



# ICAPE GROUP

TECHNICAL CONFERENCES ON PRINTED CIRCUIT BOARDS

## INTRODUCTION

ICAPE Group launches for the second year a complete program of technical conferences on Printed Circuit Boards!

Paris, France, 20th February, 2016 – ICAPE Group, European leader in Printed Circuit Board (PCB) production and Custom-made Technical parts from China, today announced the official launch of its second year complete program of technical conferences on PCBs, starting April 2016. 8 sessions to cover all the fields of the core business of the Group!

ICAPE Group is specialized in technical consulting and Printed Circuit Boards (PCB) sourcing in Asia for 17 years now. Year after year, ICAPE Group has developed its organization and its level of services in all fields of this activity. With 84M€ of sales in 2015 (+20% vs 2014), ICAPE Group is one of the leading actors in its field in France and Europe.

With its strong organization, and conscious of its responsibilities, ICAPE group has recently integrated the needs to better structure the technical support to its customers and to the market. During the past years, many PCB factories have disappeared in Europe, as a result, a significant part of technical knowledge and potential technical support have also vanished.

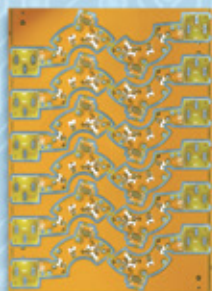
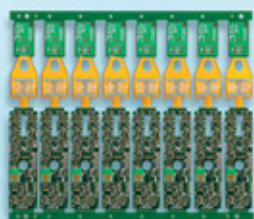
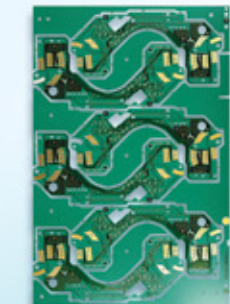
For several months, we have analyzed and structured the market needs in terms of technical training and general training in the field of PCB. We have synthesized them into 8 key themes / technical days and dispatched them among our senior engineers expert in PCB. Each engineer / manager is responsible for building his best expertise in his field and for preparing professional presentations accordingly.

## CONFERENCES TO KNOW PRINTED CIRCUIT BOARD INSIDE OUT

Usually, conferences will be held in English. But they can also be held in French according to the attendance.

8 themes and sessions are planned:

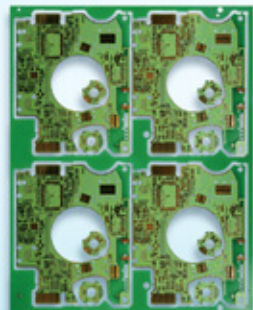
- One day dedicated to **Single Side and Polymer PCB**, and their applications.
- Two days for the **PCB Manufacturing Processes**, which will cover the materials, products, finishing and main manufacturing process.
- One day on **Multilayer** technologies and **HDI**.
- One day on **Flexible and Flex-Rigid PCB**.
- Two days day dedicated to the **Products from CIPEM** (Power Supplies, Batteries, Cable Assemblies & Connectors, LCDs and Keypads).
- Two days for the PCB **Quality**, quality management, IPC standards.
- One day dedicated to the **«Design to Cost »** for PCBs.
- One day on technologies for **Lighting and Power Electronics**, and so on technologies of PCB on aluminum and thick copper.





# ICAPE GROUP

## TECHNICAL CONVENTION DAY'S



### SINGLE SIDE & POLYMER PCB

Single Side PCB

Polymer PCB

Technologies & Applications

Base Material

#### Technologies :

- Single Side / Double Side Non Plated Through Holes
- Double Side Polymers
- Flexible
- Others, Jumpers, etc

#### Production Process :

- Image
- Mechanics
- Control
- Options, Carbon, peelable, etc.

