Q-SYS Networked Systems **Technical Notes**

Q-SYS Core Processors

Core processor channel capacities

This technical note explains the channel capacities of the various Q-SYS Core processor models. For guidance on checking I/O channel needs against the respective capacities of various Q-SYS Core Processors and peripheral devices, download the interactive **Q-SYS I/O Calculator** spreadsheet from the QSC web site at **http://www.qsc.com/resource-files/productresources/dn/dsp_cores/q_tn_qsys_core_io_calculator.xlsx**.

Channel definitions and descriptions

Local I/O—These are inputs and outputs located right at the core instead of on peripheral devices elsewhere on the network. The Core 110f Unified Processor has eight balanced analog flex channels that can be used as audio inputs or outputs as needed. The Core 510i, an Integrated Processor, has eight card slots that accommodate Q-SYS I/O cards. The Core 5200 Enterprise Processor has no local I/O.

Q-LAN™ Network—These are high-performance digital audio channels distributed over the Q-SYS network but routed and processed through the Core Processor.

All models have a fixed maximum number of both input and output network channels.

Q-LAN™ Streams—A stream is a network connection between two Q-SYS devices that contains as few as one Q-LAN channel or as many as 16. While each core model has a maximum number of streams, the actual limit is still subject to the maximum number of Q-LAN network channels.

AEC Processors—These are acoustic echo cancellation (AEC) processors available in the core processor. Because each core processor has a finite amount of storage and processing resources, the maximum number of AEC processors varies with tail length (the length of echo time after the original signal that the AEC has to correct for). Longer tail lengths require more resources, reducing the number of processors that the core can accommodate.

Softphones—These are software-defined telephone interfaces that utilize SIP and VoIP technology to allow conference calls from the Q-SYS core processors. This category depicts the number of simultaneous VoIP calls that the Q-SYS core processor can facilitate concurrently.

Standard Media Tracks—These are the audio playback tracks available in the Q-SYS core processor. All core models come with 16 audio playback tracks but this number can be upgraded. Media player upgrades are available for purchase from QSC and can be installed in the field.

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Upgraded Media Tracks—This is the maximum number of audio playback tracks available on a core processor's media player when it has been upgraded.

Standard Recording Tracks—These are the tracks of audio that the core processor can record to its internal storage.

Upgraded Media Storage—This is the media storage available in the core processor, after upgrading. Storage in the Core 5200 Enterprise Processor is not upgradeable.

Core-to-Core Streaming Channels—These are Q-LAN channels used to stream high-performance audio data between core processors on a shared network.

Media Stream Receivers—These are standards-based software components for receiving and playing compressed audio and video streams sent by media stream transmitters or other standards-based media players. The AV (Muxed) instances figures indicate the number of multiplexed receivers available in the core, and AV (Muxed) channels are the maximum total number of AV channels they can handle.

Media Stream Transmitters—These are standards-based media transmitters for compressing and streaming audio over the Q-SYS network to one or more media stream receivers or standards-based AV media decoders.

WAN Tx and Rx—WAN stream components allow streaming of MP3-compressed 48 kHz-sample-rate audio over a Wide Area Network (WAN) between core processors or between a core processor and other devices.

Model	Core 110f	Core 510i	Core 5200
Local I/O			
In Out	8 8 Flex (in or out) 8	128 8 card slots 128	N/A
Q-LAN Network	128 × 128*	256 × 256	512 × 512
Q-LAN Streams	64 × 64**	256 × 256	256 × 256
AEC Processors by tail length			
100 ms	24	96	240
200 ms *(default)*	16	64	160
300 ms	12	48	120
400 ms	8	32	80
Softphones	4	16	64
Standard Media Tracks	16	16	16
Upgraded Media Tracks	32	32, 64, 128	32, 64, 128
Standard Recording Tracks	4	4	4
Upgraded Media Storage ***	128 GB	128, 256, 512 GB	N/A
Media Stream Receivers			
AV (Muxed) instances	4	16	32
AV (Muxed) channels	24	96	192
Audio-only instances	4	32	128
Audio-only channels	24	64	256
Media Stream Transmitters			
Tx	4	32	32
Channels	24	64	64
WAN Streams			
Instances (Tx / Rx)	4 × 4	32 × 32	128 × 128
Channels	24 × 24	64 × 64	256 × 256

* 64 × 64 when using USB Video Bridging

** 32 × 32 when using USB Video Bridging

*** Actual storage capacity may vary depending on availability of SSD and flash media.