

Unitech Printed Circuit Board Corp.

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Nov. 20th, 2018

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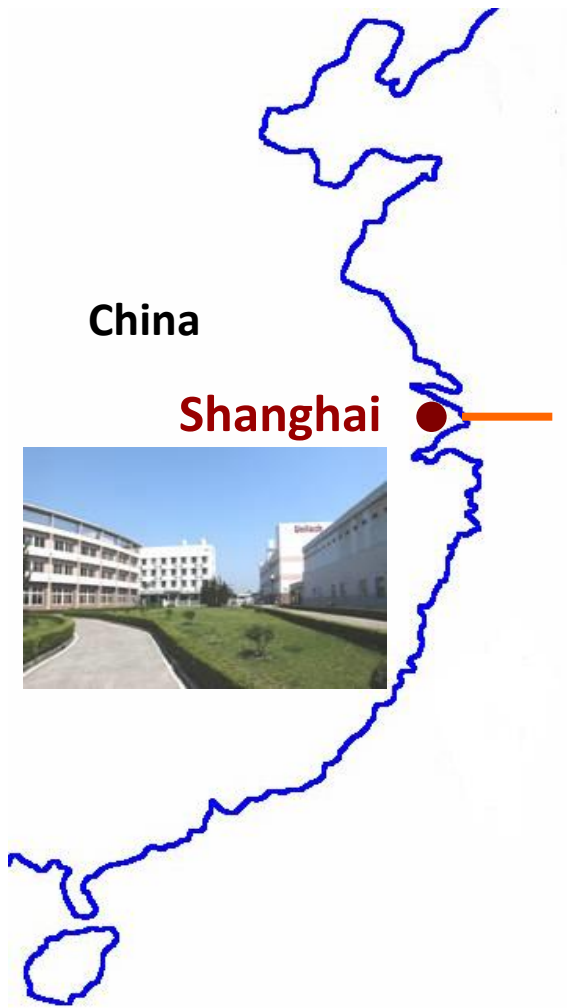
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Factory Location

Unitech



China

Shanghai



Unitech



Taipei

Yilan

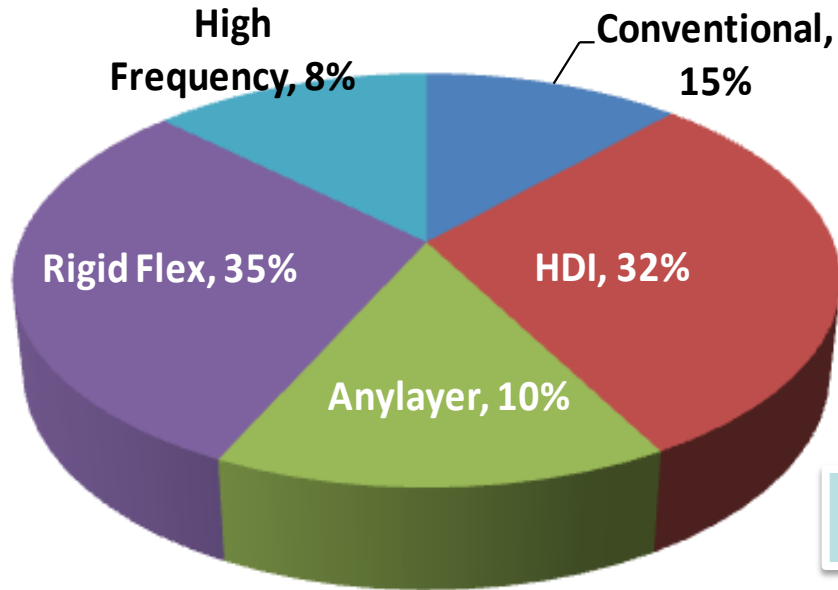
Taiwan



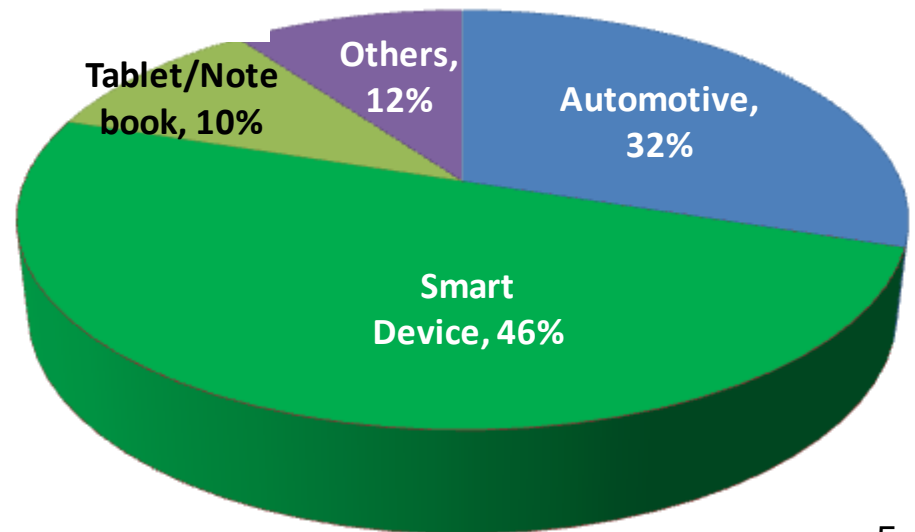
	<u>Taiwan</u>	<u>Shanghai</u>
• Capital (Sept '18)	TWD 6,194 M	TWD 2,549 M
• Total Assets (Sept '18)	TWD 22,999 M	TWD 4,450 M
• Founded	1984	1997
• Capacity (SF/Mon.)	1300K	750K
• Employees	5800	2000

