

# GEORGIA INSTITUTE OF TECHNOLOGY

College of Computing

## CS8803J — High-Performance Communication

Spring 2002

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CS8803J  
Project *N*

Issued: March 18, 2002  
Due: March 27 / April 26, 2002

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- Purpose:** World domination. Well, at least a demonstration of your mastery of IXP hardware.
- Problems:**
1. Proposal
  2. Presentation
  3. Report
- To turn in:** Turn in a one-page proposal and a 10-12 page final report.
- Collaboration:** (*As in the syllabus*) collaboration on projects and homework in **pairs** is encouraged. If you work in a pair, turn in one write-up with the names of both collaborators. You're welcome to discuss high-level concepts with other groups, but all homework solutions must be worked out and written up separately.

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NOTE: support files for this assignment are available via NFS on CoC machines in the following directories:

`/net/hp82/softarch/cs8803j/`  
`/net/hp31/ixpdev/`

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### **Problem 1: Proposal**

Prepare a brief (one-page) proposal outlining your topic. Proposals are due by **Wednesday, 27-Mar-02**. Suggested project ideas include:

- Implement DMA-based communication over the PCI bus between the BV card and the host.
- Use the BV card to implement standard ethernet adapter card functionality.
- Implement TCP reassembly by microengines for the purpose of supporting intrusion detection.
- Advanced packet classification
- Implement Hamlyn-style remote-memory operations. For simplicity, these could be between regions of SDRAM on the BV card rather than host memory.

### **Problem 2: Presentation**

Prepare a 15-minute presentation with slides (e.g. powerpoint) to be presented to the class during the last week of classes.

### **Problem 3: Report**

Prepare a paper of 10-12 pages with your results and conclusions. The paper should include an abstract, a body and optional appendices. The 10-page target applies to the body of the paper. The appendices may be of any length to include supporting material, but I will likely only skim them when reading the paper.