



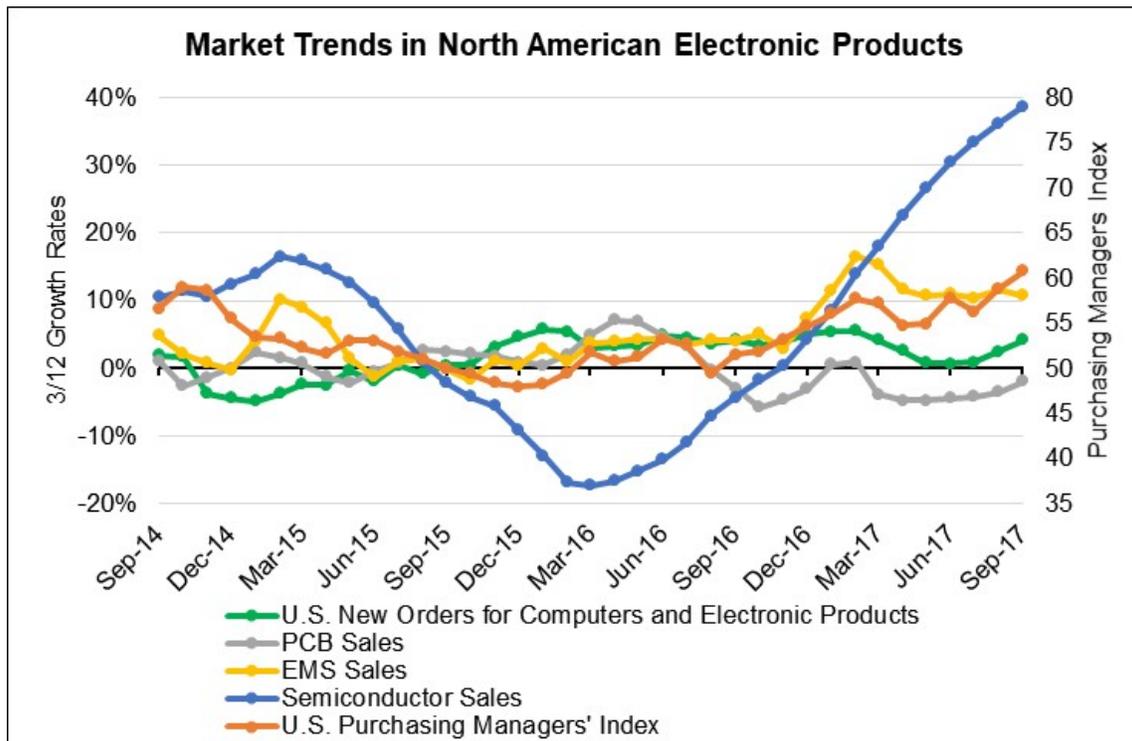
November 2017

North American Electronics Business Results are Encouraging

Based on three-month rolling averages, year-on-year growth in North American semiconductor sales continued its upward climb in September 2017. Sales growth by electronics manufacturing services (EMS) companies retreated slightly but remained strong compared to last year. Printed circuit board (PCB) sales continued to strengthen, although the three-month rolling average remains slightly below last year's levels.

The U.S. Purchasing Managers' Index (PMI), which tends to lead industry sales by two to six months, continued to climb and remains solidly positive (above 50). The 3/12 rate of change for U.S. new orders for electronic products, which leads industry sales by one to three months, also continued to grow.

Another leading indicator, IPC's PCB book-to-bill ratio, is based on three-month rolling averages of orders and sales, and normally leads industry sales by three to nine months. The ratio has been in positive territory for the past eight consecutive months, driven by growth in orders and weak sales. The book-to-bill ratio is at a strong 1.14 as of September 2017. Ratios above parity (1.00) indicate greater demand than supply, which may be a precursor of sales growth for electronics manufacturers, especially when a run of positive ratios over several months is seen. These indicators suggest the likelihood of sales growth in the industry later this year and in early 2018, but with some volatility.



Notes:

1. Three-month rolling averages iron out some of the volatility in monthly data to show clearer trends.
2. This information is provided by IPC — Association Connecting Electronics Industries®.
3. Other industry data can be found at www.ipc.org.
4. The U.S. Department of Commerce revised its historical data on U.S. new orders and issued new data on May 18, 2017. The graph above reflects the revised data, showing that U.S. new orders have been positive for the past twenty months.
5. IPC's EMS and PCB 3/12 rate-of-change data going back to March 2017 have been updated as of July 2017.

Sources: IPC statistical programs for the EMS and PCB industries; SIA for semiconductor data; U.S. Census Bureau for U.S. new orders for computer and electronic products; and Institute for Supply Management for the U.S. Purchasing Managers' Index.