LINN

The Story

Linn Products is built on the philosophy that `music is for life'. It is a philosophy that was launched with its famous Sondek LP12 turntable more than 35 years ago and continues today with its growing collection of high-end audio systems.

" What we've found with Altium Designer is it is a much more integrated package. The flow of information from schematic to layout and ultimately through to design is seamless for us, it's effortless, it integrates into the business database which allows us to create the materials rapidly. It allows us to get accurate information to our service team for populating the boards. We can verify gerbers before we send them off to the PCB manufacturer. All of these things just give us more time to be engineers and be creative engineers, and that allows us to make better products for our customers. "

Ian Wilson, Principal Design Engineer (Electronics), Linn Products

For Linn Products, recreating music is less about developing impressive hi-fi systems and more about realizing the intention of the musician. Principal Electronics Design Engineer, Ian Wilson explains further: "Music tends to follow a certain structure with the chord progressions, the rhythms, the timings and the systems. Linn Products really pays attention to making sure that we reproduce all that information in a musical way and not just in a hi-fi way".

This statement was particularly true when Linn Products decided to create a new phono stage for its iconic Sondek LP12 turntable. The original was developed in 1972 and since then it has been its flagship product. Updating it required a very modern touch for Linn Products.

"Most recently we did a new phono stage for the LP12 called Eureka. Previously we would not have imagined how we could fit such a high end phono stage inside the LP12. But with Altium Designer's ECAD MCAD features we were able to quickly verify that folding the schematics over in half would allow us to nest the two parts of the board together. This let us fit the new phono inside the constraints of a turntable designed back in the 1970s and bring a new lease of life to our product," said Ian Wilson.

The aesthetics of any audio systems is essential, but for Linn Products, they must go beyond the external casings of the product and incorporate the electronics as well. Each product must look like the piece of precision engineering that it is, displaying neat, high-speed, low-noise layouts that are essential for a high-end audio system.

"3D modeling in Altium helps us visualize what the board ultimately looks like, before we even commit it to our mechanical design colleagues. With Altium Designer, we can go from design to layout in a single effortless process, and then from the PCB layout through to the mechanical designs. This is a much more simplified process compared to our previous CAD packages."

And that's the reason why Linn Products moved to Altium Designer in the first place. Prior to moving to Altium Designer, Linn Products had used a series of disparate tools to develop its electronics designs. This caused several problems because the engineers had no clear link between the schematic and the board layout. It was almost a full-time job to get this level of interaction to take place and the engineers were spending more time maintaining the tool then being creative.

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This is where Altium helps Linn Products maintain its 'Music for life' philosophy. By unifying the design process and providing a higher level of abstraction, Altium Designer lets the engineers at Linn Products to be more creative. By using hierarchical design and other features unique to Altium, Linn Products can take a high level view of the electronic design, removing the need for low-level detail.

"Being able to view the complete project at a system block level and knowing that some of those blocks are reuse elements, allows us to focus on the new differentiating parts of that project. We can spend more time being creative on the new areas of the project and less time is spent just re-implementing stuff we've done 101 times before. The net result is a faster turnaround of the project and I would say better projects.

"The most important part of the design process is to focus our efforts where we can add value to the customer and not to reiterate the same part of the design over and over again. We provide more value when we are able to be creative."

Design to manufacture - one design tool, one location

For Linn Products, a unified electronics design system need to go further than the electronics design. This is because Linn Products design, manufacture and ship all from the same location, its headquarters in Glasgow, Scotland. Altium Designer meets this requirement by unifying Linn Product's design data, letting the engineers output and customize their data to the needs of the on-site manufacturing team.

"The output job feature is a very useful tool that we can just click and almost forget. We know it's going to generate a consistent and accurate set of output files that my colleagues on the business systems side can access. It's consistent and reliable."

And that's important to Linn Products, because realizing the final product, that final piece of precision engineering is crucial to the end user experience. It's the reason why the company develops their products in-house and the reason it uses a unified electronics design system.

"When everything flows seamlessly, the engineers are a bit more relaxed, and the designs flow. A project that flows from start to finish has a better net result than a project that stops and starts and is always struggling to get completed.

"Better electronic systems designs, realized via a smooth flowing integrated toolset, allows our team at Linn to focus on the highest quality music products for our customers," says Ian Wilson.

About Linn Products

Linn Products designs, manufactures and sells high end audio and home theatre systems. Since 1972 it has developed as an icon for the music industry, developing some of the industry's most-well engineered audio and home systems.