

# Investor Relations 2018

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*Your most trustworthy*



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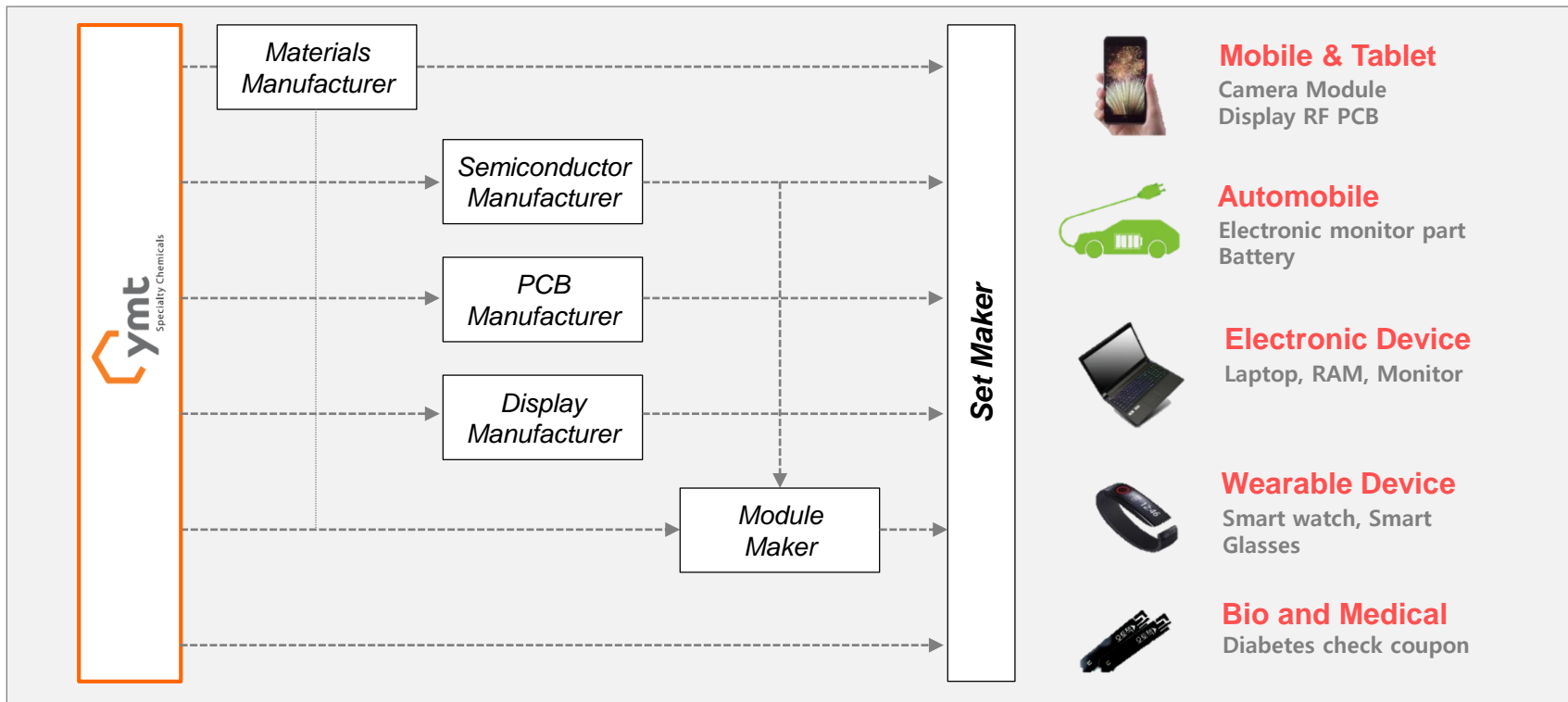
- I. Company Profile**
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YMT Corporation, since its establishment in 1999, has focused on its continuing growth based on the conviction to maintain its position as a major player in electric material industry which serves not only to everyday lives such as automobile, electronics, and high-tech, but also to industrial facilities, and its concerted efforts from all employees.

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YMT is chemical manufacturing company for PCB and Semiconductor field. YMT chemical is mainly used for FPCB,RFPCB part of I-Phone series and Galaxy series.

