



ADVANCED MULTI-LAYER PCB FOR HIGH-END COMPUTING APPLICATION

THE CHALLENGES

Very high-speed, high density PCBs are a challenge due to several often conflicting requirements including: size constraints, routing, fanout from high pincount BGA's and signal integrity. Making the wrong design, process or materials choices can result in less than optimum performance. A leading OEM needed advanced PCBs for their next generation, high-end computing platform – each populated with multiple 1200-Ball, 0.4mm pitch BGAs. One PCB had over 85,000 nets and restricted board space. This customer needed a PCB manufacturer with proven high performance technology. This company chose Sanmina.

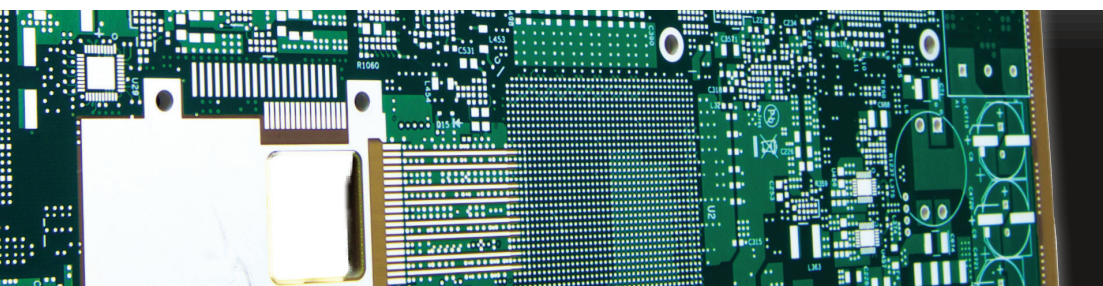
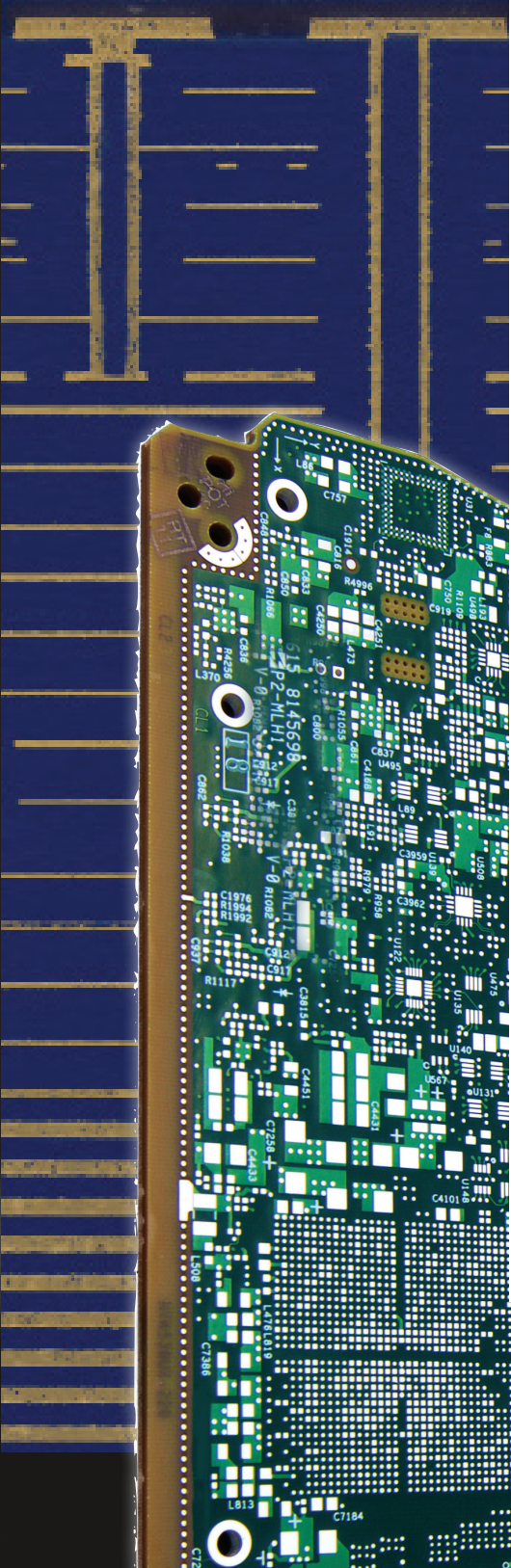
SOLUTIONS

Leveraging an existing 62-layer PCB process, Sanmina developed a state of the art PCB solution. The result was a new process with 69 layers, 11 sequential lamination steps and over 250,000 plated through holes. Sanmina worked closely with the customer throughout the product development process, from PCB board stack-up and signal integrity analysis and layout, to process development and production. New processes and technology included:

- New cleaning and via plating processes developed and refined for the board's high aspect ratio through holes.
- Innovative processes to manage thicknesses and Dk, in order to preserve signal integrity.
- Advanced back-drilling processes that optimized signal integrity.
- Sophisticated registration control strategies for the 11 sequential lamination processes, ensuring superior alignment for the 250,000 holes.

