BEAM

Dune NvmeStorage

Dune NVMe Storage System

Project	DuneNvme
Date	2020-05-21
Reference	DuneNvme/Readme
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1. Introduction

This directory contains the source code for the Dune NvmeStorage system together with a simple NVMe test environment that allows experimentation with the low level PCIe NVMe interfaces as available on a Xilinx FPGA environment.

The directory contains the FPGA VHDL source code, simulation environment and build environment for the Nvme test FPGA firmware as well as the nvme_test host software.

2. Directories

src	The main VHDL source code
src/ip	IP cores generated with Vivado
sim	The simulation environment
vivado	The build environment
test	Host test programs accessing the FPGA firmware
docsrc	Source for the documentation
doc	Output for the documentation

3. Test Program

The test Linux host program is in the test directory and is called nvme_test. This program communicates with an NVMe device through the FPGA connected to the host machines PCIe bus. This program allows experimentation with the NVMe low level PCIe interface.

It uses a simple Linux driver, bfpga, whose source code is included in the test directory.

4. Building the FPGA bit file and programming

1. cd vivado
2. make clean

3. make all
4. make program

5. To Simulate FPGA

1. cd sim
2. Edit Makefile and testbench files for simulation required
3. make
4. make view

6. Building the source code

1. cd test
2. make clean
3. make driver
4. make

7. More Information

See the DuneNvmeStorageManual and DuneNvmeStorageDesign documents for more information.