CHIPS.

Newsletter
October 2023

Never allow yourself to meet someone who is not happier after meeting you.

Mother Theresa

CEO's Note

Dear Reader,

Line imagers are fairly simple components. But their variety of applications is quite impressive. Whether triangulation sensors for distance measurement, line scan for surface inspection of semiconductors or the human retina, pattern recognition for rotary and linear encoders, to miniature spectrometers, a lot is possible. We brought the epc901 onto the market around ten years ago. This line sensor is becoming increasingly popular. Why? Because it has a few fundamental characteristics that are unique. For example, the high sensitivity in a very wide wavelength range from UV to NIR, the high frame rate of 44,000 lines per second and the simple optical window, which brings the received light directly into the pixel via an anti-reflective layer. Wavelength modulation therefore does not exist.

Due to the success of the epc901 we have decided to expand our line imager product line. The new products epc902, epc903, epc904, and epc905 are all based on the epc901 chip. They only differ in the number of pixels, the pixel size (width) and the frame rate up to astonishing 257,000 lines per second at a sensitivity of 1,140 (V/(Lux*s). With these new components, many more new applications are possible.

What does all this have to do with Mother Theresa? Well, if you have read these lines about our line imagers and are happy to have found new options for solving your tasks, that gives us great pleasure. And, if not, then perhaps we have another solution. Asking is for free. And even if we cannot offer something from our product portfolio or a customer specific solution, we perhaps have an idea, which can help solve your challenge.

Beat De Coi

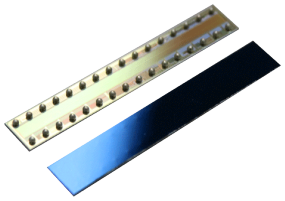
Product range extension: line imager epc90x

The epc902, epc903, epc904 and epc905 are derived from the very successful epc901 line imager chip and are high-performance CCD line sensors, embedded in a CMOS framework. Thus, they are solid state CCD/CMOS imagers.

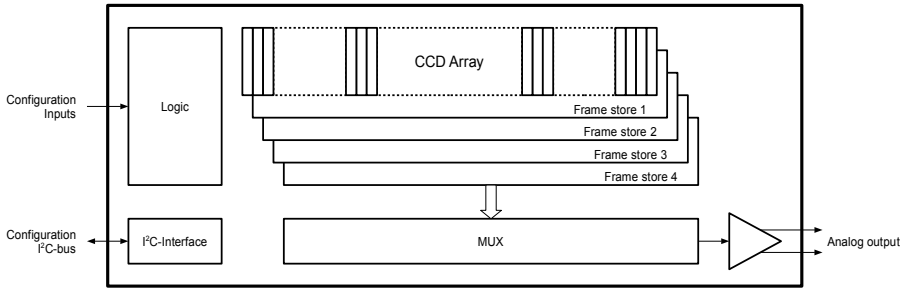
They offer higher speed and higher sensitivity compared to the epc901 chip. All imagers have in common that they can store a total of up to 4 frames in the CCD frame store for ultra high-speed image acquisition. They all feature a high performance video amplifier (single ended/differential) analog output. The devices are rich in features:

- Pixel length of 120µm
- Gain selectable of 1, 2 or 4
- Transmission direction l/r and r/l
- Single- or multi-frame acquisition
- Backside illuminated CCD array with 100% fill factor
- On-chip correlated-double sampling (CDS)
- 5-pin control interface and I2C bus interface
- Internal clock source, single supply voltage
- Two on-chip temperature sensors
- Extremely small CSP package

Product selector	epc901	epc902	epc903	epc904	epc905
Pixel field	1024	512	256	256	128
Pixel pitch (µm)	7.5	15	30	15	30
Frame rate (fps)	44,000	86,000	155,000	155,000	257,000
Irradiance for FW (mW/mm^2/ns)	155	80	40	80	40
Sensitivity (V/(Lux * s)	285	570	1,140	570	1,140



CSP package 8x1.3x0.24mm



Arbnor Neziri, Head of Production Department Semi (PDS)

What is your job at ESPROS?

I'm head of the semiconductor production department. Thus, I'm responsible with my team for the chip production. It's quite a challenging mission. Although, I previously worked with a sensor manufacturer, the complexity and sensitivity of the processes here are at a much more advanced level. However, with the dedication and talents of my team, we make it possible.

I'm also proud of the fact that I received recently my advanced education degree in Corporate Processes Sciences. My diploma thesis was around an analysis of a manufacturing process flow. The purpose was to identify weaknesses, to propose improvements and to present an implementation proposal. I'm very grateful that ESPROS supported me in this thesis work.

Congratulations on your diploma! Tell us a bit more about your thesis.

I focused on the optimization of semiconductor manufacturing processes with all the key processing steps. The title was "Optimization of Semiconductor Production Using CAM".

What do you most enjoy about your job?

Even though high tech is our business, the 'people' part is still absolutely critical. And that's part of the job I love: working with the team to get the products ready. It's not easy to achieve the production targets. However, motivating my team is something upon which I place a great deal of importance and there is always a great sense of achievement when we manage it. I am nothing without my team and thus I'm grateful that it's very much like a family. And looking after your family is my priority because only by doing that, we can achieve our goals.

What's the biggest challenge you face?

Well, I started with ESPROS as we moved from small production volume to a mass production level. That's a different story and it's both exciting and challenging. But seeing the positive results is extremely motivating.

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

I grew up and went to school in Mels, Switzerland. However, the roots of my family go back to Macedonia. I now live in a small village nearby ESPROS.

What do you like to do in your spare time?

I spend a great deal of time with my family, hobbies include football, snowboarding and motorbike riding.

What superpower would you like to have?

I like riding my motor bike through the valleys and mountain passes. These roads have some wonderful bends that any enthusiastic biker loves. But you can't always see oncoming traffic. Thus, you have to drive conservative because safety comes first. Hence, I would love to see around the corners so I can safely ride the bike the 'fun way.'

ESPROS Photonics Award 2023

The ESPROS Photonics Award for the best graduate in the BSc in Photonics from the University of Applied Sciences in Chur for 2023 was presented to Sabine Kaufmann by ESPROS Chief of Staff, Estella Copei at the recent graduation ceremony. Sabine achieved a 5.8 Swiss mark overall (this is somehow comparable to a summa cum laude promotion). The ESPROS award is presented every year to the Photonics graduate with the best overall mark. It is proof of ESPROS' commitment to supporting the University of Applied Sciences in Chur in its promotion of photonics as a valuable career choice for the 21st century. ESPROS CEO Beat de Coi was instrumental in establishing this bachelor degree course.

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