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Working together

The new functionality enabled by Audinate's Ultimo chipset has allowed a new level of control on a Dante network. This has inspired a project involving multiple manufacturers working together



The Audio-Technica Dante-enabled ATND971

Features in Ultimo have allowed the customisation

WHEN AUDINATE RELEASED ITS ULTIMO microcontroller chipset, it promised a wealth of new features that would benefit its 200 OEM customers. The first headline example of these features being put to use comes with Audio-Technica's ATND971 boundary microphone and the subsequent Symetrix Composer 3.0 and Biamp Systems' Tesira 2.3 software releases.

While at first glance the ATND971 looks like an ordinary boundary microphone with Dante networking capabilities, it is far more than just a new network end-point. The mic is the result



Audinate CEO Lee Ellison

of some interesting projects involving all three manufacturers, and provides a look at the level of interoperability possible via the Ultimo chipset.

'Dante is designed to be interoperable by default, but it's also designed to allow you to communicate control information over the same cabling,' says Audinate CEO, Lee Ellison. 'What Audio-Technica, Symetrix and Biamp did in this particular case is to enhance the level of control between their products. One of the things that we really worked very hard on was ensuring that we had a very well defined application programming interface (API) so that manufacturers could take advantage of these kinds of capabilities as Symetrix, Audio-Technica and Biamp did in this case.'

As Mr Ellison is quick to point out, manufacturers working together on Dante projects is nothing new. Attero Tech and Symetrix as well as Yamaha and Shure and Symetrix and Shure have all worked together on other Dante-enabled systems. What is somewhat unique about this project is the way it has come about.

'We develop features on a platform based on customer input and one of the features that was requested on our new Ultimo microcontroller chipset was to have added GPIO functionality,' continues Mr Ellison. 'In fact, that was requested by Audio-Technica.'

'The boundary microphone was the first idea. It was great, we could get audio onto the network over Dante, but we wanted to take it

Symetrix SymNet Composer 3.0 and the Dante-enabled DSP family



Audio-Technica's Chris Nighman

a step further and give it control,' adds Chris Nighman, product manager, wired products at Audio-Technica. 'For us Dante became the obvious choice because of the complete package that Audinate offers and the interoperability. There wasn't another way to have something as widely accepted. Our main focus was to give that logic input and output on that Dante stream which hadn't been done before. We worked with Audinate and they had some functionality that they had opened up giving those in/out pins on the chip. We were able to design with that in mind, and then once it was opened up by Audinate we were already half way there.'

The microphone itself features the same capsule as Audio-Technica's ES961, but aside from this it is a completely new design. 'We wanted to give customers who were already familiar with that capsule and its performance the same sound that they were used to,' says Mr Nighman. 'It's really a brand new circuit. To give the digital controlled gain, we had to redesign all that. Not only can you send all that user switch logic out and get the LED back in, but you can also control the gain and low cut remotely. In order to do that, we had to redesign the analogue portion too.'

'The main thing was ease of operation and programming,' continues the product manager. 'So when the programmer gets in there, they've only really got one device to program and they can do everything with that.' Control is the standout feature for the new

mic, and what made this project attractive to those involved. 'The one way that all network audio technologies fall down is in control. There's no universal third-party control platform,' notes Symetrix senior product manager, Trent Wagner. 'Most third-party devices that have some smarts that need to be controlled, they usually have some kind of control protocol, which AMX- and Crestron-type control systems will interface with.'

'What makes this mic a little more interesting is you can do certain amounts of control over the protocol,' adds Justin O'Connor, audio and conferencing products manager at Biamp. 'If this microphone was not configurable, there wouldn't be an opportunity for Biamp to add value to system designers.'

'The microphones have LED indicators and push-to-talk buttons, so that is a user point of control, but it's really controlling something that is going on inside the DSP, just like an AMX or Crestron device would or like one of our wall-panel remotes,' explains Mr Wagner. 'That's all setup and configured in the DSP by Composer software. But when it comes to the user's point of control, the microphones themselves become a point of control.'

As is clear from talking to all of the companies involved, the use of Dante has been vital in getting the various third-party devices communicating effectively. 'Interoperability is really what Dante is all about, we've opened up these closed systems. Manufacturers can now talk to systems that were once closed,' says Mr Ellison. 'We're this high-speed transportation platform that goes between all these systems and is the glue that



Symetrix senior product manager, Trent Wagner

connects them all together. 'One of the nice things we are able to help facilitate is the relationships we typically have with our OEM partners is at a strategic and very senior level,' continues Audinate's CEO. 'Companies recognise that networking is really a key to the future and in many of these cases we provide the right levels of introductions at the senior level or technical level to have these dialogues take place.' 'If you implement Dante you know you're going to work with anyone else that implements Dante,' adds Mr Wagner. 'It's a much more palatable solution in terms of third-party interoperability, usability out of

the box, ease of development, co-marketing and branding. With Dante you're at least guaranteed that you can at least share audio with a common platform. It's a shame they don't have a common control platform as well, but that's where we're trying to pick up some slack.'