- ✓ Sales Category: Gold Plating chemical [ Soft ENIG / ENIG / ENEPIG ] , Copper plating chemical, Process Chemical
- ✓ Major Customer: ZDT [Foxconn], SEMCO, Youngpoong, BH Flex, Daeduck



## COMPANY PROFILE

# Location & Subsidiaries

### YMT HQ

- Incheon, Korea
- 175 employees (HQ), / 295 employees (Total)
- 2 R&D Center
- Main Manufacturing location

### YMT China (Shenzhen) Co., Ltd

No.509, Hongan Business Center, Xinqiao Integration BLDG,  
Beihuan RD, Shajing St, Baoan District, Shenzhen, CNS18125  
Tel. +86-755-2946-6201

### YMT China (Shenzhen) Kunshan Branch

Lujia Town, Kunshan City, Jiangsu Province Hefeng  
Village, Jinzhu Road No.18 CN215331  
Tel. +86-0512-3669-8439

### YMT Taiwan Branch

1F, No.51, Housheng RD, Luzhu City, Taoyuan County 338, Taiwan  
Tel. +886-3-3220808

### Rizhao Factory

South of Shanghai RD, West of Xian Dai RD, Rizhao Economic  
Development Zone Rizhao City, Shandong Province,  
China 276800  
Tel. +86-633-227-8778

### YMT Vina(Vietnam) Co., Ltd

F6, Room602, MB Bac Ninh Building, No.24,  
Ly Thai To Street, Bac Ninh City, Vietnam  
Tel. +84-24-1625-1238 Fax. +84-24-1625-1288

### 본사/1공장 HQ/Factory 1

인천광역시 남동구 남동대로 153번길 30  
Tel. 032-821-8277 Fax. 032-821-8271

### 2공장 Factory 2

인천광역시 남동구 청능대로 337  
Tel. 032-821-8277 Fax. 070-4009-0403

### 와이피티(주) YPT Co., Ltd.

경기도 안산시 단원구 신원로 147  
Tel. 031-492-8278 Fax. 031-493-8278

### 부산출장소

부산광역시 강서구 녹산산단 382로 14번가길 20  
부산항정도금센터 406호  
Tel. 070-7596-2510 Fax. 051-714-5270

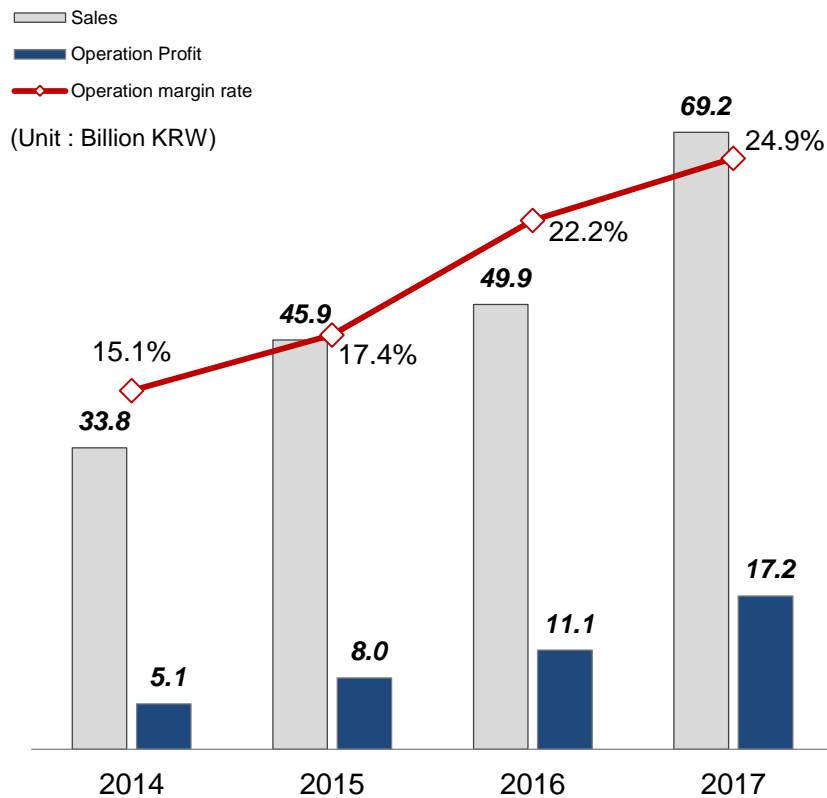
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**YMT Group Sales & profit**



- **High leverage for margin rate by sales increasing**

- ✓ R&D labor cost is kind of main cost factor
- ✓ Small capacity investment, Depreciation cost

- **Market share Expansion**

- ✓ Globally, 50% shares of Gold plating chemical for FPCB & RF PCB.
- ✓ Expansion for Copper plating chemical market in Korea

- **High value & performance chemical**

- ✓ Before, plating chemical market was only for Japan, Germany and USA companies.
- ✓ Other companies (in Korea / Taiwan ) made Etchant, Remover kinds of lower value chemical.
- ✓ However, YMT focus the chemical has high profit (SOFT ENIG, ENEPIG) based on R&D power.

