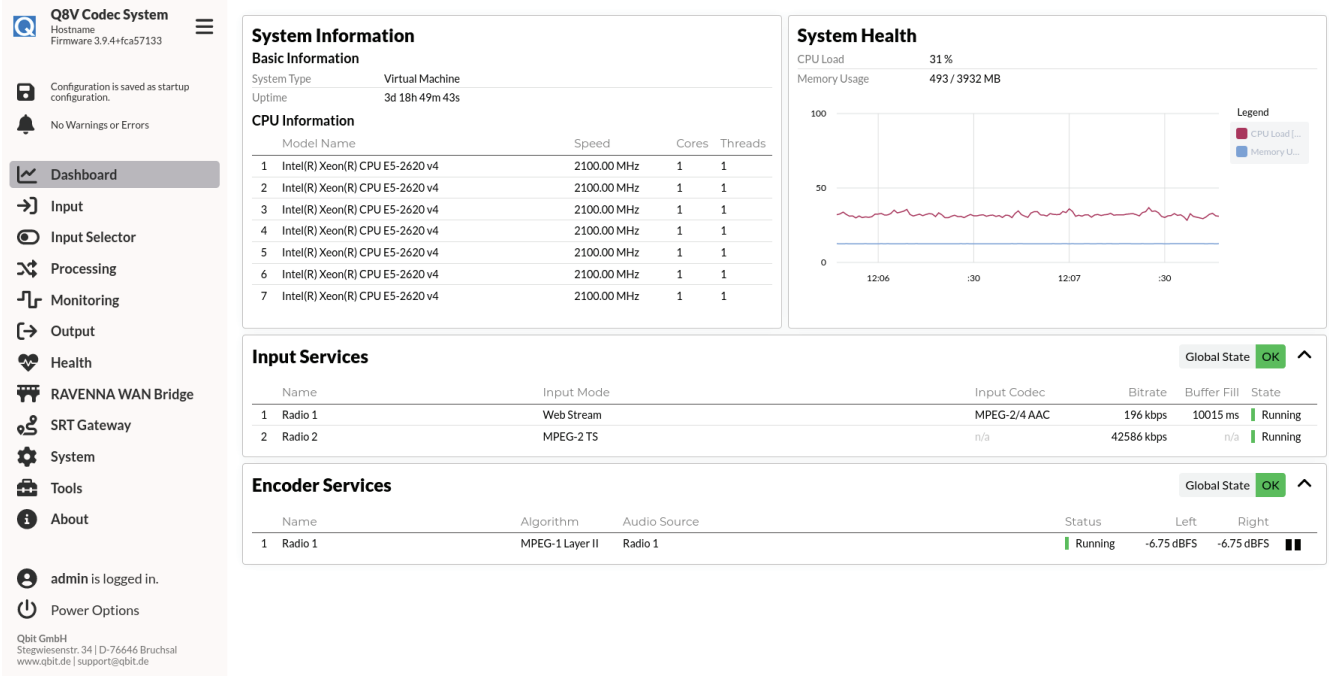
Q8V Codec System



Applications

- Encoding for DVB (DVB-S, DVB-S2, DVB-T2)
- Encoding for Internet Radio Distribution (Icecast2, HLS, DASH)
- Low-latency bi-directional studio-to-studio connections
- Linking together RAVENNA/AES67 networks for remote production
- Transcoding system for standardization of radio services for cable network operators
- Gateway between SRT and UDP streams

Features

- Flexible deployment options
- Fluid licensing
- Scalable software
- Remote control using REST API, SNMPv2c, EmBER+
- Dynamic network interface assignment
- State-of-the-art security

The audio processing system.

The Q8V Codec System is Qbit's flagship solution for all your audio processing needs. If you want to encode your radio programmes for distribution over the Internet using Icecast2 or HLS or if you want to link together your RAVENNA/AES67 networks, the Q8V got you covered.

The Q8V licensing is really flexible, you can start with a single channel and extend it anytime in the field. For multi-device installations, licenses may be shared between devices for even higher flexibility.

The dynamic network configuration allows to add an unlimited number of VLANs, bonding network interfaces together and assigning roles to each interface.

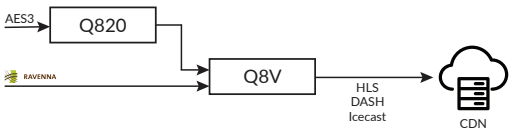
The Q8V is available on Qbit hardware, the "Q8V Appliance", but may also be installed in the cloud, in VM environments such as VMware(R) vSphere or Hyper-V or on customer-owned hardware.

A huge variety of state-of-the-art and established audio codecs and formats are supported, such as xHE-AAC®.

Using the internal audio matrix, every audio stream can be routed to any other component, making the device highly flexible.

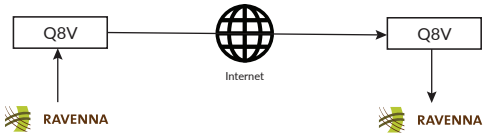
The Q8V is constantly under development for new features and improvements.

Example Application: Internet Streaming Encoder



The Q8V is fed with RAVENNA audio signals from the studio, then encoded to MP3 and AAC before being distributed to one or more CDNs in Icecast, HLS and DASH formats.

