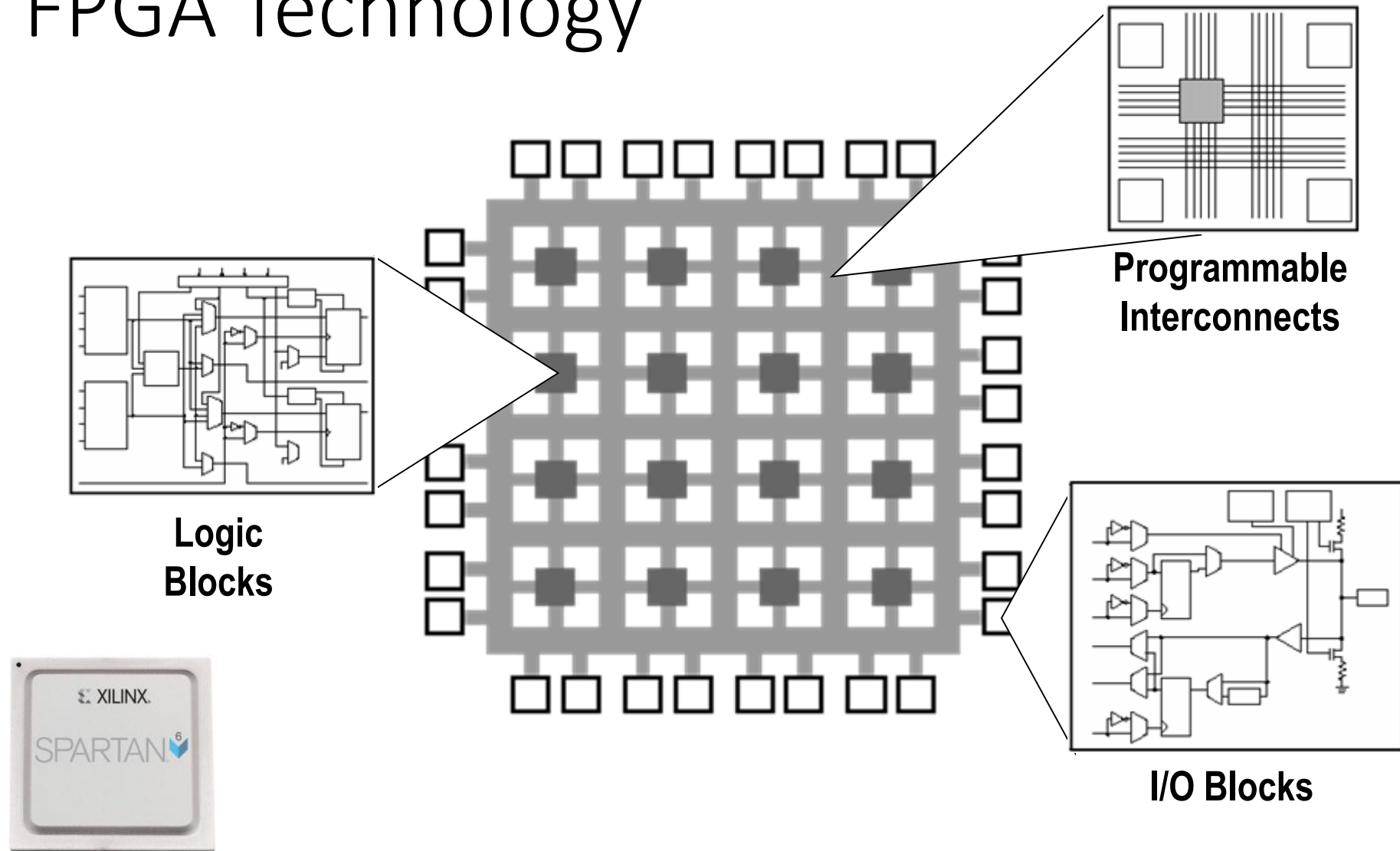




# Introduction to LabVIEW

## FPGA

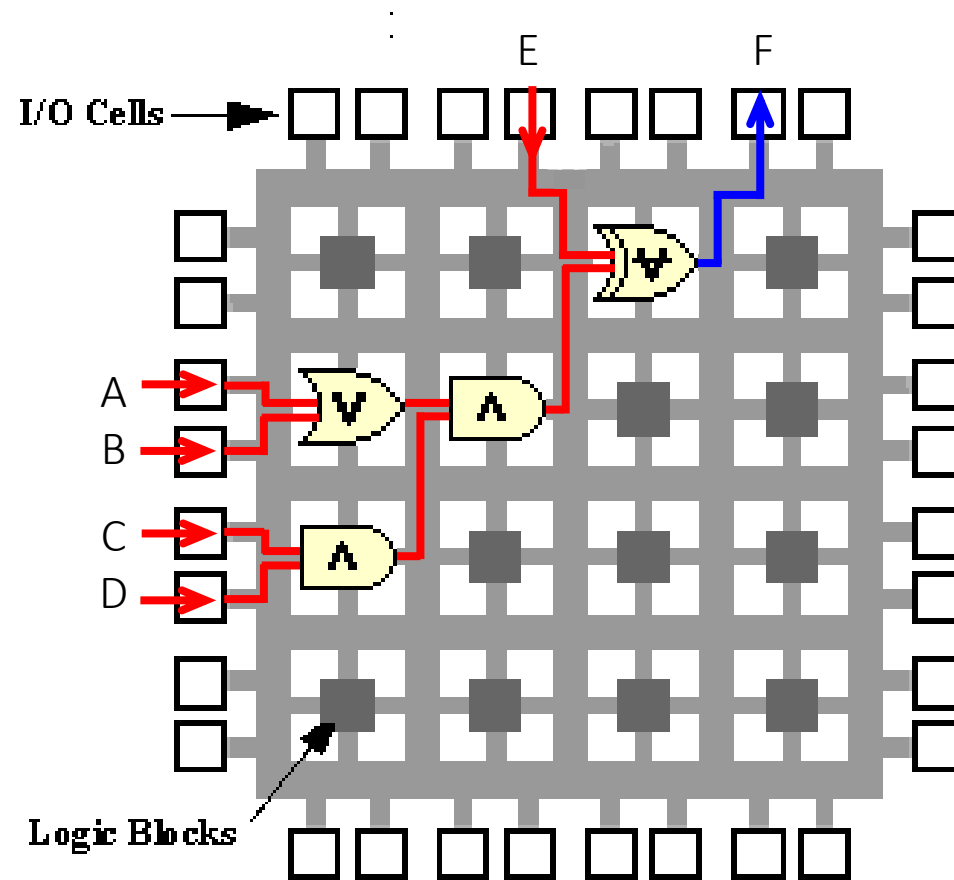
# FPGA Technology



# FPGAs are Dataflow Systems

Implementing Logic  
on FPGA:

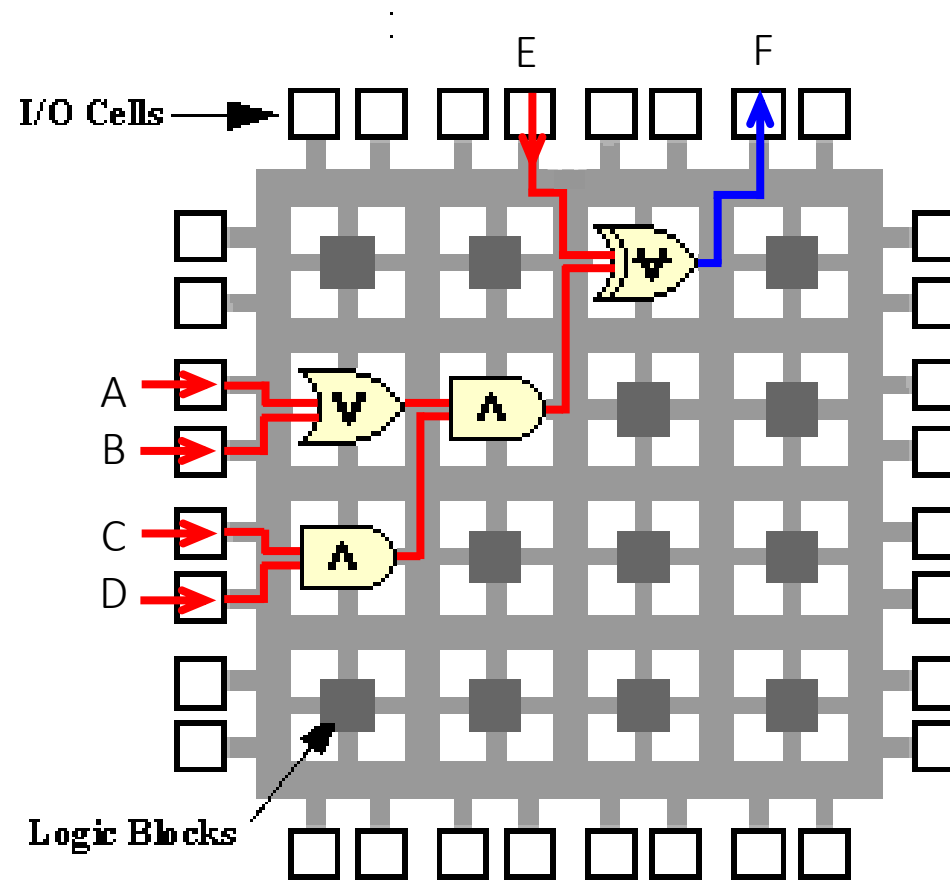
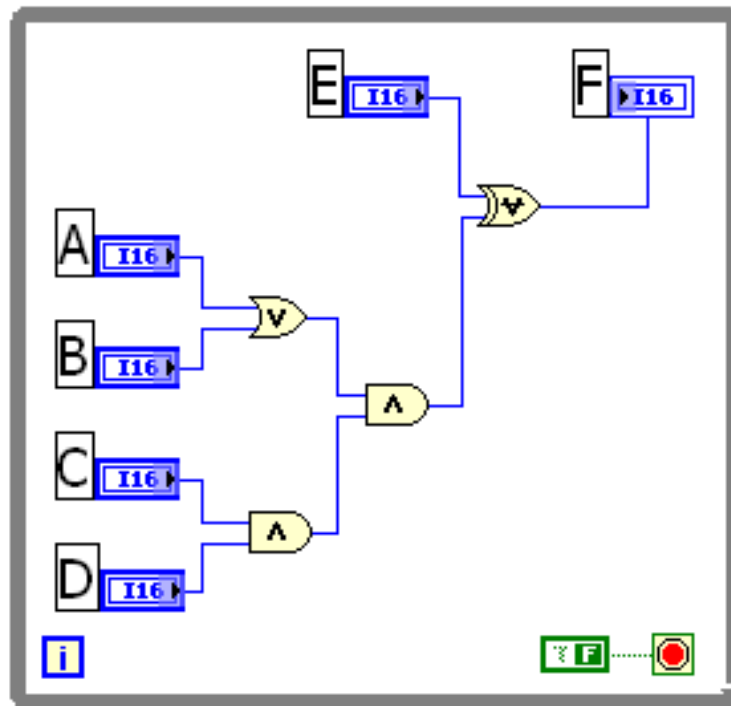
$$F = \{(A+B)CD\} \oplus E$$