#### Market :

- Consumer
- Home appliances
- Automotive
- Entertainment
- Lighting
- Industrial

### Main Speakers

**Christelle Bonnevie**



### PCB MANUFACTURING

Production processes

Engineering

Base Materials

Solder Masks

Finishing's

Mechanics

Design Rule Guidelines

(Two Days)

#### Day 1 :

Flow chart

Engineering

Base material

#### Image transfert :

- Screen printing / Photoimageable / LDI
- Inner / outer / solder

Lamination : Registration / Stack up

Drilling : Mechanical / Laser

Plating : Chemical / Panel & Pattern plating

#### Day 2:

Solder mask : Print screening / LPI

Finishing

Options : Carbon, peelable, etc.

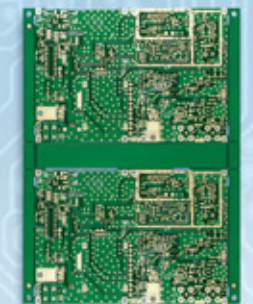
Mechanics : Routing / Punching / V-Scoring

Final Control : AOI / AVI / Electrical Test

Design Rules

**Loic Pasco**

**Stephane Barrey**



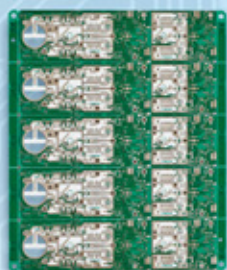
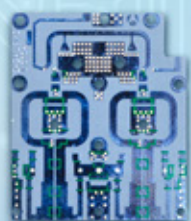
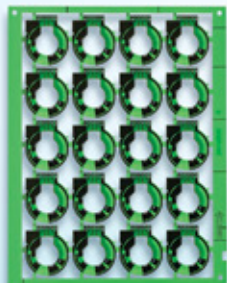




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## TECHNICAL CONVENTION DAY'S

Days	Contents	Main Speakers
<b>QUALITY</b>  PCB Quality Organization  China suppliers management  ICAPE China Office & laboratory  PCB defects  Usage conditions  IPC Norms  (Two Days)	<b>Day 1 :</b>  Chinese suppliers management : <ul style="list-style-type: none"> <li>• Sourcing strategy</li> <li>• AVL (approved Vendor List)</li> <li>• Supplier follow up</li> </ul> ICAPE quality Organisation : <ul style="list-style-type: none"> <li>• Quality organisation flow chart</li> <li>• Engineering work</li> <li>• Three business models versus quality organization</li> <li>• Full audits, mini audits</li> <li>• Inspections</li> <li>• Corrective actions, 8 D reports</li> <li>• Statistics controls methods</li> </ul> Laboratory in China : <ul style="list-style-type: none"> <li>• Equipment's list</li> <li>• Controls done</li> <li>• Thermal shocks</li> <li>• Ageing tests</li> <li>• Independant reports</li> </ul>	<b>Frédéric Desfresne</b>  <b>Loic Pasco</b>
	<b>Day 2 :</b>  Main machines & process for PCB controls in factories : <ul style="list-style-type: none"> <li>• AOI</li> <li>• E test</li> </ul> Main defects for PCB : <ul style="list-style-type: none"> <li>• Defects descriptions with pictures</li> <li>• Root causes analysis</li> <li>• Contamination issues &amp; consequences</li> </ul> Conditions of storage and use : <ul style="list-style-type: none"> <li>• Storage conditions</li> <li>• Soldering conditions</li> <li>• Usage conditions</li> </ul> IPC Norms : <ul style="list-style-type: none"> <li>• IPC norms general presentation</li> <li>• IPC 600</li> </ul>	
<b>MULTILAYERS TECHNOLOGIES</b>  Complex multilayers PCB  HDI rigid PCB  HDI Flexible PCB	Complex multilayers : <ul style="list-style-type: none"> <li>• Main technologies in China</li> <li>• Design rules limits</li> <li>• Raw materials, soldermasks, finishing's</li> <li>• Special types (back panels, thick copper, etc..)</li> </ul>	<b>Loic Pasco</b>
	HDI technologies for Rigid PCB : <ul style="list-style-type: none"> <li>• Main technologies In China</li> <li>• Raw materials, soldermasks, finishing's</li> <li>• Design rules</li> <li>• Specific productions processes</li> <li>• Specific quality &amp; reliabilty issues</li> </ul> HDI technologies for flex and flex-rigid PCB : <ul style="list-style-type: none"> <li>• Main technologies In China</li> <li>• Raw materials, soldermasks, finishing's</li> <li>• Design rules</li> <li>• Specific productions processes</li> <li>• Specific quality &amp; reliabilty issues</li> </ul>	



