Executive Summary

Intel has a long history driving standardization and bringing its expertise into new areas such as high-performance imaging. The partnership with DarbeeVision, Inc. exemplifies our efforts to work with leading-edge companies to bring high-quality products to the market.

DarbeeVision is an inventor of proprietary image processing technology solutions that significantly improves perceived image quality in real time.

Challenges

• Single-lens cameras have an inherent flaw when trying to replicate an image for our visual system; they cannot capture and process light the same way our eyes and brain do.

• Image capture through a single lens discards important parallax information (right vs. left disparity), resulting in “flat” images. Other solutions focus on improving fidelity factors such as pixel count, color depth, contrast, and sharpness.

• All distributed video is compressed, compromising picture quality. DVP restores lost picture data by amplifying the perceptual qualities of depth, clarity, and realism.
The Solution

- The DarbeeVision Image Processing intellectual property (IP) core uses algorithmic computation to improve the depth, clarity, and realism of videos or images. Images are analyzed on a pixel-by-pixel basis to determine the required luminance adjustment. Once processed, the resulting image contains greater depth information, making the image more lifelike. Real-time performance for these complex algorithms has been achieved using Intel® Cyclone® IV FPGAs and Intel IP cores.

- The DARBEETM Visual Presence® (DVP) technology is a comprehensive fidelity solution capable of processing large images or high-definition video, and is compatible with all standard connectivity interfaces. DVP is unique, automatically scaling as pixel data, pixel count, and pixel density increase from Standard Definition, HD, HDR, to 8K video; including high-frame rate video.

- As display formats move into 3D and holographic realms, DVP pixel enhancement provides the optimal viewing experience.

- Intel FPGAs bring real-time, programmable, high-performance solutions to image and video processing. DARBEETM Visual Presence technology along with Intel FPGAs bring high-impact image processing to products such as digital signages and interactive flat panel displays.

How It Works

DVP algorithms analyze the image on a pixel basis to compute the lost depth data, similar to the human visual system, and then adjust pixel luminance across the entire image to enhance image quality by adding information required to better see and understand it.

Benefits

- Efficient, low-power solution
- Easy to use
- Enhances all video formats
Learn More

Since 2009, DarbeeVision has focused on developing and marketing DVP and several other digital image processing solutions. Currently, the number of DVP nodes in homes now exceeds 200K units. The company is building on its success in consumer products by expanding into commercial applications, and is currently developing 4K solutions to satisfy OEM demand.

DarbeeVision is headquartered in Orange, California and recently opened a business unit in Shenzhen, with funding from Plug and Play China, and established accelerator partnerships with Vanke (Beijing) and LeaguerX (Shenzhen).