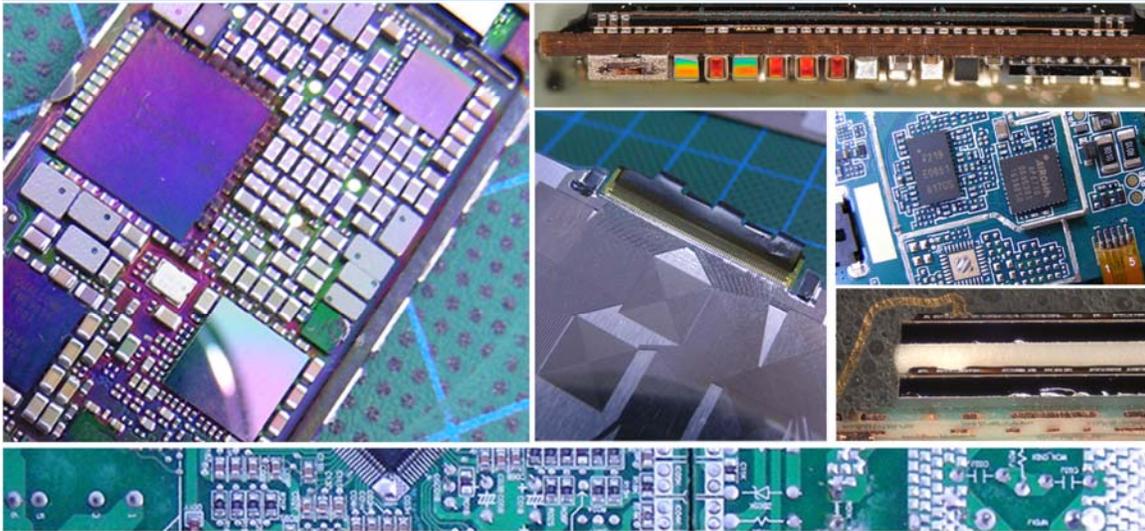


# THE PRINTED CIRCUIT REPORT

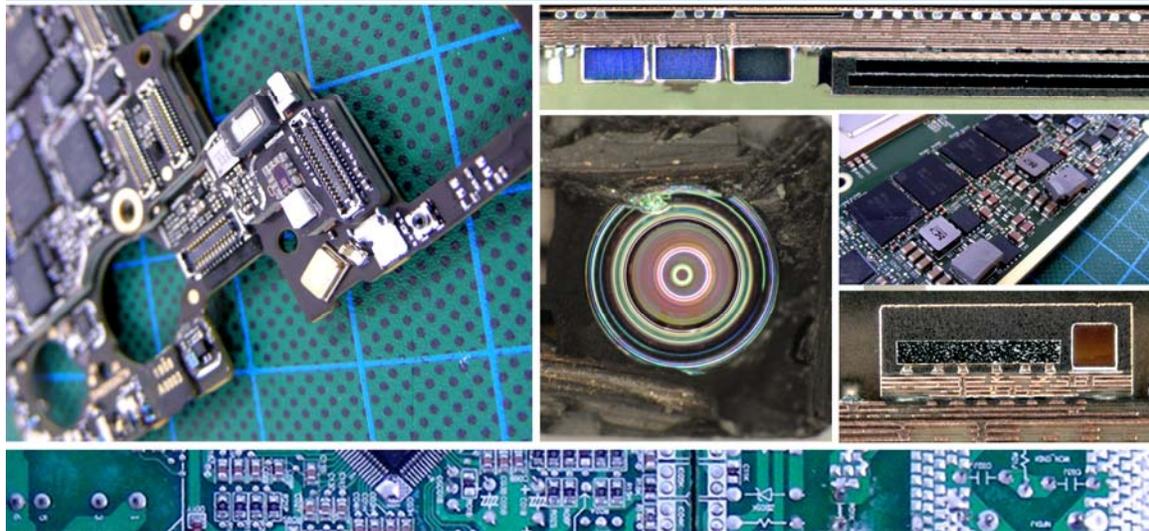
SECOND QUARTER • AUGUST 2020



- The forty leading PCB suppliers, which account for over one-half of industry sales, reported aggregate revenue increases of 11.5% in Q2 2020 over Q2 2019.
- The first half of 2020 has been surprisingly positive for the PCB market, for a number of reasons discussed in this report. Prismark expects the third quarter to decline YoY, and the fourth quarter to be flat YoY.
- Prismark has revised its forecast for the PCB market, and is now expecting a growth of 0.3% in 2020 over 2019. This growth is very lopsided, however, and driven almost exclusively by the strong demand for package substrates.
- This report provides:
  - An update on Prismark’s assessment of the coronavirus impact on the global electronics industry, including the PCB market.
  - Comprehensive data and analysis of the PCB market, showing Prismark’s revised forecast for 2020, as well as our longer-term forecast for 2024 by PCB technology and region of production.
  - A detailed discussion of major technology and market developments of flexible circuits, with a particular focus on rigid-flex circuits.