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## TECHNICAL CONVENTION DAY'S

Days	Contents	Main Speakers
<b>DESIGN TO COST</b>	<b>Methodology and technology :</b> <ul style="list-style-type: none"> <li>• Define your needs</li> <li>• Define the product and nomenclature creation</li> <li>• Different process step approach</li> <li>• Cost estimation</li> <li>• Improvements review and analysis</li> <li>• Redesign to cost</li> <li>• Excellence comes at no additional cost</li> </ul>	<b>Olivier Gauthier</b>  <b>Loic Pasco</b>
	<b>Different cost driver in pcb production :</b> <ul style="list-style-type: none"> <li>• Technology</li> <li>• Density</li> <li>• Base material</li> <li>• Panalization</li> <li>• Process</li> <li>• Finishing</li> </ul>	
	<b>Real case of work :</b> <ul style="list-style-type: none"> <li>• Customer cases</li> <li>• ICAPE cases</li> </ul>	
<b>LIGHTING &amp; POWER ELECTRONICS</b>  Aluminum PCB  Thick copper PCB	<b>Metallic PCB :</b> <ul style="list-style-type: none"> <li>• Applications</li> <li>• Aluminum technologies</li> <li>• Copper base technologies</li> <li>• Production processes</li> <li>• Raw materials, soldermasks, finishings</li> <li>• China suppliers capabilities</li> <li>• Design rules</li> </ul>	<b>Stephane Barrey</b>
	<b>Thick Copper PCB :</b> <ul style="list-style-type: none"> <li>• Applications</li> <li>• Products families</li> <li>• Production processes</li> <li>• Raw materials, soldermasks, finishings</li> <li>• China suppliers capabilities</li> <li>• Design rules</li> </ul>	
<b>FLEXIBLE &amp; RIGID-FLEX PCB</b>  Flexible PCB  Rigid-FLEX PCB	<b>Products Families :</b> <ul style="list-style-type: none"> <li>• Flex : single sides, double sides, multilayers,</li> <li>• Rigid-Flex</li> <li>• Other alternatives: Flex with stiffeners, semi-flex</li> <li>• Terminations</li> </ul>	<b>Philippe Buret</b>
	<b>Applications and Market Trends</b>	
	<b>Overall Cost Assessment and Decision Guide</b>	
	<b>Materials :</b> <ul style="list-style-type: none"> <li>• Polyimid and Polyester</li> <li>• Adhesive and adhesiveless</li> <li>• Coverlay</li> <li>• Characteristics</li> </ul>	
	<b>Manufacturing Process :</b> <ul style="list-style-type: none"> <li>• Specificities</li> <li>• Finishings</li> </ul>	
	<b>Design Guide :</b> <ul style="list-style-type: none"> <li>• Bend radius calculation</li> <li>• Design recommendations</li> </ul>	





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TECHNICAL CONVENTION DAY'S



Days	Contents	Main Speakers
<b>CIPEM</b>  Organization  CIPEM products  (Two days)	<b>Day 1 :</b>  CIPEM organization & Chinese suppliers management : <ul style="list-style-type: none"><li>• Sourcing strategy</li><li>• AVL (Approved Vendor List)</li><li>• Supplier follow up</li><li>• Quality organisation flow chart</li><li>• Audits</li><li>• Inspections</li><li>• Corrective actions, 8 D reports</li><li>• Statistics control methods</li></ul>	<b>Xavier Bruhmuller</b>  <b>Bingling Li</b>
	<b>Commodities :</b> <ul style="list-style-type: none"><li>• Power Supply and transformers</li><li>• Batteries</li></ul>	
	<b>Day 2 :</b>  <b>Commodities :</b> <ul style="list-style-type: none"><li>• Cables &amp; Connectors</li><li>• Membrane switch keypads - LCD</li></ul>	