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# Market

# PCB Market & YMT Business area

• Current major market

• 2018 start

		FPCB, RFPCB	HDI	PKG	RIGID
Customer	Domestic	<ul style="list-style-type: none"> <li>• <b>SEMCO</b></li> <li>• <b>BH Flex</b></li> <li>• <b>Youngpoong</b></li> <li>• Interflex</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SEMCO</b></li> <li>• <b>Daeduck</b></li> <li>• LG Innoteck</li> <li>• KCC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SEMCO</b></li> <li>• <b>Daeduck</b></li> <li>• LG Innoteck</li> <li>• KCC</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Hyunwoo</b></li> </ul>
	Global	<ul style="list-style-type: none"> <li>• <b>Zhending Technology</b></li> <li>• <b>Career</b></li> <li>• <b>Unimicron</b></li> <li>• Mektron</li> </ul>	<ul style="list-style-type: none"> <li>• AT&amp;S</li> <li>• Zhending Technology</li> <li>• Ibiden</li> </ul>	<ul style="list-style-type: none"> <li>• AT&amp;S</li> <li>• Zhending Technology</li> <li>• Ibiden</li> </ul>	<ul style="list-style-type: none"> <li>• Various</li> </ul>
Process	Chemical	<ul style="list-style-type: none"> <li>• Market share expansion</li> </ul>	<ul style="list-style-type: none"> <li>• Penetration by SLP chemical in 2018</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Globally, Small market share</li> </ul>
Cu Plating	Electroless	<ul style="list-style-type: none"> <li>• Market share expansion</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• 1Q. 2018 start</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>
	Electro	<ul style="list-style-type: none"> <li>• 15% ~ 20% in Korea market</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>
Finish Plating	Electroless	<ul style="list-style-type: none"> <li>• Globally, over 50%</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Globally, Small market share</li> </ul>
	Electro	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>	<ul style="list-style-type: none"> <li>• Developing</li> </ul>



## Customer

## End user & Major customer list

Set Maker						
Semi-conductor Maker						
PCB Maker						
						
						
Display 업체						

## Total Solution for Customer

YMT offers total solution for PCB manufacturing chemical based on own technology from Etchant to Gold plating chemical.



### Finish Plating Chemical

#### **Soft ENIG Process**

- ✓ CF 300 Series
- ✓ MIKO Series

#### **ENIG Process**

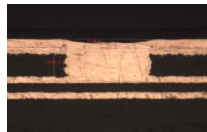
- ✓ PEN 855 Series

#### **ENEPIG Process**

- ✓ ELP Series
- ✓ IR Gold Series

#### **TIN Plating process**

- ✓ Bright and Matte finish
- ✓ Immersion tin process



### Copper Plating Chemical

#### **Electroless Copper plating**

- ✓ Desmear Process
- ✓ HVF Series

#### **Electronic Copper plating**

- ✓ BJ series
- ✓ HBJ Series(Half-fill)
- ✓ VFBJ Series(Via-fill)



### Process & Display Chemical

#### **DES Chemical**

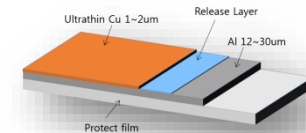
- ✓ DR Series
- ✓ SE Series
- ✓ SAC Series

#### **Cleaner**

- ✓ FXC Series
- ✓ TDF / MDF Series

#### **Others**

- ✓ Gold Recover
- ✓ Foamkiller Series
- ✓ CAROAT



### Electronic Materials

#### **Materials**

- ✓ Ultra-thin copper Foil
- ✓ FCCL

#### **Roll to Roll**

- ✓ RTR outsourcing

### Outsourcing Plating

#### **Gold plating Outsourcing**

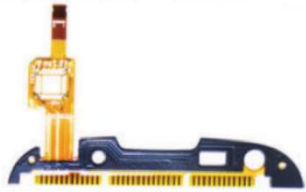
- ✓ Soft ENIG / ENEPIG

#### **Via-fill copper plating**

## Business Area

# Products Introduction – Finish Plating

Soft ENIG Process ensures finish plating to prevent oxidation of copper and protect surface of circuit board & semiconductor, and boasts the **world-class technology with #1 in global market share** among gold plating process for materials.