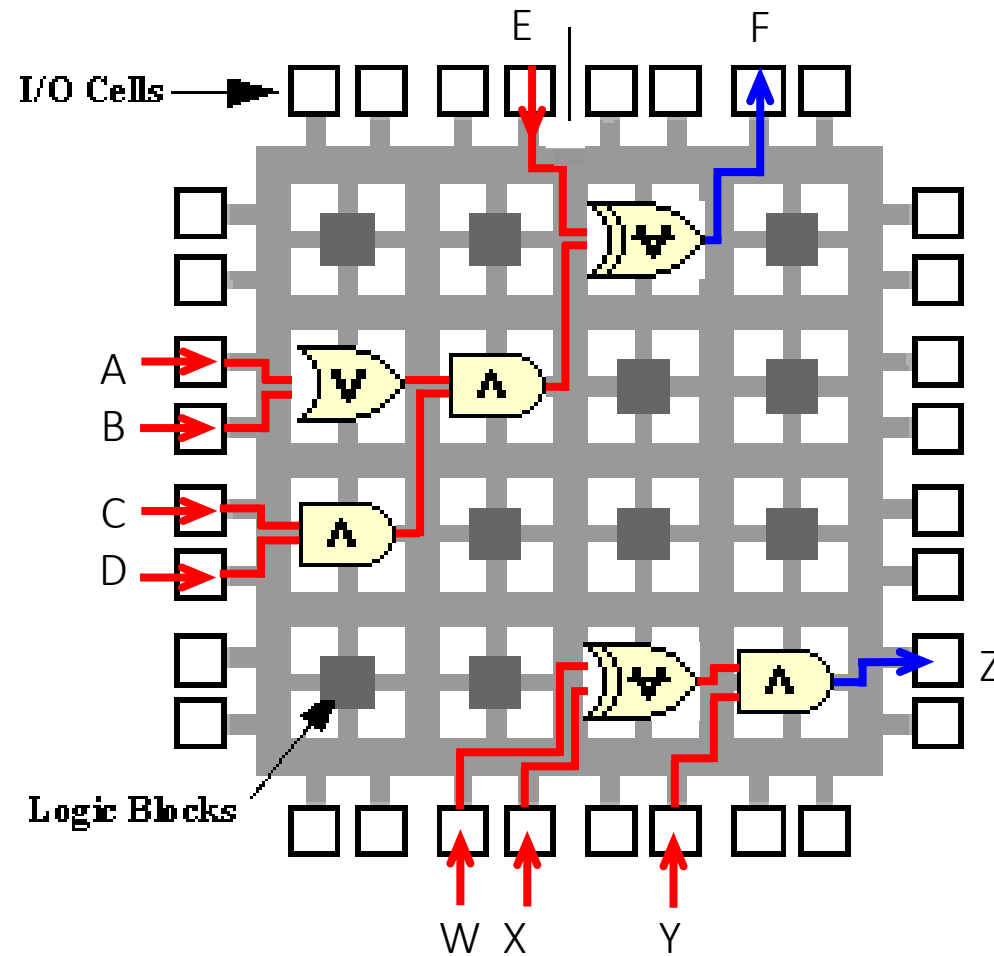
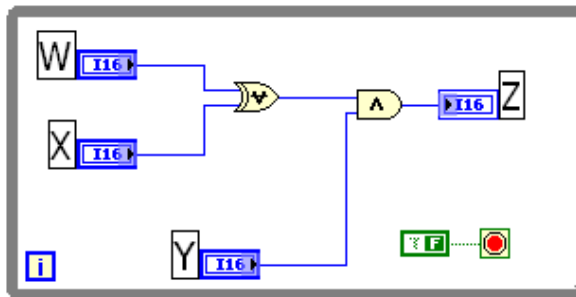
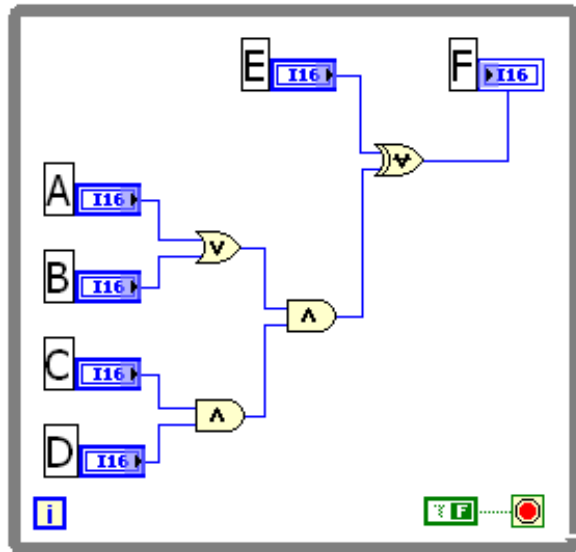
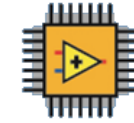
# FPGAs are Dataflow Systems

