NetFPGA
Open Source Network Hardware

The NetFPGA project provides a flexible teaching and research tool – permitting instrumentation and prototyping of hardware-accelerated networking systems running at line rate.

- Put a NetFPGA into a PC to build hardware-accelerated 10Gb/s network appliances
- Features:
  - Wire-speed packet processing
  - Cost-Effective
  - Can be programmed as:
    - Any-protocol Router, Ethernet Switch, NIC, etc.
- Interfaces:
  - Four 10Gb/s Ethernet ports
  - PCIe x8 Gen2 host interface
- Building the NetFPGA follows a Cambridge Computer Laboratory tradition of working with both network hardware and software
- Past networking projects have included the:
  - original Cambridge Ring
  - Cambridge Fast Ring
  - Fairisle ATM switch
  - Desk Area Network
  - Home Area Network
- Programmable network hardware allows students and researchers to do practical prototyping at real-world line-speeds

Current Projects:
- Building accurate, fast, network emulation
- Hardware prototyping of power-efficient networking
- A platform for exploring novel datacenter architectures
- Flexibility allowing us to explore the I/O boundary
  - Leading to SDN done right!
- Open Source Network Testers
- Test novel ideas for control mechanisms (buffer management, scheduling) in Optical Networks

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An open network hardware platform implemented with Field Programmable Gate Array (FPGA) logic.

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