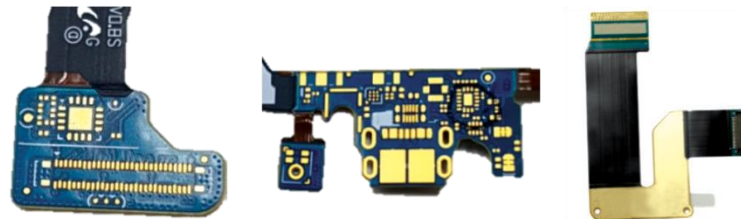


### Soft ENIG Process

- Gold plating process dedicated solely for FPCB
- #1 in global market share and technology level
- Applicable for ultra-fine circuits
- Excellent anti-bending to resolve nickel crack issue
- Samsung and Apple products adopted the processed materials



Source : Ifixit



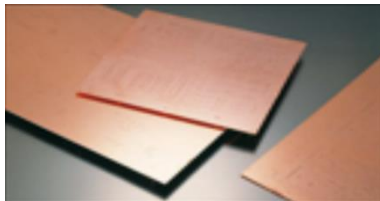
Circuit Board after Gold Plating Process



### ENEPIG Process

- Finish plating for fine circuits suitable to camera module
- Leading global market share
- Cost efficiency and technological competitiveness

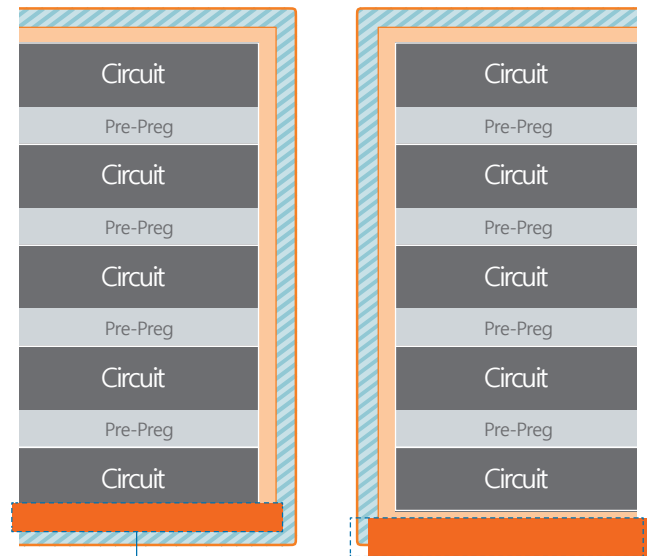
Chemicals for processing which allows electric connectivity between layers through copper plating of processed holes by drill – increasing demand for multi-layer and miniaturization of circuit boards to drive demand for high-end copper plating chemicals.



## Electroless Copper Plating

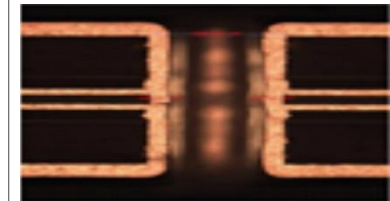
- World-class technology
- Process to provide nonconductor with chemical conductivity
- Revenue expected to grow substantially starting 2017

### PCB Hole Structure



Electroless Copper Plating

Electronic Copper Plating



## Electronic Copper Plating

- Process for copper plating of desired width by extraction of the copper
- Suitable for forming the desired location and width
- Excellent in maintaining uniformity of plating width than the competitors
- Cost advantage due to high yield

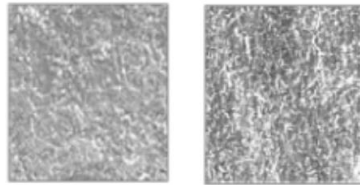
For manufacturing PCB, It requires more than 180 kinds of process. So, customer wants to take **total chemical solution for whole process** because each process affect next process. YMT has more than 300 kinds of item to satisfy **performance and quality of customer.**



### DR Series (Releasing)

- Diverse releasing agents suitable to products by different clients
- Fast releasing effects and high yields

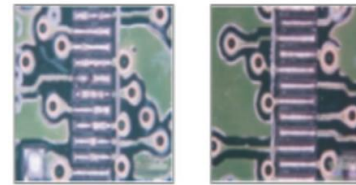
Before After



### SE Series (Soft Etching)

- Allows consistent copper roughness
- High yields by better grip of D/F and PSR

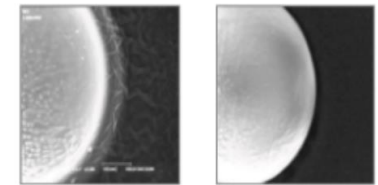
Before After



### Gold Recover

- Removal of contaminants on gold surface after surface processing
- Excellent cleaning capacity compared to the competitors

Before After



### Cleaner

- Two types of deflux cleaners (water, organic)
- Reduces deflection by removal of dust inside the equipment
- Eco-friendly products without toxic substances such as methanol

