

NuPrime DAC-9

FCC Notice - Declaration of Conformity Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Only peripherals complying with the FCC class B limits may be attached to this equipment.

Changes or modifications made to this equipment, not expressly approved by us or parties authorized by us could void the user's authority to operate the equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

SAFETY INSTRUCTIONS

There are two categories of Safety Instructions included in this manual:

- Product Warnings, (i.e., what must never be done to assure avoiding those hazards that could cause bodily injury or property damage); and
- User Directions (i.e., what must always be done to assure the safe use of your device).

The Safety Instructions contained in this manual have been categorized in accordance with the seriousness of the potential hazards through the use of Signal Words. Those Signal Words, and their intended meanings, are as follows:

DANGER: Indicates that a failure to observe the Safety Instructions could result in death or catastrophic bodily injury.

WARNING: Indicates that a failure to observe the Safety Instructions could result in serious bodily injury.

CAUTION: Indicates that a failure to observe the Safety Instructions could result in minor bodily injury or property damage.

NOTE: Designates important information that relates to activities and/or conditions that might result in loss of data and/or damage to your device.

Safe Use and Operation of Your Device

This equipment emits stray RF energy and will interfere with the reception of signals by airborne electronic navigational devices or medical devices. Do not operate this equipment near any sensitive medical devices.

WARNING: Use only grounded AC power cords.

Always immediately disconnect the power to the equipment in the event the device emits an unusual odor or sound or generates smoke.

WARNING: Never attempt to disassemble, repair or make any modification to your device. Disassembly, modification or any attempt at repair could cause bodily injury or property damage, as well as damage to the device itself.

WARNING: Your device is not a toy. Never allow children to play with your device. Misuse, rough or improper handling of your device by children could result in serious bodily injury for any of the enumerated safety warnings in this manual. In addition, always keep all accessories and components out of the reach of small children as small parts might present a choking hazard. Seek immediate medical attention if choking occurs or if any small part has been swallowed.

CAUTION: Never raise the sound volume level too high when using your device with earphones. An excessive sound volume level could cause damage to your hearing.

WARNING: To reduce the risk of fire or electric shock, do not expose the unit to moisture or water.

Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.

Read all the instructions before connecting or operating the component.

Keep this manual so you can refer to these safety instructions.

Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.

Do not use this unit near water.

You must allow a minimum 10 cm or 4 inches of unobstructed clearance around the unit. Do not place the unit on a bed, sofa, rug, or similar surface that could block the ventilation openings. If the unit is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling. Keep the component away from radiators, heat registers, stoves, or any other appliance that produces heat.

The unit must be connected to a power supply only of the type and voltage specified on the rear panel. Connect the component to the power outlet only with the supplied power supply cable or an exact equivalent. Do not modify the supplied cable.

Do not route the power cord where it will be crushed, pinched, bent, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where the cord exits the back of the unit.

The power cord should be unplugged from the wall outlet during a lightning storm or if the unit is to be left unused for a long period of time.

Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

- The power supply cord or plug has been damaged.
- Objects have fallen or liquid has been spilled into the unit.
- The unit has been exposed to rain.
- The unit shows signs of improper operation.
- The unit has been dropped or damaged in any way.

