FURUTECH GT40 UPGRADE

The GT40 Alpha can record and play back at a bit depth/sampling frequency of 24bit/192kHz. A discrete red 'clipping' light warns of digital recording overload and there is a three-position recording attenuation switch.

The system uses a 24bit/192kHz ADC for conversion of vinyl records, cassettes and reel to reel tapes into high resolution digital audio files. You don't need to worry about a phonostage: the GT40 Alpha has one, with switching between moving magnet (MM) and moving coil (MC). There is also a headphone amplifier with its own volume control. That very volume control also allows use as a multi-functional digital and analogue preamplifier that can be connected direct to a power amp or active speakers. The ADL GT40 Alpha is available now, priced at £395.

For more information, click on *www.adl-av.com www.soundfowndations.co.uk* or call *0118 981 4238.*

VINYL NEWS AND REVIEWS SECTION SEE PAGE 80

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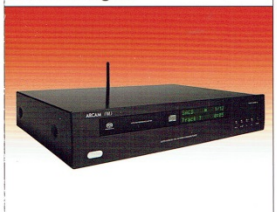

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Straight Record

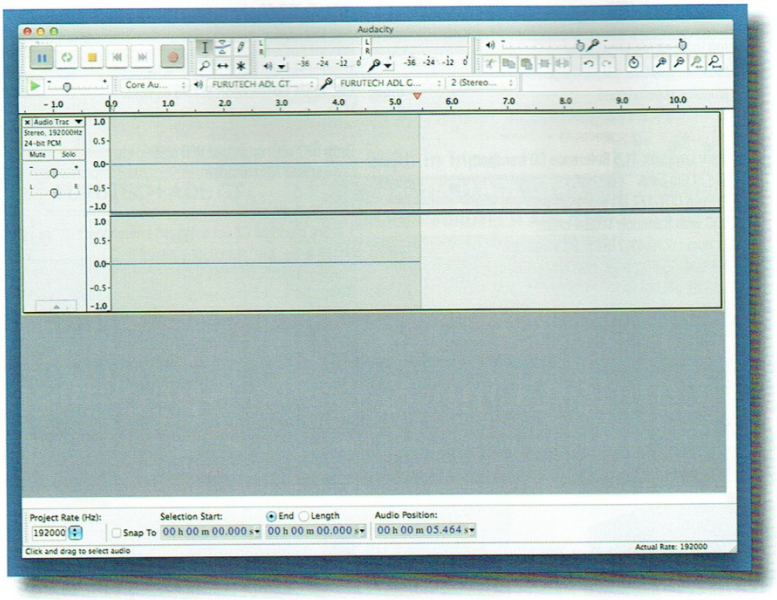
Noel Keywood looks at what it takes to record to digital.

Recording music to digital is getting progressively easier, or so I think. It could just be that I'm becoming more familiar with the whole business, in particular the free software music editor Audacity that I use and find works well.

Music editor? Yes, the days of the red record button and record level sliders are over, in physical form at least, even though Audacity has both in symbolic form. But whilst there is some fiddling to do in this software editor to get started, it isn't that difficult, nor daunting. Here's how...

You'll be recording to computer, Mac or PC. PCs still need to have ASIO (Asynchronous In/Out) drivers installed, because Windows lacks this ability, whereas Macs do not. No surprise then that a Mac is the weapon of choice for music recording – and commonly a portable MacBook Pro if you have to carry the hardware to the recording location. There are no hardware issues I have encountered or know of and a Mac has enough processing power – typically in an Intel i5 CPU – to run 384kHz sample rate music without smoke issuing from the USB socket.

The arrival in this issue of a product incorporating an Analogue-to-Digital Convertor (ADC) – still rare in domestic audio – in Furutech's GT40a, together with MusicScope software billed



Audacity's user interface. Press the red button at top left to start recording – it's as simple as that. Set record level with the sliders, just like a cassette deck! The music signal is shown as two horizontal blue lines, seen to stretch halfway across the time scale here. Best to set sample rate and bit depth in Audacity's Preferences first, in the Quality tab, but there are also on-screen tabs for this.

Final format is set when Exporting (not Save As) a file. Choose WAV, FLAC or ALAC, or a myriad other formats. Audacity has 'em all.