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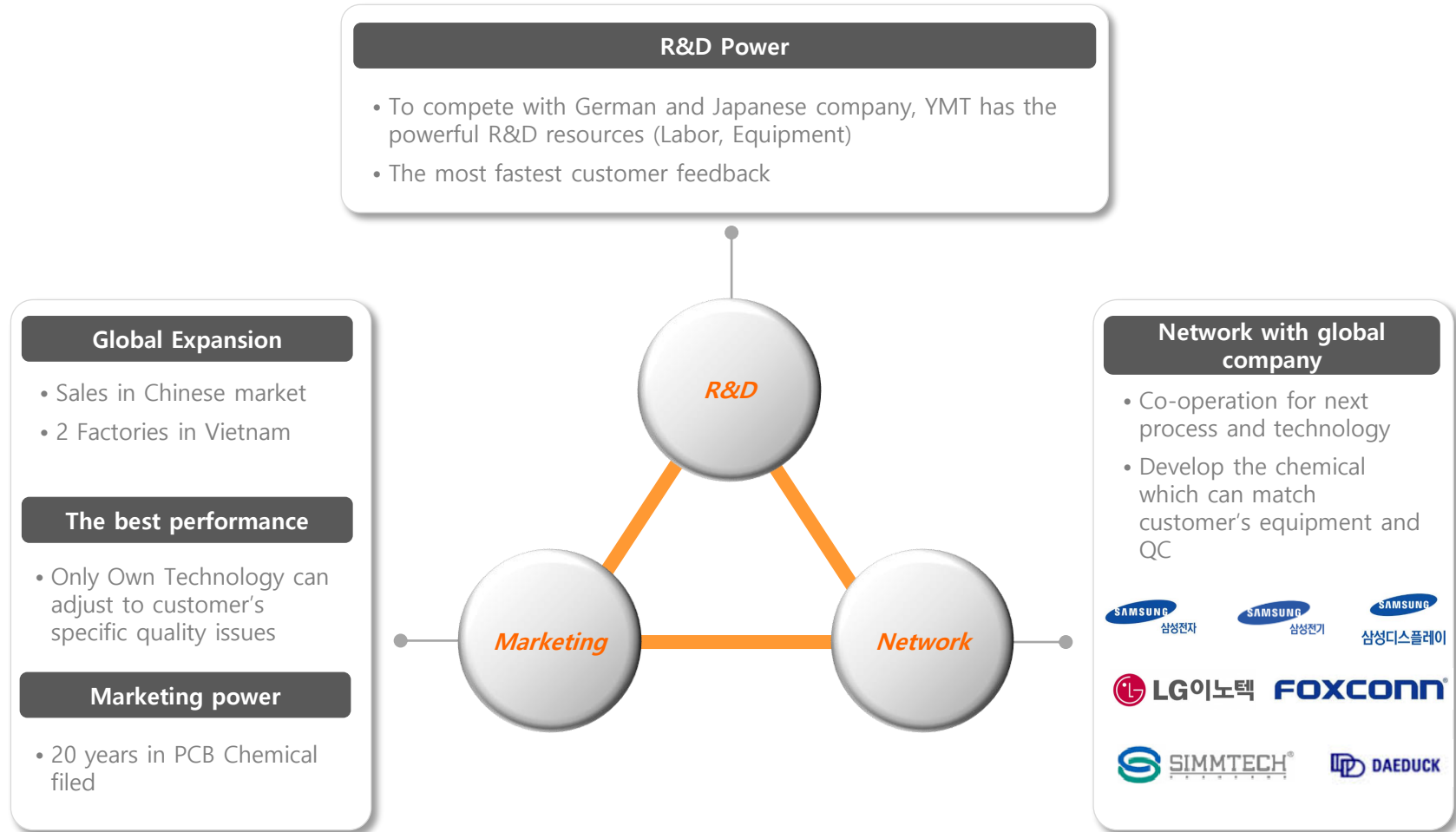
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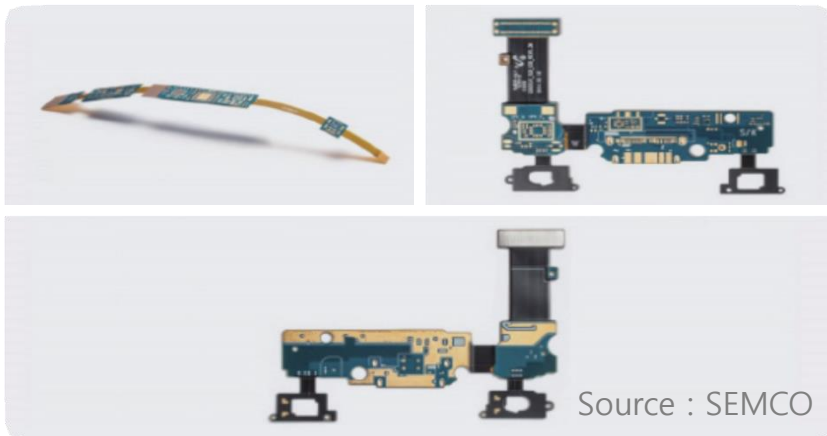
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## Strength

# R&D / Global brand / Network for Major customer



## *What is RF PCB*



- PCB needs to be “**lighter, thinner, shorter, and smaller**” to follow the recent trends for slimness despite the increasing number of loaded parts.
- RF PCB is a hybrid of Rigid PCB and Flexible PCB which allows connection of circuits utilizing the bending of FPCB.  
→ Provides advantage for mass data transmission and miniaturization
- Reduction in size of PCB allows application to devices such as smart phones with ultra-high specification, semiconductor, battery, and wearables.

