

# Lejonklou Boazu + Gaio

CHRIS FRANKLAND TRIES AN ULTRA-SIMPLE INTEGRATED AMPLIFIER AND PHONO STAGE FROM SWEDISH BRAND LEJONKLOU

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What separates a great designer from an average one? Technical knowledge is important, but it can always be bought in. Enthusiasm? Of course, but that can be misguided. An enquiring mind? Yes, but you have to come up with the right questions to find the right answers. A love of music? Certainly; and now we are getting closer. But these things alone are not enough. The key crucial factor that separates the great from the average is, I believe, the ability to listen to and hear real musical differences, whether between equipment, components or circuit configurations. It’s a characteristic that’s shared by many of the great designers I have met.

I had never heard of the Lejonklou brand, but was tipped off about its products from one of its four UK retailers. Chris Fuller (of Hidden Systems in Hartley Wintney, a village just off the M3) had a room at one of last Autumn’s hi-fi shows, and here I first met founder and designer Fredrik Lejonklou. It was immediately clear that he had that key talent, impressing me with his enthusiasm, thoroughness and willingness to challenge conventional thinking, all backed up by an ability to listen to the smallest changes in his designs and evaluate their musical impact.

Lejonklou was kind enough to thank me for having inspired him back in the 1980s with my

magazine (for those of you who may remember that). He said he remembered lying on the floor in his first apartment, listening to his LP12 and reading *The Flat Response*, and told me that if I had not created the magazine, he would not be making hi-fi today (so you can blame me!) It seems only appropriate then that I should write the first UK review of his first integrated amplifier, the *Boazu*. That word, by the way, means reindeer in the language of the Sami people, also known as Laplanders, who herd reindeer across the Northern parts of all three Nordic countries and part of Russia. (Lejonklou actually grew up in Norway.)

Lejonklou admits that he fell in love with electronics at the age of 12 when a family friend explained how his active Linn/Naim system worked, and he vowed one day he would master the circuits that made it possible. He worked in retail for five years during the 1990s, before founding his own company in 2005. The company has pre-amps, power amps and phono stages, and this integrated £2,565 *Boazu*. Since this has no built-in phono stage, the company makes two such separate units, the £500 *Gaio* (tested here) and the £880 *Slipsik*.

Central to Lejonklou’s philosophy is his sentiment that: “I don’t make bling. My design is functional and for lovers of music. I care about how music feels, and I want to be moved.” In pursuing this



CHRIS FRANKLAND

core philosophy, he has turned his back on features that many take for granted, but which he believes compromise sound quality. Consequently, the *Boazzu's* front panel has just one indicator light and three buttons. These control volume and mute, and also provide a 'child lock' function, but there's no input selector. The back panel has four analogue line level inputs and these are always active and so will always play. Lejonklou believes this has sonic benefits over using a conventional input selector, and reckons that three sources can be plugged in simultaneously without significantly adversely affecting sound quality. Again simplicity is at the heart of this design, but because the inputs are always active, to avoid damage the speaker cables must either be disconnected or the amplifier switched off when connecting a source device. There is no protection circuitry, as Lejonklou believes this cannot be achieved without degrading the sound quality.

The *Boazzu* also avoids controlling volume through regular potentiometers and rotary switches. Lejonklou says he has found that these vary significantly from sample to sample, so he has opted instead for an analogue solid-state Burr-Brown *PGA2320* chip, where an analogue resistor ladder is controlled by a digital port. He believes this is one of the key factors behind the *Boazzu's* performance, and also facilitates the remote control.

The *Boazzu* has a modest power output of around 40 watts (8 $\Omega$ ) and the power transistors are bolted to a large (1.1kg) copper heat sink that runs the width of the case. It's maybe surprising that the *Boazzu* doesn't weigh more when picked up, but that is because it uses twin switch-mode power supplies. Lejonklou says that another key to *Boazzu's* performance is a new technique for optimising idling current throughout, regardless of how the musical signal behaves.

