Coverage Report for skr

Table of Contents

Analysis Information

Coverage Data Information

Collected in version	(R2022a)

Model Information

Model version	1.5
Author	THIS PC
Last saved	Fri Mar 25 06:52:48 2022

Simulation Optimization Options

Default parameter behavior	tunable
Block reduction	forced off
Conditional branch optimization	on

Coverage Options

Analyzed model	skr
Logic block short circuiting	off

Blocks Eliminated from Coverage Analysis

#	Model Object	Rationale
	skr/Battery/Model/current	Block reduction eliminated
	skr/Battery/Model/current 1	Block reduction eliminated
	skr/Battery/Model/current2	Block reduction eliminated
	skr/Battery/Model/current3	Block reduction eliminated

Tests

Test	Started execution	Ended execution
Run 1	26-Mar-2022 23:40:45	26-Mar-2022 23:40:45

Summary

Model Hierarchy/Complexity	Run 1				
		Decision		Execution	
1. skr	23	42%		94%	
2. . . . Battery	18	44%		92%	
3. . . . . Current Measurement		NA		100%	
4. . . . . Model	18	44%		91%	
5. . . . . Compare To Zero		NA		100%	
6. . . . . Compare To Zero2		NA		100%	
7. . . . . E_dyn Charge	3	25%		57%	
8. . . . . Exp	6	40%		100%	
9. . . . . Compare To Zero2		NA		100%	
10. . . . . Power loss estimation		NA		100%	
11. . . . . Saturation Dynamic	2	50%		100%	
12. . . . . Saturation Dynamic1	2	50%		100%	
13. . . . . Saturation Dynamic2	2	50%		100%	
14. . . . Chart	4	33%		NA	
15. . . . . SF: Chart	3	33%		NA	
16. . . . DC Voltage Source		NA		100%	
17. . . . . Model		NA		100%	
18. . . . Ideal Switch		NA		100%	
19. . . . . Model		NA		100%	
20. . . . Ideal Switch1		NA		100%	
21. . . . . Model		NA		100%	
22. . . . Ideal Switch2		NA		100%	
23. . . . . Model		NA		100%	
24. . . . Ideal Switch3		NA		100%	
25. . . . . Model		NA		100%	
26. . . . powergui		NA		100%	
27. . . . . EquivalentModel1		NA		100%	

Details

1. Model "skr"

Child Systems: Battery, Chart, DC Voltage Source, Ideal Switch, Ideal Switch1, Ideal Switch2, Ideal Switch3, powergui

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	23
Decision	NA	42% (16/38) decision outcomes
Execution	NA	94% (88/94) objective outcomes

Full Coverage

Model Object	Metric
Logic block "NOT1"	Execution
Product block "Product"	Execution
Product block "Product1"	Execution
RelationalOperator block "Relational Operator1"	Execution
RelationalOperator block "Relational Operator2"	Execution
Clock block "Clock1"	Execution
Clock block "Clock2"	Execution
Constant block "Constant1"	Execution
Constant block "Constant5"	Execution

2. SubSystem block "Battery"

Justify or Exclude

Parent: /skr

Child Systems: Current Measurement, Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	18
Decision	NA	44% (14/32) decision outcomes
Execution	NA	92% (65/71) objective outcomes

Full Coverage

Model Object	Metric
Constant block "Ta"	Execution

3. SubSystem block "Current Measurement"

Justify or Exclude

Parent: skr/Battery

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

Full Coverage

Model Object	Metric
Gain block "do not delete this gain"	Execution

4. SubSystem block "Model"

Justify or Exclude

Parent: skr/Battery

Child Systems: Compare To Zero, Compare To Zero2, E_dyn Charge, Exp, Power loss estimation, Saturation Dynamic, Saturation Dynamic1, Saturation Dynamic2

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	18
Decision	NA	44% (14/32) decision outcomes
Execution	NA	91% (63/69) objective outcomes

Saturate block "Saturation"

Justify or Exclude

Parent: skr/Battery/Model

Uncovered Links:

