

<b>Term Project Milestone 3 Evaluation</b>	
<b>(Datapath and Control Specifications)</b>	<b>Team <u>1-5</u> Points earned <u>15</u>/40</b>

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 look to be in the datapath.</p> <p>It appears there are components for all necessary operations.</p> <p>The inputs outputs and control signals seem to be right.</p> <p>The connections appear to be correct.</p> <p>The control signals seem to be right.</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 to make the appropriate selections.</p> <p>The mux's are controlled correctly.</p> <p>There is a really big control unit up at the top.</p> <p>The FSM is defined for every step of each instruction.</p> <p>The values for some signals are unknown in clock  0. -1</p>	(7/8)

<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>The components look as simple as possible.</p> <p>The components are combined where possible, making mux's a necessity.</p> <p>The states of the FSM were combined where possible.</p>	<p>(8/8)</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 memo is fine. I have no complaints.</p> <p>Your journal is fine. Very descriptive.</p> <p>Your design document has the datapath and control specifications as a finite state machine in excel.</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