Every component is measured, and Lejonklou has found that the best sounding resistors have 1% tolerance; these are then further selected to between 0.05 and 0.1% for the parts of the circuit that have the biggest musical impact. Once assembled, Lejonklou then fine-tunes the boards himself. All components are then bolted together with precisely measured torque settings, as he has found this has an impact on the final sound, the power transistors being the most critical. This, he says, can "make or break the sound", and he auditions every product in his own system before shipping.

### Sound Quality

To kick off the listening, I did a quick evaluation of the *Gaio*. Against a well regarded, but slightly cheaper competitor, I listened to *Easy Street* from

Ben Sidran's album *Old Songs for the New Depression*, and the *Gaio* proved far more open on vocals and conveyed more of the body of his piano. Bass guitar lines were weightier and easier to follow. Similar results were obtained with the vocal on Bonnie Raitt's *Nick of Time*, leading me to dig out my old 1963 live album of jazz 'vocalese' combo Lambert, Hendricks and Bavan at the Newport 1963 jazz festival. On the great Herbie Hancock track *Watermelon Man*, the *Gaio* separated the vocal lines far more convincingly, and Yolande Bavan's vocals were more articulate and 'human'; Clark Terry's trumpet also had more 'bite' and sounded more natural.

Having therefore established that the *Gaio* is a class act and well worth its asking price, I hooked it up with the *Boazzu* to find out what the amplifier itself could do. I compared it to a well-regarded amplifier costing around £1,500 and then put it against a top-name contender that would surely test its mettle. First on the Audio Note *TT2* platter was that great track *Seven Days* from the wonderful *Sheffield Steel* album, where Joe Cocker teams up with famous Jamaican rhythm section Sly Dunbar (drums) and Robbie Shakespeare (bass). The bass line on the *Boazzu* was weighty, articulate and rhythmic and really drove the song along. Drums and percussion were well separated out, had plenty of bite but also delicacy and detail. Cocker's 'gargling-with-razor-blades' style vocal was also beautifully conveyed. In short, the track was articulate, pacey and detailed.

Calming things down, I slipped Earl Klugh's *Finger Paintings* from its inner sleeve and listened to *Dance with Me*. Whereas this sounded a bit turgid and lacklustre on the cheaper rival, the *Boazzu* conveyed Klugh's guitar with great delicacy and presence, while bass lines were fuller, better defined and more rhythmic. It was a convincing victory for the Lejonklou by a very substantial margin.

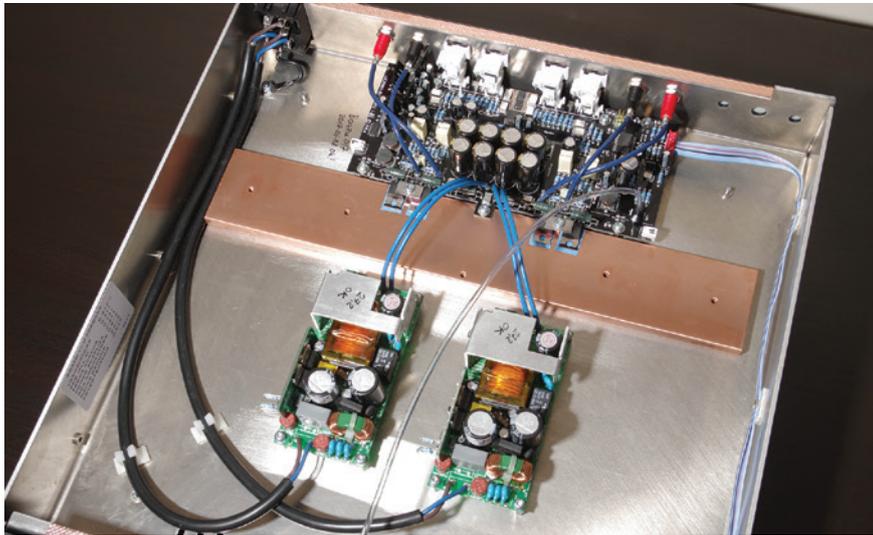
Class vocals don't come any classier, in my view, than the late, great Luther Vandross, and so I played *So Amazing* from his *Give Me the Reason* album next, and am happy to report that it sounded amazing on the *Boazzu*. Vandross' vocals were conveyed with all of the emotion and expression that I hoped for, and Marcus Miller's bass was weighty and well controlled on the lower notes. This track certainly gave reason to believe in the quality of the *Boazzu*.

