

Q-SYS Core 510i

KEY 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
- Seamlessly integrates with Q-SYS USB bridging peripherals
- Multiple levels of system redundancy



Q-SYS Core 510i

Integrated Core Processor and I/O Expander

INTRODUCTION

The Q-SYS™ Core 510i is an audio, video and control processor that leverages Intel™ CPUs and motherboards as well as a dedicated, Linux™ realtime operating system developed by Q-SYS 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 Q-SYS 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 integrate 128 x 128 audio channels 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™ devices and subsystems into Q-SYS.

NETWORK

Q-SYS 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. Q-SYS uses Q-LAN for audio, video and control connectivity with all Q-SYS Products. 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

Some applications call for additional assurance. Any element of Q-SYS – 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.

Q-SYS PRODUCTS

The capabilities of the Q-SYS Platform are further enhanced by the ever growing suite of Q-SYS devices, all of which are compatible with all Q-SYS Core processors, including the Q-SYS Core 510i. The Q-SYS portfolio includes amplifiers, touch screen controllers, paging stations, I/O channel expanders, network cameras for the conference room and USB bridging devices.

Q-SYS Core 510i

Description	System processor and control engine with integrated I/O (or a I/O expander when configured).
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” - peripheral to an additional Q-SYS Core.
Supported Peripherals (when configured as a Q-SYS Core Processor)	I/O-8 Flex Channel Expander, I/O-USB Bridge, Q-SYS network cameras, 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 Software 6.x.x or higher
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 200 ms tail length (available when configured as a Q-SYS Core Processor only)
Multi-track player capacity	16 tracks, expandable to 128 tracks (available when configured as a Q-SYS Core Processor only)
Media drive capacity	Approximately 6 GB on the default drive (when configured as a Q-SYS Core Processor only, upgrade
Configure to Order Input/Output 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 (4 x 4 channels) CIAES16: AES3 digital input card (16 channels) CDN64: Dante network bridge card (up to 64 x 64 channels)
Media drives (in Q-SYS Core Mode)	M2-MD-S: 128GB M2-MD-M: 256GB M2-MD-L: 512GB
Multi-track 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 304 x 96 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

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
Product dimensions	3.5 x 19 x 15 in (89 x 483 x 381 mm)
Shipping carton dimensions	23.5 x 20 x 6.5 in (597 x 508 x 165 mm)
Shipping weight	23 lb. 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)

