

Anatal Electronics

XBay 256

Digitally Controlled Analogue Routing Matrix

Software-controlled ‘patchbays’ are invaluable for recall and routing in hybrid studios. Is this the right one for you?

MATT HOUGHTON

Anatal, a Netherlands-based company formed by designer Dennis Bekkering, are the third manufacturer in recent years to launch a digitally controlled analogue routing matrix with sufficient I/O to make it viable as a replacement for a traditional studio patchbay. Currently, the only direct competition I know of comes from Flock Audio (whose Patch range I reviewed in *SOS* April 2021) and CB Electronics (I reviewed their X-Patch 32 in *SOS* August 2021 and XP-Relay in *SOS* August 2023). Each has a slightly different offering, but at heart the proposition is the same: you hook up your audio interface, analogue outboard gear and perhaps a mixing console to these rackmount devices, and you can then use control software to route analogue signals from any input to any output. Manual patching becomes a thing of the past, and recall quicker and more reliable. As the signal path is all analogue,

there’s zero latency too. But Anatal take a slightly different, ‘less is more’ approach, based around what Dennis calls Advanced Matrix Architecture (AMA). You can find more information about this on the Anatal website but, in essence, AMA is a setup in which (as with the competition) the routing is performed by analogue 16x16 crosspoint switching chips. Passive types (with no amplification) are used here, so the only ‘amp stages’ in the signal path are those used to electronically balance the input and output. Critically, the signal passes through many fewer of these chips than in a conventional X-Y grid-like matrix. The key benefits, Dennis suggests, are: a very clean signal, no unwanted gain changes, low heat (so fanless cooling, making the device quiet), fewer components (so fewer potential points of failure), and a relatively lower cost per channel.

Overview

Anatal sent me their XBay 256 for review, and this boasts a whopping 128 inputs and

128 outputs — equivalent to 2.67 typical TT bantam patchbays, and enough for a reasonably well-equipped studio. Dennis also stressed that the modular approach to construction means XBays can have different channel configurations: the inputs and outputs are based on eight-channel boards so, starting at a minimum of eight inputs and outputs, you can add inputs and/or outputs in blocks of eight. You can have more inputs than outputs (or *vice versa*) too. I’ve given the price for the standard models elsewhere in this review, but as the price is based on the number of input and output cards, if your I/O needs are more modest the figure will fall accordingly. Those with obscene collections of gear and the funds to match might also be interested in the larger XBay 512: this offers a dizzying 256 inputs and outputs, which is at least twice that of competitors’ nearest models (though I gather the supply of this model is limited.)

A pair of sturdy handles fixes the 4U front panel to the case and makes the unit easy to manoeuvre when (un)ranking. There’s a power on-off switch but no other front-panel controls; everything’s configured by the AOS (Analog Operating



System) app, of which more later. On the back is a vast array of DB25 connectors (32 on the review model), wired to the AES59 (Tascam) standard. The channel numbers are indicated clearly enough for normal lighting conditions, but as they're arranged in two pairs of columns (inputs on the left pair, outputs on the right, viewed from the rear), these aren't ever really in doubt. Also on the rear is a chunky twist-lock connector for the standalone linear power supply; a suitable 2m cable is supplied.

The PSU connects to AC mains using a similarly chunky cable, again with a robust twist-lock connector. It's very high-quality stuff, and built to last.

Completing the list of external features are a grounding terminal and, for connection to a computer running the AOS software, a USB B socket. Ethernet is an option on some competitors but not here — yet. USB has a limited range so the main control computer must be nearby, but the story doesn't end there. First, the XBay supports more operating systems than most, including Linux and Raspberry Pi. Second, you can work remotely from, say, your DAW machine or an iPad in the live room, thanks to a browser-based version of the app that communicates bidirectionally with AOS running on the main machine. Dennis tells me he's also considering ways to fit a Raspberry Pi inside the XBay, opening the door to various wireless and other connectivity options in the future.

Appy People

On opening the AOS app, you see several menus and tabs. To get started you must first open the Settings dialogue, then select the middle of three tabs, called Device Library. On this page, you define the gear in your studio: you must enter the name and number of I/O for each device, and can optionally record connector types, specify whether phantom power is supplied, set the text and background colours to be displayed elsewhere, and enter general notes. Depending on the version of AOS, you may see a normalling option too; more on that later.

Next, in the Devices In Use tab, you tell AOS which devices are physically hooked up to which XBay I/O. Only once this page is populated will you see anything in the

main routing pages. You can assign the I/O individually or map all of a device's inputs or outputs in one go, in which case they appear sequentially (for example, with outputs 1 through to 8, in that order). In the third tab, Settings, you can tweak global settings, including some handy view options for the Matrix routing page.