## CONFERENCES SCHEDULE AND REGISTRATION PROCEDURE

Below are the proposed dates for the new cycle:

- Single Side & Polymer PCB : ..... **19 Apr 2016**
- PCB Manufacturing Processes: ..... **27-28 Apr 2016**
- Multilayers and HDI: ..... **11 May 2016**
- Flexibles and Flex Rigides:..... **18 May 2016**
- CIPEM : ..... **25-26 May 2016**
- Quality: ..... **1-2 Jun 2016**
- Design to cost : ..... **8 Jun 2016**
- Lighting & Power Electronics : ..... **15 Jun 2016**

**We invite you to pre-register your session with Madame Chan Calvignac:** [chan.calvignac@icape.fr](mailto:chan.calvignac@icape.fr)

Groups will be limited to 15 people and a same conference can be proposed again later, if necessary. These conferences will be also opportunities for some forum discussions, where different participants / clients can freely exchange information between them.

Lunch will be offered to all participants.



# ICAPE GROUP

## MAIN SPEAKERS DIRECTORY

Speakers of these conferences will be :



**Thierry Ballenghien:**

Graduated as Engineer HEI in 1981, Founder and President of ICAPE Group. 30 years of experience in PCB. 11 years as Managing Director of PCB factories at CIRE Group (SPCI, BREE, CIRETEC). 15 years of management of ICAPE Group. Expert of PCB industry in China.



**Stéphane Barrey:**

Graduated as Engineer CNAM in 1987, Vice President Europe of ICAPE Group, 27 years of experience in PCB, 18 years as Managing Director of PCB factories at CIRE Group (SGCI, BREE, BREE INDUSTRIE, SPCI, CIREA).



**Christelle Bonnevie:**

Master degree in Business Administration – IAE Dijon 1995, Technical and Sales Manager for Consumer Technologies of ICAPE Group ; 20 years of experience in Industry ( Alstom Transport , Alstom Marine), of which 8 years in PCB as Managing Director of PCB factory at CIRE Group (SIFELMET).



**Pierre Bord:**

Senior Engineer, Sales Manager in charge of France in ICAPE, 32 years of experience in electronics and connectivity. 12 years of experience in PCB.



**Xavier Bruhmüller :**

Master degree in Mechanical Engineering (ICAM-2005), HKU MBA in 2016, CIPEM Services Office Managing Director, 11 years of industrial experience with China based vendors through technology transfers and suppliers management.



**Philippe Buret:**

Graduated as Engineer HEI in 1988, Sales Manager in charge of Eastern Europe countries in ICAPE. 23 years of experience in electronics (assembly + PCB), 4 years as Managing Director of PCB factory at CIRE Group (CIRETEC).



**Cyril Calvignac:**

BTS degree in Electronics in 1998, quality specialist, CEO of ICAPE Group, 16 years of experience in electronics, 12 years of experience in PCB. 7 years as Managing Director of ICAPE France.



**Frederic Defresne:**

BTS degree in Mechanics in 1984, Quality and Engineering Director of ICAPE group in China, 23 years of experience in PCB, of which 16 at NICOLITCH.



**Olivier Gauthier :**

Sales Engineer of ICAPE 2 years; 18 years of experience in PCB field: 2 years as Application Engineer for Flex PCB (MINCO); 5 years as Methods Manager (SAGEM); 6 years as Quality & Inspection Manager (PECI).



**Bingling Li :**

Master management international en 2006; Directrice de CIPEM France; 4 years sales engineer; 4 years as Export sales manager in PCB field at ICAPE France; Specialist of custom-made technical part "made in China".



**Loic Pasco:**

BTS degree in Micromechanics in 1984, ICAPE Group Technical Director, expert of China, 31 years of experience in PCB, of which 9 at CIRE Group.

**More than 250 years of experience in electronics  
and 150 years in PCB at your service !!**