While the technology inside the mic and the new functionality in the software upgrades is interesting, it is the process of getting to this point that has caught the imagination. This part was very much driven by the microphone manufacturer as it went through the process of selecting which companies it wanted to work with to offer a complete solution.

'Early on for us, we looked at who our main distributors were carrying as DSP companies, and those guys seemed to be gravitating towards Biamp and Symetrix,' recalls Mr



Symetrix' Composer 3 software with Dante-enabled products



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Nighman. 'We approached them months before we had a product. We started working with those guys just to make sure we could get interoperability, and I think that was a big plus for our common distributors and sales reps who carry both lines - they can now have a full solution for a conference.'

'Audio-Technica came to us to ask us if we would support their microphones, and it turned out to be a fairly easy process because they used some underlying technology in the Dante Ultimo chipset, the GPIO functionality, that turned out to be very easy to implement for us,' says Mr Wagner. 'It made sense to partner with them and help our customers, help the contractors out by making it very easy to implement a Dante-enabled end-to-end system. Most of those devices have very meagre control requirements, you've just got to set some I/O levels. You can bring all of that into Composer fairly easily and make it a very simple one software package to learn. It makes sense to partner with some of these companies for products that make a more cohesive turn-key system, which in the end saves the integrator time and money.'

'Audio-Technica came to us and made sure it caught our attention,' adds Mr O'Connor. 'They did some legwork with us and made sure that we had a chance to see what they were working on ahead of release and that we had the chance to talk through some applications and some ideas and get a sense of some of the advantages for both companies.'

While there was an obvious advantage in partnering for this project, this did not mean that it was an automatic process to build the various functionality into the systems. 'On the one hand it went very smoothly and went very quickly. On the other hand, this is bespoke programming,' recalls Mr O'Connor. 'Somebody who is building a new implementation today is going to plan for it. If you deployed a Brooklyn II solution before Ultimo was available, you're going to have to go back and engineer and that's what we had to do. While Ultimo allows for the communication, it doesn't provide a language that everyone can share. So integrating with other partners means that we would have to engineer end solutions. Going forward we could make the strategic choice to build the buckets and slot other things in. But that's a strategic choice we have to make in the long-term.'

While working to engineer a solution could have been challenging, Mr O'Connor insists it was 'a fun set of challenges' and the small teams from each company worked well together. 'I think culturally we made a good fit. There was no confusion about what we both had to gain from the programme. There was no conflict about getting the work done. Interests were aligned and everybody was ready to go and there was complimentary expertise,' he explains.

'They were experts on their technology and there were things about the Audinate protocol that they brought to the table, because they had done the legwork on the new stuff,' continues Mr O'Connor. 'But they didn't have as much depth and history on the larger scale things.



Biamp's TesiraForte family



Biamp Systems' Justin O'Connor

We've gone a lot deeper, especially into large networking stuff, especially on testing. When they came to us, the size and scope of testing they had done was significantly smaller than what we had already been through. We were able to fill in a lot of gaps for them on testing on really putting networking test schemes through their paces. We filled in a lot of knowledge for each other.'

'We helped provide support for the project,' adds Mr Ellison. 'What we try to do is have recurring conference calls with our OEMs as they're going through this process just to answer any questions they have. It's part of the whole overall support package that we offer at Audinate.'

With the products now available on the market, the various manufacturers are now looking to the future and further products and Dante-based relationships. 'It will definitely be the first of many Dante-enabled products. We have launched the base which can accept any gooseneck microphone, so that has opened it up a bit more.



It has the same control functionality as the boundary microphone and that sets it apart and makes it a pretty useful tool,' says Mr Nighman. 'We are interested in working with other DSP

manufacturers. We've had a few enquiries that we are working on right now.'

'I'm sure we'll be working with a couple more third parties, there are at least two more planned for the near future and the next year,' adds Mr Wagner. 'We're very selective about choosing partners that we not only help provide a more complete solution for the user, but also to make these alliances available to as much of our customer base as possible.'

The mic is the result of some interesting projects involving all three manufacturers, and provides a look at the level of interoperability possible via the Ultimo chipset

'I suspect there will be more models that they develop which will fit into this paradigm,' says Mr O'Connor. 'We built the software so that we can add models and maintain functionality. That was a pretty easy strategic decision to support. I think it was a good project. It went smoothly, particularly as we were working with an outside company. The pressures and the stresses are different. What you are accountable for and how you work is very different from when you're working internally. I think everybody felt really excited about the project the whole time through. They're a great partner and we're excited to be associated with them. We're excited to be a part of their story and I think they're excited to be a part of our story as well.'

'Something like this could happen again, but right now we have more ideas than we have resources to make them happen,' continues Mr O'Connor. 'Right now I'm looking at a roadmap and some awesome ideas that as the product manager I would have a hard time giving up. It would be a tough sell right now to support another mic, but if a year from now there was another one in there I wouldn't be completely surprised.'

Control and conversation have been key to making these new products a reality. Cooperation between manufacturers is rare in any industry, so it is encouraging to see such a high-profile project come to fruition. These types of projects can be stressful and politically sensitive. But ultimately, when done well, the end result can be of enormous benefit to the end user. And that should be the goal of any new product.

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