

### Capturing From Two Cameras With Audio To One .AVI File

#### Assumptions

The computer where the capture will be performed has the DirectX SDK installed.  
 The user is familiar with the graphedt.exe application.

#### Software Installation

To install the software run the Install.bat file. It will copy the appropriate files to the proper locations and register the files with the OS. Make sure that there are no cameras attached when running this file.

The lupreavi.ax filter file is DirectX filter software that allows saving of Bayer data video data directly to an .AVI file video, without having to convert the data to 24 or 32 bits.

#### Capturing Data To An .AVI File

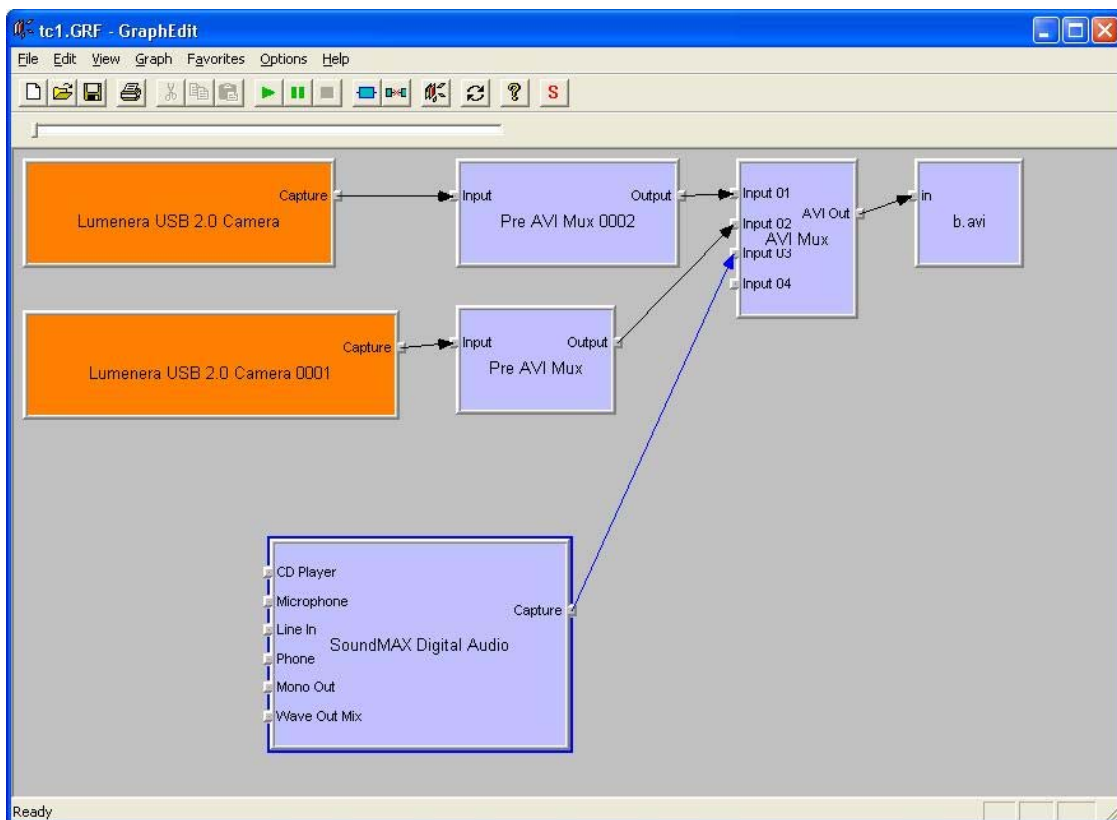


Figure 1 Capture graph for two camera sources and one audio source

To capture the audio and video data to an .AVI file:

1. Connect the cameras to the computer
2. Run graphedt.exe from the DirectX SDK
3. From the Menu bar, select the Graph->Insert Filters... option
4. In the dialog box, insert the following filters from the list provided:
  - Audio Capture Sources \ {Your audio capture source}
  - Video Capture Sources \ Both Lumenera USB 2.0 Cameras
  - DirectShow Filters \ AVI Mux
  - DirectShow Filters \ File Writer
  - DirectShow Filters \ Pre AVI Mux
  - DirectShow Filters \ Pre AVI Mux (again)
  - DirectShow Filters \ AVI Mux
5. On both Lumenera USB 2.0 Camera filters, right click on the capture pin and select the Pin Properties... option.
6. Select 320x240 subsampled by 2 in the Output drop down list.
7. Connect each Lumenera USB 2.0 Camera filter to its own Pre AVI Mux filter.
8. Connect each Pre AVI Mux filter and the Audio Capture Source filter to the AVI Mux filter.
9. Connect the AVI Mux filter to the File writer filter.
10. Click on the play button to start capturing the video and audio data. Click on the stop button to stop recording.

Figure 1 shows the final capture graph for saving the .AVI files from two cameras and one audio source.

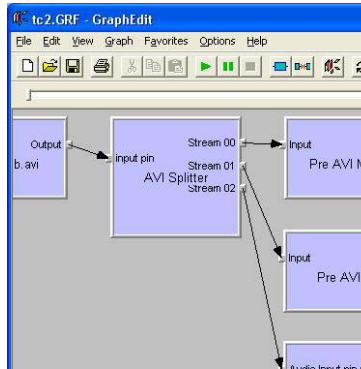
### **To Playback The Saved .AVI Files**

The captured .AVI files cannot be played directly in Windows Media Player. A playback graph is needed to playback these files.

To playback the saved .AVI file:

1. Run graphedt.exe
2. From the Menu bar, select the Graph->Insert Filters... option
3. In the dialog box, insert the following filters from the list provided:
  - DirectShow Filters \ AVI Splitter
  - DirectShow Filters \ File Source (Async)
  - DirectShow Filters \ Pre AVI Mux
  - DirectShow Filters \ Pre AVI Mux again
4. Connect the File Source (Async) to the AVI Splitter.
5. Connect the Stream 00 pin of the AVI Splitter to a Pre AVI Mux filter.
6. Connect the Stream 01 pin of the AVI Splitter to the other Pre AVI Mux filter.
7. Right click on the output pin of each of the Pre AVI Mux filter and select Render Pin.
8. Right click on the Stream 02 pin of the AVI Splitter filter and select Render Pin.
9. Press the play button to start the playback of the .AVI file.

Figure 2 shows the final capture graph for the .AVI file playback.



**Note:** These instructions assume that the AVI Mux was connected last to the audio source when the audio data was captures.

### Results

The graphs provided in this app note were tested on P4, 1.8 Ghz, 512 MB RAM, internal USB 2.0 ports. The synchronization between the two cameras and the audio looks good. In most cases, no frames were lost. When frames were lost they were typically the first frames.



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