Rose-Hulman Institute of Technology
Computer Science and Software Engineering
Prof. Archana Chidanandan

**Term Project Milestone 3 Evaluation**
**(Datapath and Control Specifications) Team __1-6__ Points earned _____/40**

| Evaluation Criteria Categories | Specific Criteria | Comments | Score |
|---|---|---|---|
| Consistency with higher level specifications | ❑ State elements that are assigned or referenced in Register Transfer Language (RTL) statements appear in datapath<br>❑ Operations that are required to implement RTL statements have corresponding components<br>❑ Inputs, outputs, and control signals of components in datapath are consistent with RTL specification<br>❑ Connections between components in datapath are consistent with RTL specification<br>❑ The control signals specified for each state (or microstep) produce the register transfers specified in the corresponding cycle of the RTL description | The state elements are in the datapath.<br><br>The operations can be carried out.<br><br>The inputs outputs and control signals seem to be correct.<br><br>The connections look consistent.<br><br>The control signals look o do what is wanted. | (8/8) |
| Self-consistency | ❑ Input signals that have multiple sources have associated multiplexers<br>❑ Multiplexers have appropriately sized control signals<br>❑ Datapath includes one or more control units that generate the necessary control signals and have the appropriate input signals<br>❑ The value of each control signal is defined for every state (or microstep) | Mux's are used where needed. There is an extra one at the read address of the coprocessor.<br><br>The mux's have appropriately sized signals.<br><br>There is a control unit for the datapath.<br><br>The control signals are defined, but no standard state is given, so the values a state zero are unknown. -1 | (7/8) |

| | | | |
|---|---|---|---|
| Demonstration of design principles<br>1. Simplicity favors regularity<br>2. Smaller is faster<br>3. Good design demands good compromises<br>4. Make the common case fast | ❑ Components are kept as simple as possible<br>❑ Similar components used by multiple instructions or in multiple cycles are combined where possible<br>❑ Tradeoffs between the preceding criteria favor the common case, not the special case<br>❑ Regularity in the machine language format is exploited by using combinational logic where feasible<br>❑ Identical states (or microsteps) are combined | The components are as simple as possible.<br><br>The components are minimized.<br><br>The microsteps are combined where possible …..except clock cycle 2 looks pretty pointless being blank and all. - | (7/8) |
| Documentation (see below)<br>❑ Organization<br>❑ Completeness<br>❑ Conciseness<br>❑ Grammar and style | ❑ Datapath diagram<br>❑ Clear English specifications<br>o Effects of control signals<br>❑ Datapath tests<br>❑ State transition diagram or microprogram specifying the finite state machine<br>❑ Truth tables or Boolean equations specifying any combinational units<br>❑ Clear English specifications as necessary<br>❑ Control unit tests | Your memo is only half way there. It gives me a status update, but does not give me any insight into your thought process. When you said you made some changes to your RTL, I want a brief what and why. -2<br><br>Your journal isn't bad, but it has some grammar issues. Commas and pronouns are missing where they are needed. This makes it sound cryptic. -1<br><br>Your design document:<br>You don't have a table of contents. -2<br>It is only one milestone, not a compilation of your language, a manual if you will. -2<br>The datapath is in there and so is the microprogram. Only problems are format. You even gave me real tests, better than some teams. | (9/16) |

Required Documents

- Memo
  - Objective assessment of design and status
- Design Documentation
  - Demonstration of conceptual understanding
  - Highlights interesting features
- Design Process Journal

Rose-Hulman Institute of Technology
Computer Science and Software Engineering
Prof. Archana Chidanandan

    - Alternatives considered
    - Tradeoffs
    - Decisions
- Website