A&E SPECIFICATIONS—Q-SYS Core 510i

The System Processor shall be a fully integrated audio, video and control processor capable of centralized, distributed and hybrid deployment architecture designs. The system processor shall perform all of its real-time audio, video and control processing using Intel® processors running a purpose built, real-time Linux operating system developed by QSC, LLC. The System Processor shall be a single-chassis processor with no internal or external audio busses to other processors. The system shall operate natively on a standard gigabit Ethernet infrastructure available from a broad range of network infrastructure manufacturers, employing DiffServ quality of service, IEEE 1588-2008 (PTPv2) precision time protocol, IP audio and video transport with floating point format data representation for audio. The system shall not require IEEE 802.1AS, IEEE 802.1Qat or IEEE 802.1Qav support on the network infrastructure to function. The overall system latency from analog input to synchronized analog outputs anywhere on the network shall be fixed at 3.167ms. The system shall also be able to achieve an overall system latency of 3.167ms over Layer-3 routed network infrastructure without any additional hardware, software or connection services between subnets.

The system processor shall manage external control interfaces such as Touchscreen Controllers, Paging Stations, Networked Audio I/O Expanders, Network Connected Amplifiers, AV-to-USB Bridging interfaces and IP based PTZ Conference Room Cameras.

The system shall have the capability of operating in a completely dual-redundant manner. The processor shall be able to support a second synchronized backup processor with complete automatic failover in ten seconds or less. Each processor and I/O peripheral shall have redundant network connections with simultaneous, identical network streams for seamless networked audio failover.

The system processor shall be configurable via software to behave as either a system ‘Core’ processor or as and ‘I/O-Frame’ network channel expander in which case it can provide up to 128 x 128 remote channels for a System Processor elsewhere on the network.

The system processor shall natively offer a minimum network channel capacity of 256 input channels and 256 output channels with each stream being configurable as either native Q-LAN networked audio stream format or AES67 formatted audio streams. In addition, the processor will be able to accommodate a minimum of 128 local audio input channels plus 128 local audio output channels of 32-bit (internal processing) audio. Local I/O shall be accommodated using eight configurable card slots in to which any combination of nine I/O circuit cards can be installed (DataPort Amp Out, Line Out, High-performance Mic/Line In, Standard Mic/Line In, CobraNet In/Out, Dante In/Out, AVB In/Out, AES/EBU In/Out and high channel count AES/EBU Out).

The system processor shall have the following front panel controls and indicators: blue monochrome OLED display with page forward capacitive touch button, Unit ID capacitive touch button, Power On blue LED, Two USB A Type ports. The system processor shall provide a monochrome 304x96 blue OLED graphics display displaying the device name, design name and system status, LAN A and B settings, and the firmware version. Device Status shall be displayed on the OLED display including I/O status, muting, level present indication, and system status.

On the rear panel, the system processor shall have one RS232 DE-9 (male 9-pin D-shell) connector, HDMI Video Out, GPIO A: DA-15 (female 15-pin D shell) connector, GPIO B: DA-15 (female 15-pin D shell) connector, Q-Sys Network: LAN A RJ45 1000 Mbps only, LAN B: RJ45 1000 Mbps only, AUX LAN: 10/100/1000 Mbps, four USB-A Host ports. The dimensions of the System processor shall be: 3.5" x 19" x 15" (89 mm x 483 mm x 381 mm).

The system processor shall store a design that shall be comprised of audio, video and control components, wiring, links, text, and graphics on a single or multiple schematic pages. Designs shall include any of the following audio DSP, video, test and measurement components, control components, and layout components: Acoustic Echo Cancellers, Audio Players, Audio Streaming components, Crossfaders, Crossovers, Delay components, Auto Gain control elements, Compressors, Gates, Duckers, Expanders, Ambient Noise Compensators, Limiters, Gain blocks, Graphic Equalizers, Parametric Equalizers, FIR Filters, All-Pass Filters, Band-Pass Filters, Band-Stop Filters, High-Pass Filters, Low-Pass Filters, FIR High-Pass filters, FIR Low-Pass Filters, Dual-Shelf Equalizers, Notch Filters, Meters, Matrix Mixers, Gain-Sharing Automatic Mixers, Gated Automatic Mixers, Signal Routers, Public Address Routers, Room Combiners, Signal Presence Meters, Tone Generators, Tone and Noise Generators, Dual Trace FFT Measurement Modules, Real Time Analyzers, Signal Injectors, Signal Probes, Logic, Value and Position control functions, Lua scripting components, Command Buttons and Triggers, Camera Router, USB Audio Bridge, USB Video Bridge.

The system processor shall support custom user control interfaces either on purpose built touch screen controllers, network computers utilizing a control application or iOS devices via Wi-Fi. Custom control interfaces shall be capable of having multiple user-selectable pages with different controls on each.

The system processor and control engine shall be the QSC Q-Sys Core 510i.