

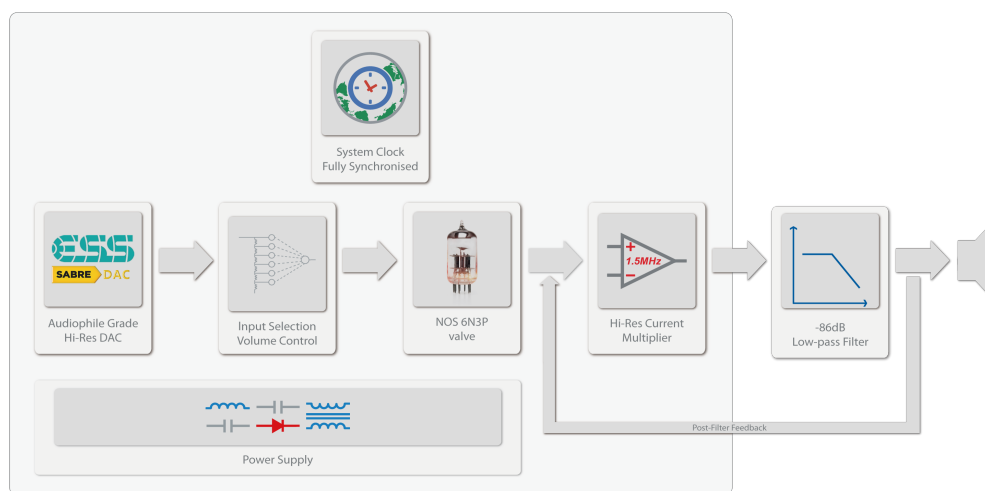
## AURORA – PUREEMOTION



### Music amplified by *PureEmotion*

At the Aurora's heart lies proprietary amp technology that we call '*PureEmotion*' – a hybrid circuit design comprising several key stages.

PureEmotion Amplification System



The first of these – the preamp stage – incorporates a Russian 6N3P valve (visible through a window next to the OLED display). This takes the delicate analogue audio signals delivered by the Aurora's DAC (Digital-to-Analogue Converter) circuitry – based around a chip from ESS Technology's renowned 32-bit Sabre DAC family – and 'processes' it to ensure accurate tonality, spatial characteristics and fluid timing. The valve is responsible for generating the amplified audio signal's first – and most crucial – watt.

This resulting low-level signal then passes to the power amp stage, or 'current multiplier circuit'. This is a highly efficient switching power amplifier, a description it has in common with Class D amplification – but there the similarity ends.

Class D amp modules are often used in audio products because they are energy efficient and able to generate relatively high current from a small device. However, in terms of sound quality, typical 'off-the shelf' Class D amps leave a lot to be desired, not least because switching occurs at varying frequencies which may be within the audible range – the higher the power level, the lower the switching frequency.

Our current multiplier circuit is entirely different because the switching frequency is fixed at an ultra-high level – around 1.5MHz, far beyond the audible frequency spectrum. This results in a high level of efficiency, multiplying the current supplied by the valve several thousand-fold, whilst maintaining far greater linearity and lower noise than typical switching amplifiers. Coupled to this is a low-pass circuit and a feedback loop, the latter ensuring the output frequency is ideal for the load, and everything is 'clock-locked' via our GMT (Global Master Timing) circuit to ensure unerring precision.

This ingenious fusion of amp technologies enables a sound that combines purity of tone with a high level of engagement, speed and dynamic gusto, ensuring the emotive quality of music is delivered in full effect – which is why we call it *PureEmotion*.

### Custom drivers, uniquely configured



The *PureEmotion* amp stage delivers a total of 320W to power six custom-made drive units. The main drivers, of which there are four – two firing from the front and one from each side – sport a 120mm cone made from coated long-fibre paper, a material selected for its optimal balance between stiffness and self-damping characteristics. This is coupled to a large magnet, a basket that resonates above the audible range and extensive measures to ensure excursion is controlled and damped mechanically, so that clarity and control are maintained even at high volume levels.

Unusually, these main drivers are deployed in a wide-bandwidth role to cover the vast



## Tech Notes

majority of the audible frequency spectrum, rolling off towards very low and very high

frequencies. The drive units' design, together with the inert nature of the Aurora's housing – stiff, well-braced, naturally sound-absorbent bamboo with strategically placed damping material – enables a flat frequency response from around 60Hz to 8kHz. Avoiding the need for a crossover to hand over from one drive unit to another at critical frequencies enables excellent phase response through the midrange.

That is not to say that these are the only drive units, however. Two silk-dome tweeters, one at each side, cover frequencies from 8kHz to 35kHz. As the treble region is considered to begin at around 5kHz, and the limits of human hearing extend to about 20kHz, the Aurora's high-frequency drivers behave more like super-tweeters than traditional tweeters. With a simple first-order crossover for the smoothest-possible transition and a shallow waveguide to provide time-alignment, these tweeters not only deliver high-frequency sounds such as cymbals but are also critical to the Aurora's spacious soundstage.

Two further drivers augment the Aurora's sound, though not powered by amplification: a pair of rectangular passive bass radiators fire downwards from the underside of the cabinet. The diaphragms are formed from a composite of carbon, iron and ethylene-vinyl acetate – a well-damped material enabling the correct resonant frequency to be obtained from a diaphragm of appropriate thickness. This is combined with a self-centring, double-ribbed rubber surround, negating the need for a basket.

The net result is a remarkably coherent performance with a silky-smooth frequency response, an out-of-the box soundstage and bass that delves far deeper than most table top systems can muster.



**Left:** Three of the four main drivers and one tweeter are visible in this image, within their bamboo enclosure. The Aurora's outer enclosure, with its distinctive bamboo fins, sits over the top of this.



*Compiled by Hashstar*

**About iFi**

iFi audio is headquartered in Southport, UK. It is the sister brand of Abbingdon Music Research (AMR). They respectively design and manufacture portable and desktop 'ultra-fidelity' audio products and high-end audio 'home-based' components. The combined in-house hardware and software development team enables iFi audio and AMR to bring to market advanced audio products.

Full product info: <http://ifi-audio.com/>

High-resolution photos & official logos: <http://mediaportal.ifi-audio.com/>

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