

SDI Decoder

Multi-Channel MPEG-TS to SDI Payout Platform
DATASHEET



16×
SDI OUTPUTS

3G-SDI
OUTPUT STANDARD

HW GPU
DECODING

1 RU
FORM FACTOR

REST API
MANAGEMENT

The Hornets Tech SDI Decoder is a broadcast-grade playout platform that receives **MPEG-TS/UDP streams** or local files and outputs uncompressed baseband video and audio on up to **16× 3G-SDI ports** via Blackmagic DeckLink Quad 2 cards. With hardware-accelerated GPU decoding (Intel VA-API), **automatic PCIe device topology detection**, built-in SMPTE test pattern generator, per-channel watchdog with auto-recovery, and a full REST API with web dashboard, it delivers reliable multi-channel SDI playout in a compact 1RU form factor.

SIGNAL FLOW

MPEG-TS Input
UDP / File / Test Pattern

Hornets Tech SDI Decoder
HW Decode + Baseband Output

16× 3G-SDI Output
BNC (DeckLink Quad 2)

KEY FEATURES

- 16× simultaneous SDI output channels
- DeckLink Quad 2 output (SD-SDI, HD-SDI, 3G-SDI)
- Hardware-accelerated GPU decoding (Intel VA-API)
- MPEG-TS/UDP ingest (multicast & unicast)
- File-based playout with seamless loop
- Built-in SMPTE test pattern generator (HD bars, colour bars, test sources)
- Automatic PCIe topology-based device detection
- Per-channel configurable video mode (720p to 1080p60)
- Independent per-channel start / stop / restart
- Auto-recovery watchdog with CPU stall detection
- Real-time per-stream status, uptime, and error tracking
- System health monitoring (CPU, RAM, disk, temperature)
- Real-time bandwidth monitoring per interface
- System alerts with configurable thresholds
- Full REST API for integration & automation
- Web-based management dashboard

INPUT SPECIFICATIONS

Protocol	MPEG-TS / UDP (multicast & unicast)
Video Codecs	H.264 (hardware-accelerated)
Audio Codecs	AAC-LC, MPEG Audio
Container	MPEG-TS, MP4, MOV
Max Channels	16× simultaneous decode
File Playback	Local files with seamless loop
Test Patterns	SMPTE HD bars, PAL bars, test sources
Buffer	4 MB UDP receive buffer (configurable)

OUTPUT SPECIFICATIONS

Interface	3G-SDI (BNC, DeckLink Quad 2)
Ports	16× SDI (2× DeckLink Quad 2 cards)
Video Format	Uncompressed UYVY 4:2:2
Audio Format	PCM 16-bit stereo, 48 kHz (embedded)
Resolution	Up to 1920 × 1080 (Full HD)
Frame Rates	25, 29.97, 30, 50, 59.94, 60 fps
Interlaced	1080i50, 1080i59.94
Progressive	720p, 1080p25/29.97/30/50/59.94/60

PRODUCT



TYPICAL APPLICATIONS

- IP-to-SDI playout for broadcast routers & matrices
- Master control room SDI monitoring feeds
- IPTV-to-SDI gateway for legacy infrastructure
- File-based playout & loop playback for digital signage
- SDI test pattern generation for facility commissioning
- Multi-channel confidence monitoring on SDI displays
- Disaster recovery & backup playout to SDI

MANAGEMENT & MONITORING

API	RESTful JSON (streams, health, control)
Web UI	Browser-based management dashboard
Stream Control	Per-channel start / stop / restart
Health Monitoring	CPU, RAM, disk, temperature
Bandwidth	Real-time per-interface RX/TX monitoring
Alerts	CPU, RAM, network thresholds
Watchdog	Auto-restart with CPU stall detection
Device Detection	Auto PCIe topology mapping

PHYSICAL & ENVIRONMENTAL

Form Factor	19" rack-mount, 1 RU
SDI Ports	16× Mini BNC (2× DeckLink Quad 2)
Network	GbE (multicast-capable)
GPU	Intel (VA-API hardware decode)
Operating Temp	0 °C to +40 °C
Humidity	10–90 % RH, non-condensing
IOMMU	Passthrough mode required (iommu=pt)
Compliance	CE, FCC Class A