribution products.



VIDEO INTERFACES

SDI (2x mini BNC inputs):
 SD-SDI SMPTE 259M-C
 HD-SDI SMPTE 292-1
 SMPTE 274M
 SMPTE 296
 3G-SDI SMPTE 424
 SMPTE 425-1 Level A
 6G-SDI SMPTE 2081
 12G-SDI SMPTE 2082
ST 2110 (2x SFP28 ports):
 SMPTE ST 2110 (with 25G SFP28 transceiver)

VIDEO RESOLUTIONS

3840x2160p 60/59.94/50/30/29.97/25 Hz
 1920x1080p 60/59.94/50/30/29.97/25 Hz
 1920x1080i 60/59.94/50 Hz
 1280x720p 60/59.94/50/30/29.97/25 Hz
 720x480/576i 60/59.94/50 Hz

VIDEO ENCODING/DECODING

HEVC & H.264:
 8-bit or 10-bit pixel depth
 Chroma sub-sampling 4:2:0 or 4:2:2
 BT.709 color space and WCG (BT.2020)
 SDR and HDR - HLG or PQ (ST 2084)
 Configurable Group of Picture (GOP) size
 I, IP, IBBP, IBBBP, IBBBBP Framing
 Bitrates from 32 Kbps to 120 Mbps*
 Configurable frame rate
H.264/AVC Profiles:
 MPEG-4 AVC part 10 / ISO/IEC 14496-10
 Baseline, Main, High, High 10-Bit and High 4:2:2
 Profiles up to Level 5.2
H.265/HEVC Profiles:
 ISO/IEC 23008-2
 Main, Main 10-Bit, Main 4:2:2 Profiles up to Level 5.1
JPEG XS (ISO/IEC 21122) High Profile:
 10-bit pixel depth
 4:2:2 chroma sub-sampling
 BT.709 color space and WCG (BT.2020)
 SDR and HDR - HLG or PQ (ST 2084)
 Bitrate up to 2 Gbps *
 TR-07 streaming

* max bitrate depends on configuration

AUDIO INTERFACES

Embedded Audio:
 SD-SDI SMPTE 272M
 HD/3D-SDI SMPTE 299

AUDIO ENCODING/DECODING

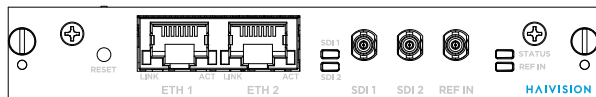
Compression Standard:
 MPEG-2 AAC-LC ISO/IEC 13818-7
Audio Channels:
 8 embedded audio sources
Bit Rates:
 From 14 to 576 kbps per audio pair
Frequency Response:
 From 20 Hz to 22 kHz

METADATA

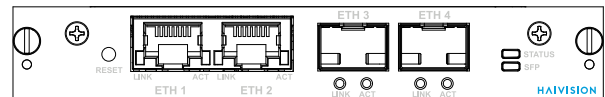
Input/Output:
 SMPTE 352 payload ID (HDR)
 SMPTE 12 timecode
 SMPTE 334 closed captioning
 EIA/CEA/CTA-608/708 CC pass-through

NETWORKING

Interfaces:
 2x RJ45 10GBASE-T
 2x SFP28 (ST 2110 blade)
Streaming Protocols:
 MPEG-TS over UDP
 MPEG-TS over RTP
 Secure Reliable Transport (SRT)
 Unicast streaming
 Multicast streaming (IGMPv3)
 Multiple unicast streaming
Advanced Streaming Features:
 AES encryption 128-bit or 256-bit
 SRT Latency Control
 Forward Error Correction (FEC)
Management:
 HTTPS (web browser)
 REST API
 Haivision Hub 360
 Command line over SSH/Telnet



Makito ONE SDI



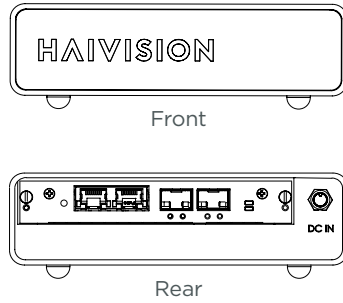
Makito ONE ST 2110

Makito ONE Product Portfolio & Ordering Information:*

Makito ONE Dual SDI Encoder/Decoder Blade	B-M1ED2-SDI2	Dual ch. H.264/HEVC SDI encoder/decoder with genlock
Makito ONE 2110 Encoder/Decoder Blade	B-M1ED2-2110	Dual ch. H.264/HEVC 2110 encoder/decoder
Makito ONE JPEG XS TR-07 License	SWO-M1-JXS	Dual ch. HD/UHD JPEG XS encoder/decoder upgrade license
Makito ONE 4 Slot Chassis	F-F4-RAC	1RU 4 slot chassis, redundant AC power supplies
Makito ONE 18 Slot Chassis	F-F18-RAC	4RU 18 slot chassis, redundant AC power supplies

