Ultimate Equalizer V4 in SPDIF - 96kHz/24bit all digital stereo

Background

When it comes to using a HTPC as an **audio music server with Ultimate Equalizer V4** running as well, you may consider fully utilizing internal sound card, with Realtek ALC889 HD audio codecs.

http://218.210.127.131/products/productsView.aspx?Langid=1&PFid=28&Level=5&Conn=4&ProdID=173

The specs are actually pretty good, with S/N =104dB for DAC.

With the two Delta1010LT sound cards already installed, this is actually the third sound card you have at your disposal. Therefore, the simplest solution was to just use it. You can nominate Realtek Audio speaker system as the default player in Windows Sound system, so now, when I use Windows Media Centre (or JRivers, if you like) it will grab the internal sound card and play through it. The analogue stereo outputs from Realtek are for now connected to second Delta1010LT stereo input.

Full Digital Solution

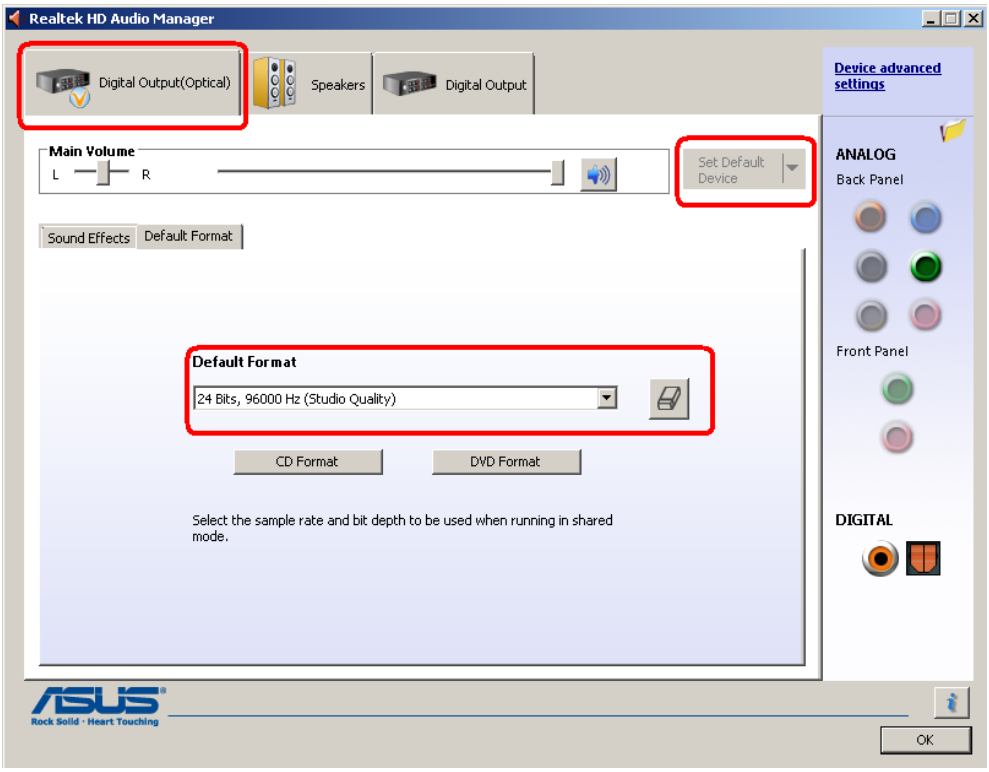
If you are interested in **full digital chain of audio processing**, the solution is also very simple. It is based on the ability of ALC889 to up-sample musical files played through it. Ideally, you would end up with 96kHz/24bit processing chain arranged as follows.

A popular ASUS motherboard P6X58D-E has two PCI slots and digital RCA SPDIF connector. This is ideal setup for connecting the digital RCA line to Delta1010LT SPDIF connector, which is also RCA – so the connection carries digital signals (not optical). This motherboard will be used as an example in the explanations below.

