



SANMINA

DESIGNING AN ADVANCED 10G NETWORK COMPUTING APPLIANCE

“Sanmina provided the expertise we needed in high-speed printed circuit board (PCB) technology and system design that helped make the Freedom F-Series a reality. Their ability to design and prototype the product here in Silicon Valley meant we could work closely with them every step of the way.”

**Kumar Srikantan,
President and Chief
Executive Officer,
Pluribus Networks**

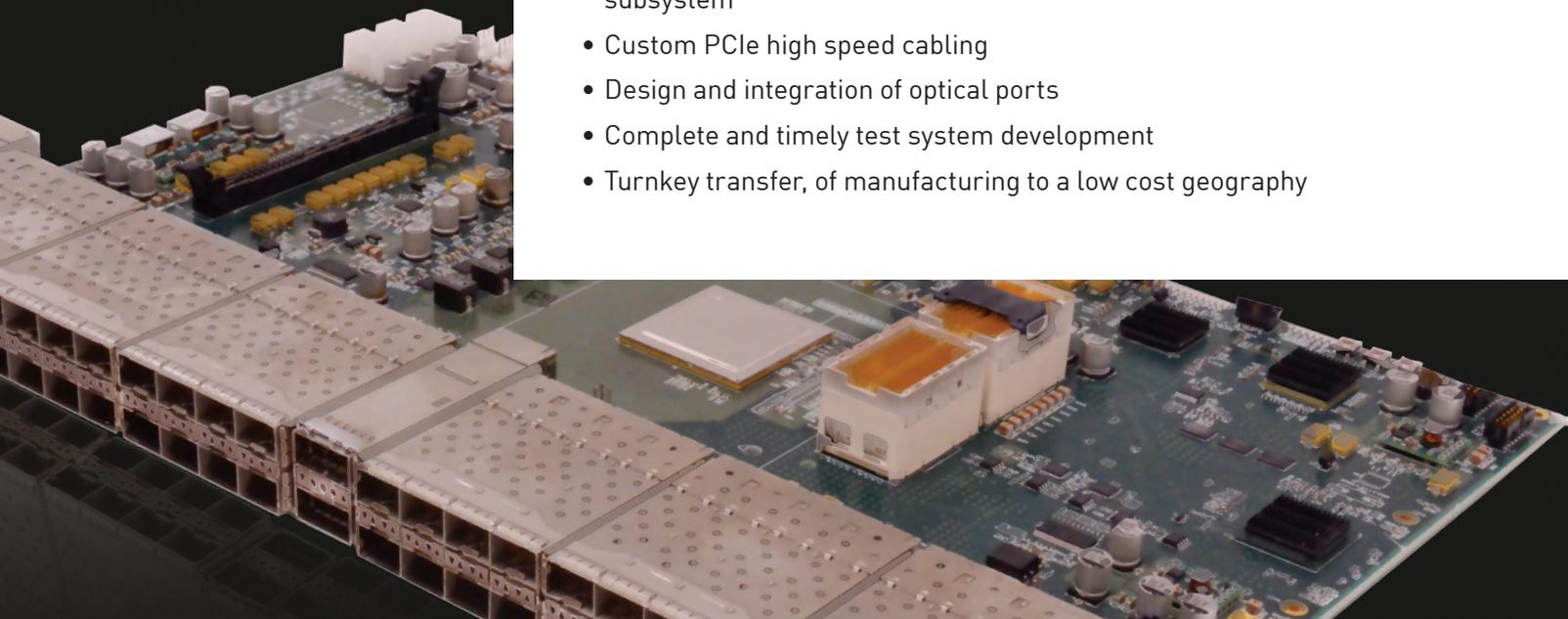
When Enterprise software companies develop new products they often turn to EMS or ODM providers to design and manufacture the hardware that will bring their software innovation to market. This was the case with Pluribus Networks, a company on the forefront of software-defined networking (SDN) for the cloud. Pluribus had developed a software virtualization solution to optimize the capacity of data centers, and they needed a partner with the expertise to design and produce a high performance 10 gigabit network computing appliance using the latest processor from Intel. The partner needed to provide a turnkey hardware development solution including design, prototyping, bring up and design verification, followed by a manufacturing transfer to a low cost geography—all under tight schedule constraints. Finally, the partner would have to collaborate closely with the customer’s product team in Palo Alto, CA.

Pluribus chose Sanmina. Sanmina’s clear advantages included substantial network hardware design expertise, comprehensive Silicon Valley development and manufacturing capabilities, a complete global manufacturing footprint and advanced PCB technology.

THE CHALLENGES

Numerous technical and schedule challenges had to be overcome in order to meet the product performance requirements of this advanced system. These included:

- Meeting high speed signal integrity requirements
- Developing a cost effective low loss PCB
- Thermal design and management of the 200 watt ethernet switch subsystem
- Custom PCIe high speed cabling
- Design and integration of optical ports
- Complete and timely test system development
- Turnkey transfer, of manufacturing to a low cost geography



After production was transferred to a Sanmina facility in Asia, delamination issues began to occur within the PCB during PCBA. A Sanmina team with representation from design, the PCB organization, assembly, quality, and Pluribus, was quickly chartered to understand root cause and resolve the problem. After an extensive investigation including materials evaluation and process experimentation, the problem was solved and production resumed. Pluribus was highly appreciative of this response, noting that Sanmina's vertical integration model saved time in resolving the issue.

SOLUTION

An advanced hardware platform was designed by Sanmina in tight collaboration with Pluribus. Sanmina managed the program from its San Jose design center, leveraging their PCB, firmware and test system engineers in Chennai, India. Board fabrication, NPI, prototyping and assembly were done in Sanmina's Quickturn facilities in San Jose. The teams worked together to go from schematic review and Gerber release to prototyping and system bring up in a record 19 weeks.

LOOKING FORWARD

With Sanmina providing a vertically integrated, highly technical design and manufacturing solution, Pluribus could focus on their core network software solution and not worry about multiple design and manufacturing suppliers and partners across several locations. The complete, local and global solution from Sanmina proved highly effective for Pluribus.



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>.