



ELECTRONICS MANUFACTURING SERVICES

CURRENT TRENDS

- Increasingly effective inventory management has resulted in higher values for finished goods and raw materials
- Printed circuit board equipment values have been steady, with older assets still marketable internationally
- The automotive, medical, and industrial markets make up the majority of domestic EMS providers' revenue
- A current component shortage is expected to last at least through 2019

PROJECTED VALUES (12-MONTH OUTLOOK)



APPROXIMATE NET RECOVERY ON COST

70-90%

finished goods

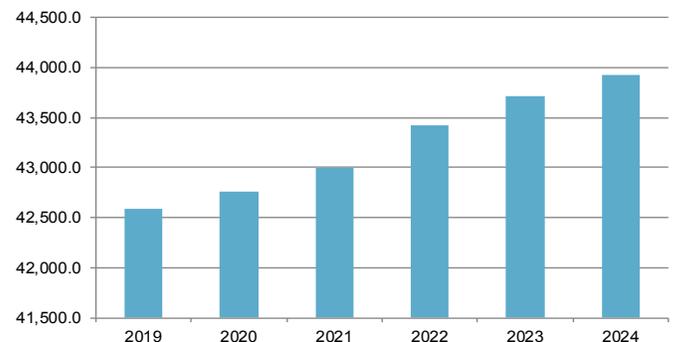
50-70%

work-in-process

40-60%

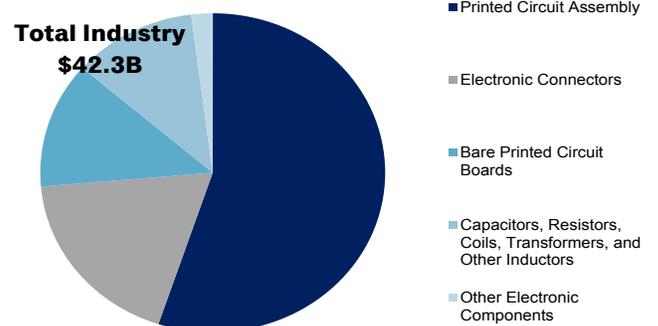
raw materials

REVENUE FORECAST: CIRCUIT BOARD & ELECTRONIC COMPONENT MANUFACTURING IN THE U.S. (IN MILLIONS)



Source: IBISWorld

PRODUCTS & SERVICES SEGMENTATION (2017)



NOTE: THIS PUBLICATION IS PROVIDED FOR INFORMATIONAL MARKETING PURPOSES ONLY. THE MATERIAL CONTAINED HEREIN SHOULD NOT BE REGARDED AS ADVICE, NOR RELIED UPON TO MAKE FINANCIAL, OPERATIONAL OR OTHER DECISIONS; NOR SHOULD IT BE USED AS A SUBSTITUTE FOR AN ASSET APPRAISAL. ACTUAL RECOVERY VALUES MAY VARY FROM TRANSACTION TO TRANSACTION AND THE RECOVERY VALUES REFERENCED HEREIN ARE FOR REPRESENTATIVE TRANSACTIONS WITHOUT REGARD TO SPECIFIC KEY FACTORS. THIS MATERIAL MAY BE REDISTRIBUTED ONLY IN ITS ENTIRETY, INCLUDING NOTICE OF COPYRIGHT. ALL RIGHTS RESERVED. ©2018 GORDON BROTHERS GROUP, LLC.



Gordon Brothers

GORDONBROTHERS.COM
+1.617.426.3233

MARKET TIERS AND REGIONS DEFINE THE MARKETPLACE: The electronic manufacturing services (EMS) industry is commonly divided into tiers by revenue. Tier one EMS providers have revenue of over \$1 billion, tier two EMS providers have revenue of between \$250 million and \$1 billion, and tier three EMS providers have revenue of under \$250 million. High-volume, low-complexity manufacturing is concentrated in low-cost regions (e.g., China, Mexico). Most North American EMS activity focuses on low-volume, high-complexity manufacturing for industries such as aerospace, industrial, medical, and military. Original equipment manufacturer (OEM) customers in these industries often choose just one EMS provider to produce their products, which can lead to relatively high recoveries for inventory.

ELECTRONIC COMPONENT SHORTAGES MAY IMPACT INDUSTRY GROWTH:

Due to a global innovation boom with connected gear in everything from clothing to electronics to automotive manufacturing, current electronic component shortages are now so severe that some OEMs believe their growth could be impacted if they are unable to get parts. While industries such as automobile manufacturing are not growing at an unmanageable rate, the electronics in cars are. The automotive industry is competing with major consumer electronics manufacturers, such as Apple and Samsung, for components. Electronic components are not being manufactured quickly enough to keep up with demand, with components of all types, from commodity resistors and capacitors to custom integrated circuits, having lead times of up to 20 weeks. Recently, reports of customers double-ordering in an attempt to circumvent part shortages, as well as the possibility of tariffs on imported goods, have increased industry anxiety.

INVENTORY DYNAMICS DETERMINE VALUE: Inventories are composed of finished goods, work-in-process, and raw materials. Valuation methodology focuses on the assumption of a sell-back to OEM customers based on provided orders/forecast. Other factors affecting value include the customers' reliance on the EMS provider in their supply chain (when the EMS provider is a customer's sole source, the desirability of the inventory increases), component lead times, and whether raw materials are proprietary or off-the-shelf, since materials that are more difficult to replace have higher values.

EQUIPMENT IS VALUABLE: Equipment at EMS providers includes printed circuit board assembly (PCBA) lines, which typically consist of screen printers, high-speed chip placement machines, reflow ovens, and automated optical inspection stations. Other equipment groups can include test and measurement and metal and plastic fabrication tools. The majority of PCBA equipment at EMS facilities is manufactured by a small number of vendors. Newer models are distinguished by increased speeds and the ability to produce smaller and denser products. Whereas each successive generation of equipment causes downward pressure on the value of legacy equipment, the useful life of PCBA equipment is long, with a strong market for legacy equipment in developing countries worldwide. These markets include Asia, Latin America, and Eastern Europe.

INDUSTRY VOLATILITY NECESSITATES CLOSE MONITORING: Many EMS providers are dependent on a few customers for a large percentage of revenue. When one of these customers suffers a downturn and delays or cancels orders, the result is often an EMS provider with excess inventory and lowered revenue in what is typically a low-margin business. Frequent reappraisals, particularly of inventory, are highly recommended. Other events that should trigger an inventory and/or equipment appraisal update include the opening or closing of a facility, since the asset mix is likely to change, and the addition of a significant customer, since "fresh" inventory typically results in increased inventory value due to lower rates of excess material when compared to legacy customers.

The Expert: Paul Smith



Paul Smith specializes in the appraisal of high technology machinery & equipment and inventory for Gordon Brothers. His experience includes the valuation of equipment and inventory of manufacturers and resellers of computer memory, server and network equipment and solar power equipment. Read his full bio [here](#)



**Gordon
Brothers**

GORDONBROTHERS.COM
+1.617.426.3233