

## The best for 「Edge AI」

The world's smallest class SoM (System on Module)  
with Intel® Cyclone® V SoC FPGA



Intel® Cyclone® V SoC

FX10A-168S-SV(HRS)168Pin×2

## 「KEIm」

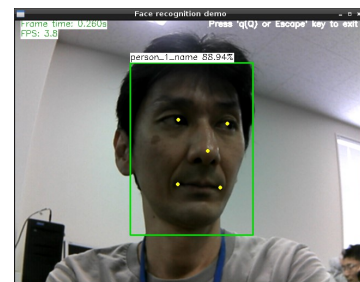
### ■ Feature

- Powered by ARM® Cortex™-A9 MPCore™ Processor
- Small-form-factor and make your production easily
- SoC peripheral circuit has been designed and evaluated
- Easy development environment for Edge AI product development
- From prototypes to mass production in small and medium lots

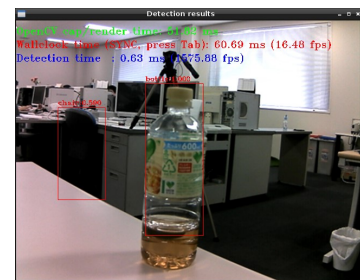
You can evaluate immediately after purchasing KEIm-CVSoC development kit



【 KEIm-CVSoC Evaluation image 】



【 Face authentication demonstration 】



【 Object detection demonstration 】

## ▼KEIm-CVSoC SoM Features

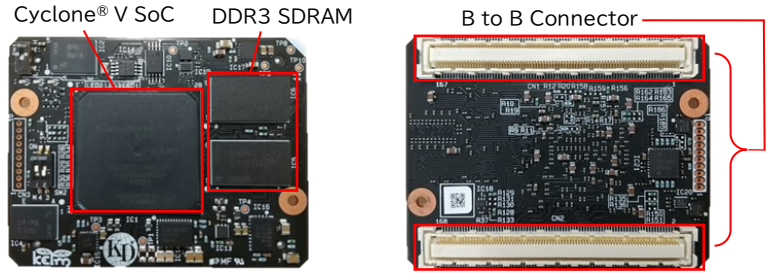
|                       |   |
|-----------------------|---|
| Device                | 5CSXFC5C6U2317N<br><ul style="list-style-type: none"> <li>•Cyclone® V SX SoC FPGA</li> <li>•SoC : ARM® Cortex™-A9 MPCore™</li> <li>•FPGA : 85K Logic Elements</li> <li>•PCIe Hard IP Block x1</li> </ul>  |
| Memory                | DDR3 SDRAM 2GByte<br>QSPI Flash 64MByte (HPS)<br>QSPI Flash 32MByte (FPGA)  |
| Transceiver           | 3.125Gbps Transceivers : Up to 6  |
| Clock                 | 25MHz (HPS), 50MHz (FPGA)<br>100MHz (Transceiver)   |
| Peripherals           | RTC, External battery<br>EEPROM(32kbit)   |
| Connectors            | FX10A-168S-SV (HRS) 168pin x2<br><ul style="list-style-type: none"> <li>•FPGA IO : Up to 133</li> <li>•HPS : Ethernet (RGMII) x1, USB2.0 OTG (ULPI) x1, SDMMC x1, SPIM x1, I2C x1, QSPI x1, UART x1, GPIO x21</li> <li>•JTAG (HPS, FPGA Chain)</li> </ul> |
| Power supply          | +3.3V±5%  |
| Power consumption     | TBD   |
| Operating temperature | TBD   |
| Dimensions            | 55x43mm   |

## ▼KEIm-CVSoC Development kit Features

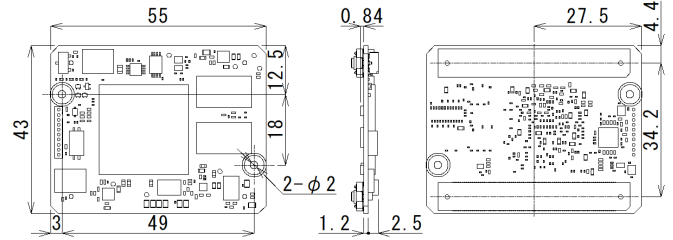
|                       |  |
|-----------------------|--|
| Camera input          | CMOS OV5642 (Omni Vision), 5-megapixel   |
| Video output          | DVI Transmitter, Mini-HDMI               |
| Ethernet I/F          | 10/100/1000BASE-T, RJ45                  |
| USB2.0                | Hi-Speed (480Mbps), OTG, USB Micro-AB    |
| UART                  | USB serial, USB Micro-B                  |
| M.2 I/F               | M.2 BM key form factor (22x80mm)         |
| SD I/F                | Micro SD Card Slot x1                    |
| Debug I/F             | JTAG 10-pin connector (*)                |
| Power supply          | +12V±5%                                  |
| Power consumption     | TBD                                      |
| Operating temperature | TBD                                      |
| Dimensions            | 110x80x50mm (Excluding the protuberance) |
| Accessories           | AC adapter, USB Micro-B Cable            |

(\*)Intel® FPGA Download Cable II not included

## ▼SoM Layout



## ▼SoM Dimensions Unit:mm



## ▼Development kit



## ▼Development environment

|                  |   |
|------------------|---|
| Development tool | Intel® Quartus® Prime Design Software<br>Intel® SoC FPGA Embedded Development Suite |
| Sample software  | Will be released on the website.  |

# KEIm-CVSoC Deep Learning Solution ※OPTION

(Reduce time to market and Pilot Ready solution that links with major fields such as Edge AI)

## KEIm-CVSoC Development kit



※Case Type-M (standard)  
 Dimensions : 110 (W)×50 (H)×80 (D) mm

**MACNICA**

Please use this address for inquiries for option:  
 ALTIMA Company, MACNICA, Inc.  
<https://www.macnica.co.jp/business/semiconductor/>

## Intel® Movidius™ Myriad™ X



Mustang-M2BM-MX2

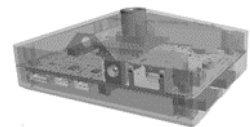
OR

**EFFICIERA®**

LeapMind Inc.  
 Ultra low power AI  
 inference accelerator IP  
 「Efficiera」

(Under development)

Case Type-I  
 Dimensions : 106 (W)×40.75(H)×78 (D) mm



**LEAPMIND**

Please use this address for inquiries for Efficiera:  
 LeapMind Inc.  
<https://leapmind.io/en/business/ip/>