Against its big-name competitor, the *Boazzu* also acquitted itself very well – maybe even better than I had anticipated. I first spun *Lay Down Sally* from Eric Clapton's *Slowhand* album, and was pleasantly surprised at the detail on guitars, the clarity and articulation of Clapton's vocal, and the way the *Boazzu* also drove the track along with that great bass line.



### Manufacturer's Specifications

Size (WxHxD)	350x69x350 mm
Weight	4.4 kg
Mains input voltage	90-132V or 187-264V
Input impedance (all inputs)	10kohms
Signal input maximum level	5V
Output impedance/	
Rec. load	0.05ohms/4-16ohms
Output power (1kHz, 0.1% THD)	40/70W (8/4ohms)
Output peak voltage	26V
Frequency range (-3dB)	2Hz – 130kHz
Power consumption	22W idle; 200W max
Price	£2,565 (£500 <i>Gaio</i> )



### Conclusions

The Lejonklou *Boazju* may not suit everyone. Is its 40W/ch output power enough? Well I found it so, and I had it driving speakers of medium-to-low efficiency (*Totem Sky*) as well as high (Audio Note *AN-J*). But those who want lots of input switching, flashing lights, multiple speaker connections and monstrous amounts of power (heaven knows why anybody would), then I guess the *Boazju* may not be for you. But if the primary concern is an amplifier that conveys the emotion and drive in music, and will involve listeners emotionally in the music, then this integrated amplifier from Lejonklou is one that I'd suggest one should not overlook. I liked it a lot, and reckon that a Best Buy rating is well deserved.



Fredrik Lejonklou

## Design Thinking

WE TALK TO FOUNDER/  
DESIGNER FREDRIK  
LEJONKLOU ABOUT HIS DESIGN  
PHILOSOPHY

*I'll always remember Julian Vereker of Naim telling me that microphony was a major problem with amplifiers and an area that Naim took seriously. Is your torquing-down regime related to microphony, or are there other factors?*

Microphony is more important than I ever expected. I think by definition, any change we can hear in the music that is a direct result of a mechanical event in the electronics should be regarded as microphony. The precise torque of every fastener can be heard and evaluated. Therefore, I precision-torque every fastener in all of my products. There is a label inside each unit with the optimal torques, in case a retailer needs to replace a part.

*Do you believe that the selection of components is important?*

Indeed. It's often not possible to get the tolerances that are needed for maximum performance. Transistors can have an enormous span and with *Tundra* and *Tundra Mono*, I use one out of 16 transistors. The best sounding resistors I have found have a tolerance of 1% and I manually select those that have a big musical impact to between 0.05 to 0.1%. For reasons that are completely mysterious to me, the 0.1% model that

the same manufacturer offers doesn't sound as good as its 1% model.

During manufacturing, each circuit board goes through three soldering processes with high temperatures involved and this causes some component values to drift slightly. To counteract this, I make some final adjustments after the production of the units.

*I understand you are adamant that there is a reason that your amps are only as powerful as they are.*

So far I have not been able to get better sound by paralleling devices – only more power. But there are other reasons why my amps have modest power figures. One is that the choice of components is enormous in the low voltage range. The computer industry drives the development of low voltage components and there are some fantastic parts available. At the other end of the spectrum, the much higher voltages required by MegaWatt amps and tubes has a very limited range of components.

My first priority is quality. When there is a conflict between quality and quantity, I set quantity to 'enough' and then direct every effort towards increasing quality. I think most people are surprised by how loud you can play my amps, despite the modest numbers. This is very different from most big muscle amps, which sound more and more compressed and tired the louder you play them. My amps are the opposite. Turn them up until they clip (which they do very sharply, as there is no degrading circuitry to cover that up) and then just back off one step and enjoy the music at full blast and with maximum emotional impact.

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