Thank you for downloading Centurion-V5! This version of Centurion is a 4x3 many-core with an experiment "host" controller processor in the top left hand corner.

Here are a few tips on using the platform.

Folder Structure

*centurion/virtex5/code_examples/**:
A couple of test programs for the many-core. First one (host and node "main.c" software provided) writes a command to all nodes and waits for reponses back to the host. The second one sends a message around the NoC from node to node.

*centurion/virtex5/host_sw/**:
Software development workspace folder for software running on the **host** Microblaze processor. Open this folder with as an Xilinx SDK (XSDK) workspace.

*centurion/virtex5/node_sw/**:
Software development workspace folder for software running on each of the **nodes** Microblaze processor. Open this folder with as an Xilinx SDK (XSDK) workspace.

centurion/virtex5/scripts/data2mem.bat:
takes the .elf files of the node_sw project (set by the NODE_ELF_FILE parameter) and copies it into the bitstream at the 16Kbyte memories of each node ready for FPGA programming.

centurion/virtex5/many_core.bit:
Bitstream for the FPGA without the node software loaded

centurion/virtex5/many_core_download.bit:
Generated by the data2mem script for programming onto the FPGA. Use impact to program this file to the VLX110T FPGA when node software has been built.

centurion/virtex5/microblaze_msc_merged_bd.bmm:
Locations of on board memory, required by *data2mem.bat*

Using the Platform

1. Unzip the folder to a convenient location
2. Open the ***host*** software by opening XSDK and setting the workspace to *centurion/virtex5/host_sw/*
3. Open the ***node*** software by opening another XSDK and setting the workspace to *centurion/virtex5/node_sw/*
4. Undertake your software development using the "NoC_Lib.h" functions to communicate with the NoC.
5. Build both the host and the node projects
6. Run *centurion/virtex5/scripts/data2mem.bat* to copy the node software into the bitstream
7. Program the resulting *centurion/virtex5/many_core_download.bit* bitstream on the FPGA using impact or the XSDK program tool.
8. Run the host sofware by clicking the "Run" (or by right clicking on the project and choosing Run As -> Run on Hardware (Local)

UARTS

There are UART outputs from the host Microblaze and each of the nodes. This all have a baud of 115200 and run down the J6 connector (on the edge of the board) with the following pinout:

2) Host RX
4) Host TX
6) node 0
8) node 1
10) node 2
12) node 3
14) node 4
16) node 5
18) node 6
20) node 7
22) node 8
24) node 9
26) node 10
28) node 11