1. Capital & Assets are expressed in Millions of New Taiwan Dollars.
2. 4.436 TWD/RMB exchange rate is applied.

Product Mix-by Technologies applied

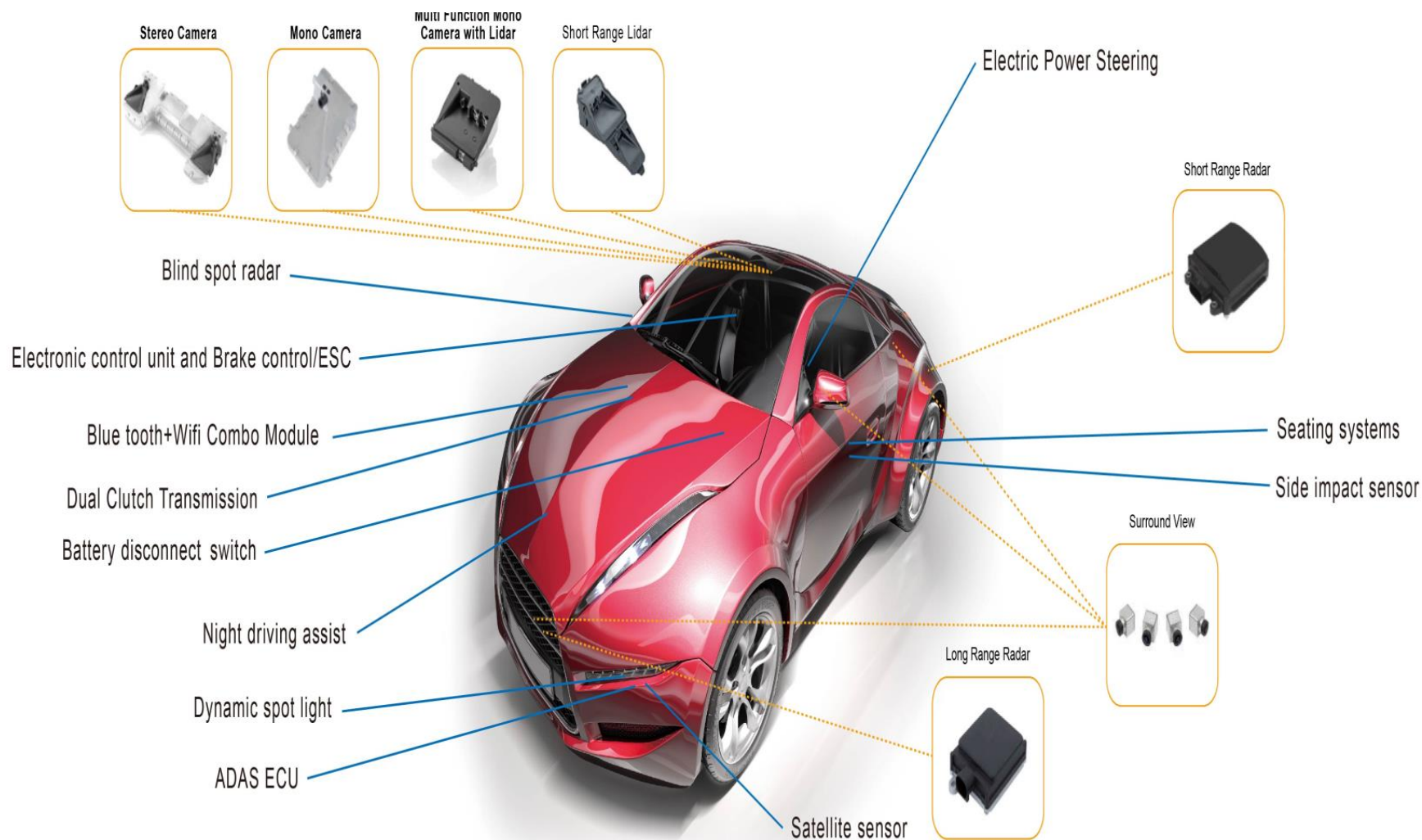


Product Mix - By applications

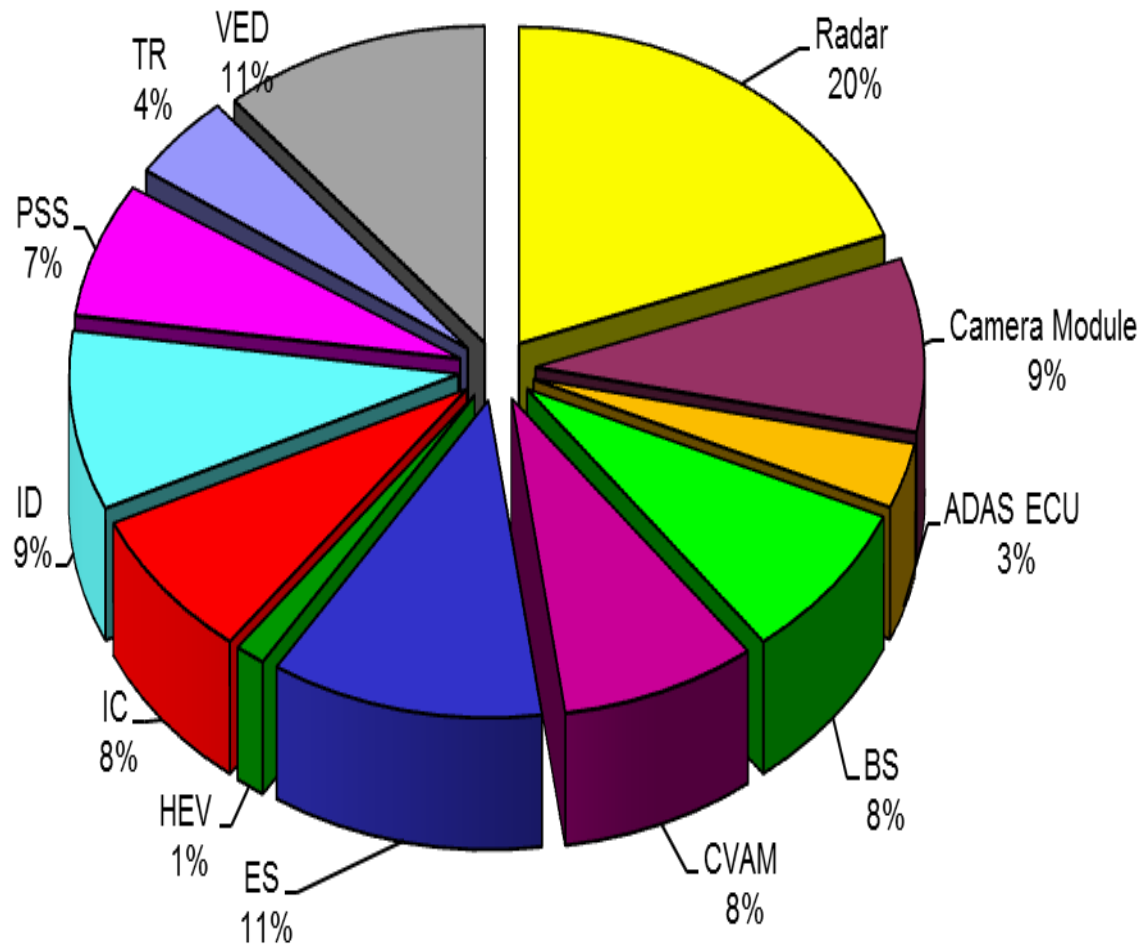


Core Products/ Global Ranking