# THE PRINTED CIRCUIT REPORT

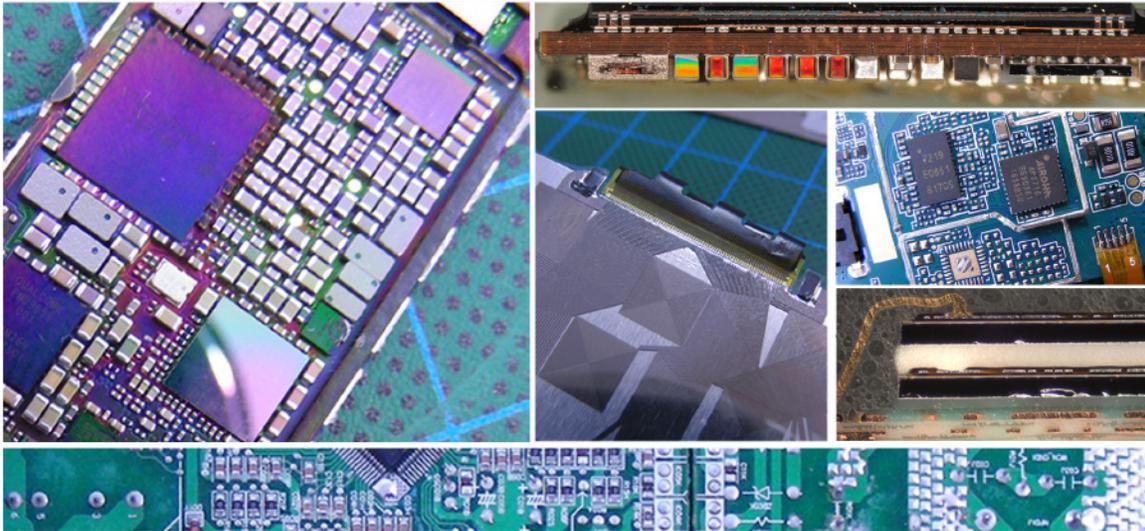
FIRST QUARTER • MAY 2020



- The forty leading PCB suppliers, which account for over one-half of industry sales, reported aggregate revenue increases of 6.9% in Q1 2020 over Q1 2019.
- Prismark estimates that the entire PCB market grew by 2.3% in terms of value in Q1 2020 over Q1 2019. This was a surprisingly positive outcome, as Prismark had expected the market to decline due to the coronavirus outbreak.
- In reality, the Q1 2020 PCB market was generally weak, but was bolstered by a few strong growth areas, primarily benefiting the package substrate business.
- Currently available data points suggest that positive momentum continued into Q2, but 2H remains highly uncertain. Prismark fears that 2H will experience a significant YoY decline. Altogether, Prismark's forecast of a 4.9% decline of the PCB market in 2020 has not been changed.
- This report provides:
  - An update on Prismark's assessment of the coronavirus impact on the global electronics industry, including the PCB market.
  - Comprehensive data on the PCB market for 2019, our forecast for 2020, as well as our longer-term forecast for 2024 by PCB technology and region of production.
  - A detailed discussion of the high-speed PCB market, which has seen significant market and technology shifts in the past few years. Trends are also explored on the systems, PCB, and laminate level.

