



Q-SYS Core 510i

Features

- Q-SYS Core processing in a flexible chassis featuring 8 onboard I/O card slots
- Install any combination of Q-SYS I/O cards for maximum flexibility
- Audio, video and control processing on a dedicated Linux™ realtime OS
- Software configurable as either a Core 510i processor, or an I/O-510i expander
- Built using standard computer industry hardware and IT industry networking protocols
- Control and integrate external devices using TCP/IP, RS232 and GPIO
- Design with powerful and intuitive Q-SYS Designer Software application
- Seamlessly integrates with Q-SYS AV-to-USB bridging peripherals
- Provides simple integration with QSC amplifiers and loudspeakers
- Multiple levels of system redundancy

Q-SYS Core 510i Integrated Core Processor and I/O Expander



Introduction

The Q-SYS™ Core 510i processor is an audio, video and control processing system that leverages Intel™ CPUs and motherboards as well as a dedicated, Linux™ realtime operating system developed by QSC to provide class-leading capabilities for AV systems of any scale.

The Q-SYS Core 510i processor offers the most flexible audio I/O of any Core in the Q-SYS catalog, perfect for applications that require a diversity of analog, digital and networked audio connectivity. It features eight onboard I/O card slots that can be populated with any combination of Q-SYS Type-II I/O cards allowing diverse connectivity options. The Core 510i processor also offers two modes of operation whereby it can be deployed as a Q-SYS Core Processor with full processing capabilities, or configured as an I/O expander when configured via software as an I/O-510i.

Applications – Q-SYS Core mode

When deployed as a Q-SYS Core, the Core 510i processor provides an abundance of raw processing power for all audio, video and control requirements including integration with the new Q-SYS AV-to-USB Bridging solution. Onboard acoustic echo cancellation (AEC) processing coupled with high channel capacity networked audio provide the ability to manage multiple small to mid-sized conference spaces or a single large space.

Applications – I/O Frame mode

When configured via software as an I/O-510i, the device offers the ability to add up to 128 x 128 audio channels in to the Q-SYS system for processing on a separate Q-SYS Core. It can accommodate any combination of Q-SYS Type-II I/O cards.

This is particularly useful when integrating large numbers of networked audio channels from Dante™, CobraNet™ or AVB™ devices and subsystems in to the Q-SYS Platform.

Network

The Q-SYS Platform utilizes IEEE networking standards and solutions for audio, control and video distribution over a standard Ethernet / IP network. Q-LAN provides deterministic system latencies with analog input to analog output guaranteed at 3.167ms. The Q-SYS Platform uses Q-LAN for audio, video and control connectivity with all Q-SYS peripherals. Additionally, the Q-SYS Core supports VoIP, SIP, LDAP, AES67, TCP/IP and HTTP Web Sockets among many other standard IT networking solutions.

Scalable Redundancy

While QSC is dedicated to building the most reliable products, some applications call for additional assurance. Any element on the Q-SYS Platform – Cores, networks, I/O-Frames and even amplifiers may be deployed in a redundant configuration. The system designer has the choice of making one or all system elements redundant.

Peripherals

The capabilities of the Q-SYS Platform are further enhanced by the ever growing suite of Q-SYS peripheral devices, all of which are compatible with all Q-SYS Core processors, including the Q-SYS Core 510i. The catalog of Q-SYS networked peripheral devices include amplifiers, touch screen controllers, paging stations, I/O channel expanders, PTZ-IP cameras for the conference room and AV-to-USB Bridging devices.

