



Who I am greets the one I want to be wistfully.

Søren Kierkegaard

CEO's Note

Dear Reader,

There is a good message in this difficult period where we face a dramatic shortage of supply of things from wood over plastic all the way to semi-conductors. Since the beginning of this year, the concern over semiconductor supply shortage has spread across the global supply chains of almost every industry. I believe, that the tightness will not resolved soon and we have to deal with it far into 2022 and beyond. Key reasons responsible for this shortage include under-investment in wafer capacity (especially in matured nodes of logic ICs) during 2015-2019, supply chain disruptions due to COVID-19 and geopolitical uncertainties, unexpected gadget demand for work from home, and improving visibility of emerging technology products such as artificial intelligence (AI) or time-of-flight (TOF).

The good message, at least for semiconductors, is a massive increase of manufacturing capacity. And

this not only in leading edge but also mature technologies. There are a huge amount of products designed-in on low end 8" wafer technology nodes. It would be nearly impossible to convert all of them to 12". I'm convinced the world would stand still if this scenario were to become true.

Coming back to the good message: Recently I read an article that there are currently 22 eight inch fabs under construction with an approx. capacity of 1 million wafers each per year. Very good, but IC Insights raised recently it's demand forecast to +24% in 2021. Thus, in the light of a current total production volume of 120 million 8" wafers per year, an increase of 22 million wafers, maybe ready by the end of 2022, looks nice. But to cope with the +24% increase in 2021, additional capacity of 29 million 8" wafers would be required. Not considering the growth in 2022!

Beat De Coi

Sources: IC Insights, Internet

epc901 – line imager

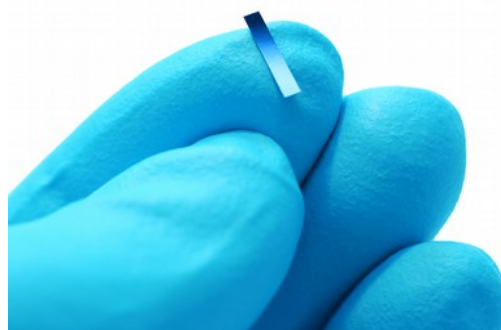
A line imager is quite a simple device: Just a bunch of very small photo diodes lined up in a row. However, the beauty is that the number of photo diodes is very high, they are very narrow, and have no separation between each other. This is possible by the integration of the photo diodes on one silicon chip which allows the integration of more circuitry such as amplifiers or temperature sensors.

The result is a very versatile device with many applications. Also, because of the features of our OHC15L CMOS/CCD technology, even more applications are feasible. The application sketches below show a

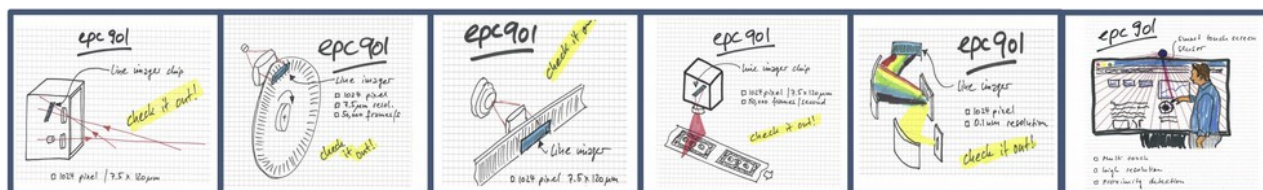
- Triangulation light barrier to measure distance accurately with μm resolution
- rotary encoder with arc seconds resolution
- line scanner (RGB and black and white)
- linear encoder with sub- μm resolution
- Smart touch screen sensor
- Spectral sensing with sub-nm resolution

Its 1024 pixel with a size of $7.5 \times 120\mu\text{m}$ are about ten times more sensitive in the near infrared NIR

than competitor products. It allows applications to be run on lower power and less ambient light issues. In addition, a spectrometer built with the epc901 and a linear variable bandpass filter, resolution of 0.1nm becomes feasible in the range of 350 - 1120nm.



The epc901 line imager is a very small device: 8 x 1.3 mm



What are your responsibilities at ESPROS?

As the Facility Manager I'm responsible for the maintenance of the entire headquarters in terms of the electrical systems, heating, climate control, hygiene, ventilation, compressed air, vacuums, the osmosis system and the access control system, the shutters system, plus keeping an eye on the general environment of the facility. On top of that I organize our internal on-call service as well as our medical services.

How long have you been working for ESPROS?

I joined the company in 2011.

Where are you from originally and where do you live now?

I grew up in the neighboring municipality of Mels where I also lived up to 2019. When my children moved out my wife and I moved here to Sargans.

What do you most like about your job?

How I'm free to perform my varied duties in the building services as well as assisting with the maintenance of the production facilities.

What do you do in your spare time?

I love spending time in our small weekend house which is located, 1000 meters above sea level up in the mountains. There's always something to tinker with, as well as a hosting BBQ's with family and

friends. There's always time to chill out and enjoy the peace and quiet of the surroundings. Of course I love to go hiking in the mountains.



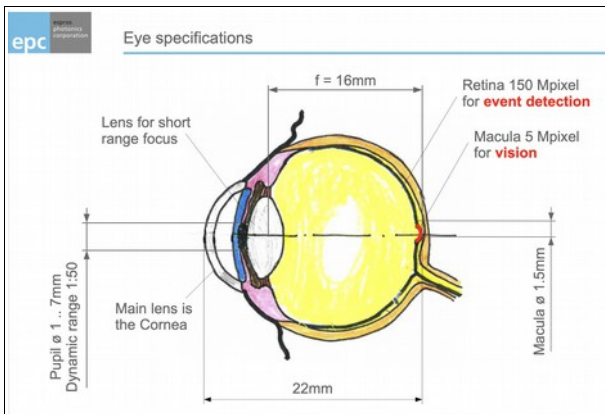
Presentation "The human eye as an example for LiDAR"

The performance of the human eye is awesome. It has a fantastic resolution, hence small objects can be seen at long distances. It works very well in a huge brightness dynamic range and it is able to estimate distance. This in a system of two eyes and the brain - the human vision system. There are many aspects of the HVS which outperforms any LiDAR system. Did you know, that the field of view (FOV) of the human eye is approx. 5.7° only? And do you know that the spatial resolution in the FOV is approx. 6 megapixels? Not that much would one consider.

But the performance of the human vision system is really awesome. It is based on a very clever design.

And, even the eye has a three-axis motion system, it's lifetime outperforms literally everything man-made moving and solid state on earth.

Thus, why not to use the human eye and the human vision system as an example for future LiDAR systems?



Beat De Coi made this presentation recently at the AutoSens Detroit. You may watch the recording here:



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