

# Chips-2.0 Demo for ATLYS and NEXYS3 Development Card

**Author:** Jonathan P Dawson  
**Date:** 2013-10-15  
**email:** [chips@jondawson.org.uk](mailto:chips@jondawson.org.uk)

This project is intended to demonstrate the capabilities of the [Chips-2.0](#) development environment. The project targets the Xilinx Spartan 6 device, and more specifically, the Digilent ATLYS and NEXYS3 development platform. The demo implements a TCP/IP socket interface, and a simple web application. So far the demonstration has been tested on a Ubuntu Linux only. Some users have reported success using windows.

## Dependencies

You will need:

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

## Install

Clone the git the repository with git:

```
$ git clone https://github.com/dawsonjon/Chips-Demo.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:

```
$ ./atlys.py compile
```

or:

```
$ ./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:

```
$ ./atlys.py build
```

or:

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

## Download to ATLYS

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

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

or:

```
$ ./nexys3.py download
```

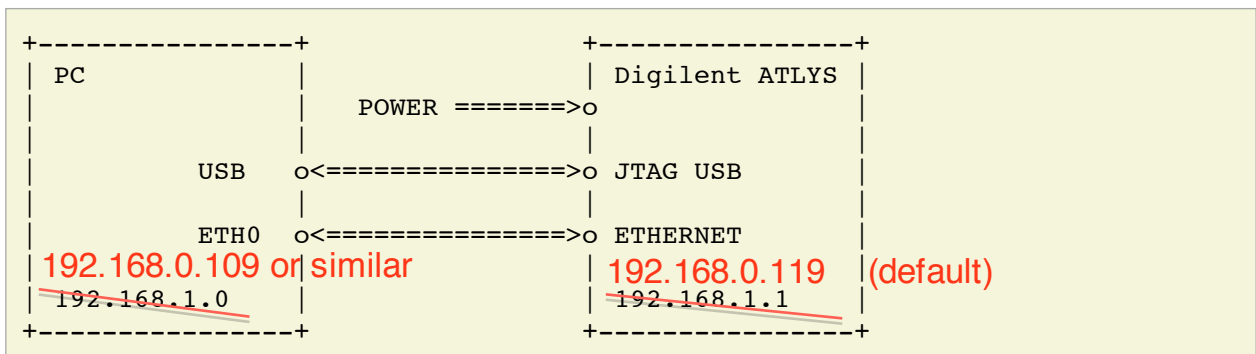
You can complete all three steps in one go using the *all* option:

```
$ ./atlys.py all
```

or:

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

## Setup and Test



Connect the Ethernet port to ATLYS, using a crossed over Ethernet cable.

Using the script, configure Ethernet port with IP address 192.168.1.0 and subnet mask 255.255.255.0. Turn off TCP Window Scaling and TCP time stamps:

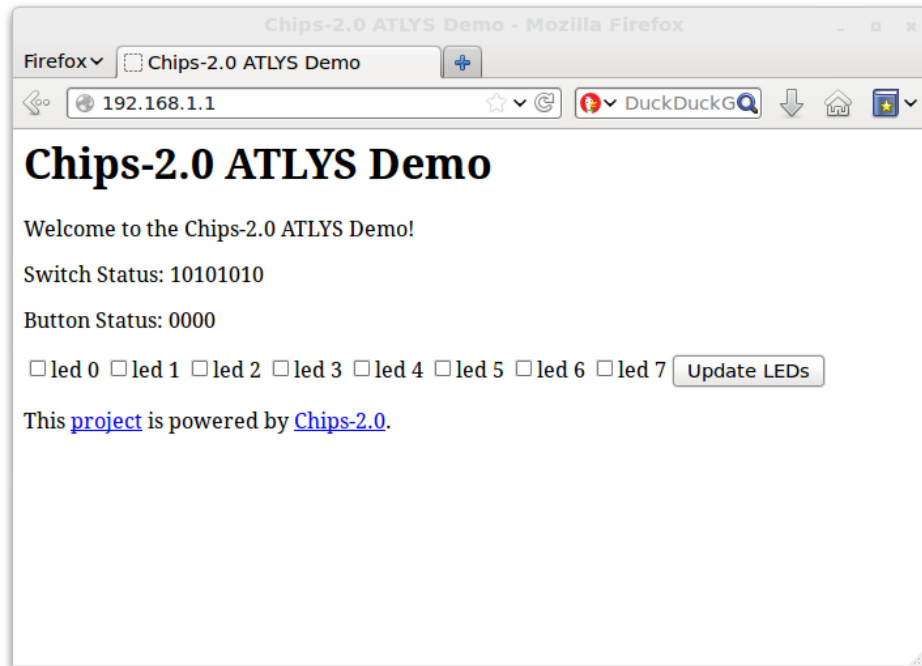
```
$ ./configure_network
```

Verify connection using ping command:

```
$ ping 192.168.1.119
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.
64 bytes from 192.168.1.1: icmp_req=1 ttl=255 time=0.253 ms
64 bytes from 192.168.1.1: icmp_req=2 ttl=255 time=0.371 ms
64 bytes from 192.168.1.1: icmp_req=3 ttl=255 time=0.382 ms
```

```
64 bytes from 192.168.1.1: icmp_req=4 ttl=255 time=0.250 ms
^C
--- 192.168.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3000ms
rtt min/avg/max/mdev = 0.250/0.314/0.382/0.062 ms
```

Connect to 192.168.1.1 using your favourite browser.





# Chips-2.0 NEXSYS3 Demo

Welcome to the Chips-2.0 NEXSYS3 Demo!

Switch Status: 01100001

Button Status: 0000

☐ led 0 ☐ led 1 ☐ led 2 ☐ led 3 ☐ led 4 ☐ led 5 ☐ led 6 ☐ led 7

This [project](#) is powered by [Chips-2.0](#).