- Automotive: 12th (Radar PCB top 3)
- Rigid Flex : Top 6
- Any Layer : Top 10



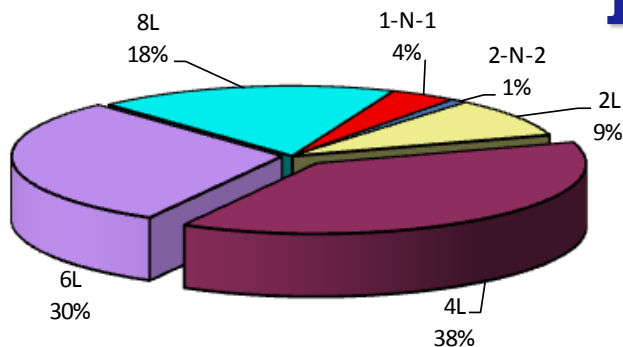
PCB applications in Automotive Industry



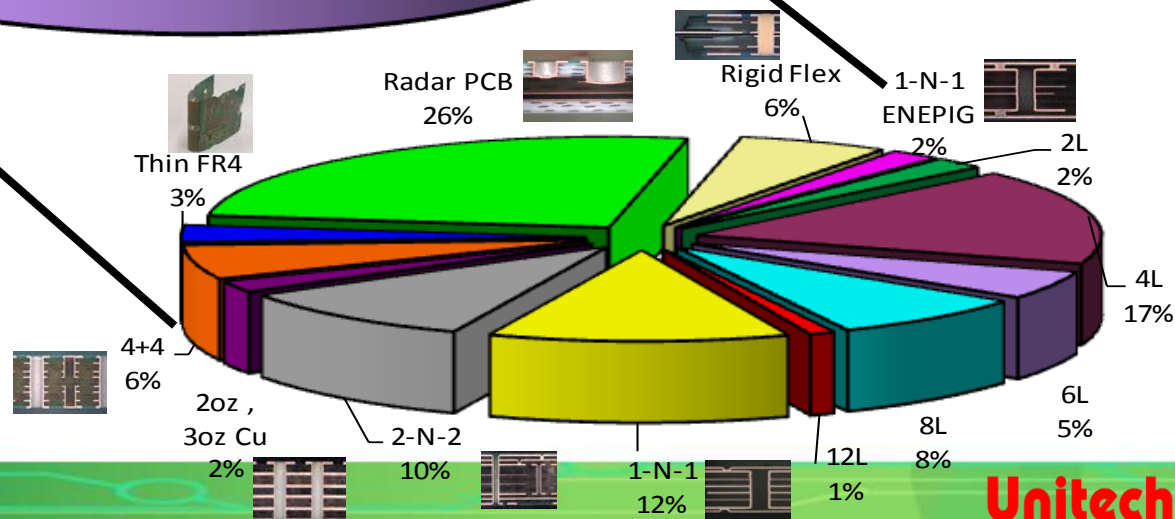
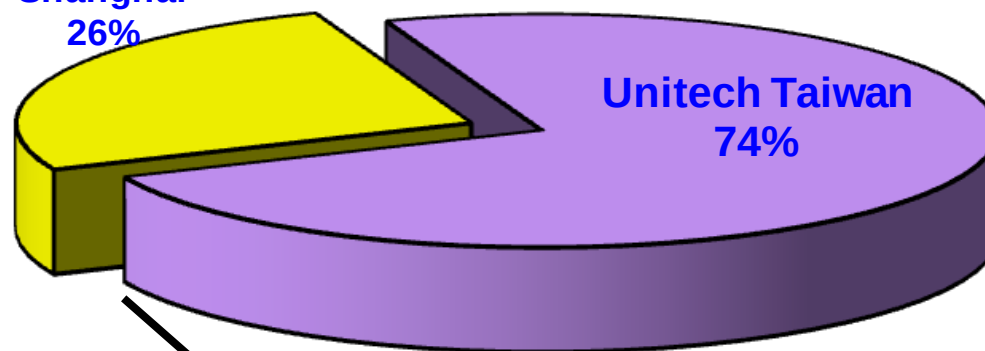
Product Mix – Automotive

Technology Portfolio:

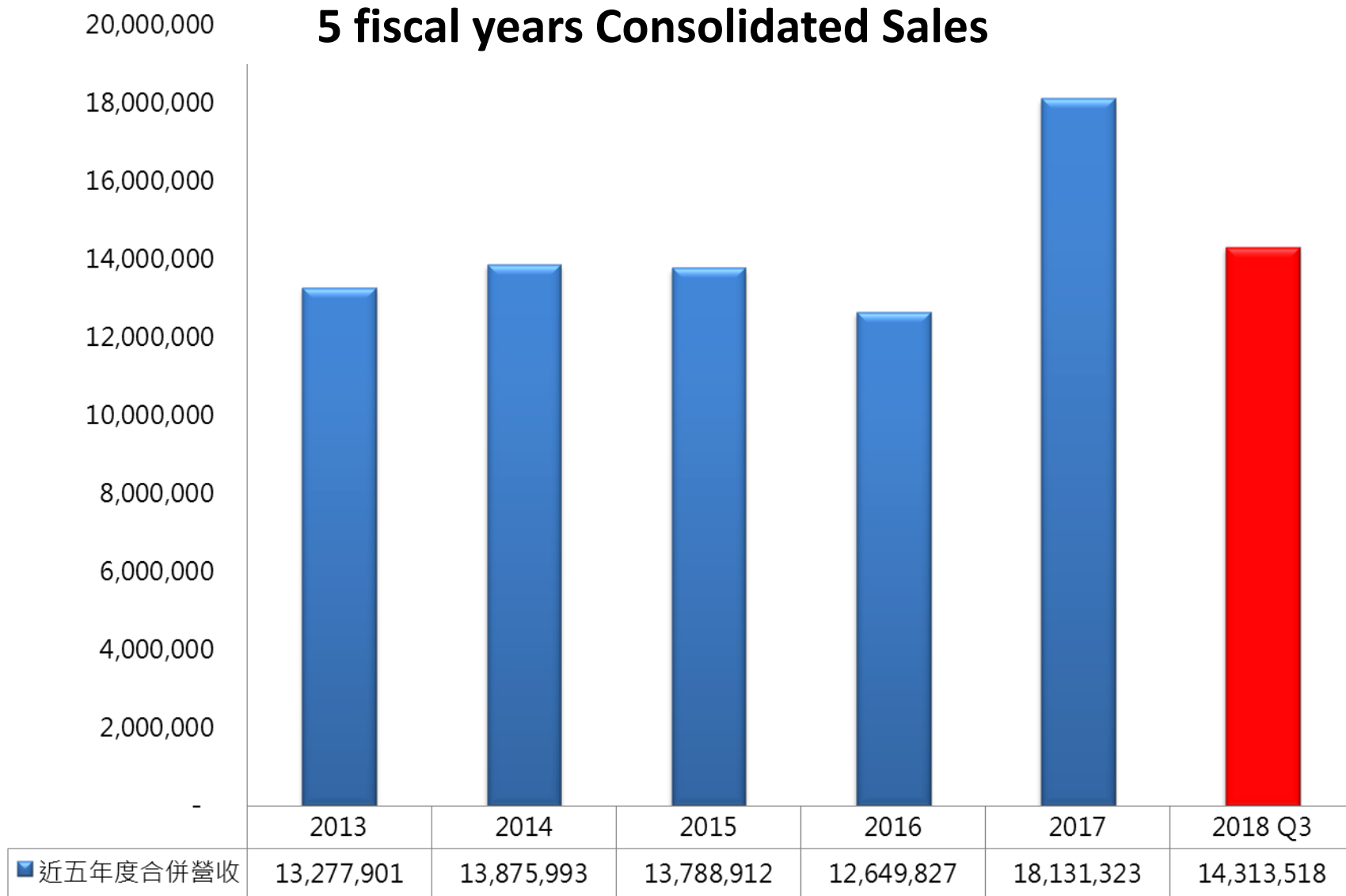
■ HDI PCB (4+4, Radar & Rigid Flex included)	48%
■ 4L & 6L PCB	34%
■ 8L & 12L PCB	10%



