

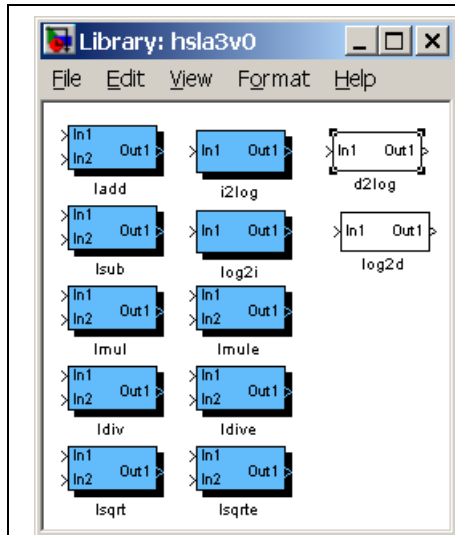
Logarithmic dual pipelined ALU Macros 19-bit and 32-bit

- ADD and SUB in **9 cycles**. MUL, DIV, SQRT in **2 cycles** in simple distributed macros.
- 19-bit ALU is using 8 Virtex BRAMs. Includes **int2log** and **log2int** conversion for 16-bit integers.
- 32-bit ALU is using 98 Virtex BRAMs. Includes **int2log** and **log2int** conversion for 24-bit integers.
- For design of SoC applications, requiring the floating point like data range and precision.
- Designed for Celoxica DK1 Handel C or standard VHDL/Schematic-based projects.
- Bit exact emulation libraries for Matlab/Simulink, MSVC and Handel C under Celoxica DK1.
- The 32-bit ALU provides the same data range/precision as the 32-bit floating point.
- ALU performance in DSP application (RLS Lattice filter) compared to TI C6711 FP processor:

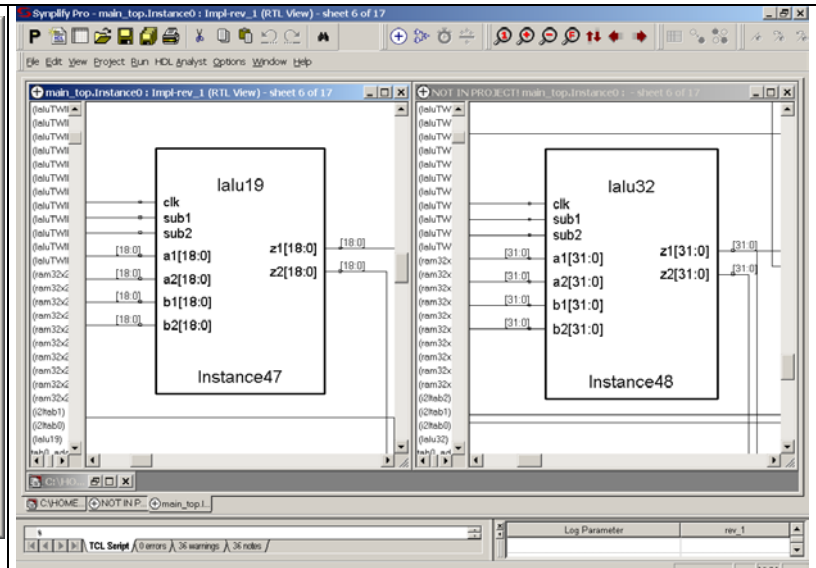
Comparison of the maximal sampling frequency (RLS Lattice order 252)					No.	XILINX	TI
Virtex (Celoxica DK1-VHDL-ISE4.2i flow) ALU					of	Virtex	C67
Type	grade	clock	resources used	prec.	chan.	(kHz)	(kHz)
XC2V2000	-6	84 MHz	(90% Slices 73% BRAMs)	32 bit	1	26,1	1,7
XCV2000E	-6	45 MHz	(55% Slices 76% BRAMs)	32 bit	1	13,6	1,3
XCV2000E	-6	52 MHz	(67% Slices 35% BRAMs)	19 bit	2	16,7	0,6
XCV2000E	-6	55 MHz	(34% Slices 17% BRAMs)	19 bit	1	17,1	1,3

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Example of use in Handel C DK1 flow:
ram int 32 a[16], b[16], result[16];
ladd1(a[i],b[j],result[k]); //in 9 cycles:result[k]=a[i]+b[j];
    
```



HSLA 3.0.0 bit-exact library for Matlab, Simulink, MSVC, DK1.1 (19/32 bit).



Synplify Synplify 7.1 Analyst: **alu19** and **alu32**. Macros in use.

<p>Available as: Netlist Macros + Bit-exact models. Netlists for Spartan2(-E), Virtex(-E), Virtex2(-Pro). Precision: LNS: 19/32bit. Int2log, log2int: 16/24bit. Cost: Please, contact us. We provide the bit-exact Matlab/C/DK1 evaluation models for free. For the currently available downloads see: http://www.utia.cas.cz/ZS/projects/hsla</p>	<p>Contact: Jiri Kadlec Department of Signal Processing Institute of Information Theory and Automation Prague, Czech Republic tel. +420 2 6605 2216 fax +420 2 6605 2511 kadlec@utia.cas.cz http://www.utia.cas.cz/ZS</p>
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