Music PC Set-Up with a 192KHz/24Bit asynchronous USB Audio Device and J-River Media Center
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1.0 Introduction

The following guide describes how to configure a PC (or a Mac running Windows via Bootcamp) to operate as high performance music playback system, using a diyhifisupply® Cleo USB DAC, Morello USB to SPDIF converter or the Fusion Hybrid Integrated Amplifier with build in USB DAC as the actual audio device and the computer as transport.

This guide covers Windows 7 and J-River Media Center 15 and specifically uses the Asus EB1501 Miniature PC, though in principle it is appliable to a wide range of PC's.

1.1 What is Computer Music Playback?

Computer Music Playback is where the computer replaces the CD transport, BUT it does so much more. To set up a Computer Music Playback system is easy:

1. Get your computer set up for music playback. This generally means a dedicated PC and special playback software. The PC does not have to be very powerful, a 2GHz Pentium 4 or 1.7GHz Pentium Mobile suffice. Get a Windows MCE Remote Control and receiver as cheapest and simplest remote control solution.

2. Get a asynchronous 192KHz/24Bit USB device such as the diyhifisupply® Cleo USB DAC, Morello USB to SPIDF converter or the Fusion Hybrid Integrated Amplifier with build in USB DAC. The diyhifisupply 192KHz/24bit devices use an asynchronous USB connection, where the Device becomes clock master. So the limits in terms of jitter and sound quality result not from the PC setup, but only from the clock accuracy in the Device. Most USB DAC’s and similar devices are not asynchronous.

'Everyone' is afraid that computer music playback means MP3 mass market sound. That is simply not the case!

The MP-3 compressed music standard was designed in a time when a BIG Hard Drive was 20Gb and could only hold 30 or so CD’s without compression, but over 300 as MP-3. Since then much larger (and quieter) hard drives have become common and cheap and lossless compression formats have become the standard for archiving music.

The Windows standard was designed for convenience with unwanted poor quality sample rate conversion truncation the cost. If we instead use the ASIO data stream designed for recording studios through one of the suitable music player software packages with a
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diyhifisupply® 192KHz/24bit audio device we have a setup that matches the best CD Playback for sound quality, but with the ease of access to large collections that a Computer offers.

Everyone starts out a skeptic, but we've done A/B to CD and we are right there with sound quality - with 16bit 44khz redbook cd. We have compared the diyhifisupply® 192KHz/24bit audio devices to some pretty over the top hot-rodded transports with a variety of DAC’s.

The Computer Music Playback setup we have with the diyhifisupply® 192KHz/24bit audio devices is at least equal or better than those AND we have our have our graphics bells and whistles – i.e. album coverart and nice interface.

Over a 1000 CD's can be stored on an inexpensive 1TB hard drive without any compression. They can be accessed and played back by the computer with a quality that equals the best of CD-Replay. Digital media can be ripped loss-less and played back bit perfect but it must be done outside the Windows music playback system.

Excellent Playback Software for the PC is widely available in both paid for and free software. Without being exhausting, software suited to high quality audio playback on the PC platform are:

Diyhifisupply recommends:

J-River Media Center - www.jrmediacenter.com
dBPowerAmp - www.dbpoweramp.com as ripper

We buy Music from Linn, HD-Tracks and Reference Recordings amongst others.

1.2 High Resolution Music!

All this is compelling enough, but we have not yet touched on the killer applications for computer Audio! Ten years ago SACD and Audio-DVD where hailed as the next generation of high performance digital audio formats and seen by audiophiles as salvation from CD-Sound. Today both formats are essentially dead.

Yet the one trick where the Computer Music Playback setup scores highly over CD is the handling and playback of High Resolution Music. This is any music recorded beyond 16bit/44khz, such as 24bit/88khz up to 24 bit/192khz. This covers all current available sampling formats for music release, in addition to CD format rips. These files are 3 to 10x larger than 16bit/44khz and provide much finer musical textures and wider dynamic range. The difference is as clearly audible as the difference between MP-3 and the real CD!

Yes, high resolution Music distribution is alive and well on-line. An ever increasing number of websites including downloads from HDTracks, Linn and the Reference Recordings HRx disks offer computer only high resolution Music. And you may already own many 20-Bit recordings on CD in the form of HDCD which can be decoded to 24-Bit FLAC Files using dbpoweramp reference.
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2.0 Setting up your PC

The following guide describes how to configure a PC, optimised for audio performance. It requires a basic familiarity with Microsoft Windows 7 and computer terminology.

2.1 Prerequisites

If not using the Asus EB1501 or any other PC with a fully functional MCE Remote System build in, purchase a GENUINE Philips or Microsoft MCE Remote or a Logitech harmony remote with a profile for Microsoft Media Center. You will use this remote to control your music (and optionally other media) library. Connect the remote control receiver and make sure Windows installs the driver. You should be able to control Windows Media Center with this remote.