Unitech
Shanghai
26%

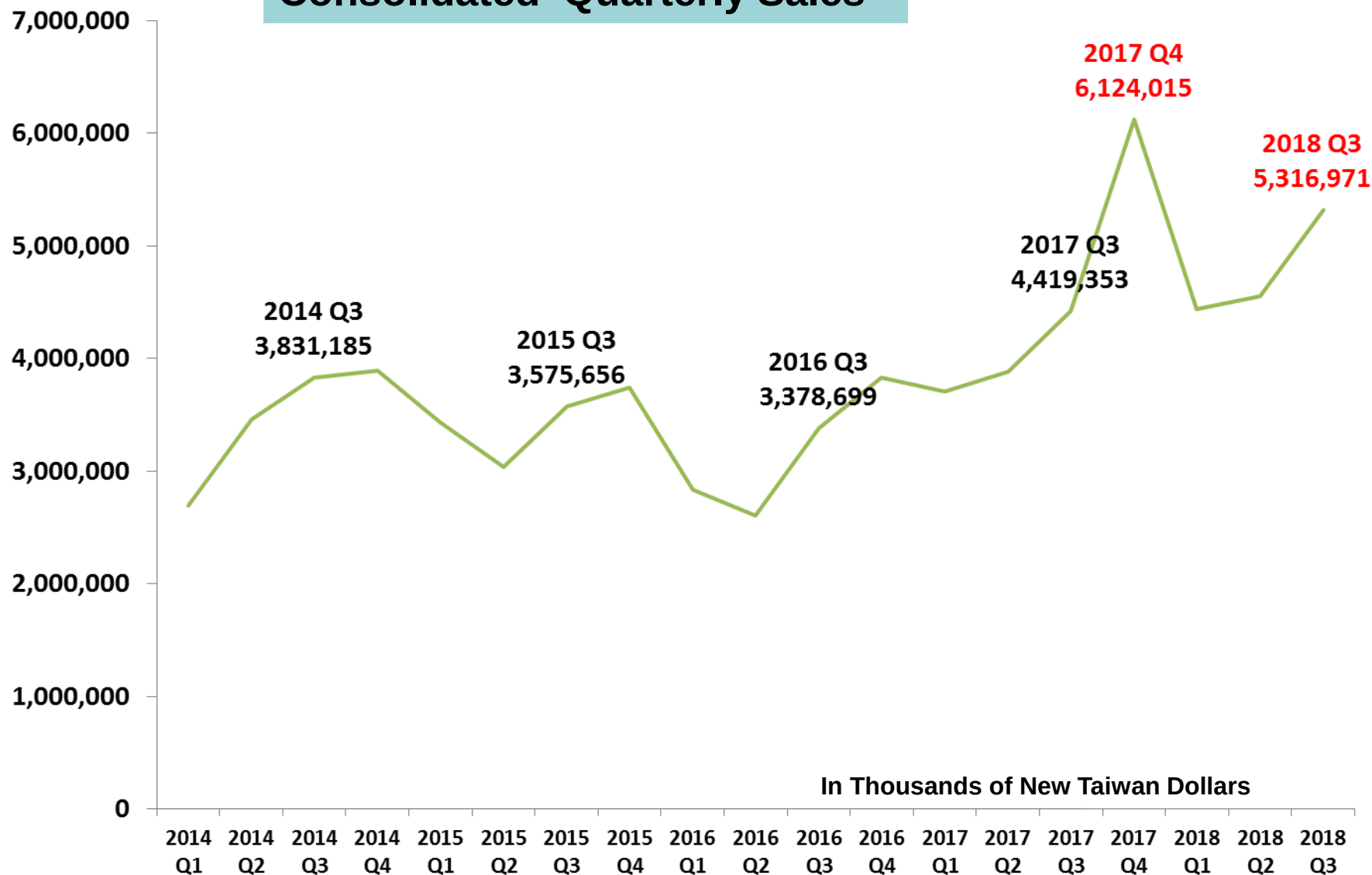


5 fiscal years Consolidated Sales

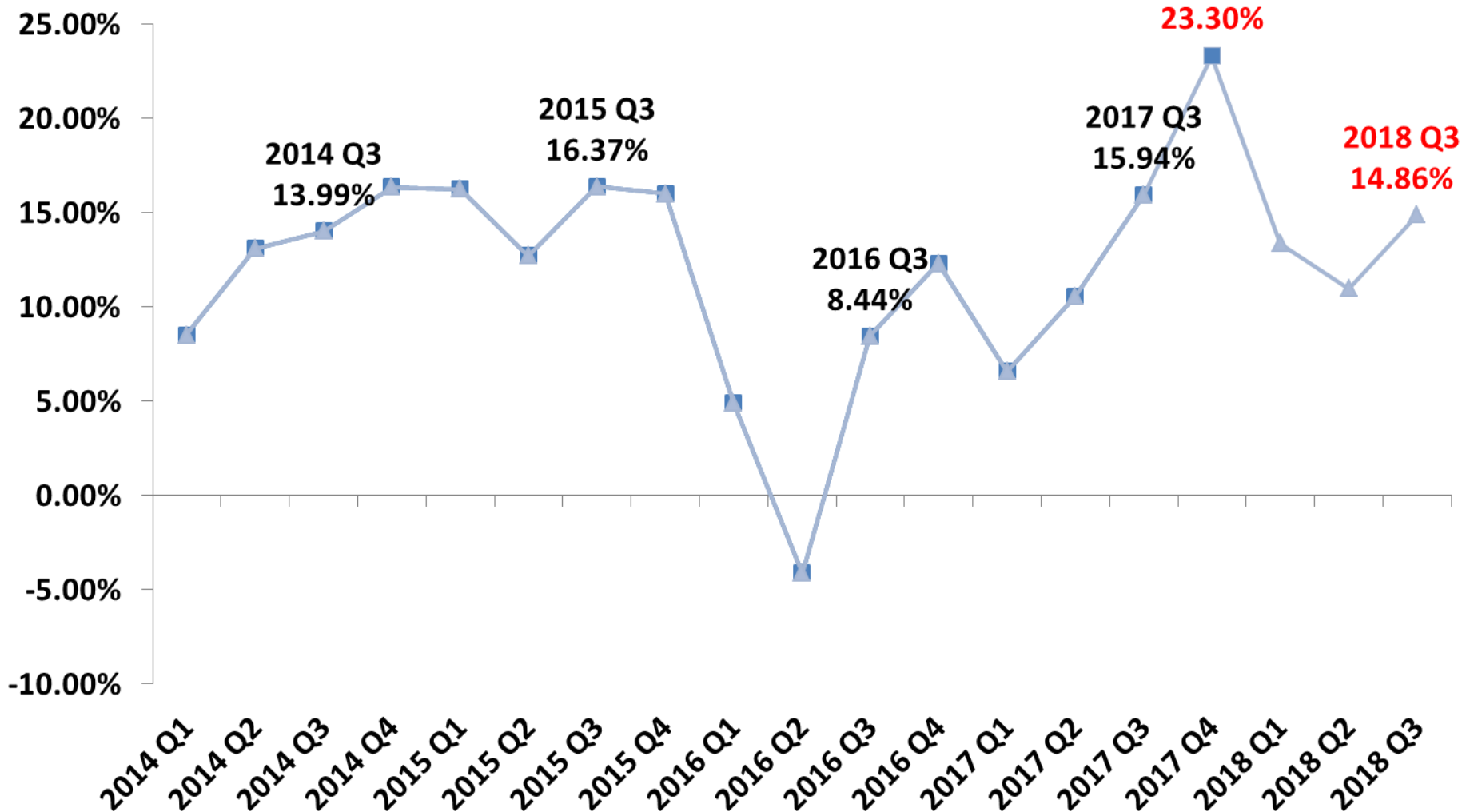


Currency : Thousands of New Taiwan Dollars

Consolidated Quarterly Sales



Quarterly Gross Margin Movement



Market Outlook

- Global growth of Smart phone is slowing down.
- Complexity of high-end smartphones design leads to higher production capacity consuming and ASP upraising.
- Development in AI 、AR hardware is worthy of expectation. But it needs few more years to boost a massive demand due to the 5th generation telecommunication technology development is the key to success.
- Automotive industries are pushing the PCB demand quantity and complexity of technology to a new altitude. Advanced technologies, such as High-frequent material ,heavy copper, rigid flex and HDI are widely introduced to automotive PCB and escalating ASP .

Supply vs. Demand

- Copper consumption in PCB is rapidly raising due to the additional layer counts and electric vehicles. There is a possible cost increase in the long term.
- Supply & demand will keep in balance. Seasonality still the main factor to create the shortage or over supply.

Driving force of Revenue and Profit

- After a rapid revenue growth in 2017, it is forecasted to go on (but slower) in 2018.
- Main driving force in 2019 shall be come from the optimization of product lines.

