LAP VIDEO PROCESSING CORE

Automatic Contrast *Enhancement* Solution

- High Quality
- Low Cost
- Low Power

OVERVIEW

The Local Area Processing (LAP) Core utilizes adaptive area contrast enhancement techniques to adaptively provide a high level (yet configurable) amount of detail for a wide variety of video/camera sources.

DYNAMIC

Best suited for high dynamic range IR or visible applications, and performs well in other situations.

FOCUSED

Take advantage of a proprietary filtering technique that handles high complexity and prevents processed image artifacts.

VERSATILE

Optimize the algorithm for your custom application via programmable parameters.

CLARIFIED

Make details visible in under-exposed or over-exposed portions of the image with low dynamic range IR, traditional CCD, or CMOS imagers.

SCALABLE

Leverage the filtering kernel, which scales well with larger source images and eliminates the halo artifacts normally created by other methods.

IMAGE QUALITY

- Dynamic pixel by pixel area based contrasting with programmable window size
- Reduced blurring edges
- Free of halo artifacts
- Superior to histogram equalization or other conventional techniques
- See into shadows. Maximal contrast in darks and in lights, simultaneously

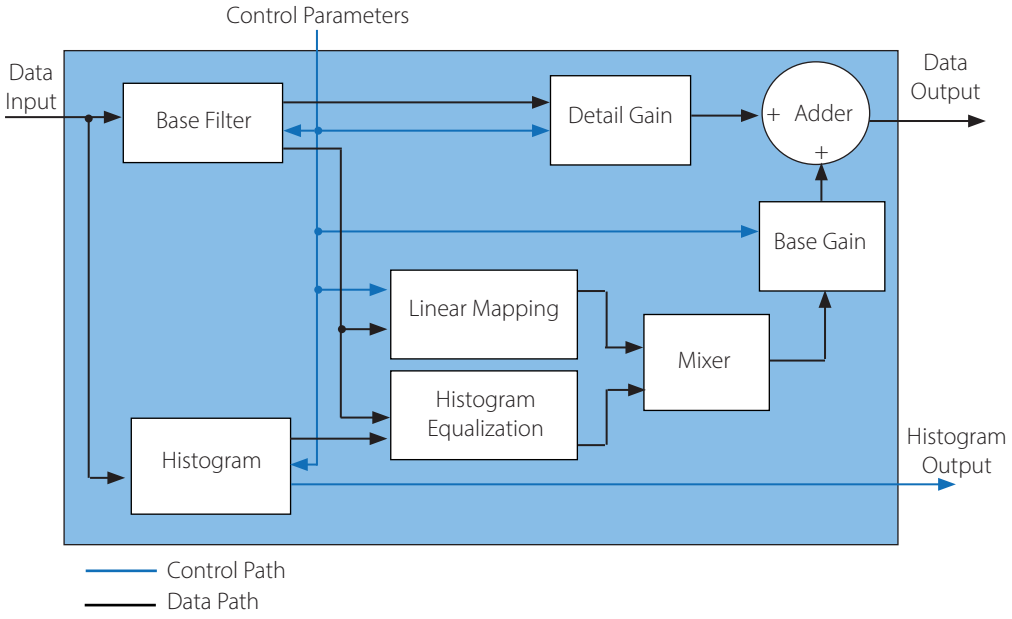
APPLICATIONS

- Uncooled or cooled IR/FLIR systems
- CCD sensor based imaging systems
- CMOS sensor based imaging systems

IMPLEMENTATION

- Small, easy to configure parameter set
- Programmable limits to auto-adaptive local area window sizing
- No frame delay
- Ability to fine tune the algorithm for a wide variety of video input conditions
- Requires relatively small number of resources (low power and system cost)

LAP CORE BLOCK DIAGRAM



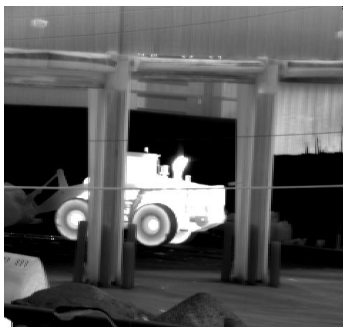
RESOURCE UTILIZATION

The LAP Video Processing Core is not limited to any vendor specific implementation. Versions are available for major FPGA vendors and can be created for any custom ASIC application. The following table shows resource requirements as implemented in a Xilinx device.

MODULE	LUTs	FFs	MULTIPLIERS	18k x 1 BLOCK RAMs
10-BIT B&W	1221	1386	8	3
14-BIT B&W	1385	2140	9	4
8-BIT Color	1796	2188	10	3

UNPROCESSED VS. LAP PROCESSED

Before

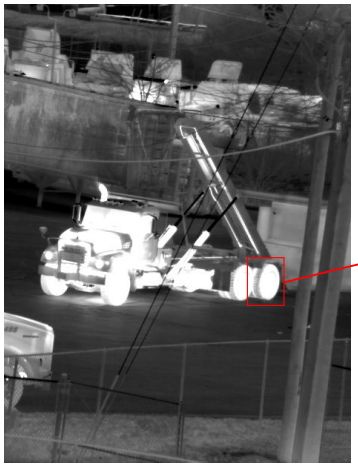


After

Before

After

Before



After

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