Implementing Logic on FPGA:  $F = \{(A+B)CD\} \oplus E$

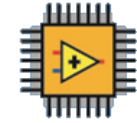
LabVIEW FPGA Code



# FPGAs are Parallel Dataflow Systems





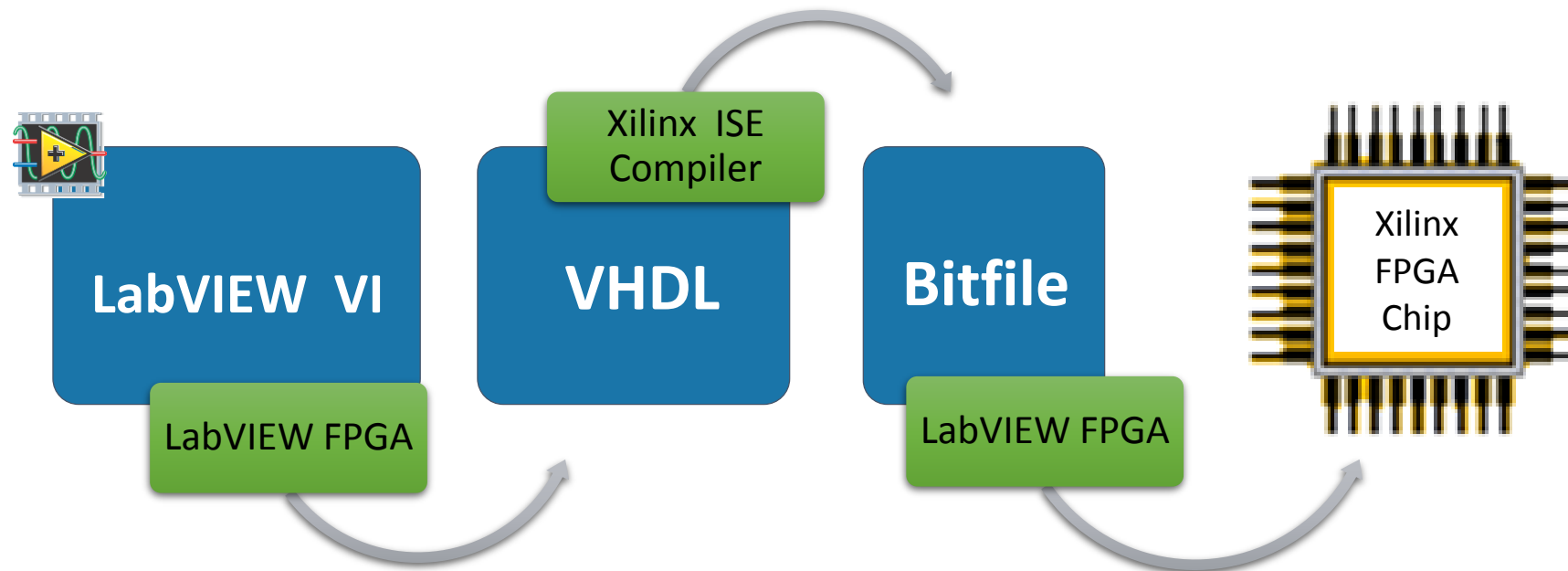


# Why Are FPGAs Useful?

- **True Parallelism**  
Provides parallel tasks and pipelining
- **High Reliability**  
Designs become a custom circuit
- **High Determinism**  
Runs algorithms at deterministic rates down to 25 ns  
(faster in many cases)
- **Reconfigurable**  
Create new and alter existing task-specific personalities

