



**Innovation distinguishes  
between a leader and a  
follower**

*Steve Jobs*

## CEO's Note

Dear CHIPS readers,

an eventful year 2017 is closing soon. Looking back, we could accomplish several technical break-through achievements. We completed the fab transfer of our flagship epc660 TOF imager to TSMC and launched two new TOF imagers epc635 (160x60) and epc611 (8x8) first time right. Together they constitute our second generation Time-of-Flight product family covering the full range of cwTOF applications. Moreover, we opened the door to an entirely new universe: earlier this month we taped out our first direct Time-of-Flight imager for automotive use! We have very high expectations about the performance and market potential of this new technology.

Looking forward, we have great things coming up in 2018! The year will start with the CES and Photonics West shows, where our customers will showcase many new products based on ESPROS technology.

Of course also ESPROS will show new Time-of-Flight innovations. Please visit our booth at Photonics West end of January and let us surprise you!

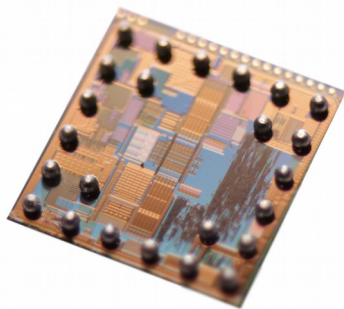
Thank you very much for your trust in ESPROS and have a wonderful Holiday season.

Beat De Coi



picture: Yvonne Bollhalder

## epc611 product launch - first volume order booked!



*epc611 8x8 pixel Time-of-Flight imager*

On December 5<sup>th</sup>, we proudly announced the market entry of our new epc611 8x8pixel Time-of-Flight imager. Never before, we have created a comparable sensor chip: compact and high performance on the one side – seven different Time-of-Flight operation modes with enormous flexibility for the known and unknown applications on the other side! Please see for yourself. Chip and datasheet are available, an Evalkit is coming soon.

We have clearly high expectations about what epc611 can do. Shortly after launch, we could book our first major order for this new chip. A customer decided quickly after sampling to go ahead and launch his product with epc611. We were rewarded with a first 5 digit volume order for epc611. A perfect start. We hit the ground running!

## Phase-out epc600/610

With an excellent epc611 in the market, we announce the phase-out of the previous generation epc600 and epc610.

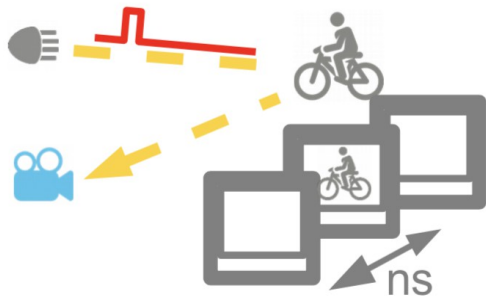
Please get in touch with your ESPROS sales representative for a last time buy! We sell our remaining stock and then fully switch to epc611.

### Get in contact with us

+41 58 411 03 00

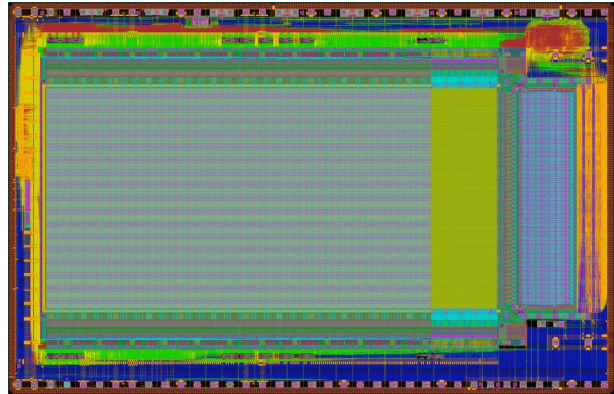
[info@espros.com](mailto:info@espros.com)

## LiDAR imager



It is done! The design of the first LiDAR imager, or as we call it, pTOF imager is completed and the tapeout has happened a few days ago. The numbers are simply breath taking: The pixel has a sensitivity to recognize an object from 20 electrons only. This allows to detect an object in a 300m distance (white wall). A high performance 4-phase CCD with hundreds of gates operating at 250MHz clock does the time-to-location transformation. More than 10 million devices are placed on this chip. And more than 25 engineering man-years were squeezed into calendar year 2017. Truly pioneering development

work, that lays the foundation for a new generation of products for autonomously driving cars.

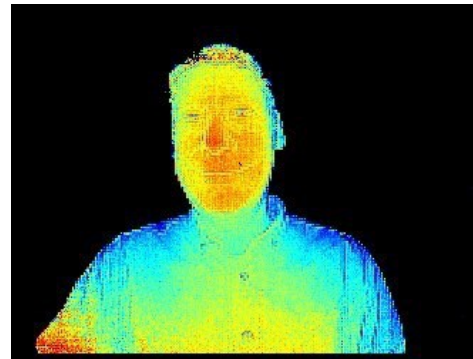


The daily project work of the last weeks felt nothing less than heroic. Solving design challenges, that the simulation from the night before had uncovered. The challenge to find a solution became increasingly difficult, as the new design change was to maintain all the many conditions, that had been settled by earlier design work before. We are extremely proud on our chip design team for this outstanding achievement! Thank you for the great job!

## First customer camera projects delivered!

Also in December we could make the first deliveries of custom design TOF cameras with FPGA computing power. These cameras operate based on our epc635 or epc660 TOF imager and contain all our calibration and compensation know-how collected to date.

The influence of temperature, pixel-to-pixel variations, ambient light, different object reflectivity are all eliminated by our special calibration procedure. Data acquisition and processing is done by a powerful FPGA board to allow up to 55 true 3D TOF frame rates per second or up to 220fps TOF in rolling mode at QVGA resolution. Our cameras are going to be used as demonstrators to showcase the capability of TOF for certain industrial applications. With the now to be collected application experience, serial product cameras will be designed in 2018.



Picture with FPGA-based TOF camera (not calibrated)

Please get in touch with your ESPROS sales representative to find out how we can help to implement your customized 3D TOF camera!

## Save the date!

**SPIE. PHOTONICS WEST**

### SPIE BIOS

27 – 28 January 2018, booth 8637, Moscone Center San Francisco

### SPIE Photonics West

30 January – 1 February 2018, booth 4423, Moscone Center San Francisco

We are looking forward to your visit at our booth!

[www.espros.com](http://www.espros.com)