## **From FPCB to RF-PCB**

- Apple’s I-Phone X takes RF PCB to OLED module part instead of Double side FPCB. Because, OLED panel requires more data and transmission rate.
- And also, RF-PCB area is smaller than Double side FPCB, so that I-Phone X can take more modules and L shape battery.
- As a result, smartphone is getting smaller, thinner and more modules, RFPCB market is expanding.

## **High demand for YMT Chemical**

- RF PCB requires ultra fine pitch for finish plating process. Our Soft ENIG process shows the best performance for fine-pitch i-Phone X RF PCB.
- Increasing demand for Copper plating chemical. Previous double side FPCB model did not take copper plating process. But RF-PCB requires Copper plating chemical because of inter connection by layer.
- Apple’s new materials for RFPCB require more sensitive process for specialty chemical.
- YMT’s high-end electroless copper plating materials presents superior quality than its competitors, and is applicable to iPhone’s OLED circuit board.



## ENEPIG process expansion

- ENEPIG chemical mainly used for camera-module process. I-Phone X takes total 6 cameras. ( Front 4, Back 2)
- From high-end smartphone, Chinese local and Mid-end smartphone takes more cameras, this will affect increasing of ENEPIG process.
- Also, ENEPIG has high value chemical so that this has an positive effect on YMT margin ratio.

## Copper plating chemical M/S expansion

- In 2017, Copper plating chemical records almost 16 billion KRW for FPCB and RFPCB field. It is regarded impressive performance in the market because of conversion of brand power from gold plating company to chemical company.
- Currently, our M/S in FPCB & RFPCB is 15%~20%. But Copper plating chemical M/S in FPCB & RFPCB will be more that 30% within 2018 based on good records in 2017 for RFPCB area.

## Entry for PKG copper plating chemical

- Last year, most of sales records in FPCB and RFPCB field.
- We started PKG copper plating chemical promotion in 2017.4Q and will start mass production in 2018.1Q.
- This is the first case to enter PKG market, so YMT will expand chemical area from FPCB to PKG filed.

## YPT (Out sourcing plating)

- YPT is the best and the biggest out-sourcing plating company in Korea. (Job-shop , Camera module and RFPCB)
- In 2017 4Q, YPT set-up Via-fill equipment and records the first sales on Nov. We expect high-growth of YPT sales in 2018.
- Also, YPT will enter Vietnam market (Currently constructing the factory). There are no Job-shop in Vietnam, So we enter that market co-work with major customer.

## Entry into Specialty Chemical Market for Semiconductor

### Entry into Semiconductor Wet Chemical Market

- Completed workforce preparation for R&D and sales
- Completed development of post-process specialty chemicals such as UBM etchant and Cu etchant by original technology
- Expected to start mass production by 2Q 2018
- Revenue to increase in tandem with additional investment in 2018 as the market provides higher added-value than PCB market

### PSR Etching Specialty Chemical

- Trends to lighter, thinner, shorter, and smaller substrate call for needs for new materials
- Needs for L-material by S-company's thin and unbendable products by PKG clients on rise
- YMT developed dedicated etching agent for L-material

## Entry into Chemical Market using technology synergy

### Expansion into New Fields based on Original Technology

#### Intenna Copper Plating

- Successful realization of copper circuit on the plastic surface by using YMT's electroless copper plating technology
- Realization of circuit on the plastic part inside smartphones for intenna module reception
- Adopted Galaxy S8.

#### Flux Cleaner

- Used to remove remnants on camera modules
- High value-added cleaner which requires detergency against special substances
- Domestic conglomerates and foreign players are currently competing in the market
- Revenue expected to expand starting 2Q 2018

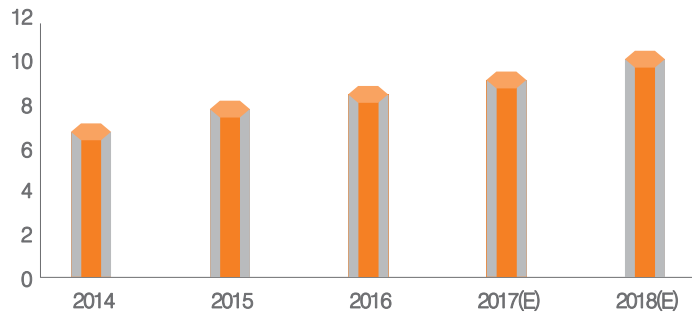
#### Darkening of Hot Line in Vehicles

- Technological trends has shifted to remove moisture by built-in copper line within the windshield
- YMT developed darkening agent to prevent copper line to reflect lights, and is currently undergoing tests with conglomerates

