Importance of Value-added Services and Manufacturing

Value added services can mean a lot of different things to a lot of different companies. The term is commonly used across many industries, and can encompass a wide range of services. However, no matter what industry you are in, companies that offer value added services aim to decrease time-to-market, lower costs, and ultimately improve responsiveness, productivity and throughput. Value-added connector and cable service providers enable manufacturers to deliver better, more complete products to customers while ensuring a lean, profitable, and streamlined manufacturing process. In the end, however, the products are only as good as the as the service and support that comes with it.

Simplifying Production

There are several different types of companies that provide value added services, including original component manufacturers (OCMs), traditional distributors, specialty distributors, and value added resellers (VARs). Depending upon the markets and applications they supply, these third-party value added service providers can tailor programs to offer design, manufacturing, assembly and/or installation services that simplify the supply chain.

Design & Engineering

Third-party design and engineering teams can offer full service support from concept sketches to fully documented engineering drawings to working prototypes. It is vital that design teams build for manufacturability. With all the variables involved in board, connectivity and wire engineering, ease of manufacture is often overlooked. In addition, tier-one service providers can design for applications, ensuring industry certifications and standards are met.

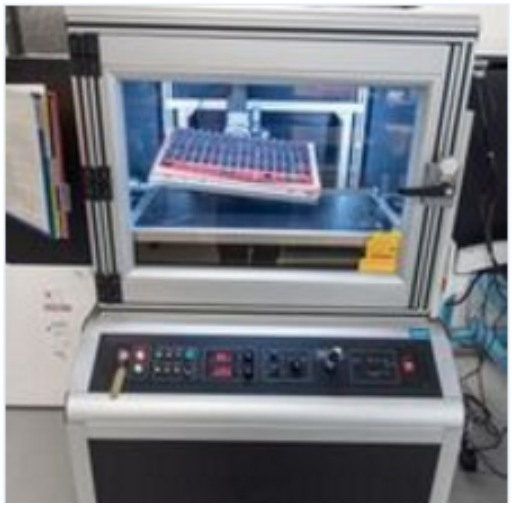
Assembly

Adding value beyond the component is vital, from packaging to connector assembly and more. Once the basic specifications and requirements are established, issues such as types of connectors, wire, placement of cable ties and labels, and overall tolerances play an important role in determining the material costs, manufacturing costs and long term reliability of an assembly. A key component for many value added service providers to reduce lead times is having a fully automated SMT line with pressfit technology capability. Companies like ERNI specialize in low-to-mid volume, high-mix

PC board and sub rack assembly. Automation typically translates to high quality assemblies, particularly for connectors designed for rugged or demanding applications. Being able to process special board materials, board thicknesses and board sizes are also a big benefit especially for backplane applications.

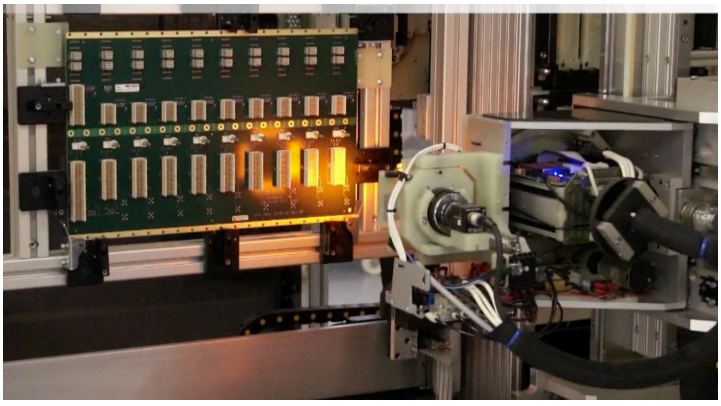
Testing

Once the backplane PC boards are fully assembled, they need to be tested. When developing high quality board assemblies for OEMs, including manufacturers of radar equipment, airplanes, drones, fire trucks, off-highway and other military applications, testing contact points for electrical performance and solder joints for physical stability is imperative and normally a requirement.



X-ray inspection equipment for post-production checks quality of the solder joints. Some value added service providers offer 100% x-ray inspection in addition to proving out and setting up each production run. ERNI's x-ray system has an extra heavy-duty gantry inspection capability for handling populated double-sided PC boards that are up to .287" thick. These thicker boards primarily for mil/aero, instrumentation and industrial applications can weigh more than 10 pounds each when populated.

Superior test stations offer 100% testing of every contact point on the board. This is an additional service offered beyond the normal visual inspection equipment provided by most CMS companies, which only inspects for bad solder joints, cracks etc. Standard product validation (BOM checking) can be achieved through Automated Optical Inspection (AOI); however this does not always guarantee 100% electrical performance.



For example, state-of-the-art RoBAT S1 inspection equipment electrically tests each connector contact point and every solder point. AOI plus this kind of electrical testing provides 100% Netlist test coverage. The RoBAT S1 tester simulates the daughter card that would plug into the backplane or motherboard. Test data is linked to each unique board serial number, fulfilling traceability requirements. The machine has tooling for testing all connector types.

It tests the contact point all the way through the connector to the backside of the board. A typical "Bed-of-Nails" test setup cannot accomplish this. Customers would pay more for a Bed-of-nails testing solution, they would wait longer for the bed-of-nails tester to be built, and require more layers of communication

before the board could be made. The consequences of not catching a bad board, bad raw materials or bad components are product line failures or worse, bad product being delivered to the end customer.

Logistics

The globalization of sourcing and manufacturing has increased the complexity of manufacturing and distribution logistics, significantly impacting the types of value-added services customers want from third-party logistics providers. Material handling, assembly, packaging, inventory control/consignment inventory, component management and bill of materials analysis are all services sought after. The market is continuously pushing value added service providers to do more in terms of logistics, leading many third-party providers to further commoditize logistical services into an integrated, end-to-end solution.

Conclusion

In today's competitive market, value-added service providers help manufacturers reduce costs and lead times, while increasing throughput. Value added service providers can simplify board designs and wire engineering, providing a complete connectivity solution. In addition to design support, value added service providers can deliver quick-turn manufacturing, assembly, installation, test, certification and logistical support services to reduce costs and simplify the manufacturing process.

For more information, visit
https://www.erni.com/en/products-and-solutions/electronic-manufacturing-services/