Flowchart for Single Cycle

Arithmetic : ADD,ADC,ADZ,NDU,NDC,NDZ

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| PC -> alu1\_a,inst\_mem\_a  +1 -> alu1\_b  Alu1\_out -> PC  Inst\_mem\_d (9-11) -> rf\_a1  Inst\_mem\_d(6-8) -> rf\_a2  Rf\_d1 -> alu2\_a  Rf\_d2 -> alu2\_b  Alu2\_out -> rf\_d3  Inst\_mem\_d(3-5) -> rf\_a3 |

ADI

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| --- |
| PC -> alu1\_a,inst\_mem\_a  +1 -> alu1\_b  Alu1\_out -> PC  Inst\_mem\_d (9-11) -> rf\_a1  Rf\_d1 -> alu2\_a  Inst\_mem\_d(0-5) -> SE6 -> alu2\_b  Alu2\_out -> rf\_d3  Inst\_mem\_d(6-8) -> rf\_a3 |

LOAD LW

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| --- |
| PC -> alu1\_a,inst\_mem\_a  +1 -> alu1\_b  Alu1\_out -> PC  Inst\_mem\_d (6-8) -> rf\_a2  Rf\_d2 -> alu2\_a  Inst\_mem\_d(0-5) -> SE6 ->alu2\_b  Alu2\_out -> Data\_mem\_a  Inst\_mem\_d(9-11) -> rf\_a3  Data\_mem\_d -> rf\_d3 |

LHI

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| --- |
| PC -> alu1\_a,inst\_mem\_a  +1 -> alu1\_b  Alu1\_out -> PC  Inst\_mem\_d (0-8) -> SE9 -> rf\_d3  Inst\_mem\_d(9-11) -> rf\_a3 |

STORE SW

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| PC -> alu1\_a,inst\_mem\_a  +1 -> alu1\_b  Alu1\_out -> PC  Inst\_mem\_d (6-8) -> rf\_a2  Rf\_d2 -> alu2\_a  Inst\_mem\_d(0-5) -> SE6 -> alu2\_b  Alu2\_out -> Data\_mem\_a  Inst\_mem\_d(9-11) -> rf\_a1  rf\_a1 -> Data\_mem\_wr |