

Technical Notes

Q-SYS Core 110f

USB Endpoint functions in Core 110f: Soundcard or Speakerphone

Overview

A USB Type-B port on the Core 110f allows you to connect it to a PC, through a USB Type-A to Type-B cable, and have it serve as a soundcard, a speakerphone, or both. (Do not try to use the Core’s USB Type-A host ports for this purpose.)

Configuration

Before you can use the Core 110f’s USB endpoint functions, though, you must configure them in the Q-SYS design. In Q-SYS Designer, open the design. Click on the Core 110f component in the Inventory Panel.

Under **Core Properties**, enter the number of endpoints you wish to have in the box **USB Endpoint Count** (up to four USB endpoints).

Repeat the following procedures for each endpoint. Configure each endpoint as either a speakerphone or a soundcard; a speakerphone is typically used for teleconferencing, while a soundcard is typically used for media playback, presentations, or multitrack recording. You can have soundcard and speakerphone endpoints simultaneously in the same design.

To configure a soundcard endpoint

1. In the **Type** list, select **Soundcard** (for multitrack recording or playing back audio through or from the PC). See Figure 1.
2. Configure these additional parameters:
 - In the **Input Mode** list, click **Line** (for playing audio from streaming apps and sites such as Pandora, Spotify, et al, or for multi-track recording, for example) or **Speaker** (for multi-channel playback, for example). The term “Input” is from the Core’s perspective, and it represents audio *output* from the PC.

If you selected **Line**, configure these additional parameters:

- In the **Input Count** list, click **0**, **2**, **4**, **6**, or **8**. By default, Windows can handle only the first two channels. For more than two channels, install

^ Core Properties	
Name	Core-1
Location	Default Location ▾
Model	Core 110f ▾
Is Redundant	No ▾
USB Endpoint Count	2
USB Endpoint 1	
Type	Soundcard ▾
Input Mode	Speaker ▾
• Speaker Mode	5.1 ▾
Output Count	2 ▾
USB Endpoint 2	
Type	Soundcard ▾
Input Mode	Line ▾
Input Count	2 ▾
Output Count	2 ▾

Figure 1. In this example, Endpoint 1 is configured as a 5.1 surround audio input for the Core; Endpoint 2 is configured as two input channels and two output channels.

a universal ASIO driver for WDM audio or its equivalent, available at www.asio4all.com.

- In the **Output Count** list, also click **0, 2, 4, 6, or 8**. By default, Windows can handle only the first two channels. For more than two channels, install a universal ASIO driver for WDM audio or its equivalent, available at www.asio4all.com.

NOTE: *The total number of inputs and outputs allocated to all the endpoints cannot exceed 16 inputs and 16 outputs.*

If you selected **Speaker**, configure these additional parameters:

- In the **Speaker Mode** list, select **Stereo, Quadraphonic, 5.1, or 7.1**.
- In the **Output Count** list, click **0, 2, 4, 6, or 8**. By default, Windows can handle only the first two channels. For more than two channels, install a universal ASIO driver for WDM audio or its equivalent, available at www.asio4all.com.

Core Properties	
Name	Core-1
Location	Default Location
Model	Core 110f
Is Redundant	No
USB Endpoint Count	2
USB Endpoint 1	
Type	Soundcard
Input Mode	Speaker
• Speaker Mode	5.1
Output Count	2
USB Endpoint 2	
Type	Speakerphone
Telephone Country	USA

Figure 2. In this example, Endpoint 2 is configured as a speakerphone. Endpoint 1 is already configured as a soundcard.

To configure a speakerphone endpoint

In the **Type** list, click **Speakerphone** (for teleconferencing through the PC using Skype, GoToMeeting, Lync, Jabber, Google Hangouts, et al). See Figure 2.

- Drag the corresponding USB Endpoint In and USB Endpoint Out from the Inventory into the design. (The USB Endpoint In component is the audio signal from the PC's teleconferencing software to the speakerphone. The USB Endpoint Out is the audio signal from the speakerphone back to the teleconferencing software.)

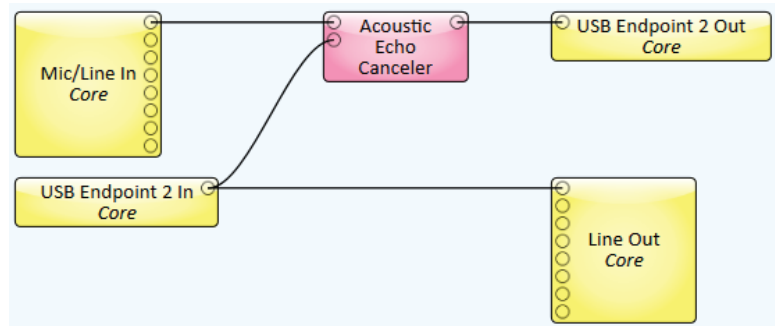


Figure 3. A speakerphone endpoint configuration must include an Acoustic Echo Canceler.

- You must also include an Acoustic Echo Canceler (AEC) in the design. Drag it in from the Schematic Library, under Audio Components.
- Configure the endpoints, AEC, a mic in, and a line out as shown in Figure 3.

Connect a mic in to to the **Microphone** pin of the AEC.

Connect the USB Endpoint In to both the **Reference** pin of the AEC and a line out.

Connect the AEC **Conference** (Output) pin to the USB Endpoint Out.

Finishing

Save the design to an appropriate storage location. When the design is ready to run on the Core, select **File > Save to Core and Run**, or press **F5**.