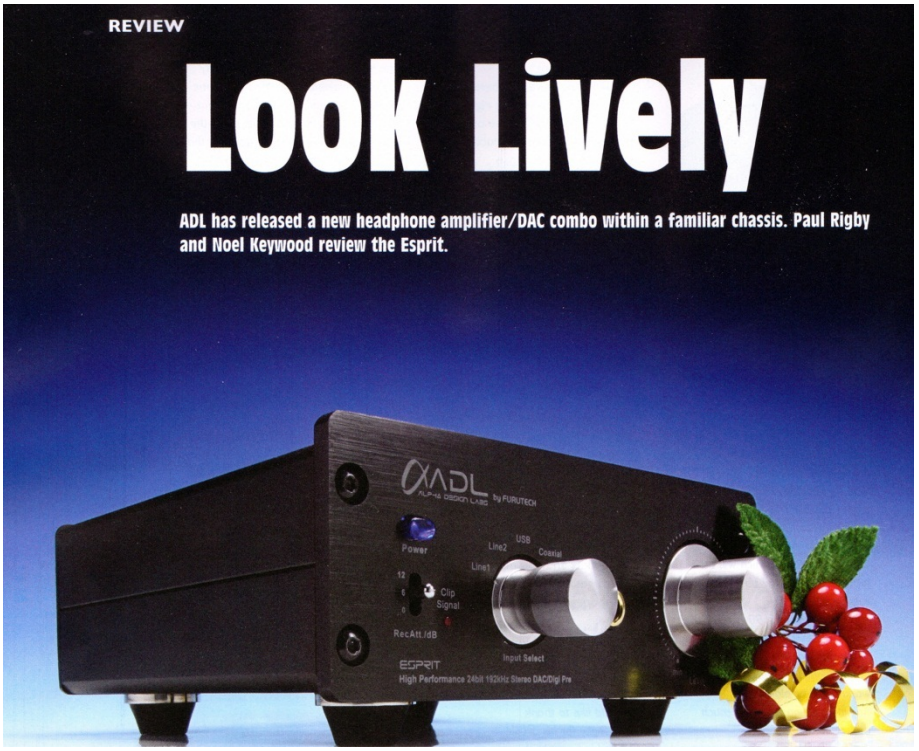
# FURUTECH

HiFi World (UK) – ADL Esprit


**January 2013**




A quick look at the new Esprit DAC from Alpha Design Laboratories (ADL being the 'value for money' brand of Japanese outfit Furutech) may prompt a double-take. It looks very much like that company's GT40 combined headphone amp, DAC and phono amp.

But that's no surprise; ADL is in the process of building a family of products within its recognizably similar chassis – with more to come, apparently. Furutech's Graeme Coley, speaking from Hong Kong, told me "We wanted the Esprit to be compact in size. There's a local issue too: in Japanese houses, there's not a lot of space."

The Esprit is a direct descendant of the GT40, "We produced that because we had been involved in analogue for some time, working on a phono stage, then we released a pair of high-end USB cables and our engineer got really involved in USB DACs. We decided to combine the three so that people could record their LPs. We later took a survey and found that some people preferred to use their own phono stage because they already had a high quality phono stage. We thought, let's leave that out of the Esprit and upgrade the DAC which meant that we could incorporate the coaxial and optical inputs and the digital outs on the back".

Finished in silver or black, the Esprit features an upgraded headphone amplifier, with a full size jack, sourced directly from Furutech (as are all connectors and terminals – bar the optical port), handling loads up to 600 Ohms and using a Texas Instruments TI-TPA6120A2 chip.

Also on the front fascia is an illuminated power switch, source selector switch to choose between Line 1 and 2, Coaxial, USB and Optical for the input, a recording attenuator to prevent overload when recording, and a volume knob, "...that took us a while to choose because we wanted to find a very low noise model", said Coley. "That was one of the hardest choices to make. We tested fifteen before we settled on that one, an upgraded variant using a higher grade A-Type variable resistor – the GT40 utilised a B-type".

In fact, for the Esprit, ADL has upgraded just about everything except the Tenor USB chip. Other improvements include the 24bit/192kHz WM8716 Wolfson DAC plus a higher rated ADC (Analogue-to-Digital Convertor) chip, the 24bit/192kHz Cirrus Logic CS5361.

