

Assessment Rubrics

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Rubric1

Rubric1

Assessment of Quality of Project “Business” Documentation (100%)

PDQ1:	<b>General Structure of Document</b>	20%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
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Is the “Business” R&D Report organized? Is the Technical Report Organized? (Table of Contents)  
 Can useful and important information be easily located in the submitted document?  
 Does the sequence of sections have a logical flow?  
 Are overly distracting details such as sourcecode, large data tables, complex calculations deferred to appendices and then appropriately reference withing the sections?

“Business” R&D Section: Documenting Project Management

PDQ2:	<b>Description of Group Organization</b>	25%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
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Is there a clear, concise description of how the group members managed the division of labour?  
 Does the description discuss (if necessary) methods and issues of communication and co-ordination amongst group members?

PDQ3:	<b>Description of Time Management</b>	20%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
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Is there a clear, concise discussion that documents the timeline of events in conducting the project?  
 Does the discussion include comparison between an expected timeline and the actual timeline?  
 Have unexpected disruptions been adequately documented with appropriate discussion for a business section?

PDQ4:	<b>Description of Resource Management</b>	20%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
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Is there a clear, concise discussion of Resources required to conduct this project.  
 Have inadequacies and limitations of the resources been identified and adequately discussed?  
 Is this item be easily found in the document?

PDQ5:	<b>Appropriate Content</b>	15%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
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Are all topics in the “business” R&D sections limited to management topics?  
 Are there inappropriate discussions regarding technical topics in the “business” R&D sections.

Assessment of Quality of Project Technical Documentation (100%)Technical Section: Documenting Prototype Design

PDQ6:	<b>Appropriate Content</b>	8%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
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Are all topics in the Technical sections limited to technical engineering topics?  
 Are there inappropriate discussions of management topics in the technical engineering sections.  
**Quality of documenting DUTs**  
 Does the document adequately separate discussions of the DUT prototype design principles?  
 Have discussions of prototype testing been inappropriately combined with discussions of prototype design?

# Assessment Rubrics

Rubric2

Rubric2

## Assessment of Project Technical Documentation Quality (100%)

### Technical Section: Documenting Prototype Design

PDQ8:	<b>Documenting FPGA Implementation</b>	8%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>For each prototype, does the document describe rough predications of structure in FPGA implementation and whether (place and route) observations meet expectation?</p> <p>Are empirical predictions included and compared to the observed implementation.</p>						
PDQ7:	<b>Objectives of System Design</b>	24%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Is there a clear, concise description of the design metrics, cost, speed &amp; performance ratio?</p> <p>Is it easy for a reader to quickly understand the objectives and strategies for the DUT design?</p> <p><b>Descriptions of design strategies</b> Is it easy to find a list of the DUT prototypes?</p> <p>Does each prototype have a concise description, highlighting its unique features.</p> <p>Does each prototype have a concise description of expectations and why it was selected for the project?</p>						

### Technical Section: Documenting Testing Procedures

PDQ9:	<b>Description General Testing Strategy</b>	16%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Is the overall testing strategy described concisely with a diagram? (block diagram of setup or flowchart)</p> <p><b>Description of Baseline Prototype</b></p> <p>Is there a clear, concise description of the baseline prototype?</p> <p>Is there a clear, concise discussion of expectations of the baseline prototype?</p> <p>Is it clear that the baseline has been defined with a particular FPGA implementation?</p>						
PDQ10:	<b>Description of Measured Quantities</b>	8%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Are there a clear, concise definitions of the quantities to be observed?</p> <p>Are the measurement methods and units (calibration) adequately defined? (FPGA resources and timing)</p>						
PDQ11:	<b>Description of Test Vectors</b>	16%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Is there a clear, concise description of the strategy for selecting test vectors?</p> <p>Is there a discussion explaining how specific test vectors were selected for particular prototypes based on worst-case expectations of each prototype?</p> <p>Is there a general description of the method for generating test vectors?</p>						

### Technical Section: Documenting Analysis of Results

PDQ13:	<b>Description of Measured/Processed Results</b>	16%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Have the prototype results been presented concisely in a table?</p> <p>Have the results been inappropriately scattered into bodies of text thus obscuring important features.</p> <p>Is there sufficient text, clearly defining the row/column items of the table?</p> <p>Have calculated quantities been appropriately included in the table of results?</p> <p>Is there supporting text that clearly describes how measured results are used to produce calculated quantities?</p> <p>Are the quantities in the table ambiguous or undefined?</p> <p>Have comparisons to the baseline implementation been clearly summarized in this table?</p>						
PDQ14:	<b>Description of Processed Cost</b>	4%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Is there a clear, concise description of the strategy for calibrating implementation cost.</p> <p>Is the implementation cost appropriately normalized to the correct baseline prototype shown in the table?</p>						

Assessment Rubrics

Rubric3

Rubric3

Assessment of System Verification Method (100%)

SVM1:	<b>Organized Verification Structure</b>	20%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Were the filenames and VHDL architecture names chosen appropriately?</p> <p>Was a single testbench used for both functional and timing verification of all prototype implementations?</p> <p>Was there a single component instantiated as the DUT in the testbench?</p> <p>Was the recommended filing hierarchy used to keep project files organized?</p>						
SVM2:	<b>Organized Verification Procedure</b>	35%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Were multiple configurations defined to allow binding of entities to components for each prototype implementation?</p> <p>Were multiple scripts used to conveniently reproduce verification results for each prototype implementation and for both functional and timing verification?</p> <p>Were the scripts complete in that they included compilation, selection of configurations, selection of test vector files, specify simulation run parameters, managed transcript files, etc.</p>						
SVM3:	<b>Simulation Display</b>	20%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Were the waveform displays reasonable comprehensive?</p> <p>Were the waveform formatted so as to be readable? Was the radix displayed</p> <p>Were signals grouped sensibly with dividers?</p> <p>Was it was easy to find the beginning, end, and index of each measurement?</p> <p>Was the waveform display easily reconstructed using scripts?</p> <p>Did specific proto-types include useful internal signals added to the waveform display?</p>						
SVM4:	<b>Testbench Measurement Reports</b>	10%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Did the testbench produce useful and meaningful reports to the transcript?</p> <p>Were the reports for each measurement complete?</p>						
SVM5:	<b>Test Vector Selection</b>	15%	score	request for re-assessment	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	score
<p>Were the test vectors selected reasonably?</p> <p>For each prototype, were worst-case operands identified and then included in the set of test vectors?</p>						

# Assessment Rubrics

Rubric4

Rubric4

## Assessment of Experimental Design Method (100%)

XDM1:	<b>Results for Baseline Implementation</b>	15%	score	request for re-assessment	<input type="checkbox"/> <input type="checkbox"/>	score
Did the baseline implementation produce unexpected results? Were unexpected results of the baseline implementation investigated further?						
XDM2:	<b>Verification of Design Structures</b>	20%	score	request for re-assessment	<input type="checkbox"/> <input type="checkbox"/>	score
For each prototype design strategy, was the rough circuit structure predicted? Does this include an empirical estimate of cost? Was the design structure observed and verified after synthesis? Was the implementation structure and cost observed and verified after “place and route”?						
XDM3:	<b>Prototype Selection for CPR</b>	25%	score	request for re-assessment	<input type="checkbox"/> <input type="checkbox"/>	score
Were the results for fastest circuits predicted and verified? Were the results for lowest-cost circuits predicted and verified? Were the above results used to intentionally tailor prototype designs for optimally balanced CPR? Was the CPR correctly calculated, in both measured units, and normalized baseline units?						
XDM4:	<b>Design Strategy vs Implementation</b>	20%	score	request for re-assessment	<input type="checkbox"/> <input type="checkbox"/>	score
Was the baseline implementation on a Cyclone IV used appropriately? Was the implementation of the baseline adder implemented on an Arria II appropriately compared to the baseline implementation. Did the project correctly qualify prototypes recognizing that a prototype has both a design strategy and an implementation. Did the project correctly investigate and compare implementations as a posed to design strategies?						
XDM5:	<b>Implementation Costs</b>	20%	score	request for re-assessment	<input type="checkbox"/> <input type="checkbox"/>	score
Did the project attempt to establish a conversion ratio from the ALM cost metric of an Arria II implementation to the LE cost metric of the baseline prototype? After establishing the conversion factor, were the calculated quantities treated in a sensible manner and reasonable compared to the baseline implementation?						

## Assessment of Engineering Project Management (100%)

EPM1:	<b>Division of Labour</b>	30%	score	request for re-assessment	<input type="checkbox"/> <input type="checkbox"/>	score
Were the project tasks divided amongst the group members reasonably? Were the tasks of test vector construction, DUT design/implementation & testbench construction conducted with a reasonable degree of parallelism?						
EPM2:	<b>Recording Time Management</b>	50%	score	request for re-assessment	<input checked="" type="checkbox"/>	score
Did each group member maintain a reasonable log file? Were the tasks in the log file sufficiently broken down into short actions? Were the log files inappropriately sparse? Were there simple a few actions spanning large blocks of time. Were the quality of the task descriptions reasonable? Were the descriptions useful? Were the log entries made approximately throughout the project duration, or were they inappropriately entered in bulk just before the project deadline?						
EPM3:	<b>Research Time</b>	20%	score	request for re-assessment	<input type="checkbox"/> <input type="checkbox"/>	score
Do the log files correctly include the time spend studying and researching topics; this includes internet research, reading books, reviewing course notes, but should not include actual time spend drafting designs.						