TopEast Distributed AV

QG-FBSLTR002 Datasheet

Distributed AV Processing Node

Embedded 4K@60 codec node running encode or decode, one mode at a time, with 1 HDMI input plus loop-through and 1 HDMI output, dual-link Gigabit copper with PoE and Gigabit fibre.

QG-FBSLTR002 is a 4K@60 integrated codec node of the distributed system. It transports high quality video and audio over a Gigabit IP network at low bit rates with low latency. It takes 1 HDMI 4K@60 input with a loop-through output and delivers 1 HDMI 4K@60 output. Encode and decode share the unit but never run together: encode mode captures at the input and loops to the output, decode mode drives the display. Panel buttons or the web page switch the mode, and the change takes effect without a reboot. The node runs a quad-core ARM Cortex-A55 platform with 8kHz to 48kHz audio codecs, an 8-layer video wall and a four-window KVM seat screen. A Gigabit copper port with PoE and a Gigabit fibre port run in mutual backup; the link switches to fibre automatically when the copper port fails. Codec latency stays within 32ms, and the node works 7x24.

Key Features

· Encoding: H.265 / H.264; 1 x 4K@60 encode, source-adaptive
· Decoding: 1 x 4K@60 or 8 x 1080P30 decode, adaptive
· Frame rate / bit rate: 5 to 60fps; 32kbps to 16Mbps; VBR / CBR / fixed QP
· Latency: Codec latency within 32ms
· Audio: G.711A / G.722.2 / AAC-LC / OPUS; 1 encode, 8 decode
· Sampling / bit rate: 8 to 48kHz; 8 to 320kbps
· Video wall: 8 layers; open, roam, overlay, subtitle scroll
· KVM seat: Four windows per screen; preview, push, capture, plan, follow
· USB: Keyboard, mouse, flash drive, USB AV, storage
· Latency: Within 32ms
· Protocols: TCP/IP; TCP / UDP / RTSP / RTP / ONVIF / SIP / HTTP
· Management: B/S web; C/S client (Windows / iOS / Android / Kylin)

Features open progressively with software versions; the factory firmware feature sheet governs.

Hardware Specifications

Module	Item	Specification
System	System	Embedded Linux, quad-core ARM Cortex-A55 @1.4GHz
Video	Video input	1 HDMI 4K@60 input, 1 loop-through output
Video	Video output	1 HDMI 4K@60 output
Audio	Line audio	Stereo line in x 1, out x 1; HDMI embedded audio out
Audio	Intercom	1 x 3.5mm for headset
Control	RS232 / RS485	1 x RS232, 1 x RS485, 3P Phoenix, programmable
Control	IO / IR	4 x 2P terminals, IO or IR; 1 IR receiver
Control	RELAY	3 x 2P terminals, programmable
Control	USB	4 ports: 2 x USB 3.0 + 2 x USB 2.0
Network	Network	Gigabit RJ45 (PoE) + Gigabit fibre, mutual backup
Panel	Panel	0.9-inch OLED, 4 indicators
Environment	Power	Max 20W, DC 12V/3A and PoE dual power
Environment	Net weight	About 1kg
Environment	Dimensions	220 x 140 x 30 mm (L x W x H)
Environment	Operating temperature	0°C to +55°C, rise below 20°C

Software Specifications

Module	Item	Specification
Codec	Encoding	H.265 / H.264; 1 x 4K@60 encode, source-adaptive
Codec	Decoding	1 x 4K@60 or 8 x 1080P30 decode, adaptive
Codec	Frame rate / bit rate	5 to 60fps; 32kbps to 16Mbps; VBR / CBR / fixed QP
Codec	Latency	Codec latency within 32ms
Audio	Audio	G.711A / G.722.2 / AAC-LC / OPUS; 1 encode, 8 decode
Audio	Sampling / bit rate	8 to 48kHz; 8 to 320kbps
Splicing	Video wall	8 layers; open, roam, overlay, subtitle scroll
KVM	KVM seat	Four windows per screen; preview, push, capture, plan, follow
KVM	USB	Keyboard, mouse, flash drive, USB AV, storage
KVM	Latency	Within 32ms
Protocol	Protocols	TCP/IP; TCP / UDP / RTSP / RTP / ONVIF / SIP / HTTP
Management	Management	B/S web; C/S client (Windows / iOS / Android / Kylin)

Typical Applications

· Main display path in command centres: 4K@60 source point-to-point on the wall, seat latency within 32ms
· Meeting-room 4K source ingest: HDMI in and encoded on arrival, no rewiring needed
· Seat collaboration: keyboard, mouse and USB drive pass through to source PCs

Network Requirements

Item	Requirement and advice
Switch requirements	Gigabit or above, L2/L3; beyond 100 nodes interconnect the switch group over 10G; enable IGMP Snooping with fast leave
Multicast planning	Class-D multicast carries streams by default; keep management and stream traffic in separate VLANs with the gateway on the core switch
Bandwidth estimate	Node stream bandwidth = bit rate x 1.15 (protocol overhead); keep switch load under 40% of capacity
Cascade and extension	Fibre cascades across floors; on dual-link models copper runs main and fibre stands by without dropping streams
Powering	PoE models take power straight from the switch (802.3at); a DC 12V/3A adapter ships in the box

Interface and networking details: see the user manual, Chapter 3.

Model Selection

Model	Class	Positioning
QG-FBSLTR001	Distributed management node, 4K30	Encode or decode, one mode at a time, backbone of small systems
QG-FBSLTR002	Distributed integrated codec node, 4K60	Encode or decode, one mode at a time, trunk links and main displays
QG-FBSLTR003	Distributed integrated codec node, 4K60	Encode or decode, one mode at a time, one pair of HDMI ports
QG-FBST5K	Encoding node, 4K60	Seat source ingest, single-channel encoding (4K60)
QG-FBSR5K	Decoding node, 4K60	Seat and wall output, single-channel decoding (4K60)
QG-FBST52K	Dual-channel encoding node, 4K60	Dual sources encoded at once (dual-channel, in bulk)
QG-FBSR52K	Dual-channel decoding node, 4K60	Two displays driven independently (dual-channel, in bulk)

Packing List

Item	Qty
Node unit	1
DC 12V/3A adapter	1 (not needed on PoE builds)
3.5mm audio cable	1
Mounting ears and screws	2 sets
Certificate and quick-start card	1 each

Compliance and Reliability

· Embedded Linux software copyright registered (QG-FBSIMC Integrated Management Platform V3.0 and others)

· CCC-certified power adapter in the box; hardware designed to GB4943 IT-equipment safety

· MTBF no less than 150000 hours

· Runs on domestic OS clients (Kylin)

Appearance, interface counts or accessories may vary by hardware batch; the packing list page governs. Volume orders can be customised with project-specific accessories and pre-configured firmware.