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EVBUM2554/D

KAE-04471 TEC Image Sensor Evaluation Kit

Description

The ON Semiconductor KAE-04471 TEC image sensor evaluation kit enables customers to evaluate the performance of KAE-04471 Interline Transfer EMCCD image sensors that include an integrated thermoelectric cooler (TEC) without the need to develop a full camera design. When combined with ON Semiconductor SensorStudio software, the kit allows easy camera control such as VGA/CDS gains, black levels, integration time, electron multiplication factor and readout configuration (single / dual / quad). Image capture and analysis functions such as video recording, still image capture, gain merging and image analysis are also supported.

Separate part numbers are available to evaluate devices with either standard or enhanced NIR sensitivity in monochrome, color, and Sparse CFA configurations where available. Separate product configurations with an integrated TEC can also be evaluated using this hardware by purchasing individual image sensors. Please see ordering information for more details. Individual components of this kit are also available in an à la carte manner. Please contact your ON Semiconductor sales representative for more details.

US export controls apply to shipments of IT-EMCCD devices designated for destinations outside of the US and Canada. Please contact your ON Semiconductor sales representative for more details.

Features

- Three Operating Modes Supported:
 - ◆ Normal: All Signal Routed to Standard CCD Output
 - ◆ EM: All Charge Routed to Electron Multiplication Output
 - ◆ Mixed: Intra-scene Switchable Gain Routes Charge Based on Signal Intensity on a Per Pixel Basis
- USB Interface for Sensor Control, Image Capture, and Firmware Downloads
- Optional Camera Link Interface Supports Faster Display Rates

Kit Includes

- FPGA Capture Board with Base and Tripod Mount (1/4-20)
- Imager Board with Socketed Engineering Grade Image Sensor Installed
- F Type Lens Mount, No IR Cut Filter
- USB 3.0 Cable (2 meter Length)



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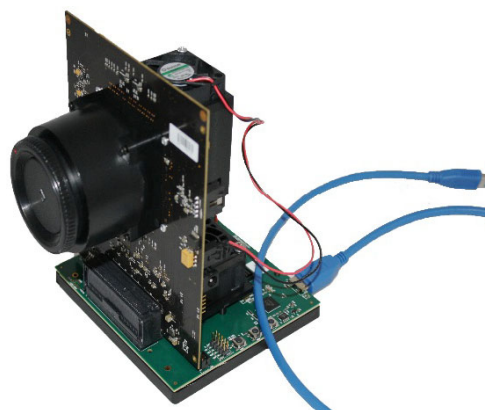


Figure 1. Evaluation Board Picture

Parameter	Typical Value
Hardware Interfaces	USB 3.0 Camera Link Medium
Typical Data Rate USB 3.0 Camera link Medium	79 MB/sec 158 MB/sec
Sensor Output Pixel Rate AFE Data Rate	Analog 20 MHz LVDS 120 MHz
Sensor Frame Rate (fps) Full Resolution @ 20 MHz	single / dual / quad 3.2 / 6.1 / 12.2
Display Frame Rate (fps) Full Resolution USB 3.0 Full Resolution Camera Link	single / dual / quad 1.6 / 3.2 / 6.1 3.2 / 6.4 / 12.2
On Board Frame Buffer Capacity	16 frames
Optics	F type lens mount included. To use C mount, order optional lens mount kit mentioned in "Ordering Information".

- Cooling Tower with TE Controller Interface
- Quick Start guide

Not included (required): Lens, Tripod, Power Supply, TEC Controller, Windows 7 and Windows 10 64 bit Computer

Not included (optional): Components to enable camera link interface (Microtronix A6287 interface board and 2 MDR-SDR cables)

ORDERING INFORMATION

Part Number	Description
KAE-04471-AB-SD-A-GEVK	KAE-04471 TEC image sensor evaluation kit, monochrome (image sensor included)
KAE-04471-FB-SD-A-GEVK	KAE-04471 TEC image sensor evaluation kit, color (image sensor included)
LENS-MOUNT-KIT-E-GEVK	Lens mount kit. Includes C mount, C mount IR cut filter, F mount.

REQUIRED HARDWARE AND SOFTWARE

Host Computer

- 2 GHz processor, 8 GB RAM, USB 3.0 interface, Windows 7 and Windows 10 64 bit Operating System
- SensorStudio software. Available for download at onsemi.com
- Camera lens
- IR cut filter (required for evaluating color image sensors)
- Table-top tripod (optional)

Other (User Supplied)

- +12 VDC, 2 Amp, power supply with 2.1 mm center positive DC jack
- TE Controller (tested with TE Technology models TC-48-20 and TC-720). See Quick Start Guide for connection information.

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The evaluation board/kit (research and development board/kit) (hereinafter the "board") is not a finished product and is as such not available for sale to consumers. The board is only intended for research, development, demonstration and evaluation purposes and should as such only be used in laboratory/development areas by persons with an engineering/technical training and familiar with the risks associated with handling electrical/mechanical components, systems and subsystems. This person assumes full responsibility/liability for proper and safe handling. Any other use, resale or redistribution for any other purpose is strictly prohibited.

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