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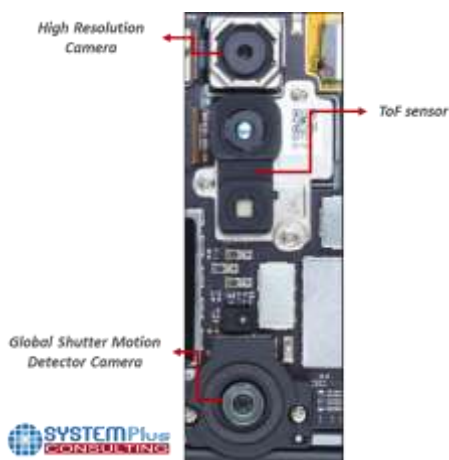
PACKAGING

SYSTEM

POWER

Lenovo Phab2Pro 3D Time of Flight (ToF) Camera Google Tango Ready

World's first 3D tri-camera bundle including Infineon/pmd REAL3™ ToF image sensor integrated into a consumer smartphone



Recently, camera modules in smartphones have evolved rapidly. All major players have adopted dual cameras. Now, with the Phab2Pro, Lenovo is the first to choose a different approach. As augmented reality plays a bigger part in consumer life, Lenovo is integrating a 3D Time-of-Flight (ToF) camera. The module features three cameras: one with high resolution, a global shutter motion detector and a Near Infra-Red (NIR) sensor.

The Lenovo Phab2Pro brings totally new functionality based on the Google Tango Project. This project, a collaboration including Infineon, pmd and Sunny Optical, has developed 3D ToF sensors for consumer applications.

The Phab2Pro implements this technology using a tri-camera sensor. The subsystem features a 16 megapixel resolution CMOS image sensor (CIS) from Samsung, a VGA resolution CIS with global shutter technology from Omnivision, and a 38 kilopixel resolution 3D Image Sensor from the collaboration between Infineon and pmd integrated into a subsystem with a NIR vertical-cavity surface-emitting laser (VCSEL).

To provide the 3D scene, the tri-camera's high-resolution camera supplies the texture and the global shutter camera supplies the motion-tracking. Finally, the ToF sensor supplies the depth perception at a high rate thanks to the VCSEL emitter, which gives the phone the ability to understand space and motion quickly, like a human.

The report includes technology and cost analysis of the 3D ToF sensor and technology analyses of the two other modules. These analyses provide the technical intelligence necessary to understand this technology.

Title: Lenovo Phab2Pro 3D ToF Camera

Pages: 170

Date: January 2017

Format: PDF & Excel file

Price: Full report: EUR 3,990

COMPLETE TEARDOWN WITH:

- Detailed photos
- Precise measurements
- Material analysis
- Manufacturing process flow
- Supply chain evaluation
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- Selling price estimate



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Stéphane has a deep knowledge of materials characterizations and electronics systems. He holds an Engineering Degree in Electronics and Numerical Technology, and a PhD in Materials for Micro-electronics.



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Yvon has joined System Plus Consulting in 2011 to setup its laboratory. He previously worked for 25 years at Atmel Nantes Technological Analysis Laboratory as fab support in physical analysis, and for three years at Hirex Engineering in Toulouse, in a destructive physical analysis lab.

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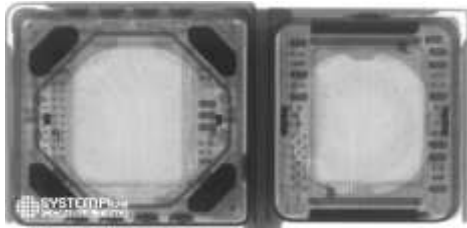
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2.1 Products are sent by email to the Buyer:

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- within a reasonable time for Products ordered prior to their effective release. In this case, the Seller shall use its best endeavours to inform the Buyer of an indicative release date and the evolution of the work in progress.

2.2 Some weeks prior to the release date the Seller can propose a pre-release discount to the Buyer

The Seller shall by no means be responsible for any delay in respect of article 2.2 above, and including incases where a new event or access to new contradictory information would require for the analyst extra time to compute or compare the data in order to enable the Seller to deliver a high quality Products.

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2.4 The mailing is operated through electronic means either by email via the sales department or automatically online via an email/password. If the Product's electronic delivery format is defective, the Seller undertakes to replace it at no charge to the Buyer provided that it is informed of the defective formatting within 90 days from the date of the original download or receipt of the Product.

2.5 The person receiving the Products on behalf of the Buyer shall immediately verify the quality of the Products and their conformity to the order. Any claim for apparent defects or for non-conformity shall be sent in writing to the Seller within 8 days of receipt of the Products. For this purpose, the Buyer agrees to produce sufficient evidence of such defects.

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- b) any claim attributable to errors, omissions or other inaccuracies in the Product or interpretations thereof.

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