DVTI + CAM

Development of a digital video camera with time insertion

Project Status Update

SOTAS workshop / Falera / 29.10.2022 Andreas Schweizer

Agenda

- A short look back to 2019
- Final product «DVTI+CAM»
 - Front side
 - Back side
 - Inside / taking apart / sensor upgrade
 - Software

Further development

- Hardware
- Software
- Demo & Questions

DVTI+CAM

- Affordable, easy-to-use digital video camera for observing stellar occultations
 - Control software (MS Windows only)
 - occultation tools integration (OW, C2A, ...)
 - telescope control (via ASCOM)
 - plate solving
 - report generation
 - No time inserter, digitizer, power supply, ..., only the camera and GPS antenna
 - No calibration required
 - User upgradeable (hardware, e.g. image sensor, and firmware)
 → planned to provide sensor upgrade kits in the future
 - Automatic image sensor type detection (same firmware for all sensors)
- Developed by Stefan Meister and Andreas Schweizer (SOTAS Stellar Occultation Association Switzerland) with the help of many people in the community
- For technical details: <u>https://esop40.iota-es.de/lections/Schweizer.pdf</u>

A short look back...







PoC (2018)

Prototype V1 (2018)

Prototype V2 (2019)



Front side: 1.25 inch adapter, 2 inch filter



M42 to 1.25 inch adapter



Back side







Web site – https://www.dvticam.com





Product

The DVTI+CAM is a small, affordable and easy to use digital video camera with time insertion, optimized for observing stellar occultations. It has been developed and tested with feedback and support from the stellar occultation community. A dedicated control software optimally supports the observation process.

For good performance, you need a reasonably modern PC running Microsoft Windows 10 or newer, with an USB-3 connector and a solidstate disk drive (SSD, ideally reserved for recording), because the camera generates large amounts of uncompressed image data which the computer needs to save on the disk.

The camera is not optimized for taking "pretty pictures". It contains no active cooling.

Fact sheet

Legal Notice

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Further development

Short term

- Finalization of IMX430 integration
- Bug fixing, cleanup

Mid term

- Tests with IMX533 and GSENSE2020
- Faster frame rates / ROI improvements
- Automatic dark selection
- «Synchronous» mode (exposure controlled via 1pps)

Long term

- Automated observations
- DVTI control tool for Linux and macOS?
- Cooled camera DVTI+CAM «Pro» with expensive sensors?

IMX533, GSENSE2020 boards



DEMO

Thank you!

Supply chain issues



Example <u>FPGA</u>:

- · official price $$54 \rightarrow 65 , unavailale
- · brokers \$170...\$400

Remark: New parts, lead time 1~3 days and we can offer 60 days full quality guarantee, thanks! Ship method: Registered Mail:from \$30.00 basic shipping fee take 20 days about or DHL/UPS/FEDEX/TNT:from \$50.00 basic shipping fee take 3-5 days about! (shipping fees for the goods weight < 0.5 KG) Payment method: PayPal.Credit Card,Wire Transfer,Western Union.

Gpixel GSENSE2020BSI (6.5µm pixels)

