

## Laboratory Setup

# Control Cells, NCMO and IP Laboratory Session of the Washington University Gigabit Switch Kits Program

Presented by:

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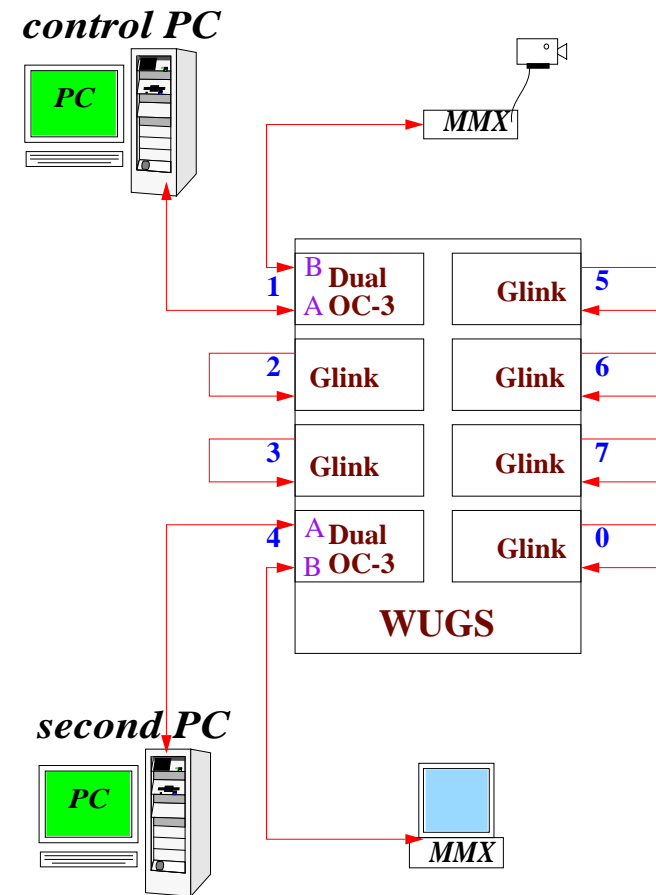
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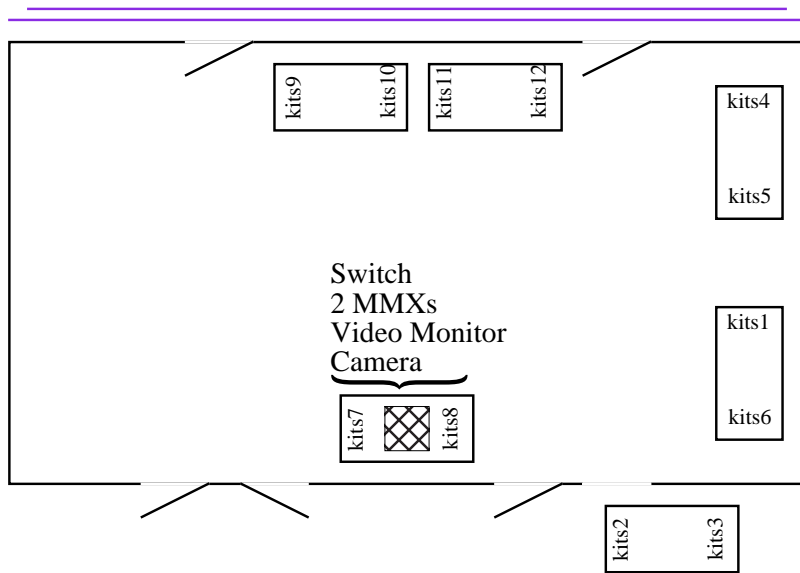
Applied Research Laboratory

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# Exercises

## Laboratory Setup



### I. Switch Startup and Reacquainting

1. Turn on switch.
2. Start GBNSC, verify that it communicates with switch.  
kits4> cd /usr/wugs/src/GBNSC/CONFIGS  
kits4> GBNSC config.port1
3. Start Jammer,  
kits4> Jammer 0.1 kits4 3550
4. Verify that it is communicating with GBNSC and switch.
5. Set up a video connection

### II. Control Cell 'C' functions

1. Given the template for the NOP control cell, get it working.
2. Each group will be assigned N control cells.
3. For each control cell, modify the NOP control cell function to get a C function that will take the appropriate arguments, build and send that control cell and read back a response.
4. Test and debug.

## Exercises (continued)

### III. NCMO Connection Building

1. You are given a C++ program that builds a uni-directional connection. Get it working so you see video from one MMX to another.
2. Expand the program so that it broadcasts out to all ports. Try turning Upstream Discard on and off to see that you get or don't get video on the transmitting MMX.
3. Make a bi-directional connection between your two MMXs so that each transmits and each receives. Again, play with UD.

### IV. NATM Routing

1. Develop a C++ program that does the following:
  - Reads requests from TCP/IP on ethernet interface
  - Create a connection using NCMO to your other PC.
  - Send the request to neighbor via NATM
    - try using AAL0 and AAL5. Any difference?
  - Tear down the NCMO ATM connection
  
  - Your second PC should have a process running on it that has a NATM socket open and is just waiting to read.
  - When it gets something just print it out.

You have a template of a Sender, Router and Receiver programs. Modify these to get the above functionality working.

### V. Use the rest of the day to:

1. Continue Exercises from last week.
2. Continue APIC exercises
3. Experiment
4. Find ARL staff and students to ask questions