CHIPS.

Newsletter
March 2021

It goes up slowly, downwards quickly.

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CEO's Note

Dear Reader,

Things moving quickly. One year ago, an almost global lockdown brought the world to a complete stop. People and economies (had to) stop all activities. After a period of ten years of growth, after the big financial crisis in 2008, the full stop because of the pandemic was a hard awakening for many of us. It was an awakening from a mood of endless growth and prosperity. However, things can move fast, especially downwards. The term «fall» is applied to movement downwards only. It's (nearly) impossible to «fall» upwards.

Moving upwards is typically slow, at least compared to fall. And, moving upwards needs a lot of energy. Luckily, the lockdowns were relaxed[1)] during the course of last year. So, the worldwide economy picked up and at least a majority of businesses could recover, spending a lot of energy into the recovery. Unfortunately, the next crisis is already visible on the horizon: The semiconductor industry just ran into a veritable shortage. Since semiconductors are the brain of almost everything in our life nowadays, I'm pretty sure, we have to deal with this shortage seriously and for a while. Be prepared...

Beat De Coi

[1)] Unfortunately, the biggest economy in Europe, Germany, seems to remain in an endless loop of lockdowns. Other European countries take Germany as an example, follow them and leave the people and the small local and regional businesses in a disastrous situation. Let's hope that the politicians recognize that there are not only epidemiological questions to be answered. Lockdown based sorrow and misery spreads not just for a few but for a significant range of the population.

epc611 in LuminWave's Micro LiDAR Sensor

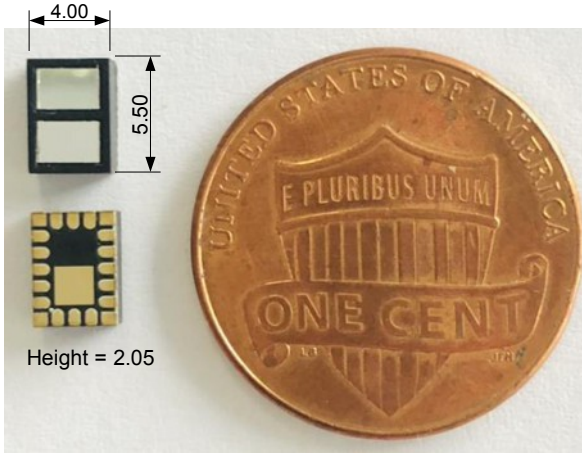
Specialist LiDAR sensor manufacturer **LuminWave** has integrated the ESPROS TOF imager epc611 into a miniaturized and cost optimized 3D TOF camera. It s LW-FS8864 series of sensors can be used for many applications. For example for gesture control for light activation, collision avoidance, range measurement, process control, etc. An MCU module, available for these optical sensor chips, c a n detect simple and complex hand gestures within the most compact, low cost and low power 3D sensors. LuminWave chose the epc611 TOF imager chip because of performance, sensitivity, size, power and cost considerations. LuminWave developed deep learning AI algorithms which are be embedded in the micro module products (FS8864-SMA/SMB).

The products use Class 1 eye-safe 940nm lasers and are suitable to be used for both indoor and outdoor applications.

LuminWave is a global leading technology company specialized in LiDAR solution.committed to applying emerging Si photonics technology and optoelectronic chips to provide the market with true Solid-state Imaging Grade LiDAR hardware, chips, and AI sensing algorithms to promote the global smart industry upgrade.

T h e epc611, as the heart of LuminWave's Micro LiDAR Sensor, is a miniaturized and cost optimized 3D imager chip. It is based on ESPROS' unique high performance CCD/CMOS technology. Due to the high performance of the imager chip with its unique ambient light suppression, the camera can be used in outdoor applications at full sunlight.
It allows a wide variety of new applications.

More information please find **here** the brochure and a **demo video.**



The very tiny 64 pixel micro sensor LiDAR module LW-FS8864 from LuminWave has a FOV of 30° and offers an operating range from 0.1 to 4.0m on a 90% target

Thomas Willi; Senior Digital Design Engineer

What are your responsibilities at ESPROS?
As a digital design engineer, I'm responsible for the control and communication circuitry of our imager chips. This includes the control of the pixel field and the analog readout path for example. Meanwhile, my focus is more on system level architecture. Nevertheless, I often have to dive down into the details which makes my daily work very interesting. Next to the design activities, I'm also responsible for design environment maintenance and other EDA tasks.

How long have you been working with ESPROS?
This is my seventh year at ESPROS.

What do you most enjoy about working with ESPROS?
During my first year at ESPROS, I had the chance to work in several groups of the research and development department. This was really interesting and helped me to build up a lot of knowhow about how imager chips are integrated into camera modules. Having all the R&D groups right next to each other offers a lot of interesting insights and constructive collaboration. Being involved in the whole design process from the initial specification of an imager till its integration into a camera module is one of the things I like most about ESPROS.

Where in Switzerland do you live?
I grew up very close to the ESPROS headquarters in a village called Azmoos.

After my studies at ETH Zurich, I moved to Mels on the other side of the ESPROS headquarters. Meanwhile, I moved even one village further and enjoy the beautiful life in Bad Ragaz from where I can still go to work by bike.

What do you like doing in your spare time?
One of my favorite hobbies is playing trumpet in different bands. I also love hiking in our beautiful mountains or simply having a good time in whatever form with friends and family - ideally accompanied by a nice meal or cold drink.

Low cost but high performance TOFcam-660 thanks to porting from FPGA to MCU

The switch from a FPGA to a micro controller (MCU) has significantly optimized the cost of the TOFcam-660 making the camera module very attractive for high volume projects yet also making it unrivaled if acquired in single units.
The MCU based camera can process up to three integration times in HDR mode, compared with only two using the FPGA camera. In addition to the Ethernet communication interface, a USB is integrated. On top of that there are further advantages over the FPGA-camera. These "softer" benefits include programming in C++ rather than Softlogic and additional communication interfaces in Python and C#. The GUI has been further developed and extended with streaming and scope functions.

About TOFcam-660
The TOFcam-660 is a cost optimized 3D camera. It is based on the ESPROS proprietary time-of-flight technology using the epc660 TOF imager flagship. The camera controls the illumination and the imager chip to obtain distance and grayscale images.

The depth images are compensated against ambient light, temperature and reflectivity of the scene. By using one of the offered ESPROS user interfaces, 3D point clouds in a cartesian coordinate system are available. Thanks to the high performance of the imager chip with the unique ambient light suppression, the camera can be used under full sunlight condition. More information **here**.

TOFCAM-660

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++ Be part of our team and click here for our current job opportunities ++