## Growth of Global Copper Foil Market

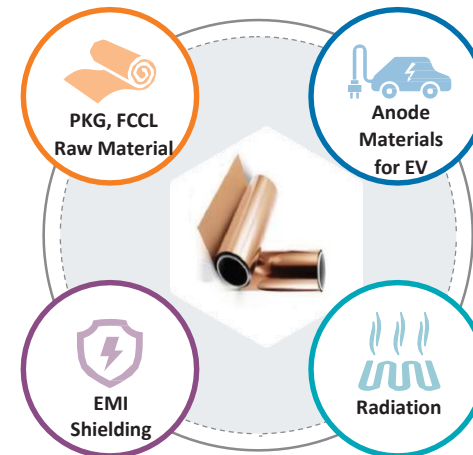
Global Electrolytic Copper Foil Market Value (Unit: KRW 1trn)

■ Reference : GosReports



- Continued growth of copper foil market driven by EV and high-end devices
- Demand for high-end copper foil materials to increase due to the shift of downstream industry such as wearables and foldable display
- High-end ultra-thin copper foil market is currently dominated by Japanese players with combined market share of 95%

## Major Applications of Copper Foil



- YMT's copper foil to fit with trends for "lighter, thinner, shorter, and smaller"
  - Able to respond to demand for lighter EV and slimmer devices
- Excellent price competitiveness
  - Secure cost and quality advantage due to independently developed process
- Currently undergoing sample tests with major clients in Korea and abroad

YMT developed ultra copper foil by electroless method to avoid infringement against the patent owned by Japan's M-company, one of the industry leaders  
Mass production is expected in 2Q 2018 for EMI shielding purposes, and forecasted to extend application to FCCL and SLP materials

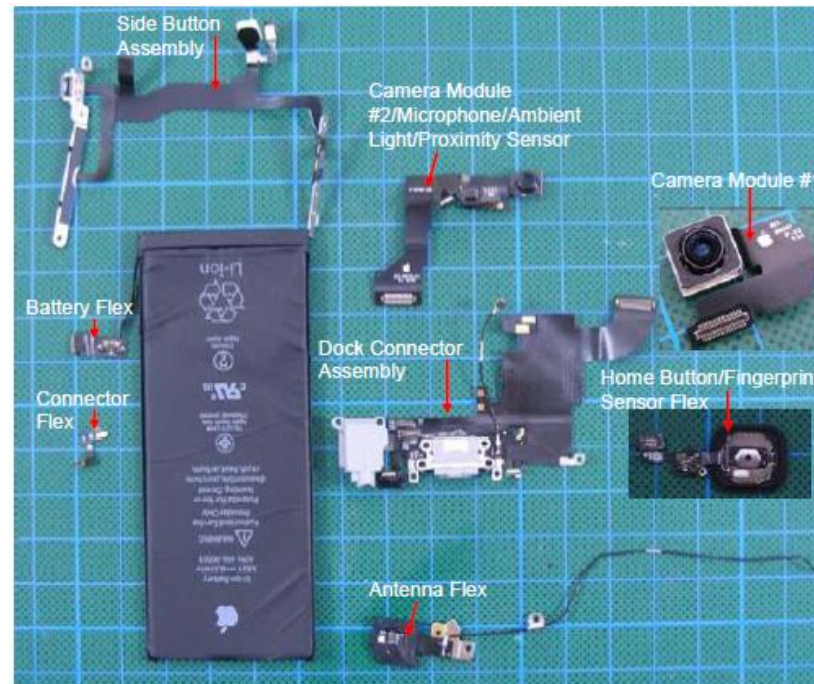
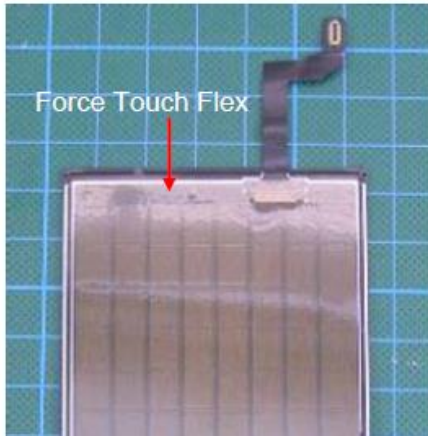
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# I-Phone 6S Utilization of FPCB



