



FPGA POWERED VIDEO SOLUTIONS

A high-speed, low-latency video system could push your projects to **new heights of adoption.**

Developers in automotive, aerospace, defense, and even rugged industrial markets are already taking advantage of these robust solutions.

Without them, they're just taking pictures.

PAINLESS FPGA DEVELOPMENT FROM IDEA TO REVENUE



The systematic DornerWorks development process guides you from idea to revenue so you can **focus on growing your business with remarkable products.**



FRONT END **FILTERING**

- Dark current suppression
- Demosaic.
- Scaling
- Cropping
- Color correction
- Convolution filters
- Color space conversion
- Frame rate conversion
- Format conversion
- Flat field correction
- Tone mapping
- (de)interlacing



ROBUST **PROCESSING**

- Video frame mixing/blending
- Overlay generation
- Frame min/max/avg
- Histogram statistics
- Resolutions *greater than 3840x2160*
- Aggregated video bandwidth *greater than 60 Gbps*



I/O **VERSATILITY**

- HDMI
- DisplayPort
- HD-SDI
- MIPI CSI-2
- CoaXpress
- CameraLink
- FPD-Link
- GMSL
- RS-170
- NTSC



SYSTEM **DESIGN**

- Video aggregation
- multi-stream video multiplexing/demultiplexing
- SERDES
- PCIe
- ADAS
- Situational awareness
- Ancillary data processing
- Resource and performance analysis

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DornerWorks
delivered the project,



FROM ALPHA TO BETA

in the time frame and budget
they promised.



360-DEGREE AWARENESS

- An Altera Stratix IV FPGA was used to process five 1080p HD-SDI and two NTSC video inputs into a single video output.
- Each video input was scaled and positioned into a mosaic over a single video output.
- Dedicated video frame buffering was provided by DDR3 memory.
- The system software was run on a soft-core processor implemented in the FPGA logic.
- A custom PCB with the video processing FPGA was designed to meet MIL-STD specifications for ground vehicles.



AERIAL SYSTEMS

- A pair of Xilinx Zynq UltraScale+ devices was used to process up to seven 12MP 12-bit video streams, and up to three 1MP 8-bit video streams simultaneously.
- All video streams ran at 30 fps and was received via MIPI CSI-2 and parallel interfaces.
- The video was filtered, color corrected, color space converted, and multiplexed over a PCIe 3.0 x8 link to the system for additional video processing.
- The un-processed video was sent via a PCIe 3.0 x4 link to the system for logging.



MULTI-CAMERA FOR ADAS

- A pair of Altera Arria 10 SoC devices was used to aggregate and display up to five different video sources via six HD-SDI outputs and one 6G-SDI output.
- Video from a combination of CameraLink and CoaXpress cameras was aggregated by one Arria 10 SoC device onto a 4 x 10Gbps QSFP+ fiber link to the second Arria 10 SoC device where the video was demultiplexed, a software generated overlay applied, and sent out 6 HD-SDI output via a full cross-bar switch.

START



TODAY

DEVELOP



SUCCESS

DELIVER



RESULTS



SCHEDULE A MEETING
**LAUNCH YOUR
VIDEO PROJECT
WITH CONFIDENCE**

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