



Ruggedized Video Processing and AI at the Tactical Edge

The Kraken X1 Rugged is a real-time video processing solution for mission-critical ISR and situational awareness applications. Purpose-built to process full-motion video (FMV) and KLV metadata in forward-deployed systems, it delivers low-latency, high-quality video with support for real-time AI algorithm processing to empower faster intelligence and situational awareness where it's needed most.

Network Video from the Source Designed for ground and airborne vehicles at the tactical edge, the Kraken X1 Rugged optimizes motion imagery streams to ensure high-quality video transmission over constrained network segments, including mesh, Mobile Ad-hoc Networks (MANET), line-of-sight (LOS) and satellite datalinks. Supporting a wide range of formats, it encodes or transcodes video streams to optimize bandwidth to deliver real-time video and metadata at low latency—even in unpredictable network environments.

High Image Quality, Low Latency The Kraken X1 Rugged delivers exceptional video quality, supporting real-time HEVC/H.265 and AVC/H.264 compression at low latency for ISR missions. Compliant with industry standards, the high-quality encoded video is compatible with downstream systems in order to provide situational awareness and timely operational decision making.

AI-Ready for Mission-Critical Insights Built on the NVIDIA Jetson Orin platform, the Kraken X1 Rugged provides onboard GPU acceleration to enable real-time AI algorithm processing—such as object detection, tracking, and activity recognition. Users can (optionally) select from supported algorithms to enhance and accelerate field-level decision-making.

Ruggedized for Deployment Anywhere Engineered to meet MIL-STD environmental and power requirements, the Kraken X1 Rugged features a compact, fanless design with 28V DC input and passive thermal management. Its durable form factor is ideal for deployment in aircraft, vehicles, and other mobile ISR platforms operating in extreme conditions, ensuring reliable performance wherever missions demand.

Part of the Kraken Family Built on the battle-hardened pedigree of Haivision's Kraken core software, the Kraken X1 Rugged extends the same resilient media pipeline trusted across defense and ISR systems to the tactical edge. Ongoing advancements to the core Kraken software platform enhance capabilities across the entire Kraken family, ensuring that the Kraken X1 Rugged benefits from continuous innovation and operational improvements.

FEATURES

BENEFITS

Real-Time Encoding and Transcoding

Process up to four 1080p60 streams or one 4Kp60 stream with HEVC/H.265 or H.264 at low latency for immediate ISR decision-making.

Advanced Protocol Conversion

Ensure interoperability with downstream systems via support for MPEG-TS, SRT, RTMP, RTSP, RTP, and UDP.

Multi-Stream Output and Routing

Route streams to multiple destinations simultaneously, each with independent protocol and network settings.

Full-Motion Video and Metadata Processing

Ingest, filter, and preserve synchronized KLV metadata for STANAG/MISB compliance. Frame-accurate metadata synchronization supports intelligence workflows.

AI-Ready Architecture

Jetson Orin NX GPU acceleration enables real-time AI algorithms for object detection, tracking, and activity recognition at the edge.

Rugged and Deployable

Engineered to meet MIL-STD-810G, MIL-STD-1275E, and DO-160 environmental and power requirements for use in airborne, maritime, and ground vehicle deployments.

Record & Store Video Streams

Capture streams locally or over the network while retaining metadata for later analysis.

Native SRT Support

Stream with low latency and high reliability using the open-source SRT protocol, resilient to jitter, bandwidth fluctuations, and packet loss.