Most users of multi-channel audio interfaces will find the Matrix page reassuringly familiar, but there are some interesting touches too. By default, the

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XBay's inputs (attached devices' outputs) are listed in a column on the left, and the outputs in a row across the top, though you can reverse this. To route from one device to another, you just click in a cell. As you move the cursor around the matrix, the rows and columns are highlighted in the device colours you specified when setting up — a more helpful navigation aid than it might sound when dealing with so many connections, particularly if you zoom out to accommodate lots on screen, making the text small. Other nice touches include a tool-tip that, as you hover over a square, displays the units that would be connected if you were to click, and a warning where clicking would create a feedback loop.

In the default Matrix view, the selected routing is indicated by lines running along the relevant row and column, like a wiring diagram. This can be particularly helpful when you're using the XBay to mult or sum signals: two parallel lines merging into one make this immediately apparent. If doing a lot of routing, though, it can start to look busy very quickly (as with cables trailing across a traditional patchbay!) so, thankfully, in the settings page you can select a different view for the Matrix where connections are represented instead by coloured dots or squares in the relevant cells. What there isn't, but I'd love, is the ability to change this setting when in the Matrix view.

An alternative approach is to use the Chains page. Here, you can again see existing signal chains and create new routings, but this view displays individual signal chains. Unused/unchanged gear

is hidden from view (but available from a menu), making it easier to see what changes you've made from the default (see the The New Normal section below). To create a new chain, hit the Add button, move your cursor to the desired source and navigate to a destination and, optionally, to further connections in the expanding drop-down menu. When you've opened the desired signal chain, just click. It's perhaps not as slick as the equivalent screens in Flock's or CB Electronics' apps

but it gets the job done without fuss.

Some other, more experimental and (currently) read-only views can help you visualise the current routing: a Patch view has virtual cables

dangling between I/O, while the clearest overview is provided by the Network page. There are various other useful facilities, including a handy snapshot-based undo history, a means of determining which devices are displayed or hidden from view (very helpful when dealing with this many channels in the Matrix), and the ability to zoom in/out when in the Matrix view.

The New Normal?

Anatal's website isn't, currently, the best place to obtain the AOS software. At the time of writing, the latest version available for download there for Mac (my main tests were on an M1 MacBook Pro running macOS 12.4, but I also used an Intel i9 9900k-based Windows 10 PC) is still v8. >>

Anatal Electronics

XBay 256

€6400

PROS

- Huge number of I/O!
- Clean and quiet, with no unwanted gain.
- Can mult and sum.
- App compatible with multiple OSs.
- Browser-based remote control option.
- More to come!

CONS

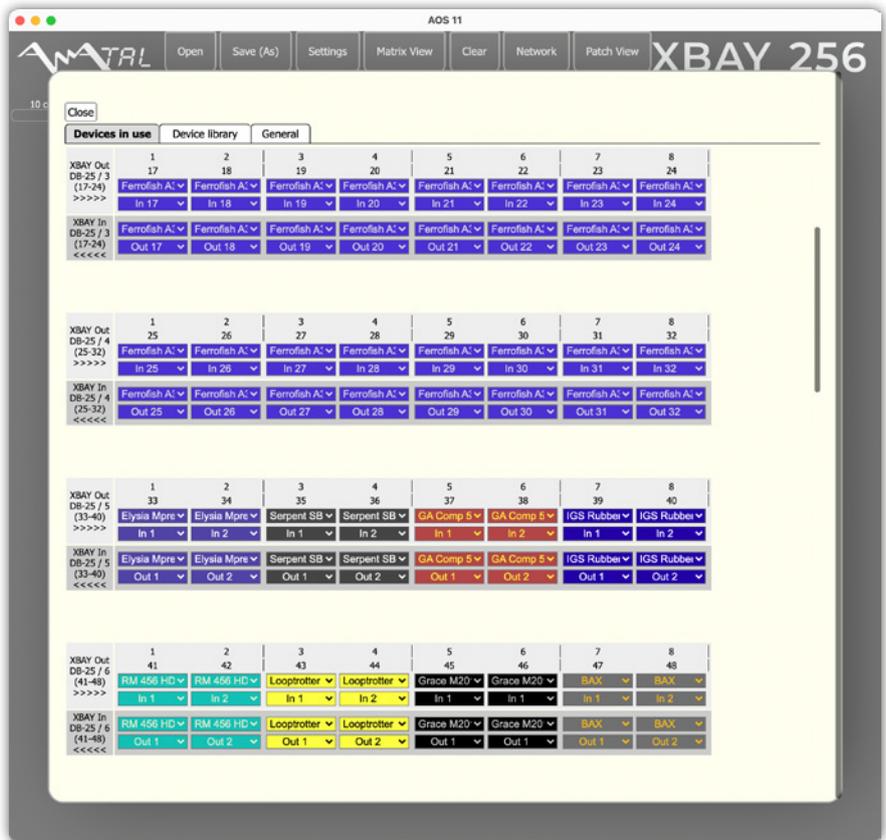
- The AOS app will benefit from further evolution.

