

ELEVATE PERCEPTION TO UNDERSTANDING



Empowering AI-On-Edge with eYS3D Depthmap Sensing/Fusion ICs, Modules & Platforms

Utilizing our proprietary – Natural-Light 3D Depthmap Sensing/Fusion Technologies, eYS3D Microelectronics' innovative depthmap processor ICs, Modules and platforms can be used in a computer's visual sub-system, which provide the ability to detect the object and surrounding environment, 3D images, depthmap, gesture movement, obstacle avoidance, etc. It can be used at both indoors and outdoors, in well-lit and dark environments, over distances ranging from near to far, enabling first-in-its-class usability in many applications.

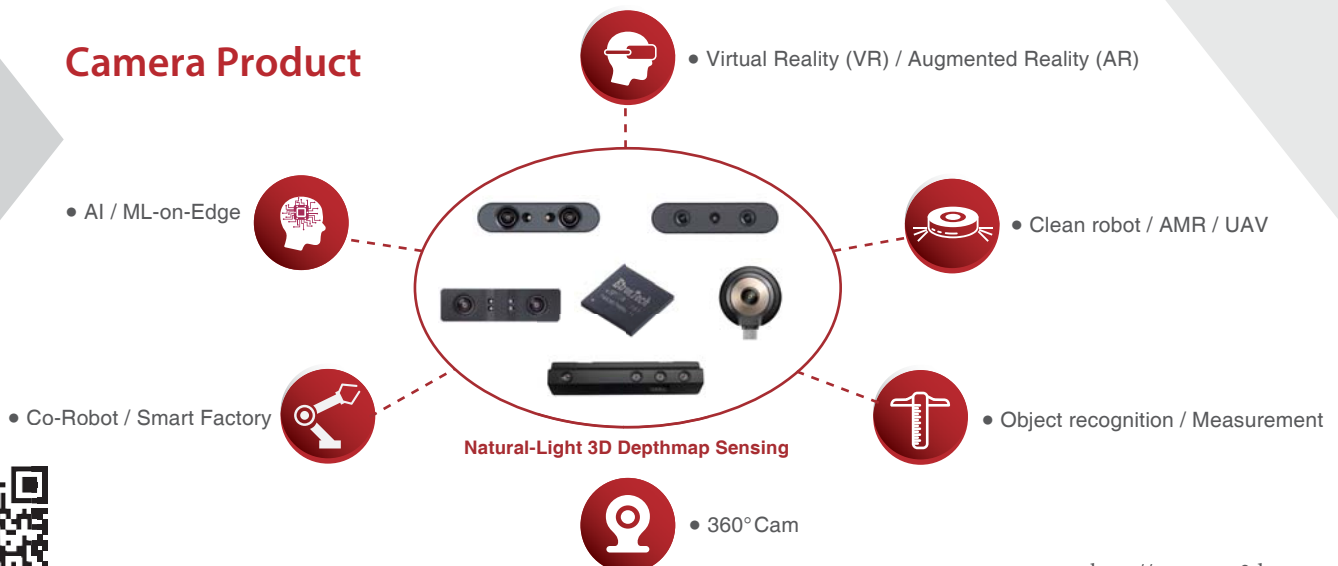
eYS3D's advanced 3D depthmap processor ICs are ideal for running intensive depthmap computing algorithms on the processor itself, thus reserving critical CPU resources for other uses. While connected to two image sensors using either parallel or MIPI interfaces, it can execute sophisticated parallel computational algorithms, provide high performance output of depthmap data for further AI/ML processing. The eYS3D's advanced technologies & algorithms enable applications like AR/MR/VR, Co-Robot/Smart factory, Clean Robot, AI/ML-on-Edges, and Smart Vehicles.

eYS3D develops complete system solutions to enhance Seven fast growing markets:

- 360° camera
- Co-Robot/G2P/Smart factory
- Clean Robot/AMR
- Objection Recognition/Measurement
- Collision Avoidance
- Facial & Gesture Recognition (Touchless)
- AI/ML-on-Edge

eYS3D can directly provide the following design & support options: Utilizing eYS3D's existing platforms, software and ICs for a full turnkey solution or to have a joint development project with eYS3D for custom system designs.