# THE PRINTED CIRCUIT REPORT

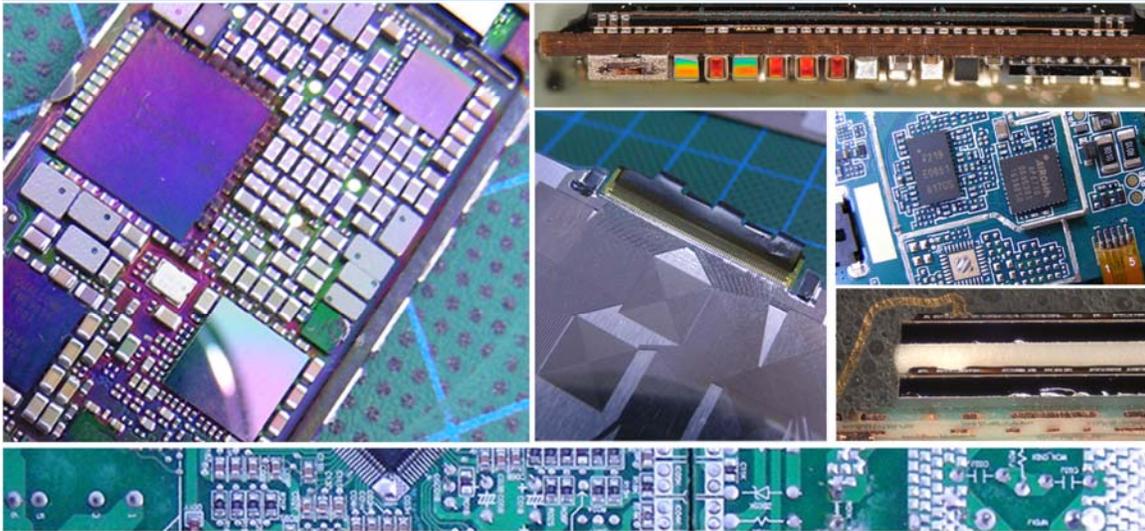
FOURTH QUARTER • FEBRUARY 2020



- The fifty leading PCB suppliers, which account for over one-half of industry sales, reported aggregate revenue increases of 0.4% in 2019 over 2018. The entire PCB market declined by 1.7% in value for 2019 over 2018.
- The PCB market declined in all regions except for China. Even there, PCB value growth was subdued at just 0.7% in value for 2019 over 2018.
- All PCB categories except for package substrates (+7.7%) declined. The decline was particularly strong for commodity paper (-9.2%) and composite (-7.9%), but most multilayer PCB products also performed poorly.
- Huawei was the main growth driver for PCB demand in 2019, and that company's PCB supply chains have benefited handsomely.
- The impact of the Coronavirus epidemic on PCB demand is still difficult to assess. Based on our current assumptions, Prismark forecasts the PCB market to grow by 2.0% in 2020, down from our previous expectations of 3.3% growth.

# THE PRINTED CIRCUIT REPORT

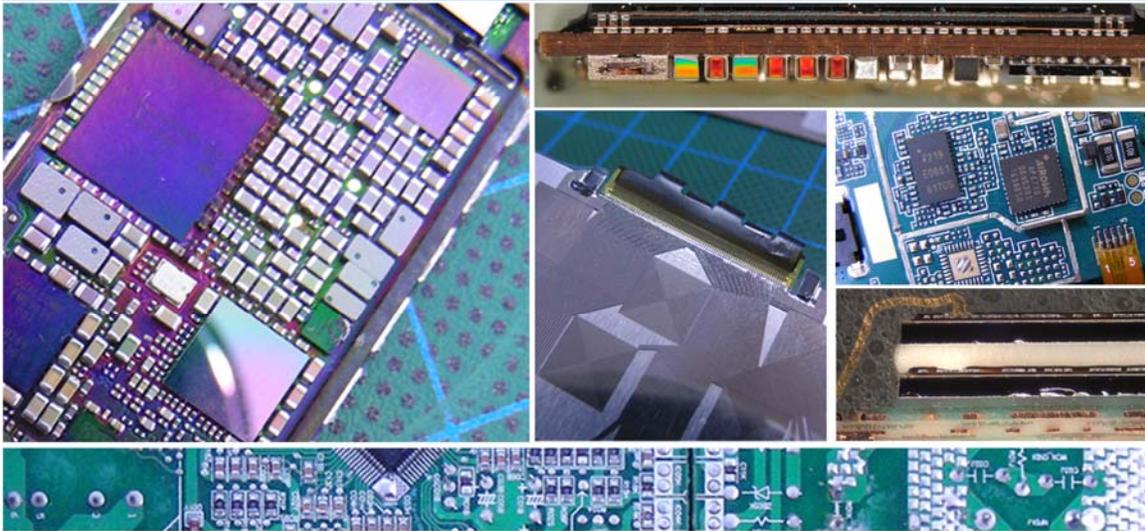
THIRD QUARTER • NOVEMBER 2019



- The forty leading PCB suppliers, which account for over one-half of industry sales, reported aggregate revenue increases of 24.2% in Q3 2019 over Q2 2019. Year-to-date, 2019 aggregate revenues remain just 1.8% below those of the comparable period in 2018.
- In spite of headwinds faced by both Apple and Huawei, these two companies were significant drivers of PCB demand in the latest quarter. Their PCB supply chains have benefited handsomely.
- The PCB industry has gained positive momentum, and Prismark is confident that its total 2019 outlook of a 1.7% decline for the PCB industry will be met, in spite of the poor start to the year.
- As a preliminary forecast, Prismark expects a strong rebound of 3.3% growth in 2020. The five-year CAAGR 2018 – 2023 for the PCB market value is calculated at 4.3%.
- This report provides detailed data on the particular PCB growth drivers, with a detailed discussion of 2019. Forecasts are provided for 2019 and 2023 by PCB technology and region of production.
- This report also discusses the HDI market, which has seen significant market and technology shifts in the past few years. Prismark's outlook for the HDI market situation is presented.

