DREAM CHIP

X-SERIES

Dream Chip's Real-time Pixel Processor for automotive applications is a scalable and configurable High Dynamic Range (HDR) capable image signal processor (ISP). The processing pipeline consists of all necessary modules allowing to output HDR tone-mapped images of highest possible quality.
The X-Series provides configurable input and output data widths. It supports input image frames with 8, 10, 12, 14, 16, 20, 24 and 26-bit amplitude resolutions, while it can output meticulously tone-mapped frames with 12-bit per pixel. **The X-Serie has physical extension for Functional Safety and is ISO26262 certified.**

Features:
– 2 ITU-R BT.656/601 compatible input video interfaces (28-Bit (26 bit valid) and 12-Bit for long and short exposure of HDR bracketed video frames)
– 3 CVI streaming output interfaces (Human Vision & Machine Vision & Infrared Vision)
– Scalable up to 64MP with a throughput of 1.4 giga pixel/ second.
– Bayer pixel support (RGGB) and Clear pixel support (RCCB, RCCC)
– Bad pixel correction
– Bilateral denoising
– Black level compensation
– Color correction
– Cropping of output pictures
– Decompanding
– Downscaling support
– Dual video Output (Human Vision and Machine Vision)
– Enhanced debayering
– HDR image fusion of two or more bracketed sensor frames
– HDR tone mapping to match 10-bit or 12-bit rendering devices
– Input sampling on positive and negative sample clock
– Lens shade correction
– Monochrome sensor support
– RGB independent programmable gamma correction for sensor adaptation
– RGB Look-up table for color dehazing
– RGB-IR 2×2 and 4×4 with additional output port
– Sharpening and blurring filter
– **Extended Statistics**
  - For Automatic White Balance (AWB) measurement and control
  - For Auto Exposure (AE) measurement and control
  - Multiple histogram measurements

Options:
– Customizations
– Feature extensions
  - ADU (Advanced Display Unit)
  - Lens Distortion Correction
  - Color Correction Matrix
– FPGA platforms available

Deliverables:
– Soft IP
– Example software drivers and application
– User Manual, Programming Guide
– Sensor calibration and tuning tools
– ISP simulator
– Functional safety documentation