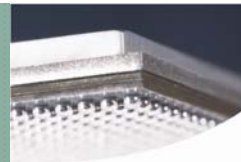


Case Study



THE CLIENT



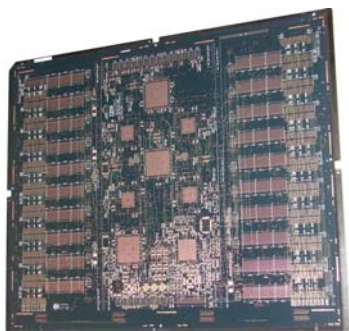
IBM Research GmbH
Zurich Research Laboratory
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CH-8803 Rüschlikon
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The IBM Zurich Research Laboratory (ZRL) is the European branch of IBM Research. This worldwide network of some 3500 employees in eight laboratories around the globe is the largest industrial IT research organization in the world. ZRL's spectrum of research activities ranges from basic science and fundamental research in physics and mathematics, to the development of computer systems and software, to the design of novel business models and services.

THE CHALLENGE

IBM Zurich designed an award winning controller PCB for a 64 x 64 port, high-performance optical switch. The design won in the 19th Annual PCB Technology Leadership Awards at the PCB Design Conference West in San Jose, CA in March, 2007, in the Telecommunications Switches, Network Servers, Base Stations & Computer Mainframes category. The controller board was one of the most complex designs ever developed and was a core component in the OSMOSIS research project on next generation optical switch technology in high-performance computing systems. In cooperation with Corning Inc., IBM's computer scientists developed a novel, highly distributed and highly scalable scheduler architecture that allows a bufferless switch to operate with extremely high throughput rates. The end user was a U.S. national lab.

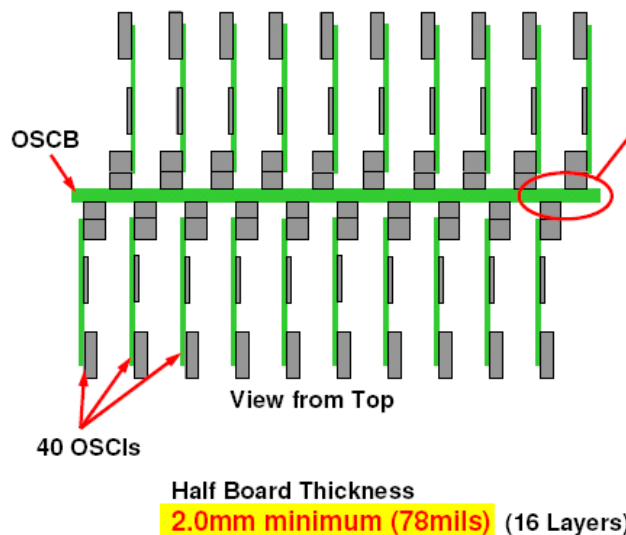
IBM Zurich approached EI for fabrication of the PCB after other suppliers' attempts were unsuccessful due to the complex nature of the build.



THE SOLUTION

This 36 layer PCB measuring 17.0" x 22.5" was extremely challenging from a fabrication standpoint. Multiple passes through plating and drills highlighted the criticality of registration. The largest hurdle was accommodating the 40, back-to-back, two sided, compliant pin connections. EI's engineering and manufacturing staff built the board as two subcomposites with deep blind vias. Once joined, the vias went only half way through the full thickness of the board. EI engineers developed a process for filling the vias to keep the holes clean during lamination and then mechanically drilled the holes open, providing the necessary depth control for the pin connections.

Connector Fanout Problem



THE BENEFITS

This opportunity has been among the most challenging applications EI has undertaken since its inception as a company. The engineering expertise and manufacturing know-how required to satisfactorily fabricate this PCB is rare in the industry. The EI team worked with this valued customer to solve a fabrication puzzle and supplied the technical expertise necessary to deliver a leading edge, high performance solution.