Example Application: RAVENNA WAN Bridge



Two RAVENNA networks in different locations are connected over the internet using SRT, with compression to save bandwidth. The streams are transmitted with a constant delay, as the RAVENNA timestamps are preserved.

WE TRANSPORT YOUR AUDIO

Software Specifications

Audio-over-IP Input/Output

Standards	RAVENNA, AES67, ST2110-30/-31, Axia Livewire+™, Dante® in AES67 mode
Supported Formats	L24, L16, AM824
Number of Channels	Up to 64 per Stream
Sample Rates	32, 48, 96, 192 kHz
Discovery	mDNS, SAP, Manual Configuration
Channel assignment by internal crossbar	
Dual Streaming according to ST2022-7	

Input Protocols

Internet Radio Streaming	Icecast2, SHOUTcast, HTTP Live Streaming (HLS), Dynamic Adaptive Streaming over HTTP (MPEG-DASH)
MPEG-2 Transport Stream (according to ISO 13818-1)	• SRT, RIST, RTP, Plain UDP • Unicast, Multicast (IGMPv2/v3) • Up to 300 Mbps per Stream
Elementary Stream (according to RFC3550, RFC3551, RFC3016, RFC3640)	• SRT, RIST, RTP, Plain UDP • Unicast, Multicast (IGMPv2/v3) • EBU N/ACIP compliant
DAB/EDI over IP (according to ETSI TS 102 693, ETSI TS 102 821)	• Unicast, Multicast (IGMPv2/v3) • Up to 64 Services per Stream • Generation of UECP data from DAB service information and PAD
File Playout	Playback of static audio files in MP3 or WAV format
UECP over IP (according to UECP v7.1)	

Output Protocols: Internet Radio Streaming

Icecast2/SHOUTcast	Tested with Xiph Icecast 2.4.4, Icecast-kh 2.4.0-kh11 and Rocket Streaming Audio Server 1.0.4
HLS	• HTTP PUSH and HTTP PULL support • Up to 8 bitrates per program • Delta Playlist Support • Akamai MSL 4.0 certified
MPEG-DASH (future option)	
RTMP	

Output Protocols

MPEG-2 Transport Stream (according to ISO 13818-1)	• SRT, RIST, RTP, Plain UDP • Forward Error Correction (according to Pro-MPEG Code of Practice #3, release 2) • Unicast, Multicast (IGMPv2/v3) • Up to 256 Services per Stream • Service Information (according to ETSI EN 300 468) • Fully DVB compliant

Output Protocols

Elementary Stream (according to RFC3550, RFC3551, RFC3016, RFC3640)	• SRT, RIST, RTP, Plain UDP • Unicast, Multicast (IGMPv2/v3)

Encoding/Decoding Algorithms

- MPEG-1/2 Layer 2 (according to ISO 11172-3, ISO 13818-3)
- MPEG-1/2 Layer 3 (according to ISO 11172-3, ISO 13818-3)
- AAC-LC, HE-AACv1, HE-AACv2, AAC-LD, AAC-ELD (ADTS and LOAS framing, according to ISO 13818-7, ISO 14496-3)
- xHE-AAC® (according to ISO 23003-3, ISO 14496-3/Amd 3)
- AC-3/E-AC-3 (according to ATSC A/52)
- Opus
- G.711 µ-Law/A-Law, G.722
- Others on request

Audio Channel Configurations (dependant on algorithm)	• Stereo, Joint Stereo • Mono (Extract/Mixdown) • 5.0/5.1 • 7.0/7.1
Embedded Metadata	• RDS/UECP for DVB • ID3 Tags for Internet Radio Streaming

Metadata

Input Protocols	• Embedded in Audio Elementary Stream • Private Stream in MPEG-2 Transport Stream • Icecast2/SHOUTcast StreamTitle • DAB SI/PAD • Others on request
Output Protocols	• Embedded in Audio Elementary Stream • Private Stream in MPEG-2 Transport Stream • Icecast2/SHOUTcast StreamTitle • Others on request

Network Interfaces

Dynamic network interface assignment

Isolation of all networks by integrated firewall

Roles can be freely assigned to any of the interfaces

System Configuration, Control and Monitoring

HTML5 Web UI

Remote Control	• REST API • EmBER+ • NMOS IS-04/IS-05 • SNMPv2c
User Management	• Fine-grained permission control • LDAP(S) authentication

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Hardware Specifications (Q8V Appliance)

Power Requirements	
Power Supply	● 100 to 240 V AC +/- 10%, 50 to 60 Hz ○ -48 V DC ○ Redundant Power Supply
Power Consumption	< 75 W

Physical Parameters	
Chassis	19”, 1 RU
Size (W/D/H)	483 mm / 400 mm / 44 mm
Weight	6 kg
Connectors	● 2x IEC60320 C14 (Power) ● 8x RJ-45 1GbE Ethernet ○ 4x RJ-45 1GbE Ethernet and 4x SFP+ 10GbE Ethernet

Environmental Conditions	
Operating Temperature	0 to 45 °C
Storage Temperature	-20 to 70 °C
Humidity	< 95 % (non-condensing)

Legend: ● Default ○ Optional

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