Simulink Design Verifier Report

swim_12B

YUZEHONG

Simulink Design Verifier Report: swim_12B

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Table of Contents

Chapter 1. Summary

Analysis Information.

Model:	swim_12B
Mode:	Test generation
Model Representation:	Built on 28-Aug-2021 14:23:52
Test generation target:	Model
Status:	Completed normally
PreProcessing Time:	6s
Analysis Time:	12s

Objectives Status.

Number of Objectives:	**42**
Objectives Satisfied:	42

Chapter 2. Analysis Information

Table of Contents

Model Information

File:	swim_12B
Version:	1.18
Time Stamp:	Tue Oct 27 09:52:21 2015
Author:	belottr

Analysis Options

Mode:	TestGeneration
Rebuild Model Representation:	IfChangeIsDetected
Test generation target:	Model
Test Suite Optimization:	Auto
Maximum Testcase Steps:	10000time steps
Test Conditions:	UseLocalSettings
Test Objectives:	UseLocalSettings
Model Coverage Objectives:	ConditionDecision
Include Relational Boundary Objectives:	off
Maximum Analysis Time:	300s
Block Replacement:	off
Parameters Analysis:	off
Include expected output values:	off
Randomize data that do not affect the outcome:	off
Additional analysis to reduce instances of rational approximation:	on
Save Data:	on
Save Harness:	off
Save Report:	off

Unsupported Blocks

The following blocks are not supported by Simulink Design Verifier. They were abstracted during the analysis. This can lead Simulink Design Verifier to produce only partial results for parts of the model that depends on the output values of these blocks.

Block	**Type**
Sqrt	Sqrt
Sqrt	Sqrt

Chapter 3. Test Objectives Status

Table of Contents

Objectives Satisfied

Simulink Design Verifier found test cases that exercise these test objectives.

#	Type	Model Item	Description	Analysis Time (sec)	Test Case
1	Condition	swim_airspeed/IssueWarning/Relational Operator1	RelationalOperator: input1 == input2 **true**	4	1 [13]
2	Condition	swim_airspeed/IssueWarning/Relational Operator1	RelationalOperator: input1 == input2 **false**	4	1 [13]
3	Condition	swim_airspeed/IssueWarning/Relational Operator2	RelationalOperator: input1 == input2 **true**	4	1 [13]
4	Condition	swim_airspeed/IssueWarning/Relational Operator2	RelationalOperator: input1 == input2 **false**	4	1 [13]
5	Condition	swim_airspeed/IssueWarning/Logical Operator1	Logic: input port 1 **true**	4	1 [13]
6	Condition	swim_airspeed/IssueWarning/Logical Operator1	Logic: input port 1 **false**	4	1 [13]
7	Condition	swim_airspeed/IssueWarning/Logical Operator1	Logic: input port 2 **true**	4	1 [13]
8	Condition	swim_airspeed/IssueWarning/Logical Operator1	Logic: input port 2 **false**	4	1 [13]
9	Condition	swim_airspeed/IssueWarning/Relational Operator3	RelationalOperator: input1 == input2 **true**	4	1 [13]
10	Condition	swim_airspeed/IssueWarning/Relational Operator3	RelationalOperator: input1 == input2 **false**	4	1 [13]
11	Condition	swim_airspeed/Airspeed Monitoring/Relational Operator3	RelationalOperator: input1 == input2 **true**	4	1 [13]
12	Condition	swim_airspeed/Airspeed Monitoring/Relational Operator3	RelationalOperator: input1 == input2 **false**	4	1 [13]
13	Condition	swim_airspeed/Airspeed Monitoring/Relational Operator2	RelationalOperator: input1 == input2 **true**	4	1 [13]
14	Condition	swim_airspeed/Airspeed Monitoring/Relational Operator2	RelationalOperator: input1 == input2 **false**	4	1 [13]