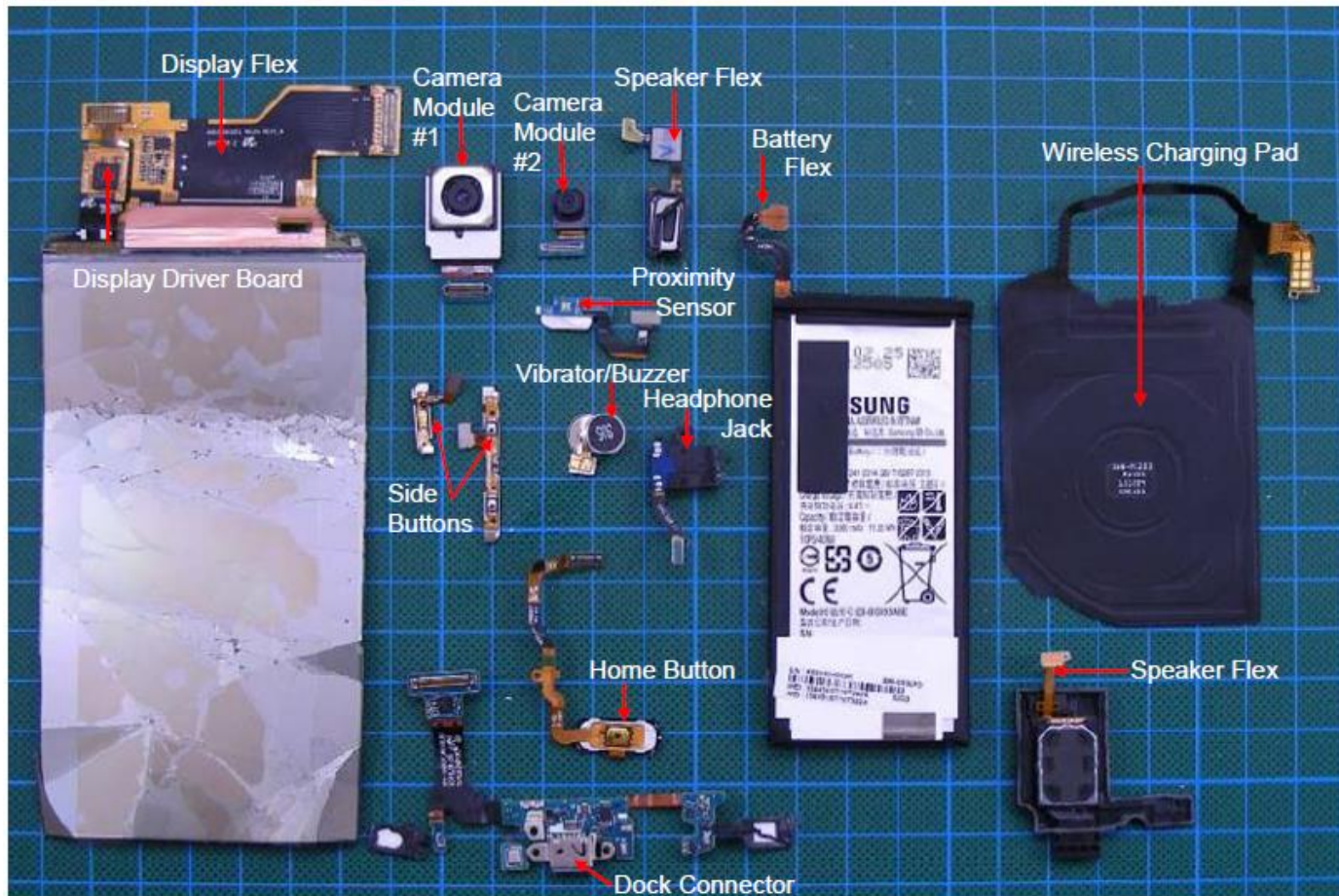
## FPCB parts

- ✓ Camera Module#1
- ✓ Camera Module#2
- ✓ Speaker Flex
- ✓ Vibration / Buzzer
- ✓ Flex for home Button
- ✓ Contact Flex to Main PCB
- ✓ Side Button
- ✓ Dock Connector
- ✓ Headphone Jack
- ✓ Display Flex
- ✓ Display Driver Board
- ✓ Battery Flex

Source : Prismark 2017



# Galaxy S7 Utilization of FPCB



## FPCB parts

- ✓ Camera Module#1
- ✓ Camera Module#2
- ✓ Speaker Flex
- ✓ Proximity Sensor
- ✓ Vibration / Buzzer
- ✓ Flex for home Button
- ✓ Wireless Charging Pad
- ✓ Side Button
- ✓ Dock Connector
- ✓ Headphone Jack
- ✓ Display Flex
- ✓ Display Driver Board
- ✓ Battery Flex

Source : Prismark 2017

**END OF DOCUMENT**

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