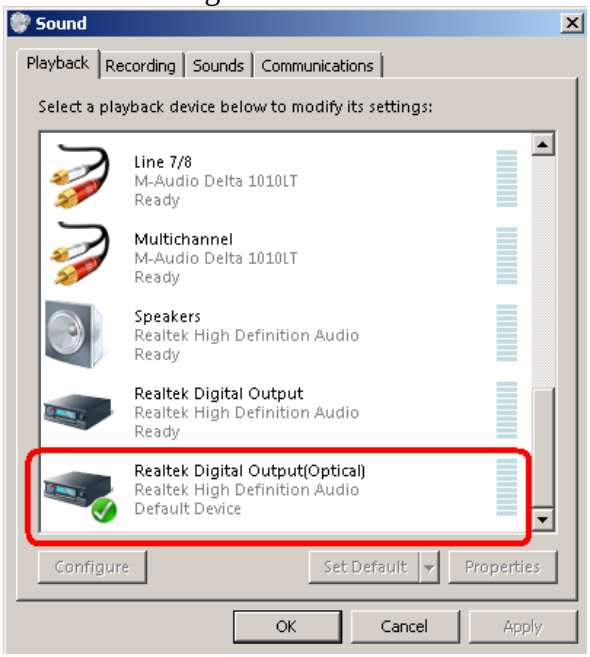
As a side comment, I have second Windows7/64 computer, with MSI motherboard, also running UE4 with two Delta1010LT soundcards. The motherboard is X58 Pro-E, but the SPDIF output is optical only. Here , you would have to install optical-to-digital converter, for example:

http://www.jaycar.com.au/productView.asp?ID=KC5425 ($25)

1. Start Realtek HD Audio Manager from the icons at the bottom right corner of your Windows7 PC.
2. Choose **Digital Output (Optical)** then **Set Default Device**, and **Default Format as 24bits, 96000Hz** – as shown below.



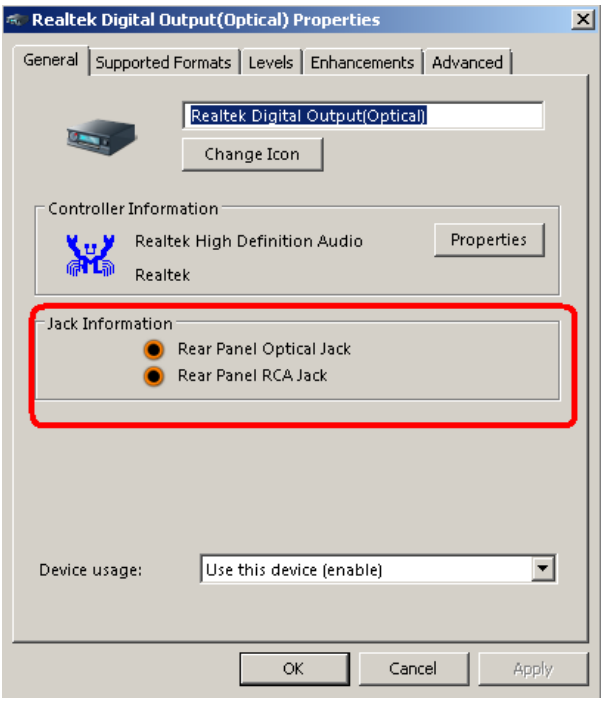
3. Go to Windows 7 Sound manager



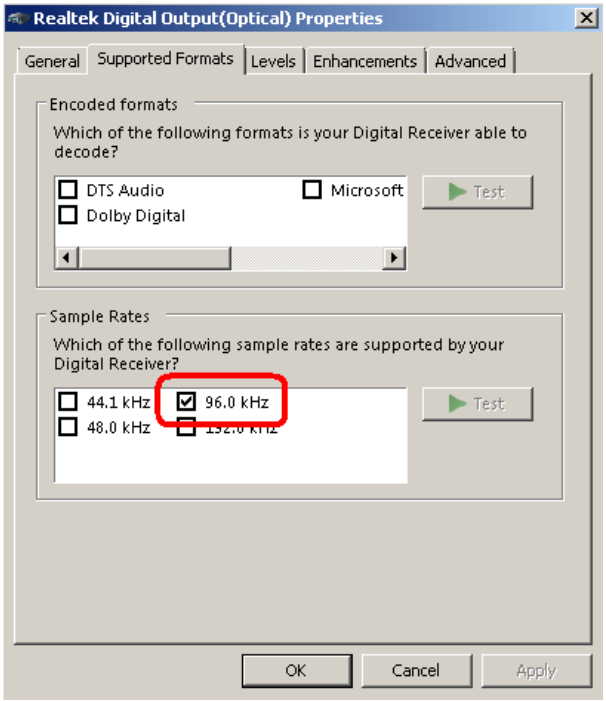
The Realtek Digital Output (optical) should be already marked as “Default Device”.