Read the on-screen manual if you want to go dizzy.

as suitable for vinyl LP analysis, suggested we should explain just how to use these items with Audacity to make recordings. It isn't as easy as pressing the Record button on a cassette deck and ending up with a half-decent result; the days of easy analogue are over; digital is here to torture us. But it is slowly getting easier and more bull free as the mystery dissipates.

And nowadays the recordings you can make in glorious, 24/192 top-resolution digital are very, very good – as well as transportable – just. I say that because files sizes are enormous, but I will come to that later. I will quickly mention here that you can record music and speech to iPad or iPhone (iOS) and there are various associated apps like WavePad, but it's less flexible and sample rate on iOS is 48kHz maximum, WavePad running at CD quality, or 44.1kHz maximum.

GETTING STARTED

The main difficulty in digitally recording audio is learning Audacity – or any other music editor, such as Mac's own Garage Band. Like most computer software, such as Photoshop, it has a user interface that can be confusing, especially when it comes to selecting bit depth and sample rate, for which there are multiple menus. Audacity also gets into digital obscurities like floating point files and dither, all of which I will ignore! This piece is about the nuts and bolts of recording.

You will find Audacity at http://audacity.sourceforge.net. It is a quick download, occupying just 66MB on disc, the programme alone needing a measly 33MB. All the same it is powerful and sophisticated. SourceForge recommend 2GB RAM/ 2GB processor and OS-X 10.7 (Lion) or later, but it will run on 10.4 or after, including Leopard and Snow Leopard, but max sample rate is 96kHz. I ran Audacity on Mavericks for this article and the comments relate to this pairing alone, although newer Yosemite is unlikely to be much different.

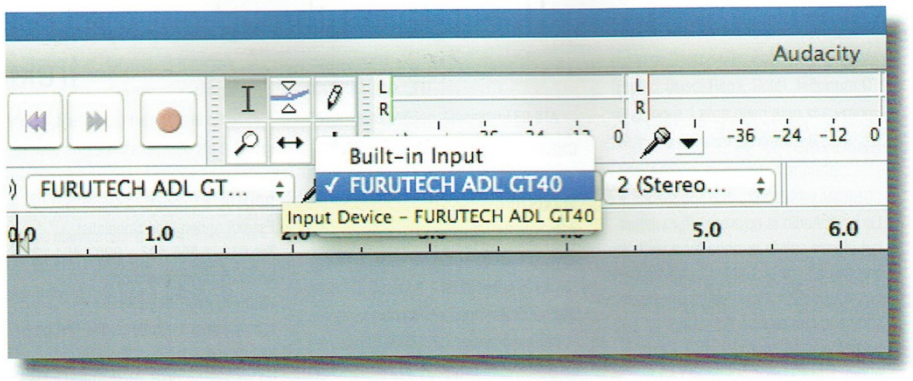
"A set-up like this, although simple and inexpensive, may well be of interest to young people wanting to learn about music, recording techniques, audio and what have you"

First, connect the Furutech GT40a to Mac with a USB lead. When the Mac polls its ports, as it does continually, the Furutech will identify itself and appear in the Sound menu found in System Preferences (the grey box with gear wheels). You must select it as the input and output device/route for audio. This will link the computer to the Furutech. You must then run Audacity and set it to link with both input and output too, which you do by going to the top toolbar where, at centre, there is an input selection tab with a microphone symbol at its left end, and an output tab with a loudspeaker symbol at its left end. Set both to the Furutech.

One small confusion on a Mac is the presence of the Audio/Midi control panel hidden away in a Utilities folder, where sample rate can be set. This should auto-set to 24/192 and not be a problem, but always best to inspect it I find. You will find Utilities in the Applications folder, at the bottom of the file list.

Note that if Audacity opens to a blank screen, go to File in the top menu bar and select New.

Above the input and output selection tabs there are input and output selection signal-level sliders: move them to maximum. With inputs correctly selected and level controls at max, Audacity will show



It is important to set Audacity to see the computer's inputs and outputs, to avoid silence. This is done in the top bar where external devices will identify themselves over USB: here you can clearly see the Furutech has declared its presence to the Mac and to Audacity. Don't forget to go to Sound in the Mac's System Preferences and set its Input and Output to the external source too.

an input signal in its red input meter and green output meter when the dull red Record button at top left of screen is pressed. Best to press Pause first to go into record-pause.