Driving force of Revenue and profit

Automotive: Automotive is now 30% of total rev. And it will stay the same share. More profitable niche products, such as ADAS Radar, HDI for smart cars and heavy copper for electric vehicle are will added into product mix.

New automotive customers are continuing introduced.

- Rigid Flex: Based on the significant demand in 2018, capacity of Rigid Flex is going to be expanded on both Taiwan and China plants.
- AnyLayer: Although the growth in smartphone is fading, our NB/Tablet customers are still increasing the anylayer designs. This growth trend shall be last in the future.

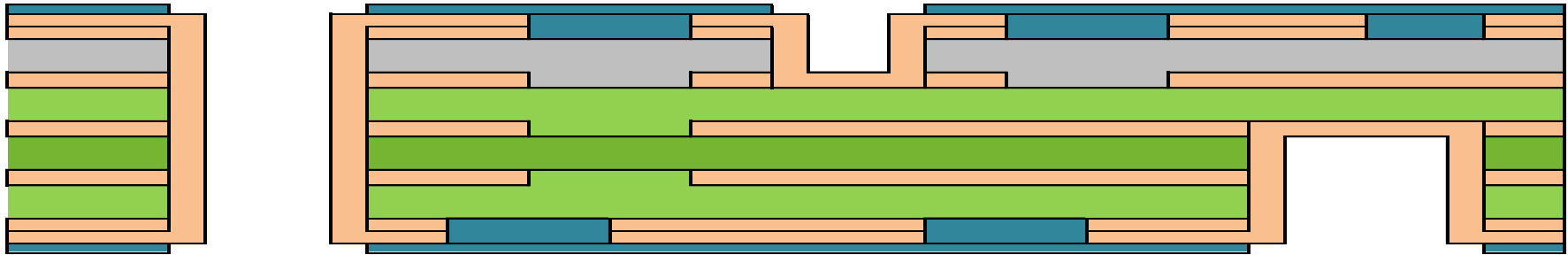
How CSR impact to PCB industries ?

- Safety cost are pushing higher due to the request from government authorities 、 public society and clients.
- High standards of waste recycle and treatment are set by government which leading to the production cost is raised and part of production area is restricted.
- Due to the upper limit on labor overtime hours is shrinking, automatic production is now the first priority to-be-resolved issue in PCB industry.

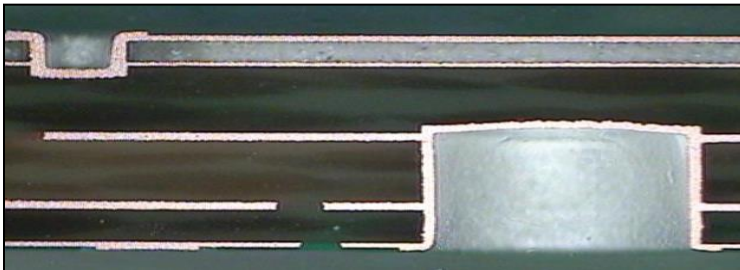
High Frequency PCB

5 Layer Rigid Board

Stack-Up

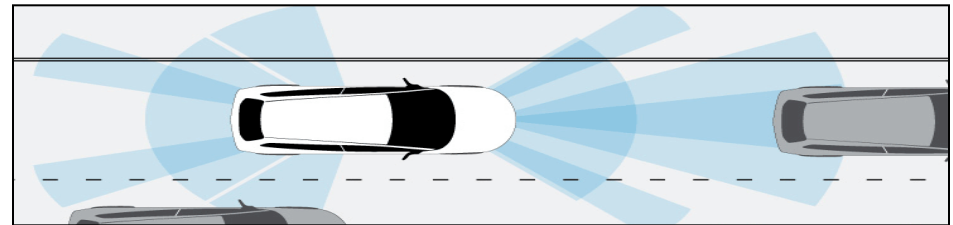


Micro Section



- Stack up : 5 Layer Tradition
- Board thickness : 0.9mm
- Surface finish : IT
- Line width / Space : 100/100 (um)
- High Frequency Material

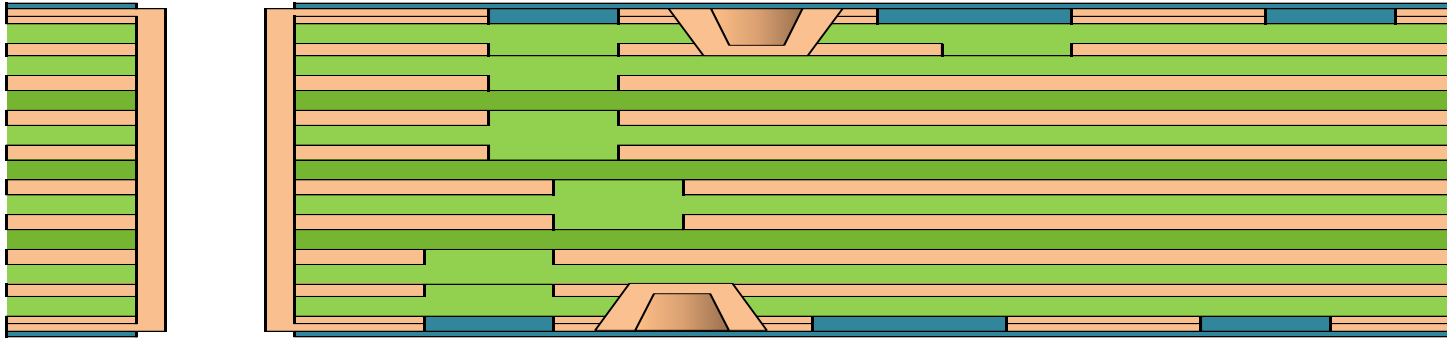
Application



Advance Driving Assistance System

Heavy Copper PCB

10 Layer Rigid Board Stack-Up



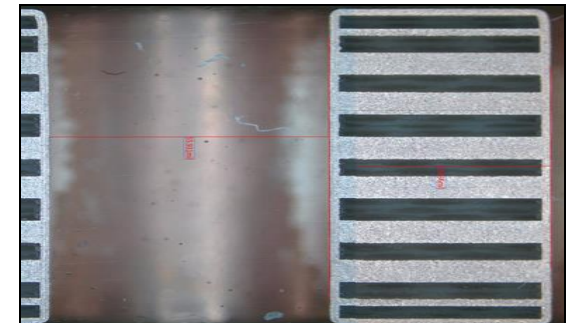
Application



- DC/DC inverter
- Powertrain system
- Any part which combine logic layers and power layers.

