



LP Recording/Archival

By Bruce A. Brown

For decades, Audiophiles have concentrated on achieving the pinnacle of audio playback. Up until a few years ago, recording has been taboo and oft times, out of reach for the typical audiophile.

Digital Audio Workstation, or "DAW" based computing has been at the forefront of recording studios worldwide for many, many years. As computer performance advanced and software companies have gotten more proficient in writing code, the trickle-down effect has brought recording to the masses.

The most simplest re

ording software programs can now rival the big boys. A free program called Audacity (<http://audacity.sourceforge.net/download/>) can record, edit and publish anything you can throw at it. During last month's meeting, I was using a program called Sony Sound Forge. This program expands on what Audacity excels at and offers the user many more tools to manipulate the audio.

But first, let us not get ahead of ourselves. Recording all starts at the source. The adage "crap in/crap out" really applies in recording. I can not stress enough on

getting the cleanest signal possible. This means, clean your LP's! There are endless companies that produce LP cleaning solutions, vacuum cleaners, demagnetizers and negative ion generators. Whatever you use, the cleaner the LP is, the less time you'll be spending trying to edit out clicks and pops! I've even gone to extent of playing back the LP wet! Just mist on some Discwasher fluid nice and evenly. Remember to clean out all the grunge from your cartridge cantilever later.

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The next equation is your playback source. This can be your turntable, cassette deck, reel to reel tape deck or any analog source. This has to be in good working condition. Believe me, you're going to hear deficiencies in your playback chain if it's not in tip top condition.

Next, you'll need to get the signal to the computer. You can do this either of 2 ways.

Simple way: Assuming you have your turntable plugged into either a phono pre or receiver, you'll need to get that signal into your computer. If your computer has a built-in sound card, then more than likely it probably has an 1/8" stereo phono plug for the input. You'll just need an adapter for your phono cables L/R to stereo phono 1/8" plug.



Now for something a little more high-tech and audiophile approved, you can purchase an audio card, with built-in AD/DA for the computer that will fit into one of the PCI or PCIe slots in the back of the motherboard. These come in all shapes/sizes/brands. The ones that I like are by Lynx Technology. The LynxOne or Two series are really great and simple to use. They come with breakout cables that attach to the rear and have a multitude of in and out configurations.

Going up the chain we now come to outboard A/D units. On the analog input side, most have balanced connections. When you're

playing on this field, you really should be using balanced XLR connections. This will shield any EMI/RFI hum and give you a hotter signal. On the digital out side, you will find lots of other options. The simplest connection would be USB or firewire. Some of the converter brands that use USB or firewire are Apogee, Lynx, Prism, Metric Halo and Weiss Engineering.



The other route would be to use an AES/EBU interface card in your computer such as a Lynx AES16 or RME AES32. You can be more flexible in what converters you use and wouldn't have to be locked into just using one brand.



As you can see, there are lots of options and the choices can be daunting. There are several websites that show you how to build different setups for your needs and budget. The best website is: Computer Audiophile (www.computeraudiophile.com).

There are several club members that have built servers and steer you in the right direction.

This can be a fun and enjoyable venture. With the proper planning, you can have your vinyl collection done in no time. Then you can go back and experiment on how much noise you want to remove or be able to remove that annoying click that's been bothering you all these years!

Upcoming meeting

Tonight, March 11th, we'll host 2 equipment manufacturers from the Pacific Northwest.

Jones Audio (<http://www.jones-audio.com/>), makers of amps and pre-amps will be showing off their latest electronics that have gotten rave reviews from all that attended January's CES show in Vegas.

Eficion (<http://www.eficion.com/>), makers of high-performance speaker systems will let you hear what a true Air Motion Transfer ribbon tweeter can sound like!



My friends and dealers all know that the gestation of the Genesis 7.1f was a long one. After we released the G7.1c in 2005, and then the G7.1p in 2006, they all expected the floor-standing version in 2007. They ended up waiting over three years. I hope that they all felt that the wait was worth it.

In order to achieve a value-priced product for the Genesis 7-series, we had to be a lot more creative in design and engineering than developing a flagship, cost-no-object product like the Genesis 1.2. Since we wanted the G7.1f to have much wider appeal than to the audiophile in his “man-cave”, it had to be elegant and beautiful, and family-friendly. And yet, it had to perform like a true absolute fidelity® Genesis product.