Two horizontal boxes then appear on screen, containing left and right channel audio waveforms, but they will be blank when no actions have been initiated. You can import a music file into these areas, in order to edit it, or you can create audio by recording either an external signal or generating an internal one. They are general purpose visual containers for the audio, as it were, showing amplitude against time.

At this point you can lower the stylus onto the groove and if all is well the red input level display will light up. It will be high and likely going into occasional overload, because the Furutech is gain-set to match real life cartridges that typically output 4mV from a standard 3.54cms/sec/5cms/sec peak test tone, output being related to stylus velocity in electromagnetic generators.

Moving coil cartridges typically generate 10x less signal, and when you switch to MC on the Furutech it increases gain by this amount to compensate.

The Furutech's rear attenuator switch must be set to avoid its front panel red overload warning light coming on; if it does this severe distortion is generated on short term peaks.

The red light is effectively synchronised with 0dB in Audacity's record level indicator, both registering overload when all bits in the bit word have been used up, meaning there's nothing left to describe the signal. Audacity has small black peak level bars that will tell you if overload has occurred during a recording, meaning the GT40's attenuator must be switched to 6 or 12.

If you hear hum try either connecting or disconnecting the turntable's earth lead to the GT40's earth terminal.

PROCESSING

Once you've recorded an LP you may want to split it into tracks and/or process it in other ways – and for this you need to read Audacity's on-line tutorial.

So far I have said nothing about file type or size because this comes last, after you have got the whole shebang working and made a successful test run. Then it is time to take stock.

The first thing to note is that 24/192 generates huge files, 1.4GB for an LP side lasting 20 minutes. You can halve this by selecting 96kHz sample rate in Audacity; hearing any degradation is difficult I find.

You may even decide upon 48kHz sample rate: again, listen and see because hearing differences will hinge upon the abilities of your replay equipment.

I have assumed you will be recording in WAV format, which is basic PCM. But most people choose FLAC (Free Lossless Audio Codec) that halves file size, includes meta-data (accompanying data such as artist name, genre etc), cover artwork etc. You may want to store master files on a huge 5TB hard drive and chop them down in size to suit external devices, so for example an iPad can run 24/48 ALAC (Apple Lossless Audio Codec) and will sound better for it.

Don't forget also that once you have digitised an LP, you can change its tonal balance, remove noise, analyse it with MusicScope, distribute it to various players, fixed and portable and what have you. And not wear out the original LP.

However, as I note in the Furutech review, whilst 24/192 might sound like the dog's doo-dahs, it isn't. Analogue-to-digital convertors are residually noisy and also introduce quantisation noise, both of which degrade sound quality. You don't see this in their spec unless you study the data sheets, or measure them as I do.

By way of contrast, a moving coil cartridge has a vast dynamic range because it is almost noise free, so the two don't yet compare, but the gap is closing. And of course you can record radio programmes from a hi-fi tuner, or even song from an external mic running through a preamp feeding the Furutech's line input.

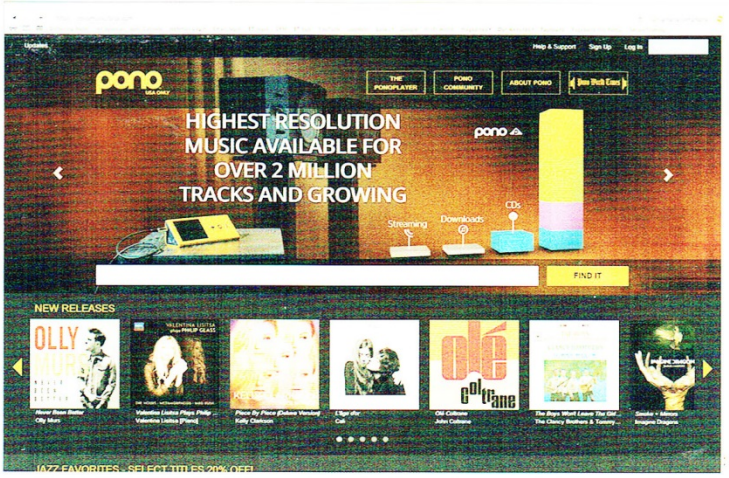
One small last note is that digital recording opens a lot of doors to modern music recording and a set-up like this, although simple and inexpensive may well be of interest to young people wanting to learn about music, recording techniques, audio and what have you.

Working with digital hands-on like this is a great way to learn about music recording, not just LP recording. So the Furutech opens doors to a potential audience beyond just us audiophiles.

of a car.