"Removing the phono stage from the initial GT40 specification improved the noise situation while a few specialists in Japan looked at our circuit boards to rework them and lower the noise floor still further".

On the rear of the chassis are USB for computer connection, for both recording and playback. An Optical output associated with it provides an optional S/PDIF digital connection to the hi-fi system. There are Optical and Coaxial S/PDIF inputs which are switchable between 96kHz and 192kHz (although you can only record at 96kHz). One noticeable quirk is that, to toggle between the 96kHz and 192kHz play options, you need to power down, reselect your chosen sampling rate and then power up again.

You also receive a pair of outputs whose output can be adjusted with the volume control, to connect directly to a preamp or power amp. Two Line-in jacks connect to a phono

stage, opening up the possibility to record your LPs onto your computer.

The Esprit uses an external power supply, an unsettling compromise, as Coley admits, "It's not the perfect situation, we would prefer the power supply to be inside but size restrictions don't allow it. We did work hard on the external power model, testing many adaptors. We initially planned to have the GT40 powered by USB power only but we found that it didn't have the oomph we wanted. The Esprit does use a better quality power supply than the GT40, however".

ADL, being an audiophile-friendly outfit, has decided to keep its options open on the matter, "One of the biggest requests that we have had is to introduce a better power supply for those users who wish to upgrade at a later date. On that question that answer is...well, it's pending".

Other improvements over the GT40 include the Esprit's main coupling capacitors, which now feature audio grade ELNA ROB, and ELNA RFS series capacitors while the DAC Operational Amplifier has been upgraded to a Burr Brown OPA2134 to reduce noise and to improve sound quality.

The Esprit spans 150x141x57mm and weighs in at just 900g

## SOUND QUALITY

Sound tests were initially undertaken using a Quad Core PC with a standard hard disk, attached to a Rega Mira integrated amplifier plus a pair of AE Radiance One 'speakers sitting on a pair of HiFi Racks Podium T5 III stands.

With a 24bit/192kHz version of the striding, determined solo piano of Joachim Kwetzinsky's 'Shchedrin: Basso Ostinato' from the album, Polyphonic Dialogues', I listened to it via my Arcam rDAC, initially. The Esprit brought in a focus that imposed a chiseled determination within the walking chords. On the Esprit the crashing chords almost halfway through the track confirmed that the piano body was made out of wood. The resonance was quite thrilling.

Similarly, Marianne Thorsen's solo violin work within Mozart's Violin Concerto No.4 in D major was light on its feet, swift and nippy. Upper mids were feather light and detailed while the lower mids offered a smooth, low distortion, security that underpinned the track.

Moving to the USB port now and throttling back to 24bit/96kHz, I connected my MacBook Pro with SSD plus a Tellurium Q Black USB cable and played Harry 'Big Daddy' Hypolite's blues track, 'Big Bad Girl' via the audiophile quality, Decibel software. The Esprit output was both focused and lean. Upper mids were crisp and fully formed and best highlighted by the plectrum snapping down the acoustic guitar strings while what bass could be heard on this track, restricted largely to the lower vocal registers, were lacking in fuss but had a taut, efficient aspect.

Moving to the headphone amplifier module, I used my Icon HP8 Mk.II as a reference.
Playing 'Love Of My Life' from Frank Zappa's live album, 'Tinseltown Rebellion', the Esprit had that inherent solid state chill that infused the music when compared to the Icon's warmer valve presentation. The Esprit thus felt slightly clinical in comparison, especially during the remarkable falsetto vocal sequences from Bob Harris. That won't bother solid state fans, of course and, in more general terms, the Esprit was both precise in how it tackled each instrument and within the overall arrangement.

## CONCLUSION

Although the Esprit lacks some of the versatility of the company's own GT40, the dropping of the phono amp module has allowed the remaining two modules: both DAC and headphone amplifier, to be further enhanced to improve both sound output and feature count. Offering excellent sonics and a design that wreaks of quality, the ADL Esprit is a flexible and adaptable little box that would enhance the quality of any computer system.

## RECORDING WITH THE ESPRIT

We are often asked by readers how best to archive LPs. The Esprit's ADC looked very good under measurement with our Rohde & Schwarz UPV analyser, right up to 24/192 resolution. So I spent many happy hours recording LPs to a MacBook Pro to see what issues arose and assess sound quality. PC users will have to install Windows drivers, but otherwise my observations should apply equally to PC, but I did not check this.

