





# Booth Radix-4 Hardware

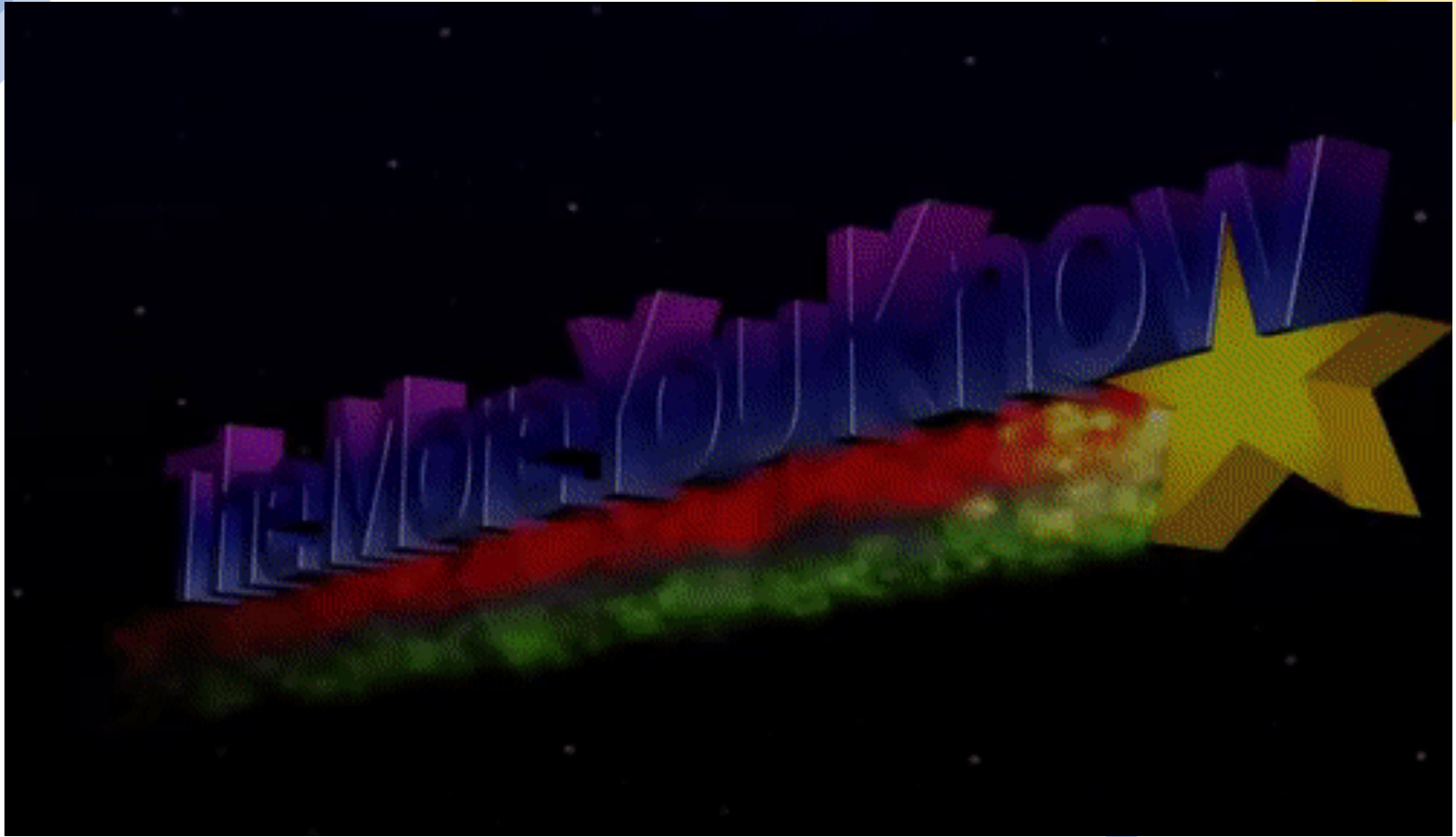
A TeaFang Project by  
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## Primary Goal

- Design and implement a custom instruction set specifically for Booth's Radix-4 multiplication algorithm.
- We are using:
  - VHDL
  - FPGA boards

# Radix-4

Rightmost 3 bits	Command
000	Do Nothing
001	Add B 
010	Add B
011	Add 2B 
100	Add -2B
101	Add -B
110	Add -B
111	Do Nothing



# Design Process



Only for Radix-4 Multiplication



Separate Modules



Top Level

# Architecture Description

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Program Counter

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Instruction Memory

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Control Module

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Register Memory

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Doubling Module

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Inverter Module

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Inverter Double Module

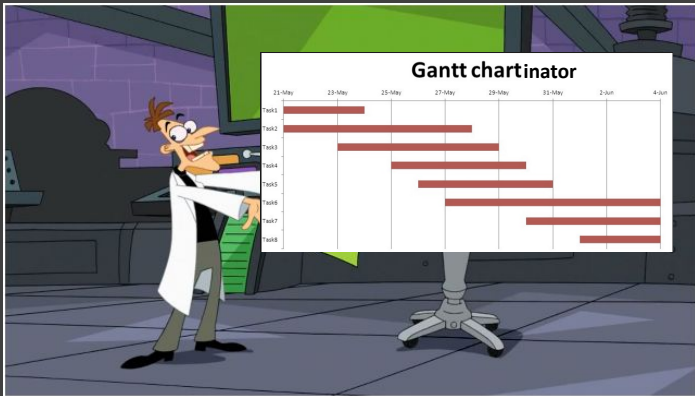
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Shifter Module

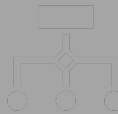
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Adder Module

# Current Progress



Design process and schedule charted out



All the modules have been created



On to testing

## Design Finalization

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- Debugging and testing is an ongoing process
- It'll probably be done soon





# References

- <http://labs.domipheus.com/blog/designing-a-cpu-in-vhdl-part-1-rationale-tools-method/>
- <https://transistorized.net/litmat/Radix-4-Booth-Multiplier/node3.html>

Questions?