The music business needs 24 bit resolution and the benefit can be heard at home too, on a good hi-fi system. Obviously, if the music was recorded badly in the first place then hi-res cannot improve matters, but with good source material 24 bit is worth having I believe.

The truth is somewhat more complex and nuanced than that presented, but most people would opt to make another cup of tea than get the full picture on a programme more serious than Click, I suspect. **NK**



Neil Young is behind Pono, a new high quality music streaming service. But his comments give Laura Knight the needle.

NEEDLED BY NEIL

You know when you believe everything to be moving along very nicely and then something happens that sets everything spinning, but not in a good way. Firstly, and please understand that I really do love Neil Young, with a passion almost verging on wild-eyed and uncontrolled frenzy. However, very recently, Neil has been waxing digitally regarding what he now suddenly sees as the terrible state of the good old LP record. Are we truly to believe that Neil has gone from a gold medal lover of vinyl to a dismissive voice, relegating vinyl to the ranks of the, 'well I finished last in the race and wish I hadn't bothered to turn up category'. Neil's main point, it now appears, is that cart loads of vinyl from the eighties onwards has been pressed using digital masters, not the analogue ones people may have assumed were used, and that buying and listening to vinyl now is, in effect, nothing more than listening to a CD as you watch the record spin around.

So, leaving Neil aside for a moment. Is any of this true? Does it matter at all if it is true? Have the record buying public been duped for as long as many fans will be able to remember. What is this really all about and how will this statement from Neil Young, of all people, affect music fans attitudes towards vinyl. Its continued viability as a choice, the businesses that rely on vinyl reproduction to survive, and, well, me. Yes me. I love vinyl very much, but I'm beginning to wonder which way is up.

Faithfully,

Laura Knight.

There's often digital behind analogue I guess Laura – best not to lose sleep over it! Digital recording has been with us for a long time, and digital editing is now universal, so we cannot get away from it. I guess Neil will change his tune now that Pono is up and running. **NK**

ARCHIVING VINYL

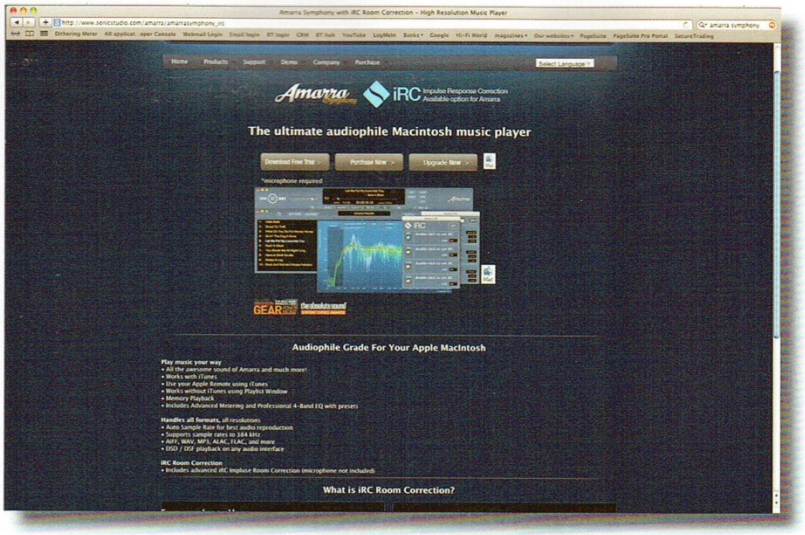
My question is that I am considering how best to archive vinyl to hard disk. I am sure many other readers are asking something similar. I already own an Olive 04HD on which I have all my CDs (as FLACs) and also numerous downloaded HD FLAC files. The quality and convenience is outstanding and I feel it is certainly the way to go for multi-room access. Rest of system is (currently) Rega 25/Creek phono/Rega Elicit/PMC twenty 23s.

I would like to carry out this task at 24 bit depth and either 48 or 96kHz sampling frequency (dependent on actually trying out the process and balancing the acoustic merits against file size/storage requirements).

I have already created a few files using a Pro-Ject USB v phono stage that I happened upon; however when I purchased the Pro-Ject I did not realise that it was limited to 16 bit and I therefore cannot benefit from the advantages of 24 bit depth. The recordings are nevertheless of good quality but I always aim high - especially as technology has a way of overtaking current expectations! I looked at the Rega USB phono stage but again that is only 16 bit, as is the NAD offering.