Micro Section

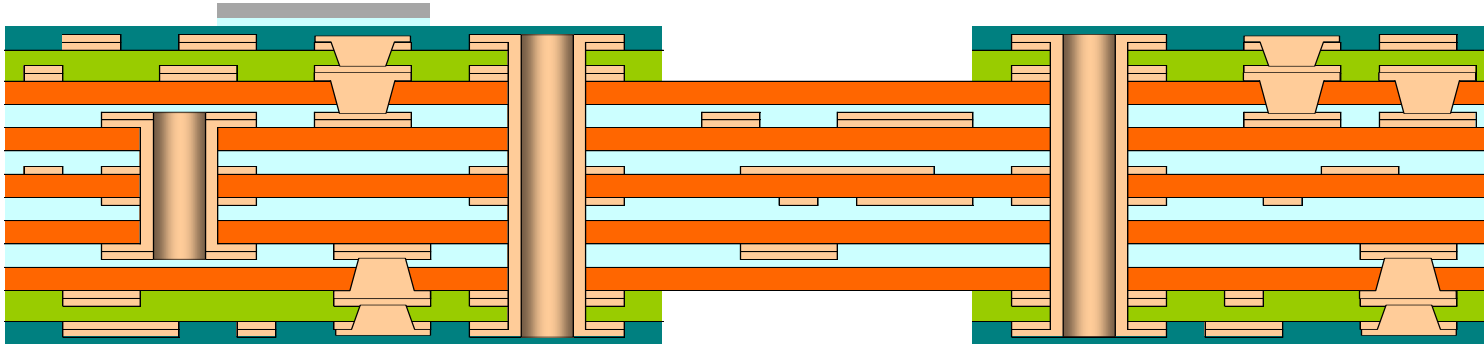
- Stack up : 10 Layer Tradition
- Board thickness : 3 mm (max.)
- Surface finish : ENIG
- Copper Thickness : Inner 6 oz (max.)
- Line width / Space(um) : 305/305 for 3oz, 508/406 for 6oz.



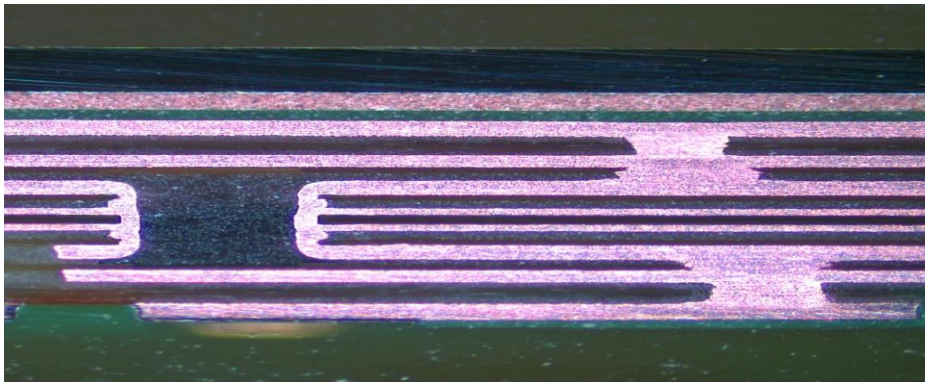
Rigid Flex Stack Up

8 Layer HDI Rigid Flex Board

Stack-up



Micro Section



Application

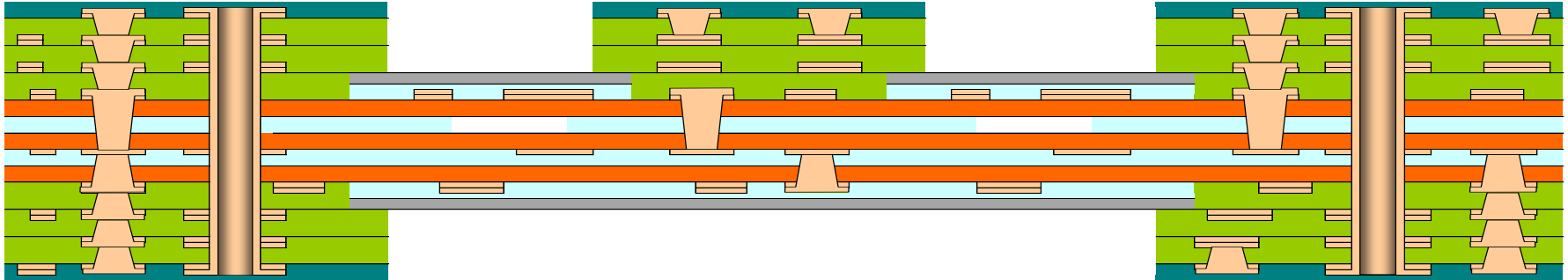


- Stack up : 1+6+1 2 level HDI
- Board thickness : 0.45mm
- Surface finish : ENIG