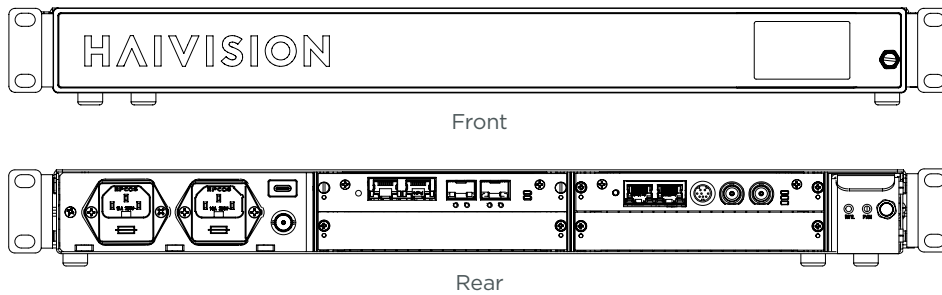
* For complete pricing and ordering, contact us at sales@haivision.com or your certified Haivision reseller.

F1



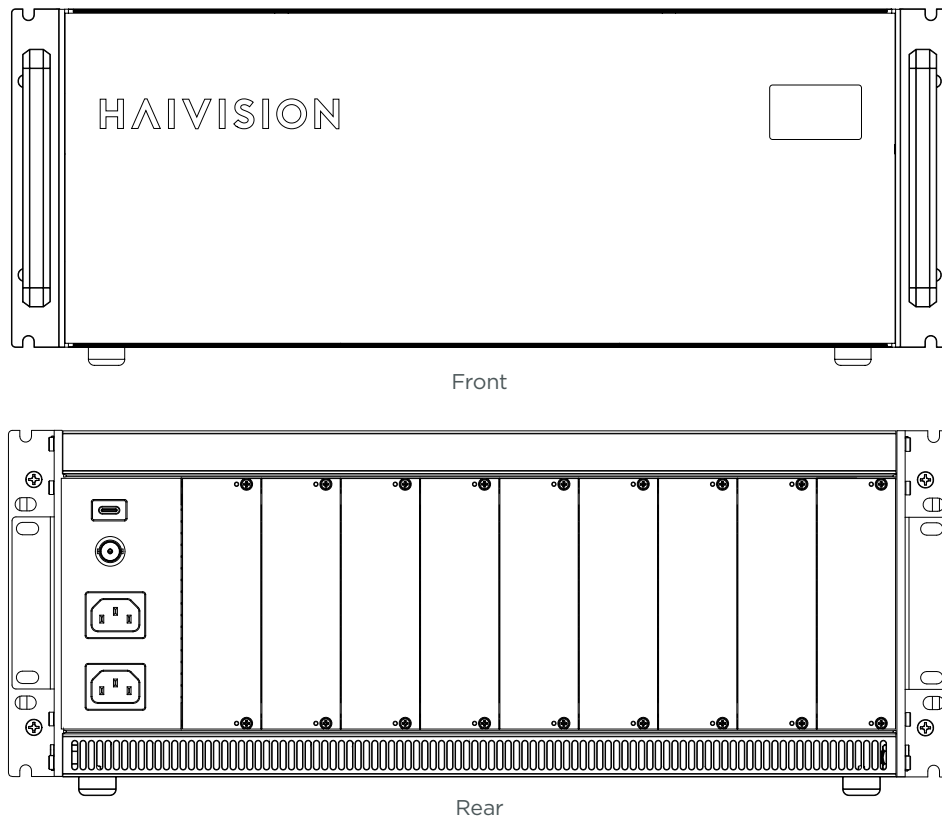
F1 SINGLE BLADE APPLIANCE CHASSIS:
Dimensions:
 44mm H x 160mm W x 194mm D
 1.75" H x 6.3" W x 7.6" D
Weight:
 0.77 kg (1.7 lbs)
Power:
 120/240V AC 60W
Temperature:
 Operating: 0° to 50°C (32° to 122°F)
 Non-operating: -30° to 70°C (-22° to 158°F)
 Humidity: 0-95% non-condensing

F4



F4 CHASSIS (UP TO 4 BLADES):
Dimensions:
 44mm H x 445mm W x 436mm D
 1.75" H x 17.5" W x 17.2" D
Weight:
 7.94 kg (17.5 lbs)
Power:
 Redundant power supplies
 120/240V AC 300W each
Temperature:
 Operating: 0° to 50°C (32° to 122°F)
 Non-operating: -30° to 70°C (-22° to 158°F)
 Humidity: 0-95% non-condensing

F18



F18 CHASSIS (UP TO 18 BLADES):
Dimensions:
 177mm H x 445mm W x 462mm D
 7" H x 17.5" W x 18.9" D
Weight:
 14.5 kg (32 lbs)
Power:
 Redundant power supplies
 120/240V AC 1300W each
Temperature:
 Operating: 0° to 50°C (32° to 122°F)
 Non-operating: -30° to 70°C (-22° to 158°F)
 Humidity: 0-95% non-condensing