CHIPS.

Newsletter
September 2017

It always seems impossible until it's done.

Nelson Mandela

CEO's Note

Dear CHIPS readers,

In none of the previous issues of CHIPS could I report to you a set of comparable achievements. The technology integration of our TOF imager process in a TSMC fab, that at times felt like an epic quest to me, has been successfully completed! The new chips epc635 and epc611 are first time right! This confirms that we did the right steps in process improvements and in teaming up with TSMC as our fab partner. Finally, we found an elegant way of calibrating a TOF camera,which makes it a fast desktop procedure that you can easily apply, rather than moving barn door size targets on stages! It feels like a tight knot has been cut through.

Please review the topics below carefully and apply them to your engineering work, since they aim at making your life easier.

ESPROS TOF is now in serial production. I am extremely proud that our team reached this point. And I very much appreciate your support and confidence. Now it will be rewarded with great performance and stability.

Beat De Coi

Process freeze – ready for TOF product family

ESPROS Photonics Corporation Ltd. (ESPROS) and Taiwan Semiconductor Manufacturing Co., Ltd. (TSMC) proudly announce, that the manufacturing process for the new generation of time-of-flight and spectral sensing chips from ESPROS Photonics has been finalized and frozen for mass production effective August 15th 2017 by contract signature of both companies. This achievement successfully completes a complex fab transfer project conducted during the last 18 months of the future key TOF and LiDAR sensors epc660, epc635 and epc611 among a series of customer specific imagers from ESPROS to a TSMC fab.

This means that your TOF imager is now available in the quantity and quality you need for your business. Get in touch with us now for serial production TOF sensor chip supply.

Beat De Coi, CEO ESPROS and Weishi Sun, Sales Director TSMC Europe celebrate the release to production of the OHC15L™ High Performance CCD/CMOS Imager technology

TOF camera calibration made easy

A real breakthrough was achieved in the field of camera calibration. Our initial goal was to simply find the optimum procedure to calibrate a DME660 camera.

The result however is a revolutionary finding, that not only includes the compensation algorithm but also a simple desktop hardware for distance calibration.

No need any more for large target screens and moving stages! Simply put your camera in a shoebox sized flat field setup and calibrate the full distance range with help of the on-chip DLL stage. Done!

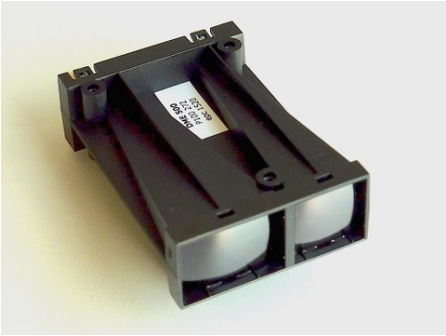
Application note AN10 describes step-by-step all details and the required calibration memory space.

Once this calibration is performed and the distance correction is properly executed for each measurement, a stable distance output is achieved, regardless of object reflectivity, ambient light intensity, or temperature.

Try it for yourself! Get a fully calibrated DME660 or DME635 camera for your reference. Download the application note AN10 (www.espros.com/downloads) and implement the distance correction in your own application.

Product of the month: TOF > range 600

Our first ESPROS Time-of-Flight camera module is here: TOF > range 600!



TOF > range 600 distance measurement module

A powerful distance measurement module in a robust package which weighs 11 grams only.

Easy to integrate into your automation project, drone, mobile robot, etc. Get started immediately with your application without the need of developing and qualifying your own distance measurement module. Measure objects within a 1° field of view up to a distance of 10m in bright sunlight.

Integrate TOF > range 600 easily into your system using UART interface and directly obtain corrected distance values up to 1000 times per second. Applications include: secure industry robots without fence, secure crushing hazard with automatic doors, detect occupation of parking lots and many others.

Get your free TOF > range 600 sample today at the ESPROS website! Simply register your name, company and purpose. A few days later you have the device in your mailbox. And, we are happy to build your customer specific module!

Our TOF product family – complete and ready

You won't recognize our epc660 flagship QVGA imager in version 007! Improved ADC performance, 28% higher sensitivity, as well as low distance response non-uniformity (DRNU) of a few centimeters only (uncalibrated). We took 3 rounds (versions 004-006) in the fab transfer process and did not let go before we got it right. Thank you for your patience. All shipments from now on will be version 007, which is now frozen for volume production. While the epc660 improvement process was tough work, the new epc635 (160x60 pixel) came out first time right! What a great relief. We could nicely transfer all our learnings from epc660 and got confirmation that our 20x20 micron pixel and the incorporated gate structures are working just fine. This chip gives us great confidence in the process stability of our fab partner TSMC.

Last but not least, we have another new family member epc611 with 8x8 pixels since a few months in the ESPROS lab and at a pilot customer site.

This chip operates so fast, that we had to entirely revise our test and evaluation electronics! Once this was done, we could witness an outstandingly low distance noise and ultra fast 4000 distance readings per second. Again, epc611 is a first time right chip and incorporates the same pixel as epc635 and epc660. See for yourself! Get your epc611 engineering samples now.

ESPROS TOF product portfolio
(Not yet shown is the new epc611 with 8x8 pixels)

Save the date!

We are very proud to be a sponsor of AutoSens from 19 to 21 September 2017 in Brussels! The conference connects technologists in all disciplines of vehicle perception. CEO and founder Beat De Coi will have a speech about the next generation pulse time-of-flight sensors for autonomous driving. We are really looking forward to this the event, which will take place in a fascinating location: the AutoWorld Brussels, a private automotive museum!

AutoSens Brussels
19 – 21 September 2017, AutoSens Brussels

Speech Beat De Coi
Wednesday, 20 September, 04:15pm – 4:40pm

«Next generation pulse time-of-flight sensors for autonomous driving»

www.espros.com