Right out of the gate, the G7.1f won the top award for design and engineering excellence from the Consumer Electronics Association of the US and the Industrial Designers Society of America – the 2010 Best of Innovations Design and Engineering Awards. I thought that this was great

recognition for over four years of work in completing this design.

An Elegant, Beautiful Cabinet

The design of the G7.1f actually started out with what we wanted it to look like.

In the early 1930’s, the Pratt Institute of New York asked several hundred art students to comment on what seemed to them the most pleasing of a bunch of regular rectangular proportions laid out as vertical frames. The least liked was when the width to height ratio was 1:2, and the most favored by a very large margin was when the proportions was 1:1.618 – the Golden Mean.

The ancient Greek sculptors were masters of proportion. Sculptures that were admired from afar, such as the Caryatids, were sculpted to a different proportion to those sculptures that are meant to be admired from nearby. Since the G7.1f is a small loudspeaker, we borrowed the proportions of the *pedastal* on which Greek sculptures were displayed. While this resulted in an elegant cabinet, the internal cavities were too long and narrow for good sound (see later). Hence, the cabinet had to be made a little wider than would have been ideal. We turned to the fashion world to bring the elegance back. Taking a cue from the lines used by fashion designers, we used a dark curved shield on a lighter background to narrow the width of the slightly too-wide-to-be-pleasing cabinet. The subtle flare at the top and the slightly pinched waist with the taper down to the bottom all help to accentuate the elegance of the cabinet. Colors were also very carefully chosen to match.

Since it was going to be used in a family room, the speaker had to be physically very stable, and withstand the possibly of a 3yr-old bumping into it. Hence, a “foot” was added to enhance stability. This served as the frame of the acoustic suspension to

isolate the speaker from the floor upon which it sat so that it would sound the same whether it was sitting on concrete, carpet, hardwood, marble, or uneven hewn slate.

Delivering Absolute Fidelity®

The G7.1f, being a full-range loudspeaker unlike the G7.1c and G7.1p, presented new problems due to the low bass frequencies expected of the loudspeaker. As low bass requires large cabinets, the tight, elegant proportions created special problems of how to deliver the amount of bass that defines a Genesis loudspeaker. Deep bass also presents large energies, and generate vibrations and resonance that can really mess with the sound and imaging.

From our previous design experience, we knew that we wanted to keep to the classic Greek proportions on the internal cavities. If you ever get the chance to go to Athens, don’t miss the 3rd level of the new Acropolis Museum where the architects created a rectangular cement core that has the exact dimensions of the Parthenon.

Despite having no acoustic treatment, with bare walls and marble floors, you don’t hear the usual echoes and hollow reverberations that plague large, open spaces. Voices sound extremely natural and there is an openness to the sound that is astonishing.

Translating these proportions into the internal cavities in the speaker gives the same results – less resonance and a more natural sound. It also means that we don’t have to resort to exotic, expensive construction and materials. Damping can be minimal for a more dynamic sound. We knew that we wanted to maintain the slim, elegant profile, which also resulted in excellent imaging and soundstage, but needed to find some way to deliver enough bass

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out of it. Some time ago, we learnt that having woofers on just one side of the cabinet destroyed imaging. The old Genesis APM-1 with a single side-firing 15" woofer had an image that lost stability with increasing bass. This was fixed in the G6.1 by using two identical horizontally opposed woofers to cancel the vibrations.

We knew that had to be the solution for the G7.1f, but with such a slim cabinet, there was no space to put two horizontally opposed woofers that would be large enough to deliver sufficient bass. A single side-firing woofer would have worked, but we did not want to lose the stable, precise image.

The solution was both simple and elegant.

Most speakers with a side-firing woofer would be anchored at the base. Hence, the bottom of the cabinet would be the fulcrum of the lever. This means, that any movement generated by the woofer near the fulcrum would be multiplied at the top of the lever and destroy the image. If we were to move the fulcrum up to the middle of the cabinet, then it would substantially reduce the movement at the top of the cabinet.

As the G7.1f is a powered loudspeaker, we had to have a large, heavy transformer anyway. Using this transformer as a polar moment of inertia bolted to the middle of the loudspeaker instead of bolted to the bottom; it could act as the "fulcrum".

The bottom of the loudspeaker already had a compliant mounting for the acoustic suspension. All it took was to figure out the compliance needed on that suspension and the weight and position of the moment of inertia in relation to the woofer, and the vibrations caused by the sideways movement of the woofer could be almost perfectly damped. Easy!