SUMMARY

A capable and high-quality software-controlled analogue routing matrix, the XBay has the potential to replace the traditional patchbay in almost any studio or modular synth setup, and should improve with further development of the software.

» Having assumed this was the latest stable version, I installed it for my tests, but after identifying some ‘quirks’ in the routing (more on that later) I discussed them with Dennis and he informed me they’d already been addressed — and, in fact, it turned out that v11 was ready for release. If you want to keep up to speed with such developments, your best bet is to join the company’s Discord server, where Dennis is active and responsive, acting on user suggestions for new AOS features, while ensuring everything’s backwardly compatible. Ideally, such details would be published on the company website or at least a forum/site that’s searchable using standard browsers (am I the only person who doesn’t enjoy Discord?) but it’s great that this community exists, and that the manufacturer engages so directly with the user base.

Once I had the right file, it was easy to update to v11, and that was a much more rewarding experience because, alongside new views and other refinements, this gave me a normalising function that was absent in v8. Most people reading this will know what normalising is but, for those still learning, it’s simply the ‘normal’ or default routing configuration: in a traditional patchbay you could set things up so that, with no patch cables inserted, the signal would flow from a preamp to an EQ, then a compressor and thence to your audio interface. Patch in a cord and, depending on the normalising setup, you could re-route the audio, breaking the normal signal flow, or ‘sniff’ the signal to mult it elsewhere without breaking the normal path.



■ Having defined all your studio gear in the Device Library tab, you must then map your Devices to the XBAY’s physical I/O in the separate Devices In Use tab.

This was a particularly important feature for me, as it overcame the ‘quirks’ I mentioned in passing a couple of paragraphs above. Allow me to explain... When using v8, I’d hooked my Ferrofisch converters up to the XBAY and could see on its meters and those

in my RME MADiFace’s Totalmix app that when I routed a signal to... let’s call it destination A, the signal appeared at the desired destination, but a little of it also appeared at destination B. If I routed a different signal to destination B, that ‘unwanted’ signal disappeared. It didn’t



■ All analogue connections are made using AES59 (Tascam DB25 D-Sub connectors).

really make a difference in practice, as you're unlikely to be monitoring or recording to an unconnected channel — I noticed it only because the meters were 'dancing' unexpectedly and I happened to be monitoring all my interface's input channels. Still, it felt rather like a game of whack-a-mole!

A call with Dennis soon resolved the issue: where no active connection is made in AOS, the XBay's outputs are left unconnected, effectively leaving long, unterminated cables trailing from my interface. All I had to do was make active connections in AOS. When I did that in v8, the Matrix view became cluttered and it was impossible to see the wood for the trees. It also meant that setting a path back to its 'normal' routing required more than a single click. So the addition of normalising in v11 was for me a big deal. With the normal paths hidden in the Matrix and Chains pages, things were easier to manage and less confusing. It isn't yet perfect, as I'll explain, but note that Dennis plans further changes, based on my suggestions. At present, normalising is set up in the Device Library (where you

define your gear; you can revisit this page at any time to make changes). Frustratingly, you define the normalising at the device rather than the channel level, so you must think creatively about defining your multi-channel devices. You may find, for instance, that it's better to specify an audio interface's individual channels or channel pairs as separate devices, to match the I/O of specific outboard. Also, it seems you can only create direct connections. I couldn't set up a mult/parallel path (you *can* create recallable chains with mults elsewhere, just not for the normalised setup).

My suggestion was that Dennis create a duplicate Matrix page, with the sole purpose of defining the normal signal paths. These would remain hidden on the main Matrix and Chains pages, as now, to leave those views uncluttered. An alternative might be to add a facility to the existing Matrix or Chains pages to allow the user to 'write current settings as normalised signal paths', or some such. Hopefully something like this will be implemented soon, but it's worth pointing out that, in the meantime, it's not an insurmountable problem. For example, you can work around all of this to

some extent by simply saving and loading different AOS profiles for different projects.

