Chips-2.0 Demo for NEXYS3 Development Card

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This project is intended to demonstrate the capabilities of the Chips-2.0 development environment. The project is targets the Xilinx Spartan 6 device, and more specifically, the Digilent NEXYS3 development platform. The demo implements a TCP/IP socket interface, and a simple web application. This demonstration has been tested on a Debian Linux.

Dependencies

- Xilinx ISE 12.0 or later (Webpack edition is free)
- Python 2.7 or later (but not Python 3)
- Chips-2.0 (Included)
- Digilent NEXYS3 Spartan 6 Development Kit.
- Digilent ADEPT2 utility
- git

Install

Clone the git the repository with git:

```
$ git clone https://github.com/amerc/phimii.git
$ cd Chips-Demo
$ git submodule init
$ git submodule update
```

Chips Compile

To compile the c code in chips, issue the following command in the project folder:

```
$ scripts/nexys3.py compile
```

Build in ISE

Edit the Xilinx variable in the *scripts/user_settings* to point to the Xilinx ISE install directory. Then build the design using the following command:

```
$  scripts/nexys3.py build
```

Download to Nexys3

Power up the Nexys3, and connect the JTAG USB cable to your PC. Run the download command:

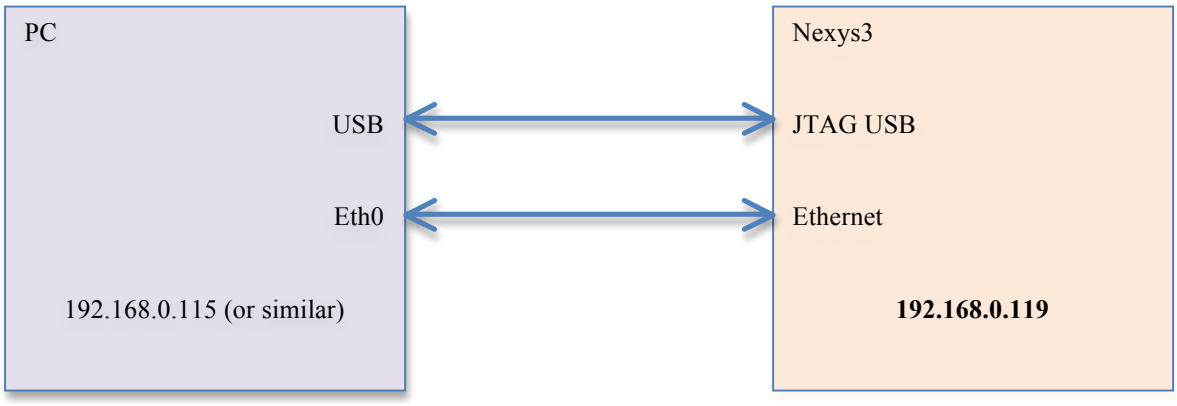
```
$  scripts/atlys.py download
```

Or to do the 3 steps in a single command:

```
$  scripts/nexys3.py all
```

Setup and Test

Connect the Ethernet port to NEXYS3, using an Ethernet cable.



Using the following script, configure Ethernet port (eth0) with IP address 192.168.0.115 and subnet mask 255.255.255.0. Turn off TCP Window Scaling and TCP time stamps:

```
$  scripts/configure_network
```

Verify connection using ping command:

```
$ ping 192.168.0.119
PING 192.168.0.119 (192.168.0.119): 56 data bytes
Request timeout for icmp_seq 0
64 bytes from 192.168.0.119: icmp_seq=1 ttl=255 time=0.556 ms
64 bytes from 192.168.0.119: icmp_seq=2 ttl=255 time=0.566 ms
64 bytes from 192.168.0.119: icmp_seq=3 ttl=255 time=0.629 ms
64 bytes from 192.168.0.119: icmp_seq=4 ttl=255 time=0.569 ms
64 bytes from 192.168.0.119: icmp_seq=5 ttl=255 time=0.678 ms
64 bytes from 192.168.0.119: icmp_seq=6 ttl=255 time=0.594 ms
64 bytes from 192.168.0.119: icmp_seq=7 ttl=255 time=0.667 ms
^C
--- 192.168.0.119 ping statistics ---
8 packets transmitted, 7 packets received, 12.5% packet loss
round-trip min/avg/max/stddev = 0.556/0.608/0.678/0.046 ms
```

Connect to 192.168.1.1 using your favourite browser.