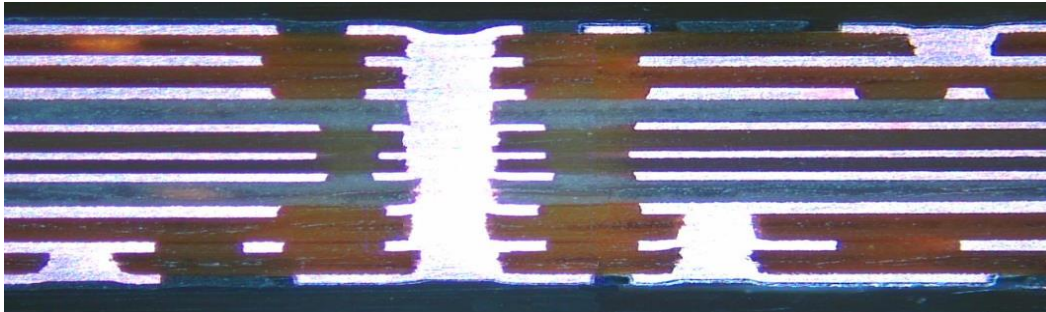
Rigid Flex Stack Up

9 Layer HDI Rigid Flex Board

Stack-up



Micro Section



Application

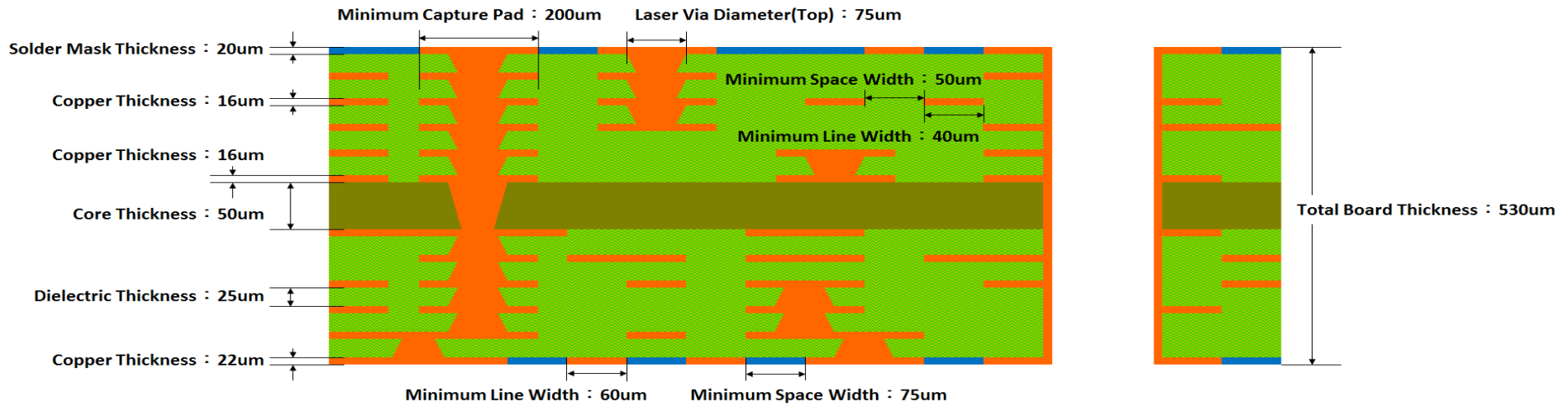


- Stack up : 3+3+3 anylayer
- Board thickness : 0.83mm
- Surface finish : ENIG

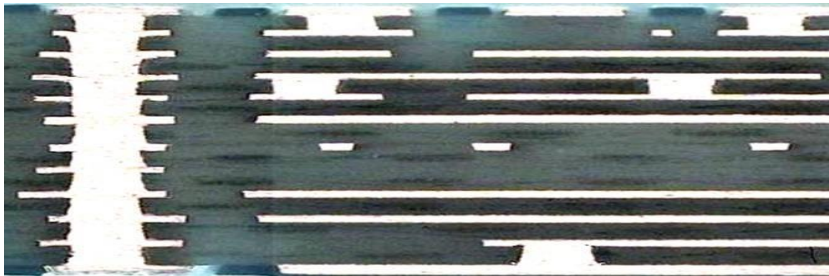
12 Layer Anylayer with board thickness 0.53 mm

Stack-up

Unitech



Micro Section



Application

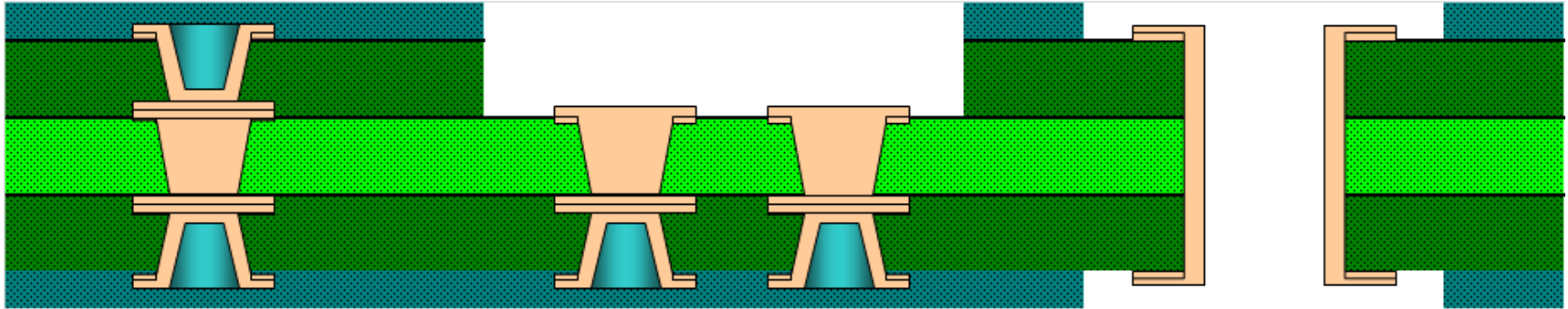


Notebook

23

- Stack up : 12 Layer Anylayer
- Board thickness : 0.53 (mm)
- Dielectric thickness : 25 (um)
- Surface finish : OSP
- Line width / Space : 40 / 50 (um)
- Micro via size / capture pad : 75 / 200 (um)

Stack-Up



Micro Section



Application



Smart Watch

- Stack up : 4 Layer Anylayer (Cavity Design)
- Board Thickness : 0.36 (mm)
- Dielectric Thickness : 70 (um)
- Cavity Height : 0.12 (mm)
- Surface Finish : ENIG
- Line Width / Space : 150 / 100 (um)
- Micro Via Size / Capture Pad : 100 / 250 (um)

Thank You !!!