

NetFPGA

Open Source Network Hardware



<http://www.netfpga.org>

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

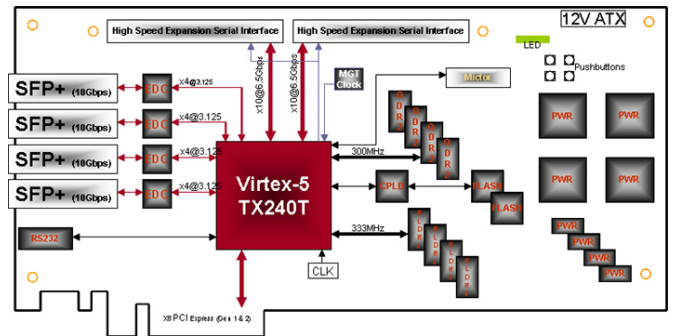
- Put a NetFPGA into a PC to build hardware-accelerated 10Gb/s network appliances

- 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

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

Support for the NetFPGA project has been provided by the following companies and institutions



Approved for Public Release
This work was supported in part by the EPSRC INTERNET Project EP/I H040536/1, the Defense Advanced Research Projects Agency (DARPA) and the Air Force Research Laboratory (AFRL), under contract FA8750-11-C-0249. The views, opinions, and/or findings contained in this article/presentation are those of the author/presenter and should not be interpreted as representing the official views or policies, either expressed or implied, of the Defense Advanced Research Projects Agency or the Department of Defense.

Neelakandan.Manihatty-Bojan@cl.cam.ac.uk
Georgina.Kalogeridou@cl.cam.ac.uk
Andrew.Moore@cl.cam.ac.uk

