Simon Fraser University
School of Engineering Science
ENSC452/894: Special Topics I: Advanced Digital System Design
Fall 2009

Final Project Demonstration and Report Requirements

This handout describes the requirements for the final project demo and project report.

1 Demo (8%)

I will be going around to see each group's demo (I may have other faculty members judge as well to give me extra feedback). You will give an oral presentation describing your project. Each member of the group must perform part of the presentation. Be prepared to answer many questions about what you did, the issues you had, how it works, etc.

Please be ***Ready to Run*** at the appointed time. ***Ready to run means that your circuit is downloaded and running.*** Time is tight and we do not want to be waiting for downloads to occur, so please try to have all displays up and running with what you want to show.

Your presentation should follow the following outline. Please make it fit in 15 minutes (12 minutes is better) so think through the presentation beforehand. Preparing a few PowerPoint slides prepared will help you organize the presentation better. Include

- what your project is about
- what your initial goals were
- what you ended up with and why
    - what problems you had
    - what changes you had to make
- what code/blocks you created, what you grabbed from other places
- your design process
    - what did you do to ensure success?
- what you learned
- demo
    - something working ***OR***
    - interesting simulations

Individuals may receive different grades depending on how well each of you knows the project.

2 Group Report (8%)

The report should be the complete documentation of your project and strictly technical information. It should be a self-contained document that includes all references or pointers to all the information and documentation that you needed, such as data sheets, IP (hard or soft) that you got from elsewhere, other tools you used, etc. A test for completeness of the report is whether another person could take your report and figure out how to make your design work, modify it or maintain it. I will also be looking at your own code for style and, especially, ***comments***!

If you have a working pcore that we could make available for the future, it would be welcome. Please put it in the appropriate directory structure and send me a zip/tar file.

Please follow this structure in your report:

Introduction: Provide an overview of the project. What is it you are trying to build and why? In other words, give a high-level description of the project goals.

Background: Provide background on any technical concepts relevant to the application area of your project.

System Overview: Provide an overview of the system including (but not limited to):

- a System Block Diagram
- a "User's Manual" (i.e. how to operate the user interface)
- a brief description of the IP used (modified/created) and where it came from.

For the block diagram, please highlight which cores in the system you designed from those supplied by Xilinx. (Please recall all the feedback I've given you on your proposal as to how to draw a block diagram.)

Outcome: Results. How well it works (or not). Suggestions for further work or improvements.

Description of the Blocks: More detailed description of each of the IP blocks that you have used. This can be as simple as saying you used the XYZ Ver. x block from the library. It could also be a link to the origin of the code that you found online somewhere. You must also describe what changes you might have made. Ideally, you should have a source code control directory (like CVS/RCS) that contains the original version. Please document any other things you might have done to use this IP, such as additional constraints needed for compilation or synthesis, testing procedure, testbenches, test vectors.

Description of Your Design Tree: As part of your submission, please send me a zip file or gzip tar file of your design directory. If it is really big, please clean it up a bit first.

In this section, document what has been sent in the file. You should also include this information as a README file at the top level of your directory.

3 Individual Report (12%)

Here you have the opportunity to describe your contribution to the project and to give some additional feedback. This is where you can talk about the pain and anguish you went through in terms of what you tried, what worked, what did not, and how you eventually made things work.

This is a significant component of your grade and I need to see significant evidence of the work you did on the project. Again, please follow the structure outlined below:

Introduction: Feel free to borrow from the group report. You should also reference the group report for the full documentation.

What you did: Include discussions of items like:

- How was the project partitioned?
- What did you do on the project?
- At least one Algorithm Flow Chart for a module you designed?
- How did you ensure that your part would work with your partner's part?
- What hurdles did you have to overcome?
- What other things did you learn about the various tools?

- What other tools did you try to use? (e.g. Chipscope, etc)
- What did you do to ensure success, or at least improve the likelihood of success?
- What was your design flow/design methodology?
- What kind of source code control did you use?
- What kind of simulations and/or testing did you do on your code?
- What modules did you write? What were your milestones? How did you test them?
- What did you learn?
- Anything else you spent your time on (related to the project :-)

Community Contribution: Please indicate your community contributions. I will observe who has been giving help on the bulletin board but indicate it here what kinds of help you provided. Also, if you figured out how to do something that isn't easy to find or documented well, or if you just came up with a simple example of how to do something that you wished you had available at the start, please write it up so that we can make it available to future users. Include it as a section in your report, but also send me a zip/tar file of the example and the document as well so that I can post it.

Feedback to Xilinx: Xilinx is very interested in obtaining feedback about the tools. If there are features you liked, didn't like, or wish you had, please document them here. This could include things like "menu X should do this", to "it should be much easier to do Y."

Course feedback: Any comments or suggestions you would like to make about the course for the future.

- Did the project timeline work, i.e., demos, deadlines? Could the project be started earlier?
- Does the grading structure work? Suggestions?
- Did you like the "open" lab concept, i.e., do these modules by this time and do these tasks at the end? i.e., instead of trying to grade something each week.
- Any other constructive comments on content and organization of the lectures would also be appreciated as I am actively revising them.