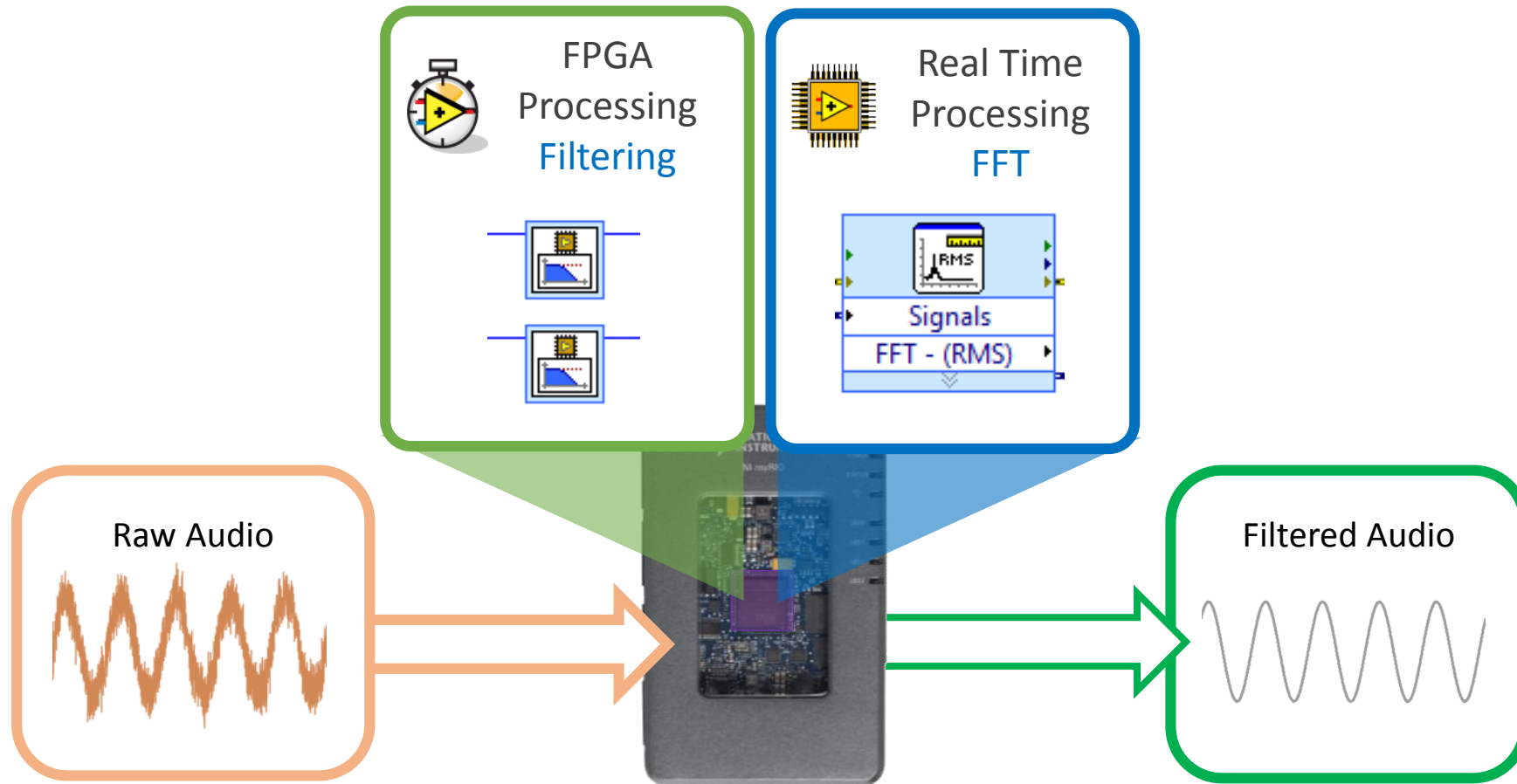


# LabVIEW FPGA: How does it work?



# FPGA example

DEMO



Demo

Exercise

## Exploring the NI myRIO