Extended Appeal

In order for G7.1f to have broader appeal, it had to be extremely easy to drive. This meant that we had to make sure that it would perform well with budget receivers and amplifiers.

Nevertheless, we did not want to sacrifice the clarity and transparency for which Genesis loudspeakers are renowned. Our task was to design an absolute fidelity loudspeaker that would allow a budget amplifier driving it to perform at its best. Yet, when used with the best amplifiers such as the Genesis Reference Amplifier shows its absolute best.

We found that many budget amplifiers firstly skimmed on the size of the power supply, and secondly on the quality of the parts. As a result, they could not deliver high current and thus sound harsh and hard when the volume is high.

At the other end of the scale, they did not drive micro-dynamics well and sounded muddy at very low volume. Nevertheless, within a narrow power band, most well engineered amplifiers did sound pretty good. With the G7.1f having a 180W built-in servo-controlled bass amplifier, half the battle was already won. The internal amplifier does all the 'heavy lifting' in the bass, and the external amplifier needs only drive the speaker from about 100 Hz up – which most budget amplifiers should be well capable of.

What we needed to do in addition was not to draw too much current and yet get the amplifier over the hurdle to the 'good part' of the power band. To do that, we went back to loudspeakers that were to be designed in the 1960's with high impedance. That would require the amplifier to turn over a higher voltage to get over the muddy sounding part, and yet with the high impedance, the speaker does not draw large amounts of current that would tax a small power supply.

The result was a pair of speakers that could be driven by almost anything, including a \$40 battery powered T-amp, and yet sounds fabulous with a high-quality power amp. As a reviewer put it, a speaker that succeeds on almost all counts and truly excels in a few.



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Classified Ads

Ads are free to members and will run for three consecutive issues unless renewed. Please limit ads to make, model, short description, condition, MSRP, asking price, contact information.

Crown CE2000 Amplifier
Balanced & XLR inputs
5 way binding posts & speakon outputs
2 ohm stable
950W x 2 ch into 2 ohms / 1900W x 1ch into 4 ohms
Rack mount (3 rack spaces)
Thermally controlled cooling fan
\$500 obo.
If interested, email: ranedoggy@msn.com

Club discounts

Northwest Sinfonietta

The Northwest Sinfonietta (a classical chamber orchestra) provides discounts to members of our club for performances of the 2007-2008 season. The regular single ticket price of \$38 will be only \$20 per person per performance at the door (or by phone or mail). Just tell them or note on your order that you are a member of the PNWAS. Information and order forms are also available at their website: www.nwsinfonietta.org.

Kosmic

www.kosmic.us
Contact Joe Pittman
206-878-3833

Pro Sound and Vision

Contact George H. Pro
425-889-9499, 425-445-3308 (cell)

Revolution Power

www.revolutionpower.com
Contact: Ken Garza

Visitors Welcome!

Meetings are held on the second Thursday of every month at 7:30 p.m. at 4545 Island Crest Way, Mercer Island, WA 98040.

PNWAS Mission Statement

- ◆ To bring together people with a common interest in music reproduced at its best, for their mutual edification and pleasure.
- ◆ To facilitate the exchange and dissemination of accurate data concerning audio equipment and musical recordings.
- ◆ To promote, sponsor, and cultivate the highest quality reproduction of music in the home.
- ◆ To encourage maintenance of high standards in the performance, recording and transmission of music.

PNWAS Objectives

1. Provide a forum for meeting other audiophiles and exchanging information on musical recordings and audio equipment.
2. Demonstrate and compare equipment and recordings.
3. Give members opportunities to become familiar with the techniques of audio manufacturing,

testing, repair, recording, broadcasting, etc.

4. Explore related avenues as the membership deems appropriate.

Club website

www.audiosociety.org

E-mail

info@audiosociety.org

U.S. Mail

Pacific Northwest Audio Society, P.O. Box 435, Mercer Island, WA 98040

Annual dues

\$60 due each January. New members pay a prorated \$5 per month for remainder of year.

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Editorial

Editorial submissions are welcome.

Content must be audio-related or of general interest to the club in plain text or Word document format without automation (macros or scripts). We reserve the right to edit for style, content, and length.

Editorial deadline: two weeks before meeting date.

Publishing any editorial material is contingent upon the approval of the Executive Committee.

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