Local Sequencer Requirements Coverage Report

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Published on: 03-Feb-2019

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Chapter 1: Requirement Set: local\_sequencer\_req

Description

The local sequencer shall provide control and coordination between task function blocks and task memories in order to execute function blocks sequentially while providing inputs to the function blocks from task memories and to store outputs from the function blocks to the task memories.

Verification Status

Total: 34; Passed: 28; Justified: 0; Failed: 5; Unexecuted: 0; None: 1

1 Trigger Service Received

Requirement type

Functional

ID

#1

Description

Shall receive a level sensitive trigger from the global sequencer that initiates task execution.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB\_Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%227f8baf53-9586-455e-9f66-d74eb943f407%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

2 Instruction Service Received

Requirement type

Functional

ID

#2

Description

The local sequencer shall receive a list of instructions in a sequential fashion that includes each function block to be exeucted, the function block input and output task memory addresses.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB\_Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%227f8baf53-9586-455e-9f66-d74eb943f407%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 2; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

2.1 End of File Determination

Requirement type

Functional

ID

#7

Description

The local sequencer shall compare each instruction to see if the end of file flag has been reached.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [End of Sequence](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22e76504f3-0d69-407c-9800-51bafb500fb6%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

3 Function Block Status Service Received

Requirement type

Functional

ID

#3

Description

The local sequence shall receive a status signal from the task function blocks that includes a boolean status and error code word.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Recoverable Error](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2211e7c608-ecb0-4881-8fba-695206c06df5%22,%22%22%5d) | Verified by |
| [FB Done state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2280a87bad-f3ae-4078-b60d-72e21d0e08b9%22,%22%22%5d) | Verified by |
| [Fetch State 2nd Input](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22cdf8c918-7024-4ff5-9c05-a00e7d8792a2%22,%22%22%5d) | Verified by |

Verification Status

Total: 4; Passed: 4; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

3.1 Super State Iteration Detection

Requirement type

Functional

ID

#4

Description

Bits 22 through 27 of the error code shall be extracted, incremented, and compared to the same bits on subsequent execution cycles to see if the function blocks iterated in the same same super state.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 2nd Input](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22cdf8c918-7024-4ff5-9c05-a00e7d8792a2%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

3.2 Super State Change Detection

Requirement type

Functional

ID

#5

Description

The upper four bits of the error code in the status signal shall be extrated and compared to pervious bits to see if a super state change has occured.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB Done state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2280a87bad-f3ae-4078-b60d-72e21d0e08b9%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

3.3 Error Recovery Determination

Requirement type

Functional

ID

#6

Description

The lower 22 bits of the error code in the status signal shall be extracted and compared to a list of recoverable functions to see if the architecture supports resiliency from the error code experienced.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Recoverable Error](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2211e7c608-ecb0-4881-8fba-695206c06df5%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

4 Function Number Register

Requirement type

Functional

ID

#8

Description

At the begining of an instruction sequence (variable length) the first instruction (the function number) shall be latched in an isolated register from the instruction service.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB\_Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%227f8baf53-9586-455e-9f66-d74eb943f407%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

5 Start Instruction Pointer Register

Requirement type

Functional

ID

#9

Description

The begining position of a sequence of instructions shall be latched into an isolated register.

Rationale

Latching of the first instruction in a sequence of  
instrucitons is necessary so that the instruction pointer counter  
can be loaded with this value if a fault is experienced and the  
instruction sequence must be restarted.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB\_Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%227f8baf53-9586-455e-9f66-d74eb943f407%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

6 Instruction Counter

Requirement type

Functional

ID

#10

Description

A counter will serve as the pointer for the instruction pointer. The counter will be capable of loading a stored begining instruction position so that a sequence can be restarted at the begining of the sequence when a fault is detected.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Write State 1st output](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22d1275306-5220-453e-9a2c-d8b1f8e11b47%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

7 Current Address Register

Requirement type

Functional

ID

#11

Description

The current address in task memory of an input or output to a function block shall have a dedicated register. Addresses shall be latched from an instruction sequence.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 1st Input and verify Addr output](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22bdca4590-b6da-4f95-84b4-c8ea42ba694f%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 0; Justified: 0; Failed: 1; Unexecuted: 0; None: 0

8 Controller Super States

Requirement type

Functional

ID

#12

Description

Verification Status

Total: 17; Passed: 14; Justified: 0; Failed: 2; Unexecuted: 0; None: 1

8.1 INIT

Requirement type

Functional

ID

#13

Description

All controller outputs shall be initialized to false except reset, which is initialized to true.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Init State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22ad2a9e1c-d542-459f-bc6b-f43322d49d14%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 2; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.1.1 Transistions

Requirement type

Functional

ID

#21

Description

1) When trigger is true, the controller shall transition to the FB\_SELECT super state.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB\_Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%227f8baf53-9586-455e-9f66-d74eb943f407%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.2 FB\_SELECT