4. Right-click on it to get to “Properties” control.

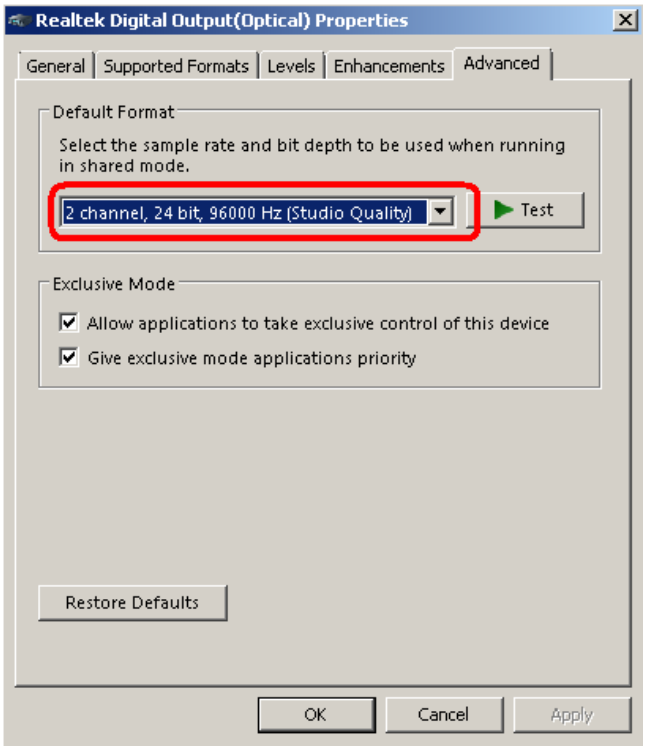
For the P6X58D-E motherboard, you should see TWO SPDIF jacks:



5. Go to “Supported Formats” tab, and tick only 96kHz checkbox.



6. Go to “Advanced” tab, and select “2 channel, 24 bit, 96000Hz”, if not selected already. Also, clock “Apply” button is not grayed.



7. Close Windows 7 Sound dialogue.

Your Windows 7 computer is now set to up-sample music files to 96kHz/24bit format.

8. Open Delta1010LT Control Panel and make the following selections:

Please note, if you have two Delta1010LT sound cards, you need to know which card is N#1 and which is N#2. Card N#1 will be connected via SPDIF of the Realtek HD on the motherboard. Card N#2 must be connected to the Word Clock output of the Delta N#1.

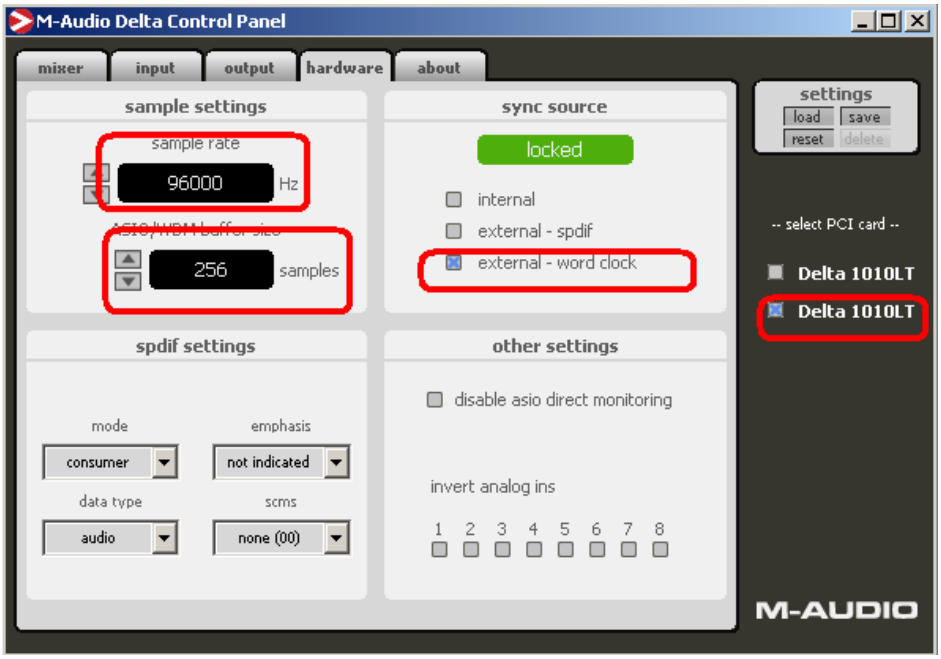
Under ----select PCI card ------ click on the FIRST checkbox. This will select the first Delta1010LT for editing.