The MacBook saw the Furutech as 'ADL ESPRIT USB DAC' in the Sound control panel, where it must be selected. The Audio/Midi control panel in Utilities must also be set to 24/96 on input and output, because Macs re-sample to the frequency selected so you may get CD quality (16bit/44.1kHz sample rate) unless this is set properly.

You need a recording programme like the free Audacity programme I used, available for Mac and PC. This takes a little learning and is fiddly, and you do need to be careful about level and resolution settings; best to go to Preferences and set default as 24bit, and 96k sample rate.

To spin vinyl I used a Rega P3/24 turntable fitted with an Ortofon 2M Black as a test mule, because the 2M Black has high output. It fed an Icon Audio PS1.2 valve phono stage which has plenty of gain and a ground lift in case a ground loop produced hum.

Hum did not occur using the PS1.2, with the MacBook on battery power or connected to its mains charger. So there were no issues here, at least in my set up.

At full gain on the PS1.2 this phono stage overwhelmed the Esprit's recording attenuator even when it was set to maximum attenuation of -12dB; the red LED winked away busily. A valve phono stage can swing up to 40V out, unlike 10V for transistor stages. An input record level control would solve this and improve flexibility. I turned down output on the PS1.2 as it has


***Beside the S/PDIF digital inputs lies a tiny slide switch (left) for selection of 192k or 96k sample rates. This is best left at 96kHz, except when 192 is played.***

***The optical S/PDIF output delivers USB digital only.***

***Plug a turntable phono stage into a Line input and you can record to a computer via USB.***

adjustable output level. Record level needs a re-think on the Esprit.

Switching repeatedly between inputs when recording from CD highlighted the fact that the input selector isn't clearly marked. A tiny indent shows position and it isn't easy to see, especially in dim light.

Other drawbacks are lack of remote control and absence of balanced XLR outputs, but doubtless these will appear later on a premium version.

I used the Esprit to directly feed our in-house Icon Audio MB845 MkIIm valve monoblock power amplifiers driving a pair of Quadral Wotan VIII loudspeakers that have revealing ribbon tweeters. There was plenty of gain in the system: volume had to be kept down on the Esprit.

Playing CDs with a Cyrus CD-t transport through the Esprit, using it as a DAC, revealed a nice clean sound with crystalline but clear cut treble. I heard lovely clarity and cleanliness: the Esprit is not soft sounding. Spinning the difficult 'Rockferry' (it had digital distortion added for 'graunch') underlined that the Esprit is very clean subjectively. With 'Syrup & Honey' though, I heard some quite pronounced sibilants fly at me as Duffy hissed "spend your time" into the microphone. This is a take-no-prisoners DAC but it is crystal clear too and impressive.

I recorded digitally from CD, via electrical S/PDIF from the transport to the Esprit, then out to the computer via USB. This invokes a change of digital format, as S/PDIF is contiguous but USB packetised. Playing back imposes a reverse procedure and there was a slight loss of body to the Stranglers singing 'Always the Sun' from their Dreamtime CD.

The slight lightening of the sound was perceptible with Nigel Kennedy playing Vivaldi's 'Four Seasons' from Spring, recording digitally from CD, but the recording was again sparklingly clean and clear.

There were no problems either with the Chicago Symphony Orchestra playing 'Scheherazade'; scale was maintained, there was plenty of space around instruments and sections, and the lone violin playing a lilting solo sounded pure.

Recording LP was interesting and the results impressive. Spinning Mark Knopfler's beautifully recorded and cut 'Kill to Get Crimson' LP gave a recording that on playback in a way sounded a trifle better than the LP. It had lost a little of the vinyl warmth, sharpened up and hardened up in the treble to sound a tad clearer and better defined. Treble quality was superb and the sound a trace drier than the LP played back alone, A/B comparisons showed.

But the basic quality and spirit of the LP remained; the ADC, USB convertor and what have you in the digital transmission path did a good job in retaining a sound that was quite lovely and far better than I have heard from CD, as you would hope. The chiming chords from Knopfler's guitar were lush in harmonics and completely free of that bleached quality of CD. Of course, this is a 24bit system with far more resolution and less quantisation noise than CD, but all the same whilst I could hear a certain digital-ness had been added (this could well come from the Mac, so I hesitate to pin blame on Furutech) what I heard was still very much 'analogue' in the loveliness of its timbral breadth and believability.

