Selected Topics in VLSI Design (Module 24513)

course and contest

results of phase 3 Final FPGA-Design

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Target

• a better design, in terms of the metric



Further Enhancements

- N14-FIR-filter
- final adder is a 40 bit ripple carry adder \rightarrow slow



Direct Form II Enhancement

- N14 FIR-filter with 10-bit-coefficients
- 3 different coefficients
- term sharing





Direct Form II Enhancement





Direct Form II Enhancement - optimized





The Overall Structure





The Results

frequency f	104.37 MHz	122.61 MHz
area $A \ (\# \ {\sf of} \ {\sf pairs})$	2458	533
attenuation	-9.176983	-11.29828
# pipeline stages	3	2
metric	$6.1795136 \cdot 10^{-10}$	$7.4615784 \cdot 10^{-8}$



The Results







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9/11

The Results

frequency f	122.61 MHz	
area $A \ (\# \ {\sf of} \ {\sf pairs})$	533	
attenuation	-11.29828	
# pipeline stages	2	
metric	$7.4615784 \cdot 10^{-8}$	
noise	$2.307210 \cdot 10^{11}$	



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Thank you for your attention!