I read with interest reader Mike Tartaglia-Kershaw's comments in the February 2015 issue about the Terratec Aureon xfire 8.0HD which almost seems too good to be true for the price. I can however find no meaningful reviews on the internet apart from

Furutech's new GT40 Alpha can record LP at top 24/192 digital resolution. It has caught the attention of Mark Eley who wonders whether it is right for him.



"DSP room correction hardware and software hardly seems to be on your radar" says Rod Thorogood. I "recently moved over to using the DIRAC software in Amarra Symphony".

Mike's own (very useful) comments on Amazon and have questions about it's functionality (for example can you control gain when recording?) as well as a slight worry about using a 3.5mm jack input.

The Furutech ADL GT40 at £400 also looks very interesting and a new model (the alpha?) is apparently due out soon with sampling up to 192kHz. You also recommend the Furutech Esprit but I do not particularly want or need another phono stage, just a good – but not too expensive – analogue to digital converter. Any thoughts please with a maximum budget of say £500, but much less would obviously be good if possible. Should I just take a leap & try the Terratec for £50? It could do no harm..., may be good fun and might surprise me!

Thanks also for a great magazine every month.

Mark Eley

You have to be careful here Mark. Good ADCs don't come cheap and cheap ones add noise around the signal, a form of quantisation noise. This is quite apart from their quiescent noise floor, which is usually high too. We have not tested cheap computer items, but the Furutech Esprit preamp or GT40 Alpha, reviewed in this issue, are 24 bit and would suit. If you don't want to use the phono equalisation within the GT40 it can be switched to Line.

NK

RF PROBLEM

Paul Hutchins's 'Whistling in Wimbledon' letter reminded me of a similar problem I had a few years ago. I bought an Alphason tonearm to replace my SME 3009. Once fitted I could hear a foreign radio station very faintly in the background. After consulting Alphason, I fitted some ferrite clamps to the tonearm leads, this seemed to cure the problem.

With Paul's problem, it may be worth running a cable from the speaker chassis to earth. Tannoy suggest this and having done this myself, I've found it does clean up the sound slightly. He could also try ferrite clamps first as these are easy to fit.

Regards

Mike Bickley

ROOM CORRECTION REVIEWS

I greatly enjoy your magazine and have done for many years. But there is a whole category of product out there – DSP room correction hardware and software – that hardly seems to be on your radar.

I have used a Tact DSP room correction pre-amp for about 12 or 13 years now, and recently moved over to using the DIRAC software in Amarra Symphony.

Both have their strengths and weaknesses, and neither is totally transparent. What is, pray tell? But here's the thing; with a little patience and experimentation they do an utterly fantastic job of taking the filthy muddle of room acoustics almost completely out of the sonic equation. No more ill-defined bass, boom, blurred instruments or amorphous stereo imaging.

Need to put your Quad ELS near a back wall? Impossible to get a good sound you might think? Not really; with a bit of DSP my OTA-modded ones sit very comfortably just 15 inches away from the back wall and produce great bass and stunning imagery.

Like a slightly more laid-back, or up-front sound; or even a ruler-flat one? DSP room correction is your friend. You no longer have to shell out more readies on trying yet another set of speakers or cables or whatever to try and balance the sound, DSP (well-implemented, of course) will provide this flexibility and ensure everything all hits your ears in both a frequency and time-corrected confection of musical bliss.

It can't make a silk purse out of a sow's ear of a system but it can give each and every component the very best chance of sounding like a system that plays music.

And it's totally technology-agnostic. I use mine with the ELS's and a Leak or Luxman valve amp; both of which are at least 35 years + old. You can even try out the Amarra software free for 2 weeks; all you need is a Mac and a suitable microphone.

So come on guys, how about some more reviews of this stuff? It could help your readers scale the heights of fi that they have perhaps dreamt of but never thought they could afford.

Best regards,

Rod Thorogood

Good point Rod. We don't cover this topic as much as we could perhaps. It is acoustically complex and somewhat contentious too. As you are probably well aware, conditions can be changed for the better in the listening position but then become worse elsewhere, one reason these systems haven't caught on.

Improving fundamental room acoustics is the best solution, and we do often talk about this. But we musn't shirk from modern digital marvels and will look at such systems, since we are able to measure their impact, as well as hear it. **NK**