Q-SYS Core 510i Integrated Processor

Description	System processor and control engine with integrated I/O (or I/O expander when configured via software as I/O-510i)
Configuration Modes	"Q-SYS Core" - centralized processor and control engine for a Q-SYS system/I/O-510i configuration suited to integrating high channel-count networked I/O cards (Dante, CobraNet, AVB)" - peripheral to an additional Q-SYS Core processor on the system
Supported Peripherals (when configured as a Q-SYS Core Processor.)	I/O-8 Flex Channel Expander, I/O-USB Bridge, PTZ-IP Camera series, I/O Frame, I/O-Frame 8s, I/O-22, I/O-11 Series, Page Station Series, TSC Series touch screens
Software Requirements	Q-SYS Designer 6.x.x

Channel Capacity

Network Channel Capacity	256 x 256 (in Q-SYS Core mode) / 128 x 128 (in I/O Frame mode)
Local Audio I/O Capacity	8 audio I/O card slots - accommodates up to 128x128 total onboard I/O channels
AEC Channel Capacity	64 at 200ms tail length (available when configured as a Q-SYS Core Processor only)
Multitrack Player Capacity	16 tracks, expandable to 128 tracks (available when configured as a Q-SYS Core Processor only)
Media Drive Capacity	Approximately 6GB on the default drive (when configured as a Q-SYS Core Processor only, upgrade options are available)

Configure to Order Inputs/Outputs Options

Audio I/O Cards	COL4: Line output card (4 channels) CODP4: DataPort card (4 channels) CIML4: Mic/line input card (4 channels) CIML4-HP: High Performance mic/Line input card (4 channels) CAES4: AES3 digital I/O card (4x4 channels) CIAES16: AES3 digital input card (16 channels) CCN32: CobraNet network bridge card (up to 32x32 channels) CAN32: AVB network bridge card (up to 32 channels) CDN64: Dante network bridge card (up to 64x64 channels)
Media Drives (in Q-SYS Core Mode)	M2-MD-S: 128GB M2-MD-M: 256GB M2-MD-L: 512GB
Multitrack Players (MTP): (in Q-SYS Core Mode)	MTP-32: 32 tracks MTP-64: 64 tracks MTP-128: 128 tracks

Controls and Indicators

Front Panel Controls	"NEXT" OLED page forward capacitive touch button "ID" device identification capacitive touch button "Clear Network Settings" - invoked when "NEXT" and "ID" are pressed simultaneously
Front Panel Connectors	AUX USB: USB Host x2 (Type A connectors)
Front Panel Indicators	Blue "POWER" LED 304x96 monochrome OLED display
Rear Panel Connectors	RS232: Male 9-pin D shell connector (DE-9) Video out: HDMI AUX USB: USB Host x4 (Type A connectors) AUX Network: RJ45 10/100/1000 Mbps GPIO: Female 15-pin D shell connector x2 (DA-15) Media Network LAN A: RJ45 1000 Mbps (QLAN, AES67, VoIP, WAN, Media Streaming, etc) Media Network LAN B: RJ45 1000 Mbps (QLAN, AES67, VoIP, WAN, Media Streaming, etc) AC Mains Power: IEC connector
Rear Panel Indicators	"Link", "Speed" and "Activity" LEDs on all LAN ports



Q-SYS Core 510i Integrated Processor

Miscellaneous

Line Voltage	100 VAC - 240 VAC 50-60 Hz
Current Draw	3.7A Max @100 VAC (actual current draw depends on configuration options such as I/O cards and/or Media Drive, DSP loading and network loading)
Operating Temperature Range	0°C - 50°C
Storage Temperature	-20°C to +70°C
BTU/Hour	600 (power conversion estimate under typical load)
Humidity	5% to 85%
Regulatory	FCC 47 CFR Part 15 Class A, IC ICES-003, CE (EN55032, EN55035), EU RoHS directive 2011/65/EU, WEEE directive 2012/19/EU, China RoHS directive GB/T26572, EAC, RCM, UL, C-UL, EFUP 10, Expected Product Life Cycle 20 years
Product Dimensions	3.5" x 19" x 15" (89mm x 483mm x 381mm)
Shipping Carton Dimensions	23.5" x 20" x 6.5" (597mm x 508mm x 165mm)
Shipping Weight	23 lbs. minimum (installation of I/O cards increases shipping weight)
Included Accessories	6' UL/CSA/IEC line cord, safety instructions, regulatory statement, I/O connectors (included when purchasing I/O cards with Euro style terminal blocks)



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