Requirement type

Functional

ID

#14

Description

If the recoverable input to the controller is true the instruction counter will be loaded with the value stored in the Start Instruction register. Otherwise, the function number register and start instruction pointer register will be latched. After the above operations, the instruction counter will be incremented.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB\_Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%227f8baf53-9586-455e-9f66-d74eb943f407%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 1; Justified: 0; Failed: 1; Unexecuted: 0; None: 0

8.2.1 Transitions

Requirement type

Functional

ID

#22

Description

1) When state operations are complete, the controller  
will transition automatically to the fetch state.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 1st Input and verify Addr output](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22bdca4590-b6da-4f95-84b4-c8ea42ba694f%22,%22%22%5d) | Verified by |
| [FB Select to FETCH State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%225c711e64-9e45-4208-83dc-3921855c209b%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 0; Justified: 0; Failed: 1; Unexecuted: 0; None: 0

8.3 FETCH

Requirement type

Functional

ID

#15

Description

1) Latch current address

2) Wait for data to be available to function blocks from task memories.

3) Send ctrl pulse to function blocks to begin execution.

4) Increment the current instruction number.

5) Wait for the next instruction to become available.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 2nd Input](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22cdf8c918-7024-4ff5-9c05-a00e7d8792a2%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 2; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.3.1 Transitions

Requirement type

Functional

ID

#23

Description

1) To ERROR if any function block experiences an error or fault.

2) To FB\_EXECUTE if the current function block indicates a state change.

3) To FETCH if a state iteration is signaled by the current function block.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 2nd Input](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22cdf8c918-7024-4ff5-9c05-a00e7d8792a2%22,%22%22%5d) | Verified by |
| [Fetch State 3rd Input](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%220450cedb-845c-4b9f-bcd1-73fb139ba997%22,%22%22%5d) | Verified by |
| [Execute State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2295cf7c23-6f3b-444d-84d4-54ec79fca4a0%22,%22%22%5d) | Verified by |
| [Error in LATCH\_ADDR substate in Fetch State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22cbd6874a-997b-487e-a337-ff5be4c98a9a%22,%22%22%5d) | Verified by |
| [Error in MEM\_WAIT substate in Fetch State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%221cc919ac-70d7-4f0e-bdb2-47284025ce85%22,%22%22%5d) | Verified by |
| [Error in CTRL\_HI SubState in Fetch State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%220a93d482-3015-463b-b71f-7f411024e544%22,%22%22%5d) | Verified by |
| [Error in CTRL\_LO substate in Fetch State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2284e6b2af-ee1a-4ded-8765-56a28e891e28%22,%22%22%5d) | Verified by |
| [Error in INCREMENT\_INST Substate in Fetch state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22e2fd4cff-5cdd-481a-a987-ab80ce7517bd%22,%22%22%5d) | Verified by |
| [Error in INST\_WAIT Substate in Fetch state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22d36cfbd5-75ad-4dc9-b795-d1c8855b9dd5%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.4 FB\_EXECUTE

Requirement type

Functional

ID

#16

Description

In this state the local sequencer will send a ctrl pulse to the function blocks to progress in state.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Execute State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2295cf7c23-6f3b-444d-84d4-54ec79fca4a0%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 2; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.4.1 Transitions

Requirement type

Functional

ID

#24

Description

1) To ERROR if a function block signals an error.

2) To WRITE when a function block signals a new  
state.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Write State 1st output](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22d1275306-5220-453e-9a2c-d8b1f8e11b47%22,%22%22%5d) | Verified by |
| [Error in CTRL\_HI Substate in FB\_EXECUTE state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22bcef42dd-da49-46a2-b810-56b7a17c4dc1%22,%22%22%5d) | Verified by |
| [Error in CTRL\_LO Substate in FB\_EXECUTE state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2230345b9a-80ab-47c6-8c2c-1cf35108da1d%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.5 WRITE

Requirement type

Functional

ID

#17

Description

1) Latch the address of the current output

2) Pulse the control signal to cause a state change in the current function block.

3) Write the result of the function block to the current address.

4) Increment the instruction pointer.

5) Wait for the next instruction to be available.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Write State 2nd Output](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2265029e7b-a9ae-48fb-8a2d-f718541c9452%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 2; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.5.1 Transitions

Requirement type

Functional

ID

#25

Description

1) To ERROR if the current function block signals an  
error.

2) To FB\_DONE is the current function block signals a  
new state.

3) To WRITE if the current function block signals a  
state iteration.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB Done state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2280a87bad-f3ae-4078-b60d-72e21d0e08b9%22,%22%22%5d) | Verified by |
| [Error in LATCH\_ADDR Substate in Write state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%222952c482-723b-4898-9e3b-6e5eed993ec3%22,%22%22%5d) | Verified by |
| [Error in CTRL\_HI Substate in Write state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22d3cd215b-59c7-4dc1-910c-a5004e2a5774%22,%22%22%5d) | Verified by |
| [Error in CTRL\_LO Substate in Write state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22e00ee479-164b-4fd7-bfce-3970447eecd0%22,%22%22%5d) | Verified by |
| [Error in WRITE Substate in Write state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%224e951f40-ac33-4ac8-aea1-10a03e2c4715%22,%22%22%5d) | Verified by |
| [Error in INCREMENT\_INST Substate in Write state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22a057b3fc-41a0-445b-8751-7e5b4c40ca75%22,%22%22%5d) | Verified by |
| [Error in INST\_WAIT Substate in Write state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22c3a7ee14-5826-422a-a9f4-46a4a1d1ecf3%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.6 FB\_DONE

Requirement type

Functional

ID

#18

Description

In this state the local sequencer will progress the  
state of the current function block with a ctrl pulse.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB Done state](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2280a87bad-f3ae-4078-b60d-72e21d0e08b9%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 2; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.6.1 Transitions

Requirement type

Functional

ID

#26

Description

1) To TASK\_DONE when the function block signals a new  
state and the end of file flag is the current instruction.

