



## Smart Vision Development Kit FAQs

Version 1.3

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## Document Control

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### Prior Version History

Version	Date	Comment
1.0	6/5/2015	Initial Release
1.1	6/9/2015	Changed VisualApplets time bomb to 30 min
1.2	6/15/2015	S21 and Avnet feedback modifications
1.3	6/16/2015	Fixed formatting and S21 link

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# 1 General Questions

## 1.1 What does the SVDK kit include?

- Development Board:
  - PicoZed (Zynq-7015) SOM module
  - Machine Vision Carrier Card
  - Aptina 1.2MP camera module
  - Universal Power Adapters
  - Mini-USB-B to USB-A cable
  - Ethernet cable
  - Vivado Design Edition – Device Locked
- Documentation (All accessed via [picozed.org](http://picozed.org)):
  - Quick Start
  - Getting Started Guide
  - Hardware User Guide
- Further information available after registering with Sensor to Image:
  - Registration: <http://www.sensor-to-image.de/index.php/products-mainmenu-33/registration>
  - Reference designs and easy to use demo instructions for machine vision connectivity from partner Sensor to Image : 1) GigE Vision, USB3Vision & CXP (Coaxpress)
  - All documentation and .exe files such as the Sphinx viewer software from Sensor to Image (GigE Vision viewer)
  - The carrier boards and Aptina sensor board schematic (in GERBER) files
  - Standard reference design C-sources which includes routines for imager (AR0134) setup and basic control
  - Tutorial from Sensor to Image
  - Encrypted HDL and source files allowing modification of the reference design
    - Video processor block and imager interface HDL (one module) which comes in sources
    - Frame buffer, GigE Vision Core and Gigabit EMAC are delivered as encrypted HDL (time bombed evaluation IP)

## 1.2 Who are the SVDK partners and what value is supported by them?

Here is a list of the partners and what they provide for the kit:

- **Xilinx** → Provides all programmable FPGA solutions. Zynq-7015 is used on PicoZed SOM.
- **Avnet** → Manufacturer and distributor of the kit
- **MVTec** → Provides demo version of their leading machine vision software, HALCON Embedded, running on the SVDK with full library functionality. This software is fully processor based.
- **Sensor to Image** → Provides reference designs for innovative machine vision connectivity (GigEVision, USB3Vision, CXP) implemented using their IP cores, support & registration platform, backend support on hardware for AVNET/XILINX/MVTEC
- **Silicon Software** → Provides innovative Embedded VisualApplets (eVA) tool as an evaluation version on SVDK for producing accelerated vision systems with a GUI programming flow

### 1.3 Are other imager boards supported?

Other imager boards are being planned but at this time only the Aptina imager AR0134 is supported.

### 1.4 Are other PicoZed modules supported?

Yes, PicoZed Zynq-7010 and Zynq-7020 are electrically compatible but with following limitations.

- When Zynq-7010 PicoZed inserted into the SVDK: PMOD, CXP-In, CXP-OUT, HDMI will not work
- When Zynq-7020 PicoZed inserted into the SVDK: CXP-In, CXP-OUT, HDMI will not work

For available machine vision reference design it is necessary to contact ISM marketing to request support using these SOMs.

### 1.5 Can the imager board specification be supplied to customers to add their own imager?

Please contact Xilinx if there is interest in obtaining the specification.

### 1.6 Where do I get technical support?

The kit provides an out of the box experience for machine vision users that want to evaluate Zynq. The kit is low cost and does not come with any technical support package from Sensor to Image and the associated designs are supported by Xilinx Worldwide Technical Support (WTS). A tutorial and encrypted HDL files are available from the Sensor to Image web site (after registration) that will help customers take the reference design and adapt into their applications.

Below is a quick guide on where to get general support for the Xilinx tools, hardware and questions on the reference designs:

- Xilinx Vivado tools = Xilinx or Silica FAE and Xilinx WTS
- Xilinx PetaLinux = Download area for PetaLinux, for customer hardware, can be found here: <http://www.wiki.xilinx.com/PetaLinux>
- PicoZed SoM, picozed.org = Avnet. Note picozed.org is a portal for evaluation documentation with SVDK, for technical questions not covered by the documentation on this site please contact the relevant partner directly
- GiGE Vision, USB3 Vision & CXP Reference designs
  - Sensor to Image ticket support system
    - Only for SVDK customers that have registered and access granted
- Some general technical points are covered in this FAQ
- MVTec HALCON support is as follows
  - Customers need to read FAQ, Getting Started and Tutorial
  - Customers can contact MVTec directly via their Solutions email address at the bottom of this document

## 1.7 Where do I get training?

The kit is supported with getting started and tutorial documentation. No formal training is available at this time but please contact Xilinx marketing if you wish to register your interest in future events that are being planned.