#	Type	Model Item	Description	Analysis Time (sec)	Test Case
15	Condition	swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/Relational Operator	RelationalOperator: input1 == input2 **true**	4	1 [13]
16	Condition	swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/Relational Operator	RelationalOperator: input1 == input2 **false**	4	1 [13]
17	Decision	swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/If	input logical value **true**	4	1 [13]
18	Decision	swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/If	input logical value **false**	4	1 [13]
19	Condition	swim_airspeed/Airspeed Monitoring/Relational Operator	RelationalOperator: input1 > input2 **true**	4	1 [13]
20	Condition	swim_airspeed/Airspeed Monitoring/Relational Operator	RelationalOperator: input1 > input2 **false**	4	1 [13]
21	Condition	swim_airspeed/Airspeed Monitoring/Logical Operator	Logic: input port 1 **true**	4	1 [13]
22	Condition	swim_airspeed/Airspeed Monitoring/Logical Operator	Logic: input port 1 **false**	4	1 [13]
23	Condition	swim_airspeed/Airspeed Monitoring/Logical Operator	Logic: input port 2 **true**	4	1 [13]
24	Condition	swim_airspeed/Airspeed Monitoring/Logical Operator	Logic: input port 2 **false**	4	1 [13]
25	Decision	swim_airspeed/Airspeed Monitoring/If	input logical value **true**	4	1 [13]
26	Decision	swim_airspeed/Airspeed Monitoring/If	input logical value **false**	4	1 [13]
27	Decision	swim_airspeed/Airspeed Monitoring/If1	input logical value **true**	4	1 [13]
28	Decision	swim_airspeed/Airspeed Monitoring/If1	input logical value **false**	4	1 [13]
29	Condition	swim_airspeed/IssueWarning/Relational Operator4	RelationalOperator: input1 == input2 **true**	4	1 [13]

#	Type	Model Item	Description	Analysis Time (sec)	Test Case
30	Condition	swim_airspeed/IssueWarning/Relational Operator4	RelationalOperator: input1 == input2 **false**	4	1 [13]
31	Condition	swim_airspeed/IssueWarning/Logical Operator2	Logic: input port 1 **true**	4	1 [13]
32	Condition	swim_airspeed/IssueWarning/Logical Operator2	Logic: input port 1 **false**	4	1 [13]
33	Condition	swim_airspeed/IssueWarning/Logical Operator2	Logic: input port 2 **true**	4	1 [13]
34	Condition	swim_airspeed/IssueWarning/Logical Operator2	Logic: input port 2 **false**	4	1 [13]
35	Condition	swim_airspeed/IssueWarning/Logical Operator2	Logic: input port 3 **true**	4	1 [13]
36	Condition	swim_airspeed/IssueWarning/Logical Operator2	Logic: input port 3 **false**	4	1 [13]
37	Decision	swim_airspeed/IssueWarning/If	input logical value **true**	4	1 [13]
38	Decision	swim_airspeed/IssueWarning/If	input logical value **false**	4	1 [13]
39	Condition	swim_airspeed/IssueWarning/If Action Subsystem/Relational Operator	RelationalOperator: input1 < input2 **true**	11	2 [15]
40	Condition	swim_airspeed/IssueWarning/If Action Subsystem/Relational Operator	RelationalOperator: input1 < input2 **false**	4	1 [13]
41	Decision	swim_airspeed/IssueWarning/If Action Subsystem/If	input logical value **true**	11	2 [15]
42	Decision	swim_airspeed/IssueWarning/If Action Subsystem/If	input logical value **false**	4	1 [13]

Chapter 4. Model Items

Table of Contents

This section presents, for each object in the model defining coverage objectives, the list of objectives and their individual status at the end of the analysis. It should match the coverage report obtained from running the generated test suite on the model, either from the harness model or by using the sldvruntest command.

swim_airspeed/IssueWarning/Relational Operator1

#:	Type	Description	Status	Test Case
1	Condition	RelationalOperator: input1 == input2 true	Satisfied	1 [13]
2	Condition	RelationalOperator: input1 == input2 false	Satisfied	1 [13]

swim_airspeed/IssueWarning/Relational Operator2

#:	Type	Description	Status	Test Case
3	Condition	RelationalOperator: input1 == input2 true	Satisfied	1 [13]