Metric	Coverage
Cyclomatic Complexity	2
Decision	50% (2/4) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

input >= lower limit	50%
false	0/58

true	58/58
input > upper limit	50%
false	58/58
true	0/58

Switch block "Switch7"

Justify or Exclude

Parent: skr/Battery/Model

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

logical trigger input	50%
false (output is from 3rd input port)	244/244
true (output is from 1st input port)	0/244

Full Coverage

Model Object	Metric
Fcn block "E_NL"	Execution
Fcn block "E_dyn Discharge"	Execution
Fcn block "Fcn1"	Execution
Fcn block "Fcn5"	Execution
Fcn block "Fcn6"	Execution
Fcn block "Fcn9"	Execution
DataTypeConversion block "Data Type Conversion1"	Execution
DataTypeConversion block "Data Type Conversion2"	Execution
Gain block "Gain"	Execution
Gain block "Gain2"	Execution
Gain block "R"	Execution

Gain block "R1"	Execution
Gain block "R2"	Execution
Gain block "R3"	Execution
Gain block "R4"	Execution
Sum block "Add"	Execution
Sum block "Add2"	Execution
Sum block "Add3"	Execution
RelationalOperator block "Relational Operator"	Execution
TransferFcn block "BAL"	Execution
Constant block "Constant"	Execution
Constant block "Constant1"	Execution
Constant block "Constant12"	Execution
Constant block "Constant9"	Execution
TransferFcn block "Current filter"	Execution
Integrator block "int(i)"	Execution
Memory block "it init"	Execution
Memory block "it init1"	Execution

5. SubSystem block "Compare To Zero"

Justify or Exclude

Parent: skr/Battery/Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

Full Coverage

Model Object	Metric
RelationalOperator block "Compare"	Execution

6. SubSystem block "Compare To Zero2"

Justify or Exclude

Parent: skr/Battery/Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

Full Coverage

Model Object	Metric
RelationalOperator block "Compare"	Execution

7. SubSystem block "E_dyn Charge"

Justify or Exclude

Parent: skr/Battery/Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	3
Decision	NA	25% (1/4) decision outcomes
Execution	NA	57% (8/14) objective outcomes

Fcn block "Charge Lead-Acid"

Justify or Exclude

Parent: skr/Battery/Model/E_dyn Charge

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	0
Execution	0% (0/1) objective outcomes

Fcn block "Charge NiCD"

Justify or Exclude

Parent: skr/Battery/Model/E_dyn Charge

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	0

Execution	0% (0/1) objective outcomes

Fcn block "Charge NiMH"

Justify or Exclude

Parent: skr/Battery/Model/E_dyn Charge

Uncovered Links: 

Metric	**Coverage**
Cyclomatic Complexity	0
Execution	0% (0/1) objective outcomes

MultiPortSwitch block "Multiport Switch1"

Justify or Exclude

Parent: skr/Battery/Model/E_dyn Charge

Uncovered Links: 

Metric	**Coverage**
Cyclomatic Complexity	3
Decision	25% (1/4) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

truncated input value	25%
= 1 (output is from input port 1)	0/244 
= 2 (output is from input port 2)	244/244
= 3 (output is from input port 3)	0/244 
= *,4 (output is from input port 4)	0/244 

Product block "Product1"

Justify or Exclude

Parent: skr/Battery/Model/E_dyn Charge

Uncovered Links: 

Metric	**Coverage**
Cyclomatic Complexity	0

Execution	0% (0/1) objective outcomes

Product block "Product2"

Justify or Exclude

Parent: skr/Battery/Model/E_dyn Charge

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	0
Execution	0% (0/1) objective outcomes

Product block "Product3"

Justify or Exclude

Parent: skr/Battery/Model/E_dyn Charge

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	0
Execution	0% (0/1) objective outcomes

Full Coverage

Model Object	Metric
Fcn block "Charge Li-Ion"	Execution
Product block "Product"	Execution
Constant block "Constant"	Execution
Constant block "Constant1"	Execution
Constant block "Constant2"	Execution
Constant block "Constant3"	Execution
Constant block "Constant4"	Execution

