

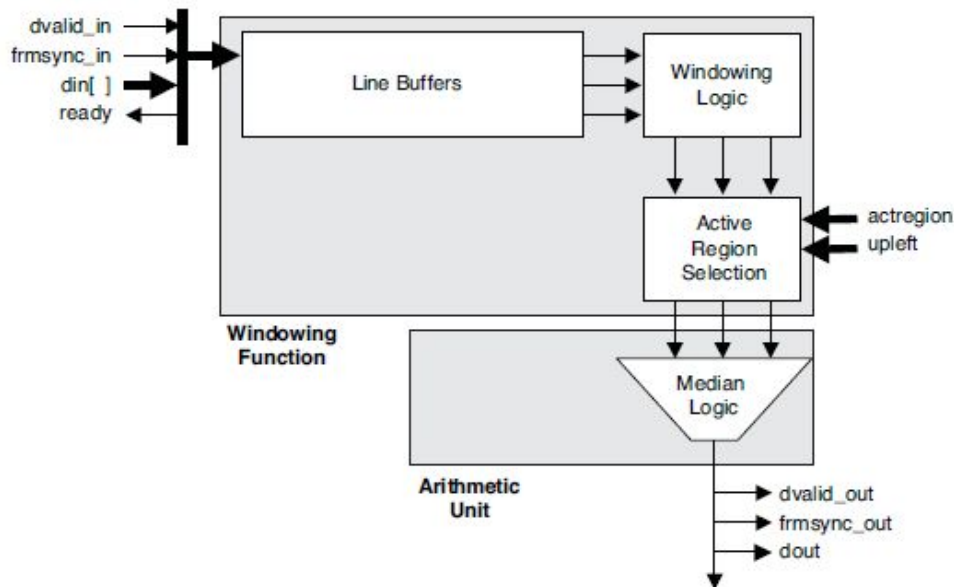
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Median Filter IP Core

Overview

Median filtering is a popular method of noise removal, employed extensively in applications involving speech, signal and image processing. This non-linear technique has proven to be a good alternative to linear filtering as it can effectively suppress impulse noise while preserving edge information. The core's flexible architecture supports a wide variety of video frame sizes on various Lattice device families. A simple IO handshake makes the core suitable for either streaming or bursty input video data.

LatticeCORE™



Features

- Single color plane
- Three filter window sizes: 3x3, 5x5 and 7x7
- Configurable input data width
- Input frame size set at compile-time
- Static active region selection
- Edge mode handling: COPY, MIRROR or VALUE
- Optional clock enable and synchronous reset ports

Performance and Resource Utilization

LatticeECP3¹

Frame Size	Window Size	Edge Mode	Data Width	Input Buffer	Slices	LUTs	Registers	f _{MAX} (MHz)
320x240	3x3	VALUE	8	EBR	534	680	570	255
256x256	5x5	VALUE	8	EBR	2179	2908	2209	231
128x128	7x7	VALUE	8	EBR	8184	11536	6909	191

1. Performance and utilization data are generated targeting an LFE3-70E-8FN484CES device using Lattice Diamond 1.1 and Synplify Pro D- 2010.03L-SP1 software. Performance may vary when using a different software version or targeting a different device density or speed grade within the LatticeECP3 family.

LatticeECP2M/S¹

Frame Size	Window Size	Edge Mode	Data Width	Input Buffer	Slices	LUTs	Registers	f _{MAX} (MHz)
320x240	3x3	VALUE	8	EBR	546	697	568	224
256x256	5x5	VALUE	8	EBR	2198	2943	2211	254
128x128	7x7	VALUE	8	EBR	7796	11482	6934	188

1. Performance and utilization data are generated targeting an LFE2M20E-7F484C device using Lattice Diamond 1.1 and Synplify Pro D-2010.03L-SP1 software. Performance may vary when using a different software version or targeting a different device density or speed grade within the LatticeECP2M/S family.

LatticeECP2/S¹

Frame Size	Window Size	Edge Mode	Data Width	Input Buffer	Slices	LUTs	Registers	f _{MAX} (MHz)
320x240	3x3	VALUE	8	EBR	546	697	568	225
256x256	5x5	VALUE	8	EBR	2198	2943	2211	223
128x128	7x7	VALUE	8	EBR	8132	11482	6934	206

1. Performance and utilization data are generated targeting an LFE2 35E-7F672C device using Lattice Diamond 1.1 and Synplify Pro D-2010.03L-SP1 software. Performance may vary when using a different software version or targeting a different device density or speed grade within the LatticeECP2/S family.

LatticeXP2¹

Frame Size	Window Size	Edge Mode	Data Width	Input Buffer	Slices	LUTs	Registers	f _{MAX} (MHz)
320x240	3x3	VALUE	8	EBR	546	697	568	214
256x256	5x5	VALUE	8	EBR	2198	2943	2211	214
128x128	7x7	VALUE	8	EBR	8132	11482	6934	171

1. Performance and utilization data are generated targeting an LFXP2-30E-7F484C device using Lattice Diamond 1.1 and Synplify Pro D-2010.03L-SP1 software. Performance may vary when using a different software version or targeting a different device density or speed grade within the LatticeXP2 family.

Ordering Information

Family	Part Number
LatticeECP3	MED-FILT-E3-U1
LatticeECP2M/S	MED-FILT-PM-U1
LatticeECP2/S	MED-FILT-P2-U1
LatticeXP2	MED-FILT-X2-U1

IP Version: 1.0

Evaluate: To download a full evaluation version of this IP, go to the IPexpress tool and click the IP Server button in the toolbar. All LatticeCORE IP cores and modules available for download will be visible. For more information on viewing/downloading IP please read the [IP Express Quick Start Guide](#).

Purchase: To find out how to purchase the IP Core, please contact your [local Lattice Sales Office](#).