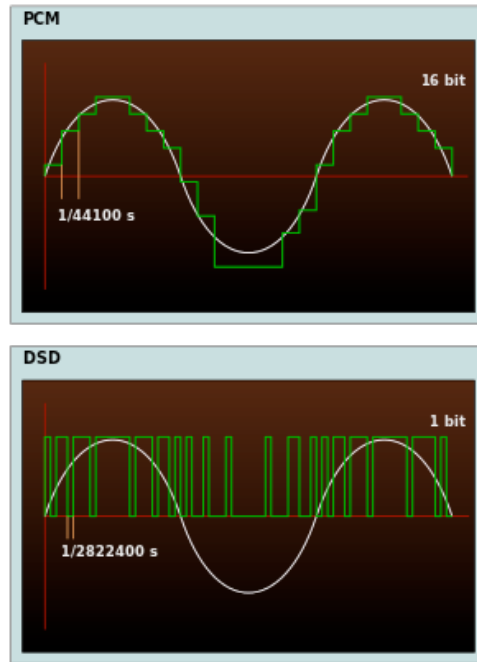
From Hi-Res to Extreme Resolution

High-volume storage has become cheap enough for the proliferation of hi-res music beyond CD quality (16-bit/44.1kHz). Storing 24-bit/96 kHz or 192 kHz music with PCM encoding in uncompressed format (typically WAV) or lossless compression format (such as FLAC, M4A, WMA) has become standard practice for audio enthusiasts.

Music is typically recorded in 24 or 32-bit PCM or DSD format at the recording studio. It is then converted to lower resolution format for mass-market distribution.

Pulse-code modulation (PCM) is a method used to digitally represent sampled analog signals. It is the standard form of digital audio in computers, compact discs, digital telephony and other digital audio applications. In a PCM stream, the amplitude of the analog signal is sampled regularly at uniform intervals and each sample is quantized to the nearest value within a range of digital steps. A PCM stream has two basic properties that determine the stream's fidelity to the original analog signal: the sampling rate, which is the number of times per second that samples are taken, and the bit depth, which determines the number of possible digital values that can be used to represent each sample. DXD is simply PCM 24-bit/352.8 kHz.

Direct-Stream Digital (DSD) is the trademark name used by Sony and Philips for their system of digitally recreating audible signals for the Super Audio CD (SACD). DSD uses pulse-density modulation encoding – a technology to store audio signals on digital storage media that are used for the SACD. The signal is stored as delta-sigma modulated digital audio, a sequence of single-bit values at a sampling rate of 2.8224 MHz (64 times the CD Audio sampling rate of 44.1 kHz, but only at 1/32768 of its 16-bit resolution).



Comparing PCM and DSD

The same music in DSD64 (2.8 MHz sampling rate) format takes up about 20% more storage space than 24-bit/96kHz format. The NuPrime DAC-9 is designed to faithfully reproduce the music irrespective of the format used.

Affordable Reference Class DAC Designed For Studio Professionals

Introduction

With its AES and XLR outputs and decoding capability of PCM 384K & DSD256, the NuPrime DAC-9 is a reference-class DAC designed for studio professionals. With four digital and one analog stereo inputs, the DAC-9 is a full-featured DAC and preamp ideally suited for high-end systems.

A Reference LE Class Preamp

To meet the requirement of customers who want to eliminate extra components in their system, a high-end preamp capable of driving the power amplifier directly is an essential part of the design. The DAC-9 includes features borrowed from traditional high-end preamps:

- Advanced, FPGA implemented switched-resistor ladder network for controlling volume, i.e., a single resistor in the signal path at any volume setting.
- Individually adjustable volume on each input for precise source level matching.
- Volume adjustment in 99 precise, 0.5dB increments.

The Heart

As the heart of an audio system, the DAC-9 supports an extensive number of inputs and formats. Utilizing one of the world's best performing 32-bit audio DACs, the AK4490, EQ is only a first step for designing the ultimate DAC. State-of-the-art solutions, readily available to all vendors, along with the experience and proprietary know-how in creating many Editor's Choice and Product of The Year award-winning products elevate the NuPrime DAC-9 well above the competition.

