CMOS Image Sensor

Quarterly Market Monitor
2020
Yole’s methodology for building market forecasts is different from other market research companies' methodologies:

- Our approach is to build a coherent model where the five year historical data from top product shipments, module sales, and bottom sensor production, with players’ market share is collectively linked with detailed assumptions.
- Forecast are performed by carefully carrying forward the five year growth rate with the analyst appreciation of each application market dynamics in mind.

We collect data from several sources, including:

- Primary information from direct contacts and surveys with equipment & materials suppliers.
- Primary information from cost analysis and teardown reports conducted by System Plus Consulting.
- Secondary information from Quarterly/Annual report/publications of key players.
- Comparisons between publicly-available secondary data from WSTS, OICA, IFR etc.

As a result, we can present synthetic market metrics intrinsic to a specific industry:

- Our approach’s main advantage is the delivery of homogeneous data, ranging from unit shipments and system sales to players’ market share.
- We quarterly update the market information presented in this monitor.
COMPANIES MONITORED IN THIS PRODUCT

Sony, Samsung, OVT, ON Semiconductor, STMicroelectronics, Panasonic, Canon, SK Hynix.
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  o Computing market demand
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CIS technology
  o CIS wafer production per segment
  o Per technology (CIS, LOGIC, DRAM)
  o Shipments by CIS technology node (XX nm)
  o Shipments by technology (FSI, BSI, Stack BSI, Multi-Stack)

CIS supply
  o Industry wafer production (CIS wafer production, per foundry - Long/near term - VIS and NIR)
  o Industry wafer capacity estimation

CIS player
  o Sony – Revenue per quarter and per application
  o Samsung – Market mix
  o OVT – Market mix
  o ON Semiconductor – Market mix
  o STMicroelectronics – Market mix
  o Panasonic – Market mix
  o Canon – Market mix
  o SK Hynix – Market mix
  o Others – Market mix
ABOUT THE AUTHORS

Biographies & contact

**Pierre CAMBOU**

Pierre Cambou MSc, MBA, is a Principal analyst in the Photonic and Display Division at Yole Développement (Yole).

Pierre’s mission is dedicated to imaging related activities by providing market & technology analyses along with strategy consulting services to semiconductor companies. He is responsible for the CIS Quarterly Market Monitor while he has authored more than 15 Yole Market & Technology reports. He has been deeply involved in the design of early mobile camera modules and the introduction of 3D semiconductor approaches to CMOS Image Sensors (CIS).

Known as an expert in the imaging industry, he is regularly interviewed and quoted by leading international media.

Pierre has an Engineering degree from Université de Technologie de Compiègne (France) and a Master of Science from Virginia Tech. (VA, USA), Pierre also graduated with an MBA from Grenoble Ecole de Management (France).

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**Chenmeijing LIANG**

Chenmeijing Liang works as a Technology & Market Analyst within the Photonics, Sensing & Display Division at Yole Développement (Yole).

As part of the Imaging team, Chenmeijing contributes analyses of CIS markets, related technologies and market strategies of the leading semiconductor companies, as well as the quarterly reports.

Prior to Yole, she was engaged in the development of R&D projects: Chenmeijing was a member of Group PSA R&D department where she worked on Vehicle 3D Imaging projects. In addition, she assisted with various technical and commercial projects.

Chenmeijing Liang holds a Master’s Degree in the field of Applied physics and Optical engineering from Paris-Saclay University and University Pierre and Marie Curie (UPMC) (Paris, France).

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QUARTERLY MARKET MONITOR SAMPLE – CMOS IMAGE SENSOR SERVICE
• Market growth should be maintained high growth until 2025
• Market saturation could be reached in 6 years.
**MOBILE – CIS CAMERAS PER SMARTPHONE**

- **CIS revenues increase has been in part driven by volume due to multiple camera approach**
- **Proliferation of cameras for mobile imaging and sensing**

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WAFTER SHIPMENTS BY TECHNOLOGY

- CIS & LOGIC & MEMORY wafers per technology node

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SONY – MARKET MIX

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<th>Quarter</th>
<th>Revenue ($M)</th>
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# CIS MARKET DYNAMIC

## CIS Market Monitor Q1 2020

Covering the entire CIS market: Mobile, Consumer, Computing, Automotive, Medical, Security, Industrial, Aerospace & Defense

### CIS Market (Revenue Shipment, Pricing)

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<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
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<td>Shipment annual (Munit)</td>
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<td>ASP annual ($)</td>
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<td>ASP quarterly growth</td>
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YOLE GROUP OF COMPANIES RELATED REPORTS

Yole Développement

3D Imaging & Sensing 2020

Status of the CMOS Image Sensor Industry 2019

Status of the Camera Module Industry 2019 - Focus on Wafer Level Optics

Imaging for Automotive 2019
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