Camera Product



3D Depthmap Camera Selection Guide

| | eAP87606D100 (EX8036D) | eAP87606D60 (EX8052) | eAP87606D30 (EX8051) | eAP87606FW10 (YX8053) | eAP87606GN10 (YX8059) | eAP87003C (EX8029) | eAP87604A00 (EX8037) | eAP87615B00 (EX8038B) | eAP87606HWM10 (YX8062) |
|--------------------------------------|---|---|--|---|---|---|---|---|---|
| Base Line Image Sensor HFOV | 6.0cm AR0135 (GS) 100° | 6.0cm AR0135 (GS) 50° | 6.0cm AR0135 (GS) 30° | 6.0cm SOI-H65 (ERS) 100° | 6.0cm SOI-H65(ERS) 50° | 3.0cm OV9714 (RS) 60° | 4.0cm OV9714 (RS) 60° | 3.0/6.0/15.0cm AR0144 (GS) 81° | 6.0cm AR0135(GS) 100° |
| |  |  |  |  |  |  |  |  |  |

Image & Depthmap Processor Selection Guide

| IC Part # | eSP668F | eSP270D | eSP570 | eSP675 | eSP870U | eSP770U | eSP736U | eSP775U | eSP738U | eSP876U | eSP776U | eSP777U | eSP778U |
|------------------------|--------------------------------------|----------------------|----------------------|---|---------------------------------------|---------------------------------------|---------------------------------------|--|---|---|---|--|---|
| Main Descriptions | Vision Processor | Vision Processor | Vision Processor | Vision Processor | VGA 3D Depthmap Processor | HD Stereo Vision Processor | FHD 360 Camera Processor | 2K Stereo Vision Camera Processor | 2K 360 Camera Processor | HD 3D Depthmap Processor | FHD Stereo Vision Processor | Approached 4K Dewarp with LPDDR2 Stereo Vision Processor | Approached 4K Stereo Vision Processor |
| Category | USB2.0 Cam | USB2.0 Cam | USB2.0 Cam | USB2.0/3.0 Cam | SS+DM | SS | 360cam | SS | 360cam | SS+DM | SS | SS+Dewarp | WebCam |
| Depthmap Engine | -- | -- | -- | -- | VGA@60fps | -- | -- | -- | -- | HD@60fps ^[3] VGA@90fps | -- | -- | -- |
| Target Applications | UVC CAM | UVC CAM | UVC/UAC CAM | UVC/UAC CAM | Robots/Drones, Object Avoidance | AR/VR | FHD 360 Spherical Cameras | AR/VR, Robot, 3D Scanner | 2K 360 Spherical Cameras | AR/VR/MR, AGV, Robots, Gesture Control, Volumetrics | AR/VR/MR, 3D Scanner | Training AR, Ultra-wide Angle HMD | 4K Single WebCam |
| Output Interface | USB2.0 USB | USB2.0 USB | USB2.0 USB | USB2.0/3.0 USB | USB2.0/3.0 1x MIPI 2L | USB2.0/3.0 1x MIPI 2L | USB2.0/3.0 1x MIPI 2L | USB2.0/3.0 1x MIPI 2L | USB2.0/3.0 1x MIPI 2L | USB2.0/3.0 1x MIPI 2L | USB2.0/3.0 1x MIPI 2L | USB2.0/3.0 2x MIPI 2L | USB2.0/3.0 2x MIPI 2L |
