

CDK Overview

- THine's CDK (Camera Development Kit) allows camera system developers to fine tune THine's 16M pixel Image Signal Processor (ISP) - THP7312's firmware in house according to their requirements, and actualizes fast time-to-market of their camera systems.
- This shortens time to fine tune THP7312's firmware according to the requirements of camera system developers. It also reduces workload to develop camera systems.
- This CDK consists of 3 major components, SDK (Software development Kit), 3T (THine Tuning Tool) and EVB (EValuation Board).
- SDK is a set of source codes and binary libraries of THP7312's firmware for a reference Camera Module.
- You can change parameters inside the THP7312 firmware to tune the firmware for your own Camera Module by utilizing 3T, GUI based easy to use, Camera System Development tool.
- You can check the tuning results by 3T & EVB, and connect your own Camera Module on your Header Board.

CDK's 3 major components

Software Development Kit (SDK)

• SDK consists of :

- 1) Sample firmware source code
- 2) Firmware binary library including Internal hardware drivers
- 3) External hardware driver templates

SDK : Software Development Kit

ISP Firmware

Source code (.c)

Object code (.a)

Header file (.h)

Parameter

THine Tuning Tools (3T)

- GUI based tuning tool for THine's ISP firmware
- Generate tuned firmware in source or binary format
- Or modify ISP's registers directly to instant check.

3T : THine Tuning Tool

Console

THU Win

Debugger Conn.

Viewer

USB CamViewer

Configurator

AE

AWB/IQ

Color effect

Flash ROM

Drv. mode

IO

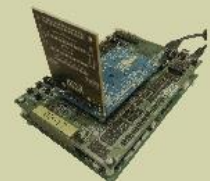
Shading

Evaluation Board(EVB)

• EVB comprises Header Board, ISP (THP7312) Board and Frame Grabber Board

EVB : EValuation Board

Header Board
ISP Board
Base Board
Grabber Board



Tuning features with CDK

Basic

- Frame Size Up to 16M pixel
- Frame Rate 16fps@16M pixel, 20fps@13M pixel, 30fps@4K2K, 120fps@1080p, 240fps@720p etc.
- Pixel Rate 300M pixel/sec

Interface

- Sensor MIPI CSI-2 up to 4lane 1G bps/lane RAW12/10/8bit
LVCMOS Parallel RAW12/10
- Host MIPI CSI-2 up to 4lane 1G bps/lane YUV420/422 or JPEG
LVCMOS Parallel YUV422 or JPEG

Functions

✓ Sensor Correction

- Black Level Correction
- Adaptive Correction of Defect Pixels
- Lens Shading Correction

✓ Adaptive Image Signal Processing

- Noise Reduction
- Edge Enhancement
- Multi Axis Color Correction
- Tone Mapping

✓ Auto Functions

- Multi point Auto Exposure
- Continuous Auto Focus
- Auto White Balance
- Flicker Cancel

✓ Others

- JPEG encoder
- Horizontal Mirror
- Special Effects
(Monochrome, Sepia, Reverse)

Tools not included in a kit

- IDE CodeWarrior Special Edition
<https://www.nxp.com/>
- Debug Probe MULTILINK Universal
<http://www.pemicro.com/>
- USB3.0 Cable Type-A to Type-B