

# VIP—Vision-in-package

## The all-in-one vision system

Vision-in-package (VIP) provides powerful machine vision wherever you need it by combining a superior imaging front end with embedded processing in a single compact module.

### Key features

The vision-in-package device contains a powerful H7 micro-controller (Cortex-M7 core), many possible imagers, fast memory and communication.

The optics and illumination can be added/adapted to the application at hand.

### Technical specifications

- Adaptive platform for vision applications
- Miniature (18.5 x 18.5 x 18.5 mm)
- Low cost
- Cheaper and shorter time to market than an ASIC
- Easy to integrate and adaptive
- Easy to customize to any kind of vision processing
- Ready to accommodate NN hardware accelerators
- Available SDK on Mac / PC / Linux

### Applications

- Low-cost retrofit product recognition
- In-Face recognition
- Industrial machine vision
- Driver assistance



A complete system for face recognition

<b>CPU</b>	Cortex-M7 ST-M32H743—400 MHz
<b>Memory</b>	2 MB Flash 0 wait states 64 MB of SDRAM—6 ns
<b>Imager supported</b>	Aptina MT9V024 E2V EV76C541 Other 10 bit parallel imagers possible on demand (i.e. Ulys IR-Pico384)
<b>Sensors</b>	3D acceleration, 3D Gyro, 3D Magneto Temperature
<b>Host connection</b>	2 serial, 1 50 MHz SPI, 1 JTAG (encapsulated by USB)
<b>Additional interfaces</b>	Bluetooth, micro SDCard, battery
<b>Software package</b>	CSEM $\mu$ Kernel + OS
<b>Examples</b>	Available in the package

### Recognition pipeline performances (Software)

<b>HDR CSEM imager</b>	130 db, 320 x 240 pixels
<b>Face detection</b>	39 ms
<b>Facial landmark localisation</b>	8.5 ms
<b>Face recognition</b>	19.5 ms