8. SubSystem block "Exp"

Justify or Exclude

Parent: skr/Battery/Model

Child Systems: Compare To Zero2

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	6
Decision	NA	40% (4/10) decision outcomes
Execution	NA	100% (12/12) objective outcomes

Abs block "Abs"

Justify or Exclude

Parent: skr/Battery/Model/Exp

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

input < 0	50%
false	244/244
true	0/244 

MultiPortSwitch block "Multiport Switch1"

Justify or Exclude

Parent: skr/Battery/Model/Exp

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	3
Decision	25% (1/4) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

truncated input value	25%
= 1 (output is from input port 1)	0/244 
= 2 (output is from input port 2)	244/244
= 3 (output is from input port 3)	0/244 
= *,4 (output is from input port 4)	0/244

	

Saturate block "Saturation"

Justify or Exclude

Parent: skr/Battery/Model/Exp

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	2
Decision	50% (2/4) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

input >= lower limit	50%
false	0/58 
true	58/58
input > upper limit	50%
false	58/58
true	0/58 

Full Coverage

Model Object	Metric
Fcn block "Li-Ion"	Execution
DataTypeConversion block "Data Type Conversion1"	Execution
Gain block "Gain1"	Execution
Gain block "Gain4"	Execution
Product block "Divide"	Execution
Sum block "Add3"	Execution
Constant block "Constant"	Execution
Integrator block "Integrator2"	Execution

9. SubSystem block "Compare To Zero2"

Justify or Exclude

Parent: skr/Battery/Model/Exp

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

Full Coverage

Model Object	Metric
RelationalOperator block "Compare"	Execution

10. SubSystem block "Power loss estimation"

Justify or Exclude

Parent: skr/Battery/Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (2/2) objective outcomes

Full Coverage

Model Object	Metric
Product block "Product"	Execution
Memory block "Memory"	Execution

11. SubSystem block "Saturation Dynamic"

Justify or Exclude

Parent: skr/Battery/Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	2
Decision	NA	50% (2/4) decision outcomes
Execution	NA	100% (3/3) objective outcomes

Switch block "Switch"

Justify or Exclude

Parent: skr/Battery/Model/Saturation Dynamic

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

logical trigger input	50%
false (output is from 3rd input port)	244/244
true (output is from 1st input port)	0/244 

Switch block "Switch2"

Justify or Exclude

Parent: skr/Battery/Model/Saturation Dynamic

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

logical trigger input	50%
false (output is from 3rd input port)	244/244
true (output is from 1st input port)	0/244 

Full Coverage

Model Object	Metric
S-Function block "Data Type Propagation"	Execution

12. SubSystem block "Saturation Dynamic1"

Justify or Exclude

Parent: skr/Battery/Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	2
Decision	NA	50% (2/4) decision outcomes
Execution	NA	100% (3/3) objective outcomes

Switch block "Switch"

Justify or Exclude

Parent: skr/Battery/Model/Saturation Dynamic1

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

logical trigger input	50%
false (output is from 3rd input port)	244/244
true (output is from 1st input port)	0/244

Switch block "Switch2"

Justify or Exclude

Parent: skr/Battery/Model/Saturation Dynamic1

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

logical trigger input	50%
false (output is from 3rd input port)	244/244
true (output is from 1st input port)	0/244

Full Coverage

Model Object	Metric
S-Function block "Data Type Propagation"	Execution

13. SubSystem block "Saturation Dynamic2"

Justify or Exclude

Parent: skr/Battery/Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	2
Decision	NA	50% (2/4) decision outcomes
Execution	NA	100% (3/3) objective outcomes

Switch block "Switch"

Justify or Exclude

Parent: skr/Battery/Model/Saturation Dynamic2

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes
Execution	100% (1/1) objective outcomes

Decisions analyzed

logical trigger input	50%
false (output is from 3rd input port)	244/244
true (output is from 1st input port)	0/244