Several notable features:

- NuPrime SRC IC chip provides FPGA processing where Input signals are up-sampled to mega hertz before down converted to the targeted sampling rate with ultra-low jitter and distortion.
- AKM Newest Generation: High Sound Quality Premium 32-bit Stereo DAC (AK4490 EQ). State-of-the-art DAC with warmer sonic characteristics, supporting USB PCM 384 and DSD256.
- A proprietary NuPrime implementation that is also capable of decoding DoP formats via coaxial and optical inputs (to support NuPrime Omnia portable device that are able to output DoP stream in addition to S/PDIF).
- NuPrime vibration-free isolation feet (patent pending*)
- Extension port for Bluetooth dongle and WiFi audio streaming (optional)
- Full microprocessor control with memory retention

- Five digital inputs and one stereo input for complete system flexibility
- Supports DSD native playback by ASIO2.1 and DoP method
- Ultra-low-noise JFETs in the input stage for the lowest possible noise floor
- Volume adjustment in 99 precise 0.5dB increments
- Advanced, FPGA implemented thin-film switched-resistor ladder network for controlling volume, with a single resistor in the signal path at any volume setting
- Individually adjustable volume on each input for precise level matching of sources
- Exclusive driver software for Windows
- Standard driver software for Mac
- Asynchronous transfer mode
- Very low power consumption on Standby Mode
- Available in black or silver anodized aluminum finish

Specifications:

Inputs:

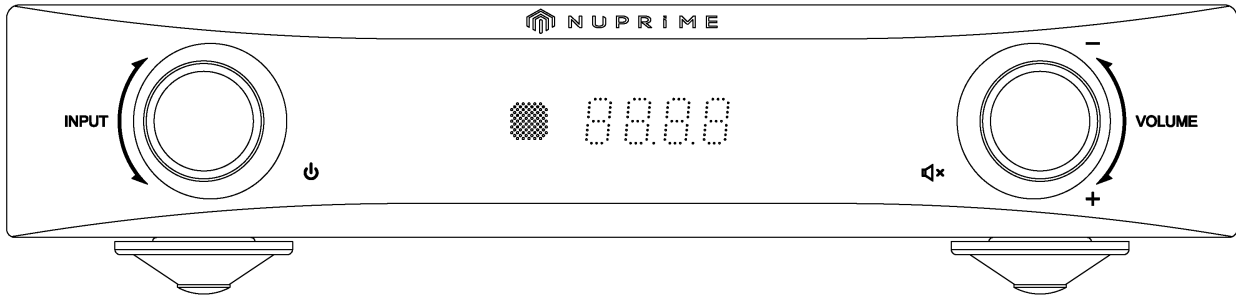
- 1 x USB PCM / DSD Digital (PCM up to 384kHz & DSD up to DSD256)
- 1 x Coaxial Digital S/PDIF (PCM up to 192KHz supporting DoP format DSD64)
- 1 x Optical Digital S/PDIF (PCM up to 192KHz supporting DoP format DSD64)
- 1 x Bluetooth or WiFi receiver module (optional).
- 1 x AES balance XLR
- 1 x Analog Stereo RCA

Outputs:

- 1 x pair of stereo RCA out
 - 1 x pair of stereo XLR balanced out
 - 1 x Optical S/DPIF out
-
- USB Sampling Rates: 44.1KHz, 48KHz, 88.2KHz, 96KHz, 176.4KHz, 192KHz, 352.8KHz, 384KHz and DSD 2.8MHz(64), 5.6MHz(128), 11.2MHz(256)
 - Coaxial Sampling Rates: 44.1KHz, 48KHz, 88.2KHz, 96KHz, 176.4KHz, 192KHz, 352.8KHz, 384KHz
 - Optical Sampling Rates: 44.1KHz, 48KHz, 88.2KHz, 96KHz, 176.4KHz, 192KHz
 - Bit Resolution: 16-32-bits
 - THD+N: 0.0005%
 - SNR > 113 dB
 - Frequency Response: 10Hz to 80KHz
 - Dimensions: 235 mm W x 281 mm D x 55 mm H (including feet)
 - Weight: 2.3Kg
 - Worldwide AC voltage: (90VAC~130VAC // 210VAC~ 250VAC) With Voltage Select Switch
 - AC Fuse: Slow-blow, 1A, 250VA

Quick Start Guide

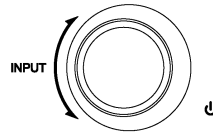
Front Panel View:



Power and Input Selector:

Left knob:

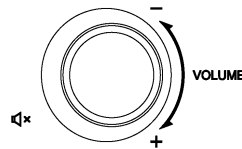
Briefly press for 3 sec to On/Off standby mode
Turn the knob to switch between inputs



Volumes:

Right Knob:

Brief press to Mute/Unmute
Turn the knob to adjust volume



Display:



PCM :	44.1	48
88.2	96	176.4
192	352.8	384
DSD:	d2.8 (64)	d5.6 (128)
d11.2 (256)		

VOL:
00 ~ 99

Inputs:

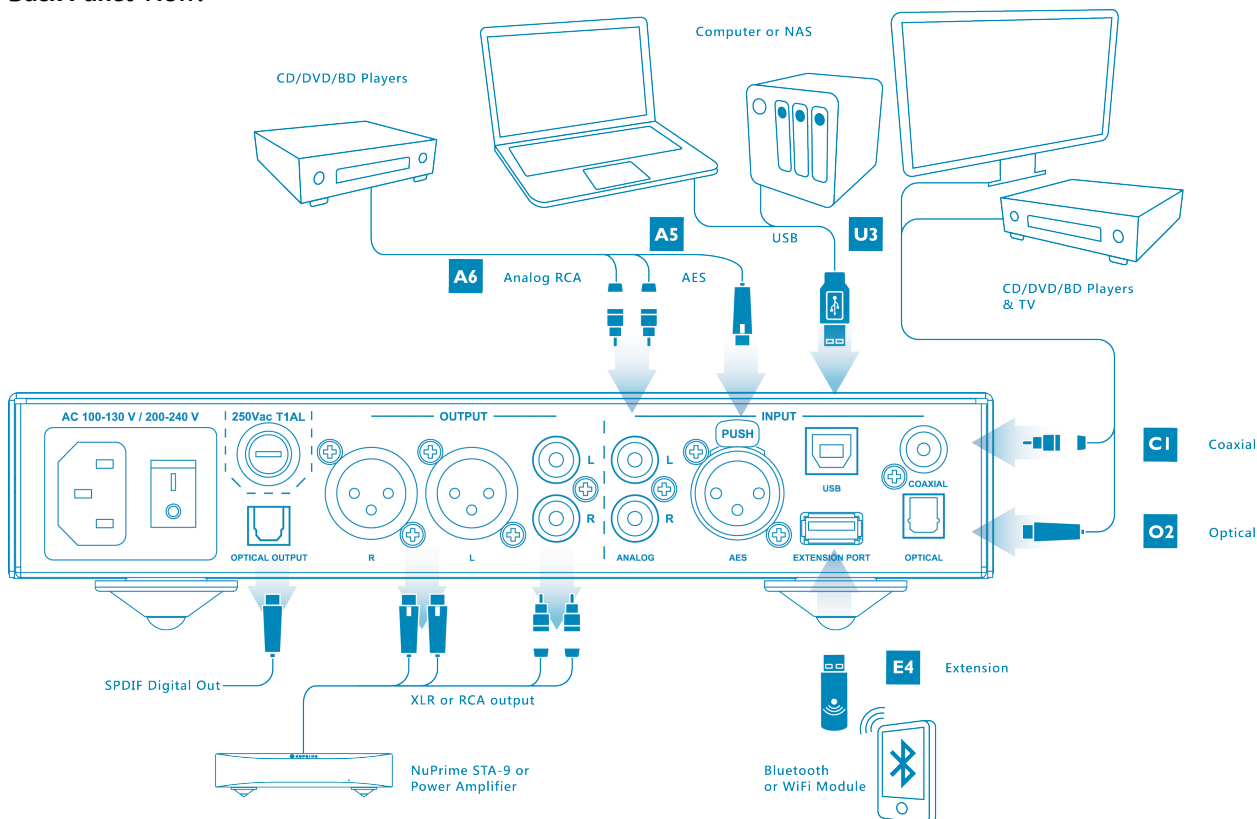
C1: Coaxial input
O2: Optical input

U3: USB input
E4: Extension port input

A5: AES balance input
A6: Stereo analog input

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Back Panel View:



Inputs:

- C1: Coaxial input for CD/DVD/BD players, TV and any device with a coaxial source.
- O2: Optical input for CD/DVD/BD players, TV and any device with an optical source.
- U3: USB input for computer (PC/MAC) and for NAS devices.
- E4: Extension port for Bluetooth and WiFi module. (Optional)
- A5: AES balance input.
- A6: Stereo analog for CD/DVD/BD players, TV and any analog source device.

⚠ DAC-9 does not guarantee that all NAS will operate and be compatible due to wide variety of brands and custom specs.

Outputs:

- SPDIF OUT: Optical Output (up to 24 bit / 192 kHz) (No output during DSD playback)
- ANALOG OUT: Stereo RCA Output (Line out: Subwoofer compatible)
- XLR Balance OUT: True balance XLR balance Output.

AC Inlet Voltage Selector:



Make sure that the AC voltage selector switch at the bottom of the unit is switched to the appropriate voltage for your country. All DAC-9s are shipped with the switch set to 230V AC in order to prevent accidental damage.

Turn ON the AC power switch at the rear of the unit. The DAC-9 will now be in standby mode. Blue LED indicator lights up on the front panel.

Using the Remote Control:

Power: Power On/Off

DIS: Display On/Off

Ch+: Input selection next channel

CH-: Input selection previous channel

Vol +: Volume up

Vol -: Volume down

Mute: Mute/Unmute audio

C1: Coaxial input selection

O2: Optical input selection

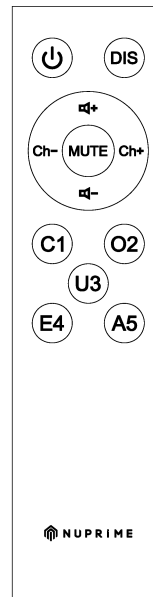
U3: USB input selection

E4: Extension port selection

A5: AES input selection

A6: Analog input selection

 Press A5 to toggle between A5 & A6 input selection.



To run the NuPrime DAC-9 on Mac – PCM:

1. Power on NuPrime DAC-9, select USB input. The device will enumerate as a USB Audio device on your Mac.
2. In Audio Midi Setup, select the “NuPrime DAC-9” device as your default Input and Output device.
3. The sample rate of the device can be selected using the drop down menu.
4. The audio is also output over SPDIF.

To run the NuPrime DAC-9 on Mac – DSD:

1. Install playback software on MAC.
Ex: Audirvana 15 days free http://audirvana.com/site/?page_id=112
2. In Preferences Setup, Audio System selects the “NuPrime DAC-9” as your Default Device.
3. The Native DSD Capability select the “DSD Over PCM standard 1.0”
4. SPDIF output is not working on DSD playback.

To run the NuPrime DAC-9 on Windows – PCM:

1. Please visit www.nuprimeaudio.com and download the latest driver.



2. Connect computer to USB DAC and power on NuPrime DAC-9, select USB DAC input. The

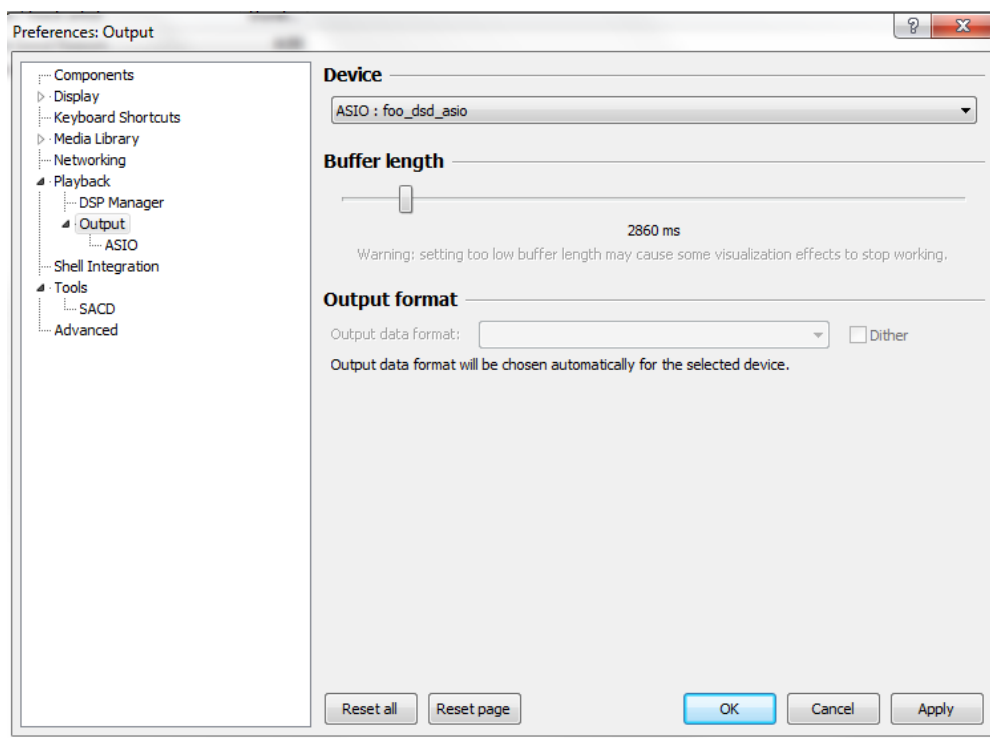
NuPrime

- device will enumerate as a USB Audio device on your PC.
3. Install the latest driver just download via NuPrime website.
 4. In Control Panel->Sound, select “NuPrime DAC-9” as your Default Device.

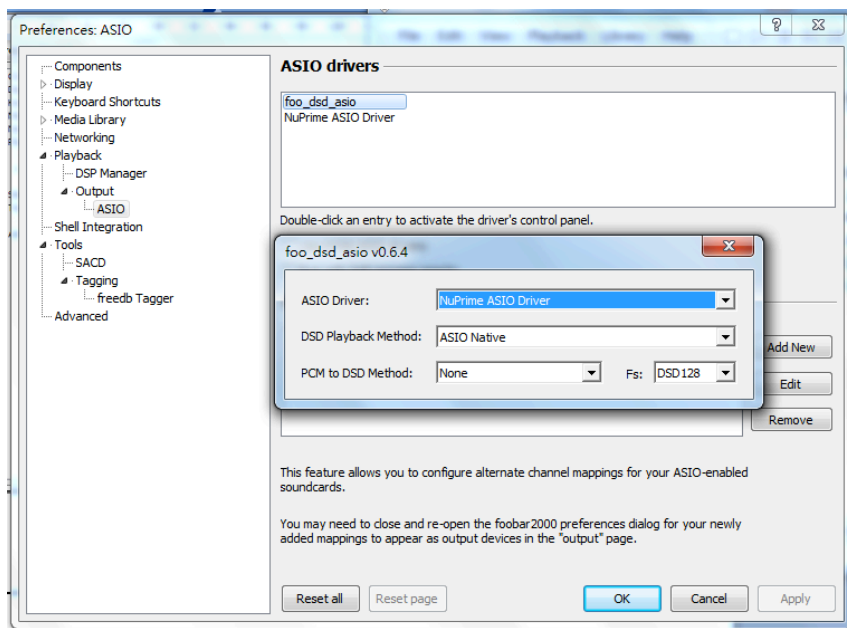
To run the NuPrime DAC-9 on Windows – DSD