#:	Type	Description	Status	Test Case
4	Condition	RelationalOperator: input1 == input2 false	Satisfied	1 [13]

swim_airspeed/IssueWarning/Logical Operator1

#:	Type	Description	Status	Test Case
5	Condition	Logic: input port 1 true	Satisfied	1 [13]
6	Condition	Logic: input port 1 false	Satisfied	1 [13]
7	Condition	Logic: input port 2 true	Satisfied	1 [13]
8	Condition	Logic: input port 2 false	Satisfied	1 [13]

swim_airspeed/IssueWarning/Relational Operator3

#:	Type	Description	Status	Test Case
9	Condition	RelationalOperator: input1 == input2 true	Satisfied	1 [13]
10	Condition	RelationalOperator: input1 == input2 false	Satisfied	1 [13]

swim_airspeed/Airspeed Monitoring/Relational Operator3

#:	Type	Description	Status	Test Case
11	Condition	RelationalOperator: input1 == input2 true	Satisfied	1 [13]
12	Condition	RelationalOperator: input1 == input2 false	Satisfied	1 [13]

swim_airspeed/Airspeed Monitoring/Relational Operator2

#:	Type	Description	Status	Test Case
13	Condition	RelationalOperator: input1 == input2 true	Satisfied	1 [13]
14	Condition	RelationalOperator: input1 == input2 false	Satisfied	1 [13]

swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/Relational Operator

#:	Type	Description	Status	Test Case
15	Condition	RelationalOperator: input1 == input2 true	Satisfied	1 [13]
16	Condition	RelationalOperator: input1 == input2 false	Satisfied	1 [13]

swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/If

#:	Type	Description	Status	Test Case
17	Decision	input logical value true	Satisfied	1 [13]
18	Decision	input logical value false	Satisfied	1 [13]

swim_airspeed/Airspeed Monitoring/Relational Operator

#:	Type	Description	Status	Test Case
19	Condition	RelationalOperator: input1 > input2 true	Satisfied	1 [13]
20	Condition	RelationalOperator: input1 > input2 false	Satisfied	1 [13]

swim_airspeed/Airspeed Monitoring/Logical Operator

#:	Type	Description	Status	Test Case
21	Condition	Logic: input port 1 true	Satisfied	1 [13]
22	Condition	Logic: input port 1 false	Satisfied	1 [13]
23	Condition	Logic: input port 2 true	Satisfied	1 [13]
24	Condition	Logic: input port 2 false	Satisfied	1 [13]

swim_airspeed/Airspeed Monitoring/If

#:	Type	Description	Status	Test Case
25	Decision	input logical value true	Satisfied	1 [13]
26	Decision	input logical value false	Satisfied	1 [13]

swim_airspeed/Airspeed Monitoring/If1

#:	Type	Description	Status	Test Case
27	Decision	input logical value true	Satisfied	1 [13]
28	Decision	input logical value false	Satisfied	1 [13]

swim_airspeed/IssueWarning/Relational Operator4

#:	Type	Description	Status	Test Case
29	Condition	RelationalOperator: input1 == input2 true	Satisfied	1 [13]
30	Condition	RelationalOperator: input1 == input2 false	Satisfied	1 [13]

swim_airspeed/IssueWarning/Logical Operator2

#:	Type	Description	Status	Test Case
31	Condition	Logic: input port 1 true	Satisfied	1 [13]
32	Condition	Logic: input port 1 false	Satisfied	1 [13]
33	Condition	Logic: input port 2 true	Satisfied	1 [13]
34	Condition	Logic: input port 2 false	Satisfied	1 [13]
35	Condition	Logic: input port 3 true	Satisfied	1 [13]
36	Condition	Logic: input port 3 false	Satisfied	1 [13]

swim_airspeed/IssueWarning/If

#:	Type	Description	Status	Test Case
37	Decision	input logical value true	Satisfied	1 [13]
38	Decision	input logical value false	Satisfied	1 [13]

swim_airspeed/IssueWarning/If Action Subsystem/Relational Operator

#:	Type	Description	Status	Test Case
39	Condition	RelationalOperator: input1 < input2 true	Satisfied	2 [15]
40	Condition	RelationalOperator: input1 < input2 false	Satisfied	1 [13]

swim_airspeed/IssueWarning/If Action Subsystem/If

#:	Type	Description	Status	Test Case
41	Decision	input logical value true	Satisfied	2 [15]

#:	Type	Description	Status	Test Case
42	Decision	input logical value false	Satisfied	1 [13]

Chapter 5. Test Cases

Table of Contents

This section contains detailed information about each generated test case.

Test Case 1

