

# Global and China Automotive PCB Industry Report, 2014-2015

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## Abstracts

Global and China Automotive PCB Industry Report, 2014-2015 highlights the followings:

1. Global and China's automobile market and industry
2. Downstream market of automotive PCB
3. Automotive PCB Industry and Market
4. 19 Automotive PCB companies

Global automotive PCB market size was around USD4.96 billion in 2014, and is expected to grow by 6.5% to USD5.28 billion in 2015, compared with an overall global PCB market scale of roughly USD59.6 billion in 2014 and an estimated growth of 0.8% in 2015. Automotive PCB is the fastest-growing field in PCB industry, and will sustain the momentum until at least 2019.

In automotive PCB field, powertrain holds the largest proportion, about 32% for the time being, including mainly Engine Control Unit, Starter, Alternator, Transmission Control, Fuel Injection, and Power Steering. For xEV, complexity, high voltage, high current and high temperature of Inverter and Converter pose extremely high requirements on PCB. Powertrain seizes over 50%, followed by Body with about 25% (primarily Lighting, HVAC, Power Door & Seat, Keyless, and TPMS). LED lighting, which enjoys a high share, is highly demanding on PCB, usually adopting MCPCB (Metal Core PCB). Thirdly, Safety systems, consisting mainly of ADAS, ABS, and Airbag, make up about 22%. The last is Cockpit systems, mainly covering Instrument Display and Infotainment.

Automotive PCB has exceedingly high requirement on reliability, creating the biggest threshold. Recall system in automobile industry requires makers to take risks of faulty products. As small makers cannot afford this, they are usually ruled out. Challenges for

automotive PCB include reliability, high temperature, high frequency, and high current.

PCBs in automotive engine and gearbox need to withstand high temperature above 150°, so ceramic substrates must be used, for ceramic multi-layer substrate contains mainly alumina (Al<sub>2</sub>O<sub>3</sub>) and aluminum nitride (AlN). High temperature co-fired ceramic (HTCC) PCB is usually sintered at temperature of over 1600°, and the conductor is high-melting point tungsten or molybdenum, which can be sintered together at the same time. Japanese Murata puts forward low temperature co-fired ceramic (LTCC), which finds few applications. Ceramic substrates are mostly supplied by Japanese KYOCERA and U.S. Rogers. PCBs used by European and U.S. carmakers are largely provided by German Schweizer, Duwel, and Wurth, and U.S. TTM. Japanese carmakers are mainly served by CMK and Meiko.

Automotive safety systems, especially ABS, generally adopt MCPCB (Metal Core PCB). Automotive ADAS needs to use a large quantity of radar which finds shipment of 19 million sets in 2014 and is expected to reach 96 million sets in 2020. In this case, high-frequency PCB will be employed. The PCB usually needs PTFE ceramic and can only be done by the companies (mainly from U.S. Europe and Japan) that are very experienced in RF. xEV is developing rapidly, especially after the outbreak of scandal over VW cheating pollution emissions tests.

Supply of cockpit PCBs are almost taken on by Taiwanese companies. HDI may be needed, as Infotainment becomes more complicated and the size of screen larger. Moreover, the number of automotive displays used also increases, like BMW 7 series using up to 7 displays for each vehicle. All these factors fuel a robust market.

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