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Midterm Presentation - P4 Accuracy of Approximate Circuits

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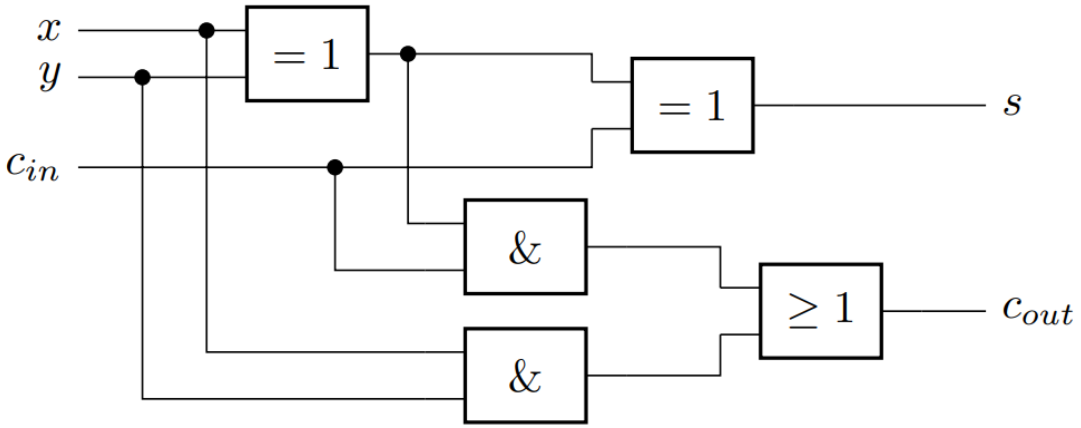
Introduction

- Advantages of approximate computing
- Energy-efficient
- Less area
- Less computing time

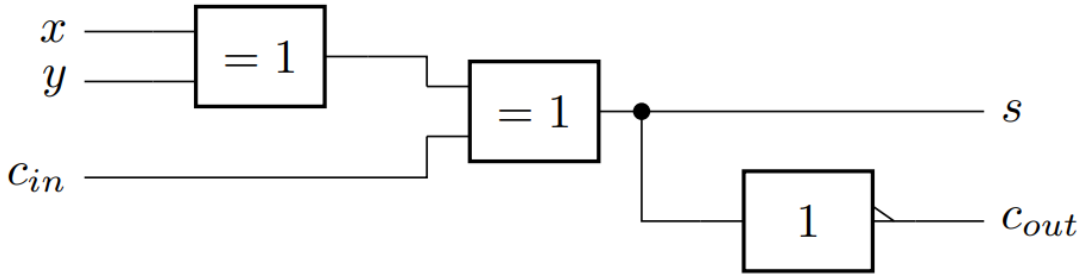
Designed architecture

- Presenting our design
- implementing two versions of Full-Adder (one exact and one approximate)
- CIRCUIT DIAGRAMME hinzufügen und Unterschiede erklären mit Hilfe von Tabelle

Circuit Designs



Conventional Full Adder Circuit Design



Approximate Full Adder Circuit Design as proposed in [source]

Truth Table

Input			Full Adder		INXA1	
x	y	c_{in}	c_{out}	s	c_{out}	s
0	0	0	0	0	0 ✓	0 ✓
0	0	1	0	1	1 ✗	1 ✓
0	1	0	0	1	0 ✓	1 ✓
0	1	1	1	0	1 ✓	0 ✓
1	0	0	0	1	0 ✓	1 ✓
1	0	1	1	0	1 ✓	0 ✓
1	1	0	1	0	0 ✗	0 ✓
1	1	1	1	1	1 ✓	1 ✓

Progress – Faced Problems - Solutions

- VHDL Code
- Python Code

Progress – Faced Problems - Solutions

- Binary Decision tree BILD

Future Plans

- Time, Area and Power Analysis with VHDL TOOL
- Implementation in Open Source Processor
- Worst Case Error Analysis with BDT
- Implementing on Zedboard (Hardware)

Thank you!