# THE PRINTED CIRCUIT REPORT

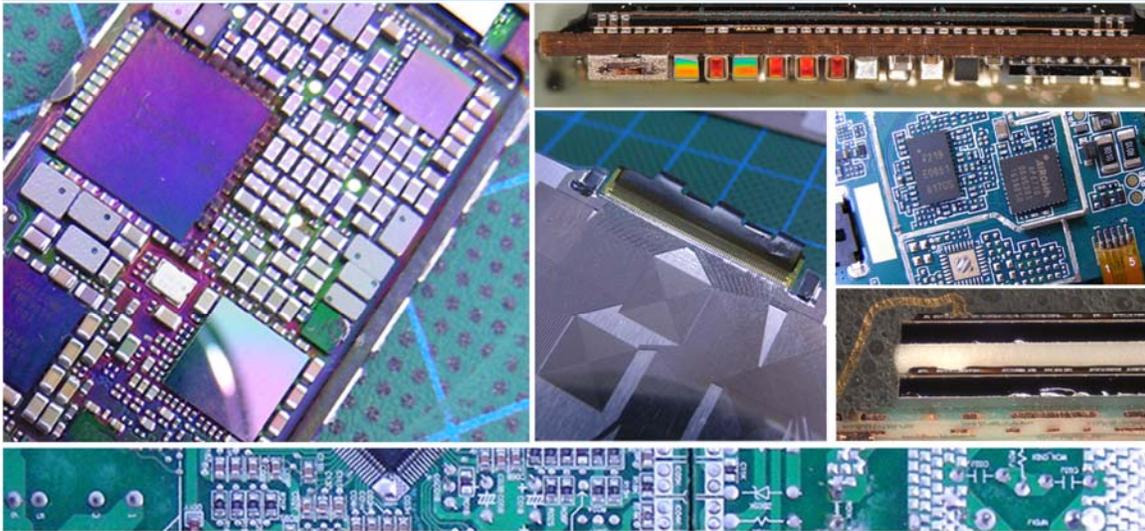
SECOND QUARTER • AUGUST 2019



- The Q2 2019 performance of the forty leading PCB suppliers is provided, and additional company news is discussed in each regional section.
- The PCB market rebounded in Q2 2019, but H1 2019 remains below H1 2018.
- The third quarter is expected to perform very well, but Q4 remains uncertain. Altogether, Prismark has not revised its forecast for 2019 or 2023.
- Further details of the PCB market – segmented by application and technology – are provided for 2018, 2019 and 2023 in area and value terms.
- A special section discusses the key growth drivers of the flex circuit market, including teardown analyses of important products.

# THE PRINTED CIRCUIT REPORT

FIRST QUARTER • MAY 2019



- The forty leading PCB suppliers, which account for over one-half of industry sales, reported aggregate revenue increases of 6.6% in 2018 over 2017. For Q1 2019, however, the aggregate revenues show a strong decline of 21.0% over Q4 2018, and a decline of 7.5% over Q1 2018.
- The first quarter seasonal weakness is to be expected, but this stronger-than-usual decline in revenues appears to be the result of additional headwinds stemming from:
  - Weak demand, as consumers and businesses are reluctant to spend
  - Inventory adjustments, because Q4 2018 demand was weaker than had been expected
  - Cautious prospects, due to serious uncertainty in business outlook
- The second quarter is expected to show the typical improvement over Q1, but the overall market will remain well below (-4.7%) the prior year's quarter. The recovery in Q2 is expected to be broad, but still quite shallow.
- The outlook for the second half of 2019 remains clouded by much uncertainty. A recovery is anticipated, but Prismark expects the PCB industry to shrink by 1.7% in value for 2019 over 2018.



*CONSULTANTS TO THE ELECTRONICS INDUSTRY  
BUSINESS OPPORTUNITY FROM TECHNOLOGY AND  
MARKET CHANGES*

**PRISMAR PARTNERS LLC**

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130 Main Street, Cold Spring Harbor, NY 11724 USA • Telephone: 631-367-9187 • Fax: 631-367-9223 • e-mail: [partners@prismark.com](mailto:partners@prismark.com)

Prismark Asia, 8F., No. 96, Guangfu N. Road, Taipei 105, TAIWAN • Telephone: 886-2-25779697 • Fax: 886-2-25701230

Visit our website at **[www.prismark.com](http://www.prismark.com)**