| UVC/UAC Compliance | UVC1.1 | UVC1.1 | UVC1.1 UAC1.0 | UVC1.1 UAC2.0 | UVC1.1 UAC2.0 | UVC1.1 UAC2.0 | UVC1.1 UAC2.0 | UVC1.1 UAC2.0 | UVC1.1 UAC2.0 | UVC1.5 ^[3] UAC2.0 | UVC1.5 ^[3] UAC2.0 | UVC1.5 ^[3] UAC2.0 | UVC1.5 ^[3] UAC2.0 |
| Sensor I/F | 1x Parallel 8/10b -- | 1x Parallel 8b -- | 1x Parallel 8b -- | 1x Parallel 8/10b 1x MIPI 2L | 2x Parallel 8/10b 2x MIPI 2L | 2x Parallel 8/10b 2x MIPI 2L | 2x Parallel 8/10b 2x MIPI 2L | 2x Parallel 8/10b 2x MIPI 2L | 2x Parallel 8/10b 2x MIPI 2L | 2x Parallel 8/10b 2x MIPI 4L | 2x Parallel 8/10b 2x MIPI 4L | 2x Parallel 8/10b 2x MIPI 4L | 2x Parallel 8/10b 2x MIPI 4L |
| Max. Sensor Resolution | 1.3M x 1 -- | 8MP x 1 -- | 8MP x 1 -- | 5.0MP x 1 or 16MP x 1 ^[1] | 5MP x 1 or 16MP x 1 ^[1] | 5MP x 1 or 16MP x 1 ^[1] | 5MP x 1 or 16MP x 1 ^[1] | 5MP x 1 or 16MP x 1 ^[1] | 5MP x 1 or 16MP x 1 ^[1] | 8MP x 1 or 16MP x 1 ^[1] | 8MP x 1 or 16MP x 1 ^[1] | 8MP x 1 or 16MP x 1 ^[1] | 8MP x 1 or 16MP x 1 ^[1] |
| ISP Performance | Single HD @30fps 1.3M @30fps(max) | Single VGA@30fps | Single VGA@30fps | Single HD@90fps | Single HD@60fps | Single HD@60fps | Single HD@60fps | Single FHD@30fps | Single FHD@30fps | Single FHD@60fps ^[3] Dual FHD@30fps | Single FHD@60fps ^[3] Dual FHD@30fps | 3840x2160@15fps (w/o dewarp) ^[4] Dual HD@60fps | 3840x2160@15fps (w/o dewarp) ^[4] Single FHD@40fps |
| JPEG Compression | Yes | -- | -- | Single FHD@45fps ^[2] | Dual FHD@30fps ^[2] | Dual FHD@30fps ^[2] | Dual FHD@30fps ^[2] | FHD@30fps ^[2] Dual 1440p@24fps | FHD @30fps ^[2] Dual 1440p@24fps | Single 4Kx2K@15fps Dual FHD@30fps | Single 4Kx2K@15fps Dual FHD@30fps | Dual HD@60fps Dual 1920x1080@15fps (w/o dewarp) | Single FHD@40fps Single 3840x2160@15fps (w/o dewarp) |
| I2S Audio | -- | -- | Mic | Mic | Mic | Mic | Mic | Mic | Mic | Mic | Mic | Mic | Mic |
| Auto Focus Statistics | -- | -- | -- | -- | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SPI & I2C I/F | Yes ^[5] | Yes ^[5] | Yes ^[5] | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ROI Depth Detection | -- | -- | -- | -- | -- | -- | -- | -- | -- | Yes | -- | -- | -- |
| Package Type | QFN48 | QFN32 | LQFP48 | BGA144 | BGA144 | BGA144 | BGA144 | BGA144 | BGA144 | BGA248 | BGA248 | BGA153 | BGA153 |
| Dimensions | 6x6 mm | 4x4 mm | 7x7 mm | 9x9 mm | 9x9 mm | 9x9 mm | 9x9 mm | 9x9 mm | 9x9 mm | 10x10mm | 10x10 mm | 9x9 mm | 9x9 mm |

[1] Driver mode only [2] USB2.0 only [3] Conditional [4] 2.4Kx2.4K(2464x2456)@YUV, around 5FPS(W/ dewarp) [5] I2C only