

JoSDC Phase III and the final event Evaluation Criteria

The total number of points is 260 points (**bonus points can be scored if the project has more than the maximum points assigned to each category**). Also, the innovation part evaluation will be included in multiple sections (**for example, your micro-architecture can gain points in the innovation section, but it may be reflected to achieve a better performance hence it might gain in performance criteria as well**). Furthermore, during the poster presentation, every team should explain the design to the committee members and show the benchmark results (**a new benchmark for the demo day will be provided during the demo day**) on simulation **or/and** FPGA. We will provide FPGAs during that day.

1. Phase III Qualified teams (report and demo day):
 - a. By the end of Phase III, all qualified teams should have a functional design and clear results of the 6 benchmarks provided previously (i.e. the final design should be functional after all modifications in Phase III and the results should be included in the report in detail) à PASS/FAIL
 - i. The runtime execution is showing the correct final results i.e., the pass signature.
 - ii. Related register files and memory locations are reporting the correct final values.
 - iii. You should show the results of both simulation and FPGA. The FPGA board will be provided for each institution with more than two teams. If you need access, please contact me and I'll assist you on this.
2. The design run and compile time statistics (report and demo day and poster)
 - a. Run/Performance factors (80 points) will be measured based on the following:
 - i. Total number of instructions executed (10 pts)
 - ii. Total number of cycles executed (10 pts)
 - iii. The runtime FPGA clock frequency or clock speed (10 pts)
 - iv. Total number of executed time units (ms, us) (does it equal to #clock cycles clock period, if not why) (20 pts)
 - v. If available, report #cycles of the pipelined version / the none-pipelined version of the design to report the performance gain of implemented pipelined architecture (10 pts bonus)
 - vi. Total #cycles of running the program 100 times (using a for loop) / #cycles of running the program 1 time (is it 100x, more or less, and why) (20 pts)
 - b. Compile Statistics (30 pts)
 - i. FPGA compile time (10 pts)
 - ii. Design size in FPGA technology (LUTs/REGs/Memory Elements) (10 pts)
 - iii. If available/reported, the equivalent number of gates (10 pts bonus)
3. Innovation (40+ points), please show the poster:
 - a. How effectively do these extra features enhance functionality (10 points)
 - b. How effectively do these extra features enhance performance (15 points)
 - c. Team developed their own testing criteria (System Verilog, SW based like python, System C or C++, using HW peripherals like display LEDs, or just using simulation waveform...etc) (15 points)
4. Report and documentation (60 points)
 - a. Clarity and Organization (20 points):
 - i. Is the report well-structured and organized for easy comprehension?

- ii. Does it effectively present the key aspects of the design process?
- b. Technical Documentation (20 points):
 - i. Is there thorough documentation of the design, including schematics, block diagrams, and explanations?
 - ii. Are technical terms and concepts explained clearly?
- c. Results and Analysis (20 points):
 - i. Are the results of the design (so far) clearly presented, including performance benchmarks and test outcomes?
 - ii. Is there a comprehensive analysis of the design's strengths and weaknesses?
- 5. Poster and presentation skills (30 points):
 - a. The poster is well organized and shows major sections of the report (10 points)
 - b. The poster includes diagrams (10 points)
 - c. Results are illustrated clearly (10 points)
- 6. The RTL Coding (30 points):
 - a. The RTL code is organized and modular (10 points)
 - b. The RTL code is well-documented and easy to follow (10 points)
 - c. The RTL code is innovative such as using new techniques and algorithms. (10 points)
- 7. Demo Day/Final Event:
 - a. Show #1 and #2 results for the new benchmark to be demonstrated on the demo day.
- 8. Overall evaluation (based on the above 7 points)

Winning Teams

	#1	#2	#3
Best Overall Results, total of all tabs (best total #points, max 260 pts + bonus if any)			
• Best Demo Results (max 100 pts)			
• Best Performance (max 50 pts +10 pts bonus) *			
• Best Innovation, note that innovation is also gaining weight in performance (max 40 pts)			
• Best Report (max 60 pts)			
• Best Poster (max 30 pts)			
• Best Coding (max 30 pts)			