

Expedition PCB Fuels Optimum Design Associates Growth and Success

Optimum Design Associates (ODA) is a leading provider of PCB design services to commercial OEMs. Since it was founded over 10 years ago, ODA has been dedicated to creating complex, high-density layouts for customers ranging from start-ups to leading high-tech firms.

With headquarters in Dublin, California, and offices in Atlanta, Georgia and Adelaide, South Australia, ODA is able to provide 24-hour, seven days a week service to customers around the globe. ODA services include: PCB layout, schematic capture, design engineering, manufacturing verification and library administration.

PCB tool selection is so important to ODA, it is part of their mission statement: *ODA will use the best available tools for the job that are consistent with high quality and quick turnaround times.*

While they own seats of other well-known PCB design tools, ODA designers use the Expedition™ PCB tool from Mentor Graphics on over 75 percent of their designs.

Teamwork and Standardization

ODA understands the importance of time-to-market, especially when working with start-up companies. Expedition PCB allows ODA to maximize resource allocation, project management and implement standardized processes and methodologies.

“By having standardized processes in place, many of which are built right into the Expedition PCB tool, we’re not going to miss the little details,” said Nick Barbin president of ODA.

Expedition PCB: The Technology Leader for Complex Designs

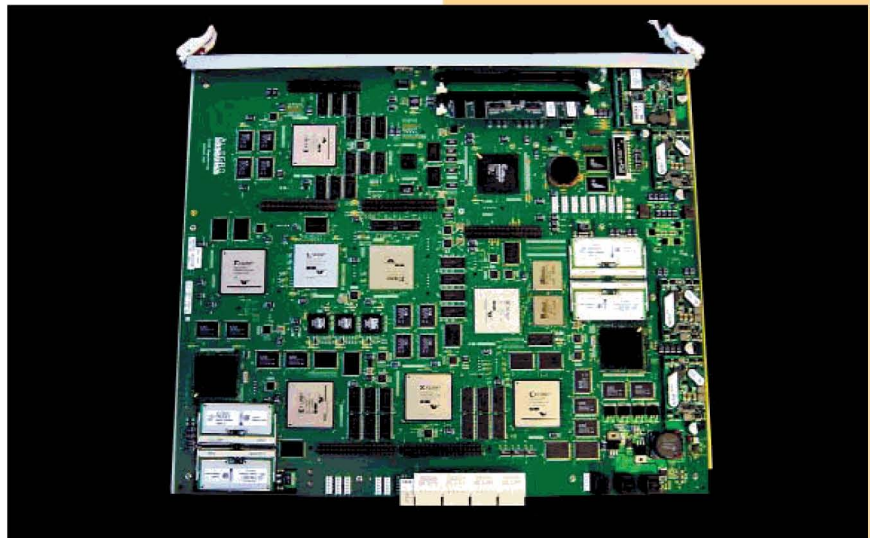
On one particular assignment, ODA was asked by the customer to complete a complex design using a tool other than Expedition PCB. With slow progress in the placement and routing stage, ODA found that the design was quickly falling behind schedule. *“We received permission from the customer to translate the board into the Expedition PCB tool. At that point, we were able to successfully complete the design by the deadline, which we could not have possibly done using the other tool. Experience has taught us that for doing designs of significant complexity, Expedition PCB will outperform any other tool”* recalled Barbin.

“When customers ask us to use the ‘best tool for the job’ we are always going to select the Mentor Graphics Expedition PCB tool.

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*Nick Barbin,
President, ODA*



Powerful AutoActive Technology

A key benefit to using Expedition PCB at ODA is the single, highly-integrated design environment, which is powered by the award-winning AutoActive® technology.

"The ability to manipulate a design and route in a certain way, demonstrates the powerful interactive routing and autorouting capabilities that are only available with the Expedition PCB tool," stated Barbin.

Expedition PCB's rules-driven environment gives designers the unique ability to route a design in stages. *"With Expedition PCB you can stop the automatic routing when you want and be confident that there are no DRC errors in the design. Other routers didn't allow us to do that. Since Expedition PCB routes in a rules-driven environment, we can also go back and make appropriate corrections based on the hazard warnings we see at the time,"* said Barbin.

In terms of interactively routing, Barbin adds, *"I think people can get really hung up on routing point-by-point. I let the system do a lot of the work, and I just fine-tune what's important to our customers in the end."*

Single Integrated Design Environment is Easy to Use

"Having designed on a variety of other tools," added Barbin *"I tell our*

designers that they are spoiled with Expedition PCB. I don't think we fully appreciate how easily we can do things with the tool." Expedition PCB is particularly valuable for start-up customers, which are a major part of business for ODA. *"We have seen over the years that Expedition PCB allows new designers to get up and running on the tool very quickly."*

Facing Today's Most Challenging Designs

One particularly complicated and challenging design ODA recently completed involved large physical dimensions (16.00in. X 18.75in.), over 30,000 pins, 5,200 nets and 5,400 parts. Impedance constraints on many of the nets, combined with a 48V power supply area, left the designers with a limited amount of floorspace. Also, at least 75 percent of the nets were either matched length, or had some sort of delay formula that required a certain group of busses to adhere to specific clock length, with an additional amount of delay.

In portions of the board, its thickness directly influenced both layer selection and trace parameters assigned to connect the two Rambus sections of the design. Signal integrity and matched delays were extremely critical in these sections, with traces cumulatively tuned to within 0.2mils over two groups of 28 signals. By interactively routing in the rules-

driven environment of Expedition PCB, ODA was able to maintain the integrity of the signals within the design.

"This is one design that I'm particularly proud of our design team for getting done on time, and the customer was very happy with it as well," Barbin remarked.

2002 ODA Library for Mentor Graphics Expedition

As a mature service bureau, with formalized standards and years of experience in the PCB industry, ODA has learned that *"if something bad can happen to a board, it's typically because something is wrong with the libraries,"* said Barbin. To ensure their designers use the highest quality library in Expedition, ODA has invested in the development of their library over a 5 year period.

This year ODA has entered into a partnership with Mentor Graphics and is now selling their comprehensive, well documented library as the 2002 ODA Library for Mentor Graphics Expedition. This fully integrated library has over 1,500 symbols, over 15,000 pdb's and over 3,300 cells. A free demonstration version of the library can be downloaded at: www.optimumdesign.com.



www.optimumdesign.com
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