Sample Rate = 96000Hz

Buffer size = 256 (could be 512)

Check “external – spdif”

9. Under ----select PCI card ------ click on the SECOND checkbox. This will select the second Delta1010LT for editing.



Sample Rate = 96000Hz
Buffer size = 256 (could be 512)
Check “external – word clock”

Now, your Delta1010LT sound cards are ready for 96kHz/24 bit SPDIF data stream.

10. Open Ultimate Equalizer and select Preferences screen and make the following selections:

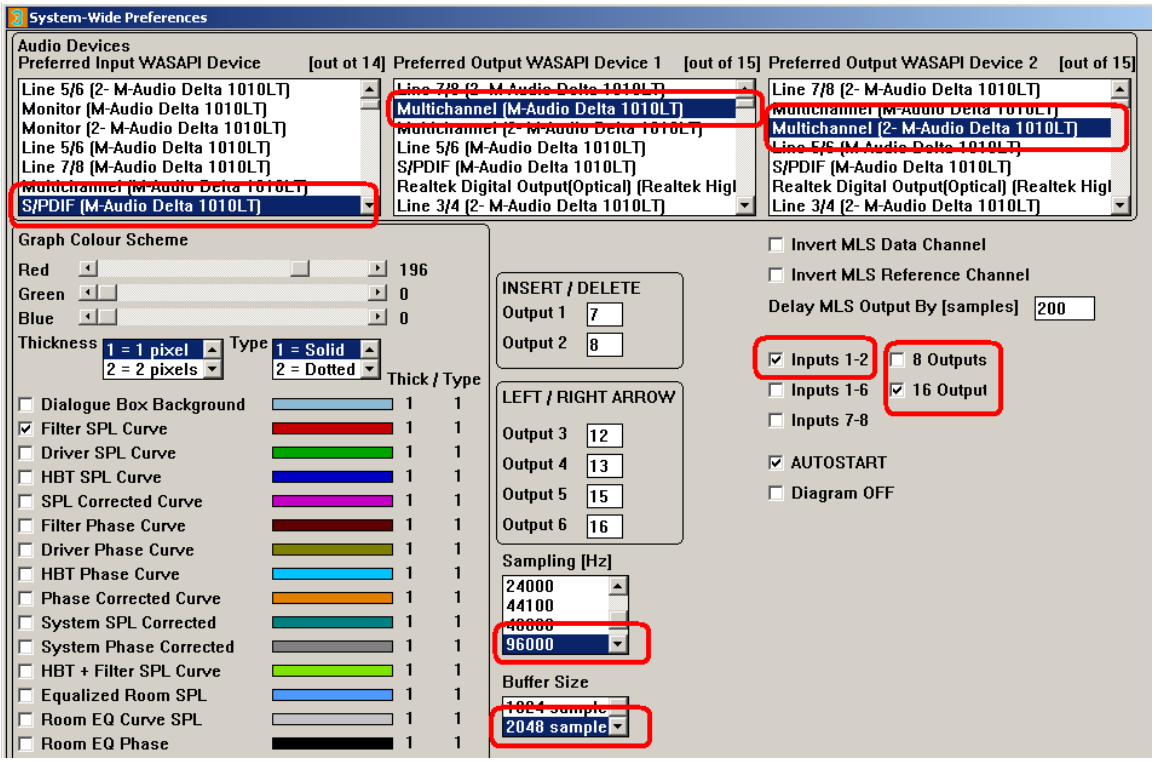
Preferred Input WASAPI Device = SPDIF [M-Audio Delta 1010LT]
Preferred Output Audio Device 1 = Multichannel [M-Audio Delta1010LT]

If you have TWO Delta1010LT sound cards, select
Preferred Output Audio Device 2 = Multichannel [2- M-Audio Delta1010LT]

Check “Inputs 1-2”
Check “8 Outputs”

If you have TWO Delta1010LT sound cards, select
Check “16 Outputs” (NOT 8 Outputs)

