

**Term Project Milestone 4 Evaluation (Components Specification)**

Evaluation Criteria Categories	Specific Criteria	Comments	Score
Consistency with higher level specifications	<ul style="list-style-type: none"> <li><input type="checkbox"/> Components have interfaces (inputs, outputs, and control signals) that are consistent with the datapath specification, including signal widths.</li> <li><input type="checkbox"/> Components produce behaviors that are consistent with the assembly language and register transfer language levels of the design specification.</li> <li><input type="checkbox"/> Components implement their behaviors within the timing constraints imposed by the RTL specification.</li> </ul>	<p>Some components are not defined: muxes, PC and IR.</p> <p>Stateful components need a clock signal input (you may leave it out for clarity, but it should be so noted).</p> <p>Components appear to implement correct behavior.</p>	2/3
Self-consistency	<ul style="list-style-type: none"> <li><input type="checkbox"/> Example: Specification of 1-bit ALU is consistent with specification of 16-bit ALU.</li> <li><input type="checkbox"/> Example: Specification of bi-directional variable-displacement shifter is consistent with specifications of unidirectional variable-displacement shifters.</li> </ul>	<p>Details are not provided for smaller design units (registers, 1-bit ALU, etc.)</p>	2/3
Demonstration of design principles 1. Simplicity favors regularity 2. Smaller is faster 3. Good design demands good compromises 4. Make the common case fast	<ul style="list-style-type: none"> <li><input type="checkbox"/> Component specifications are as simple as reasonably possible (e.g. variable-displacement shifters are composed of multiple fixed-displacement shifters).</li> <li><input type="checkbox"/> Component specifications are as small as reasonably possible (e.g. variable-displacement shifters use as few fixed-displacement shifters as possible).</li> <li><input type="checkbox"/> Conflicts between the preceding criteria are resolved by considering overall performance (e.g. design of variable displacement shifters considers how often shifts of various displacements actually are used)</li> </ul>	<p>Component complexity is reasonable.</p> <p>ALU op is shown running a 2-bit and a 3-bit mux—it should be clear how the signal is divided.</p>	3/3
Documentation (see below) <input type="checkbox"/> Organization <input type="checkbox"/> Completeness <input type="checkbox"/> Conciseness <input type="checkbox"/> Grammar and style	<ul style="list-style-type: none"> <li><input type="checkbox"/> All design decisions necessary to implement Xilinx model are documented (components may be implemented by core generated objects or built-in symbols, which include gates and some higher-level entities)</li> <li><input type="checkbox"/> Clear English specifications as necessary</li> <li><input type="checkbox"/> Component tests</li> </ul>	<p>Memo is acceptable, if a little short.</p> <p>Website links to relevant files.</p> <p>Journal would benefit from more consideration of design alternatives.</p> <p>Design Documentation is not in agreement on higher level math functions.</p>	14/16

Required Documents

- Memo
  - Objective assessment of design and status
- Design Documentation
  - Demonstration of conceptual understanding
  - Highlights interesting features
- Design Process Journal
  - Alternatives considered
  - Tradeoffs
  - Decisions
- Website