NETWORK INPUTS

Transport Stream over UDP
Transport Stream over SRT
RTMP
RTSP
RAW Motion JPEG (validated against L3 Vortex)
MJPEG over HTTP

ENCODING INPUTS

SD-SDI SMPTE 259M
HD-SDI SMPTE 292M, 274M, 296M
3G-SDI SMPTE 424M (Level A Only), 425M
12G-SDI SMPTE ST 2082
Audio over SMPTE 272M / 299M
NDI
GigE Vision

CODECS

Supports SD / HD / UHD frame sizes
Supports CBR / VBR coding

Video Decoding Codecs:

H.264 / AVC
H.265 / HEVC
MPEG-4 Part 2
MPEG-2
MPEG-1

Audio Decoding Codecs:

MPEG-1 Layer I | II | III
MPEG-4
MPEG-2 AAC
DTS

ADPCM, Linear PCM

Video Compression Codecs:

H.264 / AVC
H.265 / HEVC
MPEG-4 Part 2
MPEG-2

Audio Compression Codecs:

MPEG1 Layer II
MPEG 2 AAC ADTS

NETWORK OUTPUTS

Transport Stream over UDP
Transport Stream over SRT
RTMP
RTSP PUSH / PULL
TS Segment Archive (Recording)
HLS

METADATA HANDLING

KLV with support of both Asynchronous and Synchronous
KLV
Insertion and KLV Edits MISB ST0601.14 - UAS Datalink Set
MISB ST0102.12 - Security Metadata
MISB ST0604.2 - Time Stamping
STANAG 4609
SMPTE 336M-2007 Data Encoding Protocol
CoT to KLV Conversion
Closed Captioning (CTA(EIA)-608 & CTA(EIA)-708)
KLV Rate Decimation
KLV Filtering

RECORDING

Single-file Transport Stream

VIDEO PROCESSING

De-interlacing
Down Scaling
Aspect Ratio Preserved
Configurable Frame Rate

NETWORKING

Single Program Transport Stream (SPTS)
Unicast streaming (IPv4 & IPv6)
Multicast streaming (IGMPv3 & IPv6)
Session Announcement (SAP)

MANAGEMENT

Web User Interface
REST API
Console UI

OPERATING SYSTEM

Embedded Linux (Yocto)

**KRAKEN X1 RUGGED
(S-KR-KX1)****Weight:**

3.1 lbs / 1.4 kg

Dimensions:

H: 1.73" (44 mm) W: 4.80" (120 mm) D: 5.51" (140 mm)

Power:

30W, 28Vdc per MIL-STD-704, 9-60Vdc nominal

Temperature:

Operating: -20°C–55°C (-4°F–131°F)
Non-Operating: -40°C to 65°C (-40°F to 149°F)

IP Interface:

1x 1GigE Base-T NIC

Video Interface:

SDI In, up to 12G

OTHER KRAKEN OFFERINGS

Refer to Kraken Series datasheet

Software Version: 4.2

Kraken X1 Rugged Product Portfolio & Ordering Information

Kraken X1 Rugged Transcoding System	S-KR-KX1R	Kraken X1 Rugged transcoding system with KLV Metadata enabled. Includes 4x stream license. Additional capacity is enabled with SWO-KR-STREAM transcode channel license. Includes SDI capture up to 4Kp60.
Kraken X1 Rugged Transcoding System with Real-Time Processing	S-KR-KX1R-AI	Kraken X1 Rugged transcoding system with KLV Metadata and real-time processing enabled. Includes 4x stream license with processing. Additional capacity is enabled with SWO-KR-STREAM-AI transcode and processing channel license. Includes SDI capture up to 4Kp60.
Enable Real-Time Processing on Kraken X1 System	SWO-KR-KX1-AI-UP	Upgrade existing Kraken X1 appliances to enable real-time processing. Enables processing on 4x streams.
Kraken Additional Stream License	SWO-KR-STREAM	Kraken Additional Stream License - Enables 1 stream for transcoding or bypass mode. All codecs currently supported by Kraken are applicable for transcoding input and output.
Kraken Additional Stream License with Real-Time Processing	SWO-KR-STREAM-AI	Kraken Additional Stream License with real-time processing enabled - Allows 1x additional stream for transcoding or bypass mode. All codecs currently supported by Kraken are applicable for transcoding input and output.

DoDIN APL Certified

Kraken is on the Department of Defense Information Network Approved Product List (DoDIN APL) under tracking number **2118301**.