Install playback software on Windows

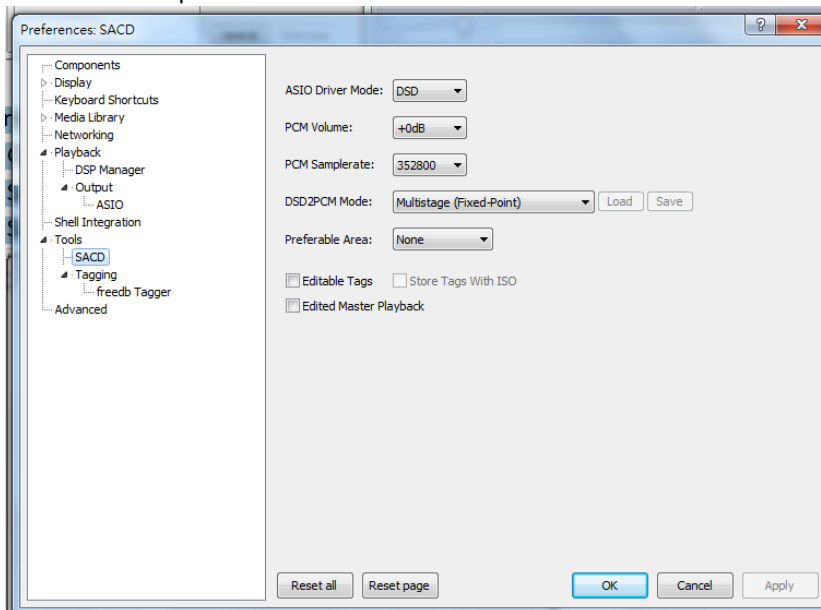
1. Install the Foobar media player
<http://www.foobar2000.org/download>
2. Download the ‘SACD’ plugin <http://sourceforge.net/projects/sacddecoder/files/latest/download>
 - a. To install, in Foobar goto File->Preferences and select Components
 - b. Click the Install... button
 - c. Select the zip file
 - d. Click Apply (foobar will restart)
3. Download the ASIO plugin from http://www.foobar2000.org/components/view/foo_out_asio
 - a. Install the plugin
 - b. Click Apply (foobar will restart)
4. Configure the Output Device
 - a. Go to Playback->Output
 - b. Select the Device: ASIO foo_dsd_asio



5. Configure the ASIO output
 - a. Go to Playback->Output->ASIO, double-click on foo_dsd_asio
 - b. Select the NuPrime ASIO Driver
 - c. Select ASIO Native
 - d. Select PCM to DSD Method: None
 - e. Select Fs: DSD128



6. Configure the SACD plugin to play DSD (and not convert from DSD to PCM)
 - a. Go to Tools->SACD
 - b. Set ASIO Driver Mode to DSD
 - c. Set PCM Sample Rate to 352800



NuPrime's Limited Warranty and Limitation of Liabilities

ADDITIONAL RIGHTS

FOR CONSUMERS, WHO ARE COVERED BY CONSUMER PROTECTION LAWS OR REGULATIONS IN THEIR COUNTRY OF PURCHASE OR, IF DIFFERENT, THEIR COUNTRY OF RESIDENCE, THE BENEFITS CONFERRED BY THIS WARRANTY ARE IN ADDITION TO ALL RIGHTS AND REMEDIES CONVEYED BY SUCH CONSUMER PROTECTION LAWS AND REGULATIONS. THIS WARRANTY DOES NOT EXCLUDE, LIMIT OR SUSPEND ANY RIGHTS OF CONSUMERS ARISING OUT OF NONCONFORMITY WITH A SALES CONTRACT. SOME COUNTRIES, STATES AND PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY OR CONDITION MAY LAST, SO THE LIMITATIONS OR EXCLUSIONS DESCRIBED BELOW MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY BY COUNTRY, STATE OR PROVINCE. THIS LIMITED WARRANTY IS GOVERNED BY AND CONSTRUED UNDER THE LAWS OF THE COUNTRY IN WHICH THE PRODUCT PURCHASE TOOK PLACE.