2) To FB\_SELECT otherwise when the function block  
signals a new state.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Error in FB Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22e302a925-fa0b-4e3c-ae86-6695f74d79e3%22,%22%22%5d) | Verified by |
| [End of Sequence](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22e76504f3-0d69-407c-9800-51bafb500fb6%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.7 TASK\_DONE

Requirement type

Functional

ID

#19

Description

The local sequencer will wait in the TASK\_DONE state and signal to the global sequencer that the task is done.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [End of Sequence](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22e76504f3-0d69-407c-9800-51bafb500fb6%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 2; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.7.1 Transitions

Requirement type

Functional

ID

#27

Description

1) To INIT when the trigger from the global sequencer  
goes low.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Task Done to INIT](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2263921d66-71fe-4499-a17c-8c3b7d78044b%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

8.8 ERROR

Requirement type

Functional

ID

#20

Description

The local sequencer will set pulse control if the error is recoverable in this state. If the error is not recoverable, ctrl and abort will both be pulsed simultaneously and the local sequencer will signal a task error to the global sequencer.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Error in Fetch State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22b9952e1a-58ac-442c-a2f0-e8f4b6571b92%22,%22%22%5d) | Verified by |
| [Non Recoverable Error](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%224e14de19-f065-4206-8b5e-23663c8f8280%22,%22%22%5d) | Verified by |

Verification Status

Total: 2; Passed: 1; Justified: 0; Failed: 1; Unexecuted: 0; None: 0

8.8.1 Transitions

Requirement type

Functional

ID

#28

Description

1) To FB\_SELECT if the error is recoverable.

2) To INIT if the error is not recoverable and the trigger from the global sequencer is low.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Recoverable Error](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%2211e7c608-ecb0-4881-8fba-695206c06df5%22,%22%22%5d) | Verified by |
| [Non Recoverable Error to INIT](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22d4f2f2fb-6fe2-4c0e-9e48-bdab15b0ae08%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

9 Instruction Pointer Service Provided

Requirement type

Functional

ID

#32

Description

The local sequencer shall provide a pointer to the  
current instruction.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 3rd Input](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%220450cedb-845c-4b9f-bcd1-73fb139ba997%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

10 Function Block Selection Service...

Requirement type

Functional

ID

#33

Description

The local sequencer shall provide a signal that  
indicates which function is active.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [FB\_Select State](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%227f8baf53-9586-455e-9f66-d74eb943f407%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

11 Conversion of Data Input

Requirement type

Functional

ID

#34

Description

Inputs to the current address and function number  
register shall be converted to be compatible with the respective  
registers.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 1st Input and verify Addr output](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22bdca4590-b6da-4f95-84b4-c8ea42ba694f%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 0; Justified: 0; Failed: 1; Unexecuted: 0; None: 0

12 Error Signal Service Provided

Requirement type

Functional

ID

#29

Description

The local sequencer shall signal to the global  
sequencer when an unrecoverable error is encountered in a task.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Non Recoverable Error](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%224e14de19-f065-4206-8b5e-23663c8f8280%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 0; Justified: 0; Failed: 1; Unexecuted: 0; None: 0

13 Task Done Service Provided

Requirement type

Functional

ID

#30

Description

The local sequencer shall signal to the global  
sequencer when the task is complete.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [End of Sequence](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22e76504f3-0d69-407c-9800-51bafb500fb6%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0

14 Task Memory Control Service Provided

Requirement type

Functional

ID

#31

Description

The local sequencer shall control the address and  
write enable inputs to the task memories.

Links

Artifact: C:\Users\jayakumarav\Documents\GitHub\SympleVerification\Local\_Sequencer\Local\_Sequencer.mldatx

|  |  |
| --- | --- |
| Linked Item | Link Type |
| [Fetch State 2nd Input](http://localhost:31415/matlab/feval/rmi.navigate?arguments=%5b%22linktype_rmi_testmgr%22,%22C:%5C%5CUsers%5C%5Cjayakumarav%5C%5CDocuments%5C%5CGitHub%5C%5CSympleVerification%5C%5CLocal_Sequencer%5C%5CLocal_Sequencer.mldatx%22,%22cdf8c918-7024-4ff5-9c05-a00e7d8792a2%22,%22%22%5d) | Verified by |

Verification Status

Total: 1; Passed: 1; Justified: 0; Failed: 0; Unexecuted: 0; None: 0