





Q-SYS<sup>™</sup> System Processor **Technical Notes** 

Core 510i System Processor & I/O Frame

## Using the Core 510i as an I/O frame

The Q-SYS Core 510i system processor can function as the core processing unit of a Q-SYS system, but unlike the other models from the Q-SYS Core Series it can also be configured to operate as an input/output (I/O) frame instead. This technical note explains how to do so properly.

In addition to 16 general purpose input/output (GPIO) channels, the Core 510i has slots for up to eight Q-SYS I/O cards in any combination, which allows as many as 128 ×128 total onboard I/O channels. These cards are:

## Analog I/O

- CIML4-Four-channel mic/line input card with phantom power
- **CIML4-HP**—Four-channel high-performance mic/line input card with phantom power
- COL4-Four-channel balanced analog line-level output card
- CODP4-DataPort output card for QSC amplifiers; two connectors, each with two analog outputs

#### Network bridging

- **CCN32**—CobraNet<sup>™</sup> interface card; can be configured in 4 × 4, 8 × 8, 16 × 16, or 32 × 32 channel modes.
- **CAN32**—AVB interface card; can be configured in  $0 \times 32$ ,  $32 \times 0$ , or  $16 \times 16$  channel modes.
- CDN64 Dante<sup>™</sup> interface card; can be configured in multiple channel allotments up to 64 × 64.

#### Digital AES3

- CAES4-AES3 I/O card; two AES3 inputs and two AES3 outputs. Each AES3 stream carries two audio channels.
- CIAES16-AES3 input card; two RJ45 connectors, each carrying four wire pairs-each pair carries an AES3 stream with two audio

channels, for a total of 16 audio channels.

#### The Core 510i as an I/O Frame in Q-SYS Designer

Q-SYS Designer is the software package used to create and edit Q-SYS designs. Use the following procedure to add one or more Core 510i devices to your design as I/O frames.

Make sure your Q-SYS Designer software is up to date. The Core 510i model does not appear in versions older than 6.x.x. When configured as an I/O frame, the Core 510i is identified in a design as an I/O-510i.

To place a Core 510i as an I/O frame in a Q-SYS design:

1. Open or create the design in Q-SYS Designer.

Amplifiers	Audio I/O					
Loudspeakers	I/O USB Bridge	I/O USB Bridge				
Peripherals	I/O-8 Flex	1/2 RU I/O Device, Provides 8 Flex I/O Audio Channels, Dual Ethernet Ports, USB, 2 GPIO Ports				
Streaming I/O	I/O-22	Small I/O Device, Provides 2 Mic/Line Inputs, 2 Line Outputs, 1 Speaker Output, Dual Ethernet Ports				
	I/O-510i	Core-510i in I/O mode, Accommodates 8 Audio Cards, Dual Ethernet Ports, 2 GPIO Ports				
	I/O-Frame	1 RU I/O Device, Accommodates 4 Audio Cards, Dual Ethernet Ports, 1 GPIO Port				
	I/O-Frame8S	2 RU I/O Device, Accommodates 8 Audio Cards, Dual Ethernet Ports, 2 GPIO Ports				

- 2. Click the + sign in the **Design Elements** pane.
- 3. Select **Peripherals**. In the list of Audio I/O devices, select **I/O-510i** (Figure 1).
- 4. The I/O-510i frame will appear in the Design Elements pane. You are now able to drag it into the Schematic pane and build it into

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#### the design.

- Select the I/O-510i frame and configure the properties, including a unique name and the complement of I/O cards to be installed in slots A through H (Figure 2). The name is how you will later identify the actual device in Q-SYS Configurator.
- 6. Repeat as needed for any other I/O-510i frames you wish to add to the design.

### Configuring the Core 510i as an I/O frame on the network

The computer and the Core 510i to be configured must be on the same network.

- 1. In Q-SYS Designer, open the design you will be using.
- 2. Select Tools > Show Q-SYS Configurator...
- The Q-SYS Configurator pane will open. It will automatically discover all the Q-SYS hardware devices on the network and list them in their appropriate categories. The Core 510i processor will appear under Cores, along with any other core processors on the network, unless it has already been configured as

Cores

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an I/O frame; then it will appear under **I/O Devices** as an I/O-510i. Select the Core 510i system processor to be configured as an I/O frame.

- The device configuration pane will appear. Enter the name that identifies it in the Q-SYS design. Use the ID button to verify that it is the correct device.
- 5. In Operation Mode, select I/O-510i.
- Firmware Version will indicate the version detected in the device. If it does not match the version of Q-SYS Designer it will prompt you to update the firmware. Proceed with the update.
- The remaining lines show information that Q-SYS Configurator has detected about the I/O-510i frame. The I/O cards installed in slots A through H must match those defined in Q-SYS Designer. Correct any discrepancies.
- 8. Configure the appropriate network parameters at LAN A, LAN B, LAN AUX, and DNS.
- 9. Click Update Settings.

The Core 510i is now set up in the network and in the design as a Q-SYS I/O frame.



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- Figure 2 -

4	Name		core-5			ID	
f8f	Operation M	ode	Core 510i			•	
	Firmware Ver	rsion	6.0.0				
	Design		untitled (Running)				
	Design Uptin	ne	12 Days 21 Hours 40 I	vinutes 14 Se	conds		
	Hardware ID		3-A9C9912FA5815CE	E454ED3F52E	5C1E65		
	Feature Keys	+	Model = Core 510i				
	Slot A		Blank				
	Slot B		Blank				
	Slot C		Blank				
	Slot D		Blank				
	Slot E		Blank				
	Slot F		Blank				
	Slot G		Blank				
	Slot H		Blank				
	LAN A					MAC	00:60:74:01:33:DA
				Mode :	Auto		-
		IP Address : 1	69.254.19.137	Net Mask :	255.255.0.0	Gateway :	0.0.0.0
		Static Routes					+
	LAN B	(NO LINK)		Mode :	Auto		•
		IP Address :	lo value	Net Mask :	No value	Gateway :	No value
		Static Routes					+
	LAN AUX					MAC	: 00:60:74:01:33:17
				Mode :	Auto		•
_		IP Address : 1	0.102.101.17	Net Mask :	255.255.254.0	Gateway :	10.102.101.254
		Static Routes					+
	DNS	Enable DNS					
		Primary DNS 10.	105.30.1				