LIMITED WARRANTY

For a period of ONE (1) YEAR from the date of retail purchase by the original end-user purchaser ("Warranty Period"), NuPrime warrants (in) this product against defects in materials and workmanship, and (ii) that each Product, unmodified and under normal use and conditions, will substantially comply with NuPrime' applicable written technical documentation for the Product. NuPrime reserves the right to make substitutions and modifications from time to time in the specifications of Products sold by NuPrime, provided that such substitutions or modifications do not materially affect overall Product performance.

If a hardware defect exists and a valid claim is received within the Warranty Period, at its option and to the extent permitted by law, NuPrime will (1) repair the hardware defect at no charge, using new or refurbished replacement parts, (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product, or (3) refund the purchase price of the product. NuPrime may request that you replace defective parts with user-installable new or refurbished parts that NuPrime provides in fulfillment of its warranty obligation. A replacement product/part assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes NuPrime's property. When a refund is given, your product becomes NuPrime's property.

OBTAINING WARRANTY SERVICE

If you purchased the product in the U.S., deliver the product, at your expense, to any NuPrime Service Center located in the U.S. If you purchased the product outside of the U.S., deliver the product to any NuPrime Authorized Importer in the country where you purchased the product. Be aware, however, that not all countries have NuPrime Authorized Service Providers (NASP) and not all Authorized Service Providers outside the country of purchase have all parts or replacement units for the product. If the product cannot be repaired or replaced in the country it is in, it may need to be sent to a different country or returned to the country of purchase at your expense for repair or replacement. If you seek service in a country that is not the country of original purchase, you will comply with all applicable import and export laws and regulations and be responsible for all custom duties, V.A.T. and other associated taxes and charges. Where international service is available, NuPrime may repair or exchange defective products and parts with comparable products and parts that comply with local standards.

You can always deliver the product to NuPrime's U.S. main service center for obtaining warranty service, however, you may have to pay for return shipping cost.

NuPrime may send you user-installable new or refurbished replacement product or parts to enable you to service or exchange your own product ("DIY Service"). Upon receipt of the replacement product or part, the original product or part becomes the property of NuPrime and you agree to follow instructions, including, if required, arranging the return of original product or part to NuPrime in a timely manner.

When providing DIY Service requiring the return of the original product or part, NuPrime may require a credit card authorization as security for the retail price of the replacement product or part and applicable shipping costs. If you follow instructions, NuPrime will cancel the credit card authorization, so you will not be charged for the product or part and shipping costs. If you fail to return the replaced product or part as instructed or the replaced product or part is not eligible for warranty service, NuPrime will charge the credit card for the authorized amount.

EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to hardware products manufactured by or for NuPrime that can be identified by the "NuPrime" trademark, trade name, or logo affixed to them. The Limited Warranty does not apply to any non-NuPrime hardware products or any accessories, even if packaged or sold with NuPrime hardware. Non-NuPrime manufacturers, suppliers, may provide their own warranties. Other accessories distributed by NuPrime under the NuPrime brand name are not covered under this Limited Warranty. This warranty does not apply: (a) to damage caused by accident, abuse, misuse, misapplication, liquid contact, fire, earthquake, non-NuPrime products, or other external causes; (b) to damage caused by service performed by anyone who is not a NASP; (c) to a product or a part that has been modified without the

written permission of NuPrime; (d) to consumable parts, such as batteries, or protective coatings designed to diminish over time unless failure has occurred due to a defect in materials or workmanship; (e) to cosmetic damage, including but not limited to scratches, dents, and broken plastic on ports; (f) to defects caused by normal wear and tear or otherwise due to the normal aging of the product; or (g) if any NuPrime serial number has been removed or defaced.

Important: Do not open the hardware product. Opening the hardware product may cause damage that is not covered by this warranty. Only NuPrime or a NASP should perform service on this hardware product.

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Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages or exclusions or limitations on the duration of implied warranties or conditions, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary by state or province.

Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. NUPRIME SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.