## CONCLUSION

The Esprit is a great way to record music and makes recording LP in high resolution digital relatively easy and pain free. After doing this you will realise just how poor CD is, making the Esprit something of a domestic hi-fi revelation in my view.

## MEASURED PERFORMANCE

**Both optical and electrical S/PDIF inputs worked up to the maximum 192kHz sample rate, giving a frequency response flat to 28kHz our analysis shows, that measures -3dB at 36kHz. a little below many rivals, but this is unlikely to be very apparent in use. High sample rate and extended bandwidth avoids in-band aliasing products and phase error.**

**Distortion via S/PDIF at -60dB, 16bit, measured 0.28% against a common value of 0.22% for most CD players and associated DACs. With 24bit distortion sank to 0.13% (96k selected on rear switch), analysis showing this comprised noise. It is possible to record 0.02% with 24bit, where noise is lower but this is a little academic as noise with 24bit is very low in extraordinarily low in any case.**

**USB gave similar results, with bandwidth to 28kHz with a 96kHz sample rate input and distortion measuring 0.15% at -60dB with 24bit resolution. This makes the USB input better than most in terms of distortion, and noise was low too at -110dB, measured with a notched out test tone. These results approach those of the Epiphany E-DAC which uses the same USB receiver chip.**

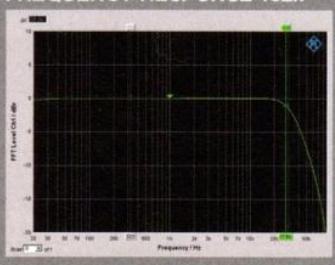
**Frequency response of the preamp measured flat to 100kHz and gain was x4 (12dB). Maximum output was 7.4V so input overload occurred at 1.9V at full gain, but turning volume down avoids output stage overload.**

**The ADC was very linear. Recording a 997Hz, -60dB tone then playing it back through the S/PDIF output showed just a few distortion harmonics totalling 0.22%, as well as no quantisation noise or spurious products our analysis shows. Playing back through the internal DAC increased this to 0.4%. Noise measured -100dB IEC A weighted . Frequency response of the ADC alone reached to 28kHz (-1dB) with 96k sample rate and rolled down smoothly toward the 48k limit, measuring -3dB at 36kHz.**

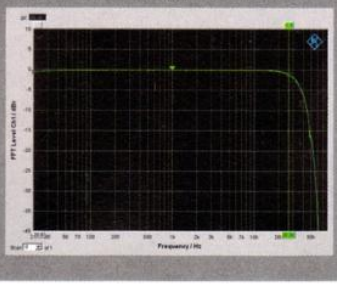
**The Furutech Esprit is flexible and measures well. It doesn't offer the best figures possible with 24bit through S/PDIF but its Tenor USB receiver is very linear and less noisy than most, and the on-board 24/96 ADC measured very well. It is a tightly engineered package that looks good all round under measurement. NK**

| | |
|---|---|
| **Frequency response, DAC (-1dB)** | |
| 192kHz sample rate | 2Hz-28kHz |
| ADC | 2Hz-28kHz |
| **Distortion S/PDIF (%)** | **16 / 24bit** |
| 0dB | 0.006 / 0.006 |
| -60dB | 0.34 / 0.13 |
| **Separation (1kHz)** | **110dB** |
| Noise (IEC A) | -110dB |
| Dynamic range (EIAJ, 16/24bit) | 101 / 105dB |
| **PREAMP** | |
| Frequency response | 2Hz-100kHz |
| Gain | x4 |
| Max output | 7.4V |

*FREQUENCY RESPONSE 192k*



*FREQUENCY RESPONSE ADC*



**VERDICT**

Providing a high degree of accuracy to its sound output, the versatile ADL Esprit raises the sonic bar for any computer music fan.

**ADL ESPRIT £835**
**Soundfowndations**
**✆ +44 (0)1276 501 392**
**www.soundfowndations.co.uk**

**FOR**
- design
- low distortion
- clarity
- precision

**AGAINST**
- clunky sample change