Verdict

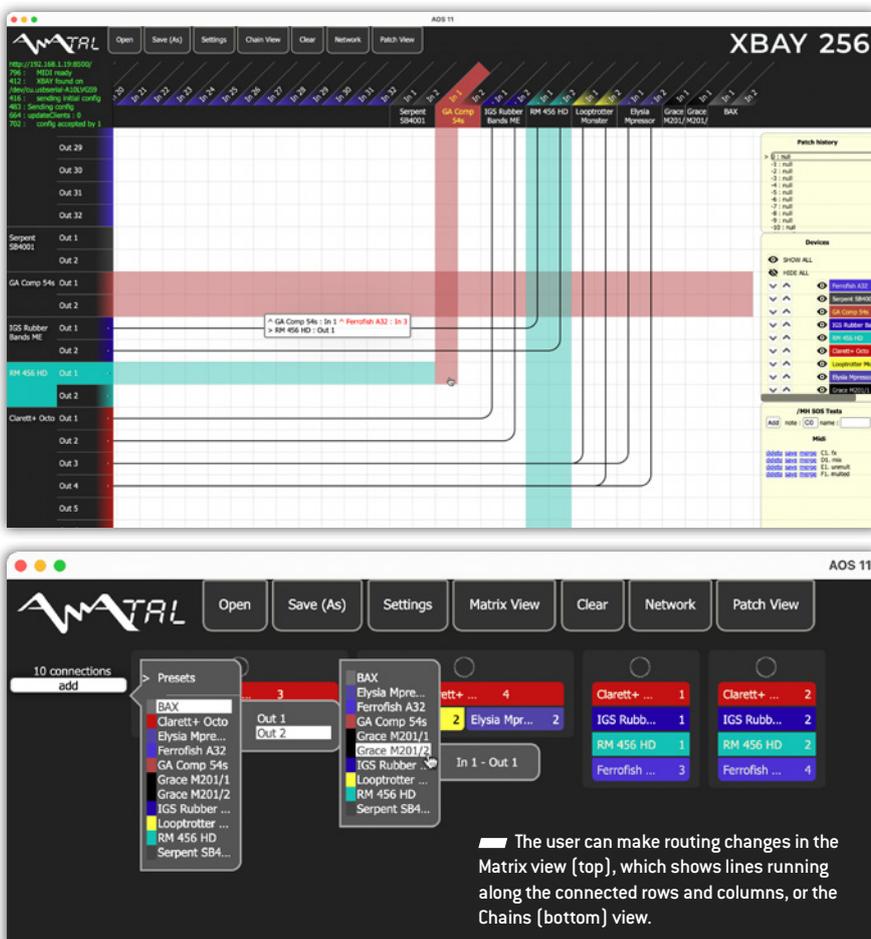
At the outset, I discussed replacing a studio's patchbay with an XBay. Can it do that? Undoubtedly. Had I the funds, I'd have the XBay over a traditional patchbay in a heartbeat, but it has potential in other scenarios with lots of I/O too; a massive modular synth setup springs to mind. The XBay is built to a high standard, and while I didn't have the opportunity to measure its technical performance, there were no audible issues, and Anatal offer specs and plots if that interests you. Importantly, the XBay didn't introduce any unwanted level changes, even over some fairly long signal chains. There's strong competition from Flock and CB Electronics, both of whom offer more features, such as front-panel inputs or controls, and, in the case of CB, the ability to adjust the signal gain at every stage in a chain. But that's a reflection of the design philosophy, really. There's much to admire here, too, and I'm sure plenty of people will prefer this 'less is more' approach.

The AOS app may be best viewed as a work in progress or permanent beta, but Dennis has been reassuringly quick to act on feedback and embrace ideas, so I expect to see the software mature over time. Already, though, with the latest software it really doesn't take long to get the hang of things, it already does what needs to be done, and the proposed normalising facility will leave me with a very short wishlist! I love that, as well as running on Mac and Windows, there are versions for Linux and Raspberry Pi, and the browser version too. Not only can you control it from anywhere (in the studio or somewhere else entirely) but you could easily dedicate an inexpensive machine to the XBay, and then update your main DAW machine whenever you like, without having to worry about compatibility problems.

It may be a good chunk of money to spend on something that doesn't change the sound, but it's not at all unreasonable: there's a lot of electronics and R&D time wrapped up in this thing, and it could save a busy commercial facility a lot of time spent on recalls for different engineers or projects — and thus money too! **///**

£ XBay 256, as reviewed, €6400. XBay 512 €12,800. Pricing is based on channel count: XBays with fewer I/O cost less. Prices exclude taxes and shipping.

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The user can make routing changes in the Matrix view (top), which shows lines running along the connected rows and columns, or the Chains (bottom) view.