RESULTS

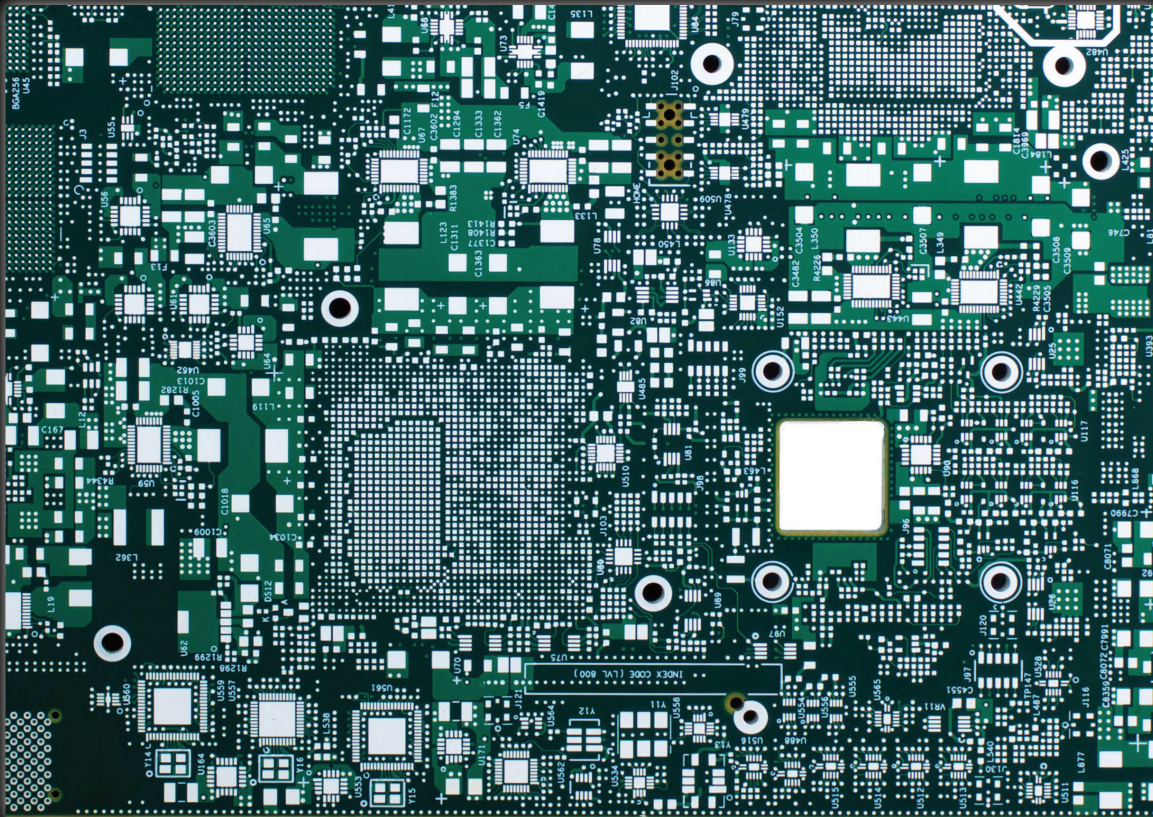
While delivering a new 69 layer, high speed PCB process was a breakthrough for the PCB industry, achieving reasonable PCB manufacturing yields was even more challenging. With Sanmina's expertise in commercializing new processes, manufacturing repeatability was achieved, cost savings realized, and the customer's volume ramp was accomplished. Partnering with Sanmina resulted in a new PCB technology that enabled truly superior performance for this customer's high end computing platform.



SANMINA'S ABILITY TO DELIVER

From the in house qualification of advanced laminate materials, comprehensive signal integrity analysis, design and global manufacturing, Sanmina is the recognized leader for advanced printed circuit boards. With over 30 years of experience and a focus on both high speed and high reliability PCBs, Sanmina will work with you to develop advanced technology with unique requirements. Our complete global footprint, experienced team and advanced technologies help you reduce costs and improve performance.

- Design for Manufacturability and Cost (DFx)
- Quick-turn Prototyping
- High-volume Production
- Advanced Technology



ABOUT SANMINA

Sanmina makes some of the most complex and innovative optical, electronic and mechanical products in the world. Recognized as a technology leader, Sanmina provides end-to-end design, manufacturing and logistics solutions, delivering superior quality and support to Original Equipment Manufacturers (OEMs) primarily in the communications networks, computing and storage, medical, defense and aerospace, industrial and semiconductor, multimedia, automotive and clean technology sectors.

More information regarding the company is available at <http://www.sanmina.com>.