## 1.8 Will my firewall cause issues with the demo?

Yes the firewall setting on the PC could cause an issue with the demos running. Being able to ping the hardware is not enough as ping, discovery and control channel works regardless the firewall settings, but streaming (runs on different port) is usually blocked by the firewall. The software included adds itself to firewall, but it needs administrator privileges. To test if streaming works we recommend sending a test packet.

## 1.9 In the log window of the Sphinx Viewer I see some packet loss indicated, is this normal?

Yes, as it is likely that the setup on the PC side (receive) is not optimal. GigEVision systems generally make use of a special filter driver that ensure maximum throughput on the PC side. Such a driver is also available from Sensor to Image as a paid item.

## 1.10 Can I use every USB3 capable computer?

Actual performance of USB3 is dependent on USB3 chipset, its connection to the PCIe bus and drivers. Especially USB3 addon board often have poor performance compared to onboard interfaces. So S2I cannot guarantee that the demo design runs on every PC.

Official test PC for USB3 Vision certification follows as much as possible to USB-IF's official test setup and uses a laptop with the Intel HM87 chipset, specifically a Dell Latitude 3440 together with the latest Microsoft XHCI driver.

## 1.11 In U3V Sphinx Viewer I see Buffer OVERRUN messages in log files. What does it mean?

The U3V reference design uses no external memory to buffer data, only a small fifo. If now PC is blocked for some reason and cannot serve the USB interface for a while, this internal fifo overruns and the image is corrupted. To signal this to the application the overrun status flag is set. This may happen on PCs with poor USB performance, see previous question.

## 1.12 How do I re-program the SVDK for different demos?

The SVDK is provided pre-programmed with the GigE Vision reference design supplied by Sensor to Image. If the user needs to evaluate another IP reference design or a different partner solution then it is necessary to reprogram the SVDK with an appropriate JTAG programming cable. The instructions to do so are included in Getting Started Guide. Such a cable is not included in the kit as every effort has been made to keep the cost of the kit low. It is expected that most designers will already own such a programming cable.

### 1.13 Are the software drivers for the Aptina board available?

The SVDK supports two different drivers depending on the use case:

- Bare metal implementation with AR0134 sources are provided after registration with Sensor to Image.
- V4L2, Video for Linux Drivers for the AR0134 are also available on request from Sensor to Image as a paid for item.

### 1.14 Are the evaluation designs on the SVDK time bombed protected?

Yes, the partner solutions have the following time out periods

- Sensor to Image – 30 min
  - Hardware can also support a paid design on the hardware with no time bomb)
- Silicon Software Embedded Visual Applets – 30 min
- MVTec HALCON software – 30 min
  - SVDK is for evaluation of HALCON only. Contact MVTec for more information on customer implementations on their hardware.

### 1.15 Is it possible to use HALCON in combination to Silicon Software's eVA?

eVA is designed to work in combination with HALCON, i.e. HALCON on the PS of Zynq and eVA in the PL. At this time, there isn't a demonstration for the SVDK for this but we would encourage dialogue with Silicon Software for customer specific requests.

### 1.16 Where can I get demo/trial version of HALCON?

This will be hosted on Sensor to Image website.

Please register here to get username and password for HALCON trial access. <http://www.sensor-to-image.de/index.php/products-mainmenu-33/registration>

Access the below link for demo/trial version: <https://project.s2i.org/>

There will be a folder called HALCON.

### 1.17 Where can I buy Sensor to Image connectivity IP?

Please follow the below link:

- <http://www.sensor-to-image.de/index.php/kontaktformular>

### 1.18 Where can I get evaluation/production version of HALCON?

Please contact MVTec below:

- <http://www.halcon.com/halcon/support/>

### 1.19 Where can I buy HALCON?

Please follow the below link:

- <http://www.halcon.com/halcon/sales/>

## 1.20 Where can I get evaluation/production version of VisualApplets?

Please contact Silicon Software below:

- <http://www.silicon-software.info/en/contact.html>

## 1.21 Where can I get VisualApplets documentation?

Please follow the below link:

- <http://www.silicon-software.info/en/products/239-va-svdk-en.html>

## 1.22 Where can I buy VisualApplets software?

Please follow the below link:

- <http://www.silicon-software.info/en/sales-menu.html>



## 2 Contact details:

Please contact your sales representative/FAE or follow the links below:

Xilinx Inc.

<http://www.xilinx.com/about/contact.html>

Avnet

<http://www.avnet.com>

MVTec (HALCON)

[solutions@mvtec.com](mailto:solutions@mvtec.com)

Sensor to Image

<http://www.sensor-to-image.de/index.php/kontaktformular>

Silicon Software (Embedded Visual Applets)

<http://www.silicon-software.info/en/contact.html>