Final Project for 2002 Advanced VLSI Design

10/30/2002

**Purpose:** Apply what you learned in class and conduct an independent research-oriented project.

**Format and requirement:**

Do paper survey and decide your topic. You can also consult with your advisor to find an appropriate topic. Nevertheless, the topic should be related to the main theme of this course- Advanced VLSI Design (Two students can form a team but the quality and scope should be doubled).

1. Understand and summarize the topic.  
2. Perform computer simulations if necessary  
3. Compare complexity/performance of existing approaches. Make tables and figures to verify your claims.  
4. Make your own conclusions.  
5. Present the topic for progress report and final report.  
6. Write a 10-20 page final report.

**Suggested topics:**

1. Advanced Computer arithmetic algorithms and Operation units (e.g., Distributed arithmetic, RNS, Square-Root, Division, etc.)  
2. Application of advanced computer arithmetic units to DSP/Communication Systems.  
3. Low-power design (circuits, architectures, algorithms)  
4. 3~4 year works

**Suggested journals** (bold face is more related):

1. **Magazines**  
   - Proceeding of the IEEE (good for finding a hot topic)  
   - IEEE Signal Processing magazine (good reviews of major DSP algorithms)  
   - IEEE Micro  
   - IEEE Design & Test  
   - IEEE Communication  
   - IEEE Personal Communication  

2. **Transactions**  
   - IEE F, G, etc. (British journals)  
   - Journal of VLSI Signal Processing  
   - IEEE Trans. on Computers  
   - IEEE Trans. on Circuit and System II
3. Conference (to get most updated research results)
   - IEEE Workshop on Signal Processing Systems (SiPS),
   - IEEE International Conference on Computer Design (ICCD)
   - IEEE International Symposium on Circuits and Systems (ISCAS)
   - IEEE International conference on Acoustics, Speech and Signal Processing (ICASSP)

4. Special topics from the reference list of our textbook

Schedule:
   - Research motivation and goal
   - Problem statement
   - Summary of your approach
   - Expected results
   - (Optional) Impact to your future research works.
2. Final report due: Jan. 22, 2003 (Wednesday noon)

>>> Spend several nights in library and the experience should be rewarding. <<