Switch block "Switch2"

Justify or Exclude

Parent: skr/Battery/Model/Saturation Dynamic2

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes

Execution	100% (1/1) objective outcomes

Decisions analyzed

logical trigger input	50%
false (output is from 3rd input port)	244/244
true (output is from 1st input port)	0/244

Full Coverage

Model Object	Metric
S-Function block "Data Type Propagation"	Execution

14. SubSystem block "Chart"

Justify or Exclude

Parent: /skr
Child Systems: Chart

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	4
Decision	NA	33% (2/6) decision outcomes

15. Chart "Chart"

Justify or Exclude

Parent: skr/Chart
Uncovered Links:

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	1	3
Decision	50% (1/2) decision outcomes	33% (2/6) decision outcomes

Decisions analyzed

Substate executed	50%
State "Charge"	57/57
State "Discharge"	0/57

Transition "[SOC>80]" from "Charge" to "Discharge"

Justify or Exclude

Parent: skr/Chart

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	50% (1/2) decision outcomes

1 [SOC>80]

#1: [SOC>80]

Decisions analyzed

SOC>80	50%
false	57/57
true	0/57 

Transition "[SOC<40]" from "Discharge" to "Charge"

Justify or Exclude

Parent: skr/Chart

Uncovered Links: 

Metric	Coverage
Cyclomatic Complexity	1
Decision	0% (0/2) decision outcomes

1 [SOC<40]

#1: [SOC<40]

Decisions analyzed

SOC<40	0%
false	-- 
true	-- 

16. SubSystem block "DC Voltage Source"

Justify or Exclude

Parent: /skr
Child Systems: Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

17. SubSystem block "Model"

Justify or Exclude

Parent: skr/DC Voltage Source

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

Full Coverage

Model Object	Metric
Constant block "DC"	Execution

18. SubSystem block "Ideal Switch"

Justify or Exclude

Parent: /skr
Child Systems: Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

19. SubSystem block "Model"

Justify or Exclude

Parent: skr/Ideal Switch

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

Full Coverage

Model Object	Metric
DataTypeConversion block "Data Type Conversion"	Execution
Gain block "Ron"	Execution
Sum block "Sum"	Execution

20. SubSystem block "Ideal Switch1"

Justify or Exclude

Parent: /skr
Child Systems: Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

21. SubSystem block "Model"

Justify or Exclude

Parent: skr/Ideal Switch1

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

Full Coverage

Model Object	Metric
DataTypeConversion block "Data Type Conversion"	Execution
Gain block "Ron"	Execution
Sum block "Sum"	Execution

22. SubSystem block "Ideal Switch2"

Justify or Exclude

Parent: /skr
Child Systems: Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

23. SubSystem block "Model"

Justify or Exclude
Parent: skr/Ideal Switch2

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

Full Coverage

Model Object	Metric
DataTypeConversion block "Data Type Conversion"	Execution
Gain block "Ron"	Execution
Sum block "Sum"	Execution

24. SubSystem block "Ideal Switch3"

Justify or Exclude
Parent: /skr
Child Systems: Model

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

25. SubSystem block "Model"

Justify or Exclude
Parent: skr/Ideal Switch3

Metric	Coverage (this object)	Coverage (inc. descendants)

Cyclomatic Complexity	0	0
Execution	NA	100% (3/3) objective outcomes

Full Coverage

Model Object	Metric
DataTypeConversion block "Data Type Conversion"	Execution
Gain block "Ron"	Execution
Sum block "Sum"	Execution

26. SubSystem block "powergui"

Justify or Exclude

Parent: /skr
Child Systems: EquivalentModel1

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

27. SubSystem block "EquivalentModel1"

Justify or Exclude

Parent: skr/powergui

Metric	Coverage (this object)	Coverage (inc. descendants)
Cyclomatic Complexity	0	0
Execution	NA	100% (1/1) objective outcomes

Full Coverage

Model Object	Metric
S-Function block "State-Space"	Execution