Also you need to set up Win 7 with correct network access, internet access, basic antivirus (AVG Free Edition or Avast Free Edition). Preferably use a hardwired network connection and disable the Wifi Network section completely.

Do NOT install ANY other programs. Remove any free software trials. Remove any “chat” software (skype, microsoft messenger, yahoo etc.). Remove ANY software not needed for Media Playback or ripping.

2.2 Notes and Hints

In the following installation, when faced with Windows messages (like the one shown to the right and similar) asking if you want to run or install programs or let them access your computer you need to answer “Yes”.

Depending on the precise computer settings you may have to run any of the programs as Administrator, you can do so by right-clicking and selecting Run as Administrator:
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2.3 Installing the Driver for diyhifisupply® 192KHz/24bit audio devices

Insert Driver CD in the CD-Drive.

Select view files when prompted by Windows what to do. If not open the CD Drive in Explorer.

Find the **Diyhifisupply Cleo and Morello Driver** item and use right-click on the item to run it as administrator

This starts the driver installation.

Click Next
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Click Install

Installation starts, During the installation several Windows Security warnings will appear.

Click Install as many times as the box appears
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Once you click *Finish* in the above message box you have completed the installation.

Connect your *diyhifisupply®* 192KHz/24bit audio device and switch it on. An “Installing Driver Software” message will appear in the system tray.

Check if blue “M” Symbol is in the system tray, double-click on it:

The control panel for your device is shown:

If you see this, the driver installed okay, your device is recognised.

Now set all sliders to 100 if they are not. You must use a setting of 100 to get bitperfect audio.

Click on the Advance button.
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Set ASIO Buffers to maximum (160) and the SR Control to 44.1KHz if you mostly play CD, this way the system is always ready to play CD instantly.

Set the SR Control Mode to Precision. This improves performance but causes a delay in playing when the system needs to change the sample rate. We use a special setting in J-River to account for this.

2.4 Installing the dBpoweramp ripper

We feel the ripper from dBpoweramp is currently the best. We recommend it over the one build into J-River Media Center. Skip this step if you do not intend to rip large amounts of CD's.

Download dBPoweramp Trial from: [http://www.dbpoweramp.com/cd-ripper.htm](http://www.dbpoweramp.com/cd-ripper.htm)

You can purchase a licence key from the same website.
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Run the downloaded file, the installation will start:

Click Next

Click install, installation starts
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Once the installation completes you see the following screen:

Click Finish. Activate the free trials if you like:

Close the configuration screen for now for now.
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2.5 Installing and configuring JR Media Center


Run the downloaded file, it will extract and start the installer:

![Screenshot of JR Media Center installation process]

Click Accept
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Click Next, installation starts.

Complete the installation by making the basic settings:
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Select desired appearance (Noire Glass recommended on powerful hardware).

Click Next

Click Select All in the File type screen, the click Next. This will start Media Center.
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Once Media Center has started, you are presented with the standard interface. We use this only for setup Tasks etc., normally it is hidden behind the “Theater View”

Select Tools Menu -> Options
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This opens the option dialog:

Set Audio Output to ASIO

Under Settings set Play Silence at startup for hardware synchronisation: to 1 Second

Check the “Play files from Memory” Box as well.

Under Track Change set to Gapless

Uncheck Do not play Silence
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Select Output Mode settings, in the dialog box set as shown below:

Click OK.

Select the File Locations item in the lefthand menu list:
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Optionally set the locations for files to your existing music library or adjust the location to make access to your library and backup easier (shown below).

Skip this step and accept the default values or use the ones from this example if you do not understand this step.

Select the Startup item in the lefthand menu list:

Set as follows:
- Location: Last Location
- Mode: Theater View
- Uncheck Show Splashscreen
- Uncheck Check for Updates every 1 days
- Uncheck Optimize Volume for best sound
- Run on Windows Startup: Media Center 15 and Media Server
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Select the Theater View item in the lefthand menu list:

Leave Appearance Settings at default and minimise the section (click on Chevron)

Check Disable Screen Saver in Theater Mode
Check Disable Windows Media Center
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Select the Library & Folders item in the lefthand menu list:

Click Configure auto-import

If you changed the standard locations for music etc. in the library location step delete them from above and add your new locations:

Click Finish and then OK in the Options dialog.

Media Center will now load your Music, Pictures and Movies into it's Library and you are ready to play.

Close Media Center, re-start Windows and Media Center will start in Theater Mode
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Use your remote control's cursor buttons, Ok and Back to navigate the menus and your collections.

Pressing the play button on the remote starts playing whatever item is currently selected (could be the whole music collection). The other transport buttons work as you would expect.