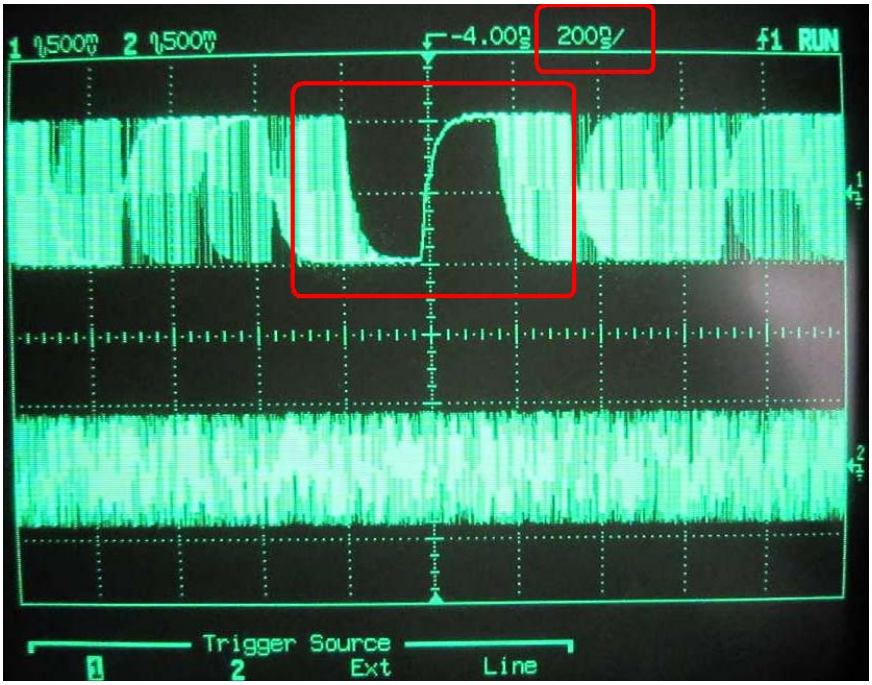
Sampling Rate = 96000
Buffer Size = 2048 samples OR 4096 samples (preferred 4096)



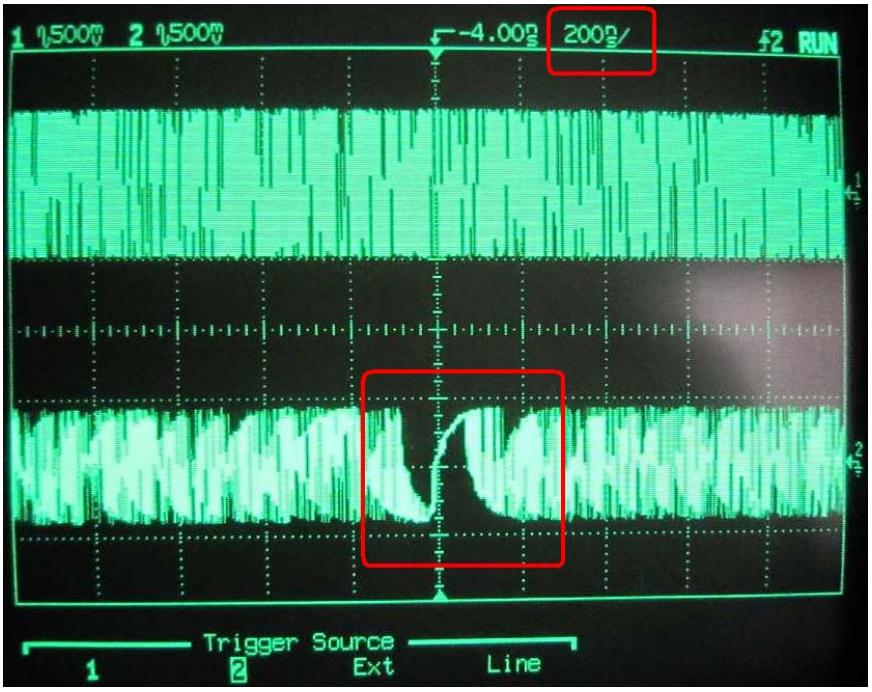
Now your UE is also ready for 96kHz/24bit playback.

You can start Windows Media Player and UE4 and have some fun listening to your “studio quality” music.

Here is a proof, that the Realtek ALC889 HD audio codec is indeed up-sampling to 96kHz. I captured 44.1kHz SPDIF from a CD player, and 96kHz SPDIF played from the PC audio server.



44.1kHz SPDIF captured with 200ns timebase.



96kHz SPDIF captured with 200ns timebase.