

<b>Term Project Milestone 3 Evaluation</b> <b>(Datapath and Control Specifications)</b> Team <u>1-4</u> Points earned <u>20</u> /40
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Evaluation Criteria Categories	Specific Criteria	Comments	Score
Consistency with higher level specifications	<ul style="list-style-type: none"> <li><input type="checkbox"/> State elements that are assigned or referenced in Register Transfer Language (RTL) statements appear in datapath</li> <li><input type="checkbox"/> Operations that are required to implement RTL statements have corresponding components</li> <li><input type="checkbox"/> Inputs, outputs, and control signals of components in datapath are consistent with RTL specification</li> <li><input type="checkbox"/> Connections between components in datapath are consistent with RTL specification</li> <li><input type="checkbox"/> The control signals specified for each state (or microstep) produce the register transfers specified in the corresponding cycle of the RTL description</li> </ul>	<p>State elements are present and can be operated on appropriately.</p> <p>Components are present for operations.</p> <p>The signals look consistent.</p> <p>The connections appear to be done correctly.</p> <p>It looks like they do what is required.</p>	(8/8)
Self-consistency	<ul style="list-style-type: none"> <li><input type="checkbox"/> Input signals that have multiple sources have associated multiplexers</li> <li><input type="checkbox"/> Multiplexers have appropriately sized control signals</li> <li><input type="checkbox"/> Datapath includes one or more control units that generate the necessary control signals and have the appropriate input signals</li> <li><input type="checkbox"/> The value of each control signal is defined for every state (or microstep)</li> </ul>	<p>There are mux's where needed.</p> <p>The control units are present along with an FSM to demonstrate the flow of control.</p>	(8/8)

<p>Demonstration of design principles</p> <ol style="list-style-type: none"> <li>1. Simplicity favors regularity</li> <li>2. Smaller is faster</li> <li>3. Good design demands good compromises</li> <li>4. Make the common case fast</li> </ol>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Components are kept as simple as possible</li> <li><input type="checkbox"/> Similar components used by multiple instructions or in multiple cycles are combined where possible</li> <li><input type="checkbox"/> Tradeoffs between the preceding criteria favor the common case, not the special case</li> <li><input type="checkbox"/> Regularity in the machine language format is exploited by using combinational logic where feasible</li> <li><input type="checkbox"/> Identical states (or microsteps) are combined</li> </ul>	<p>There drawing seems to show it as simple as possible.</p> <p>Looks like state 4 has no way to get to it, and state 3 goes nowhere. -1</p>	<p>(7/8)</p>
<p>Documentation (see below)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Organization</li> <li><input type="checkbox"/> Completeness</li> <li><input type="checkbox"/> Conciseness</li> <li><input type="checkbox"/> Grammar and style</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Datapath diagram</li> <li><input type="checkbox"/> Clear English specifications                         <ul style="list-style-type: none"> <li>o Effects of control signals</li> </ul> </li> <li><input type="checkbox"/> Datapath tests</li> <li><input type="checkbox"/> State transition diagram or microprogram specifying the finite state machine</li> <li><input type="checkbox"/> Truth tables or Boolean equations specifying any combinational units</li> <li><input type="checkbox"/> Clear English specifications as necessary</li> <li><input type="checkbox"/> Control unit tests</li> </ul>	<p>Your design journal looks fine. A few grammatical errors which should be corrected.</p> <p>Your memo is also good, but contains minor grammatical errors.</p> <p>The design document shows the datapath and control signals well. The datapath is a bit rough, being hand-drawn and the original, but it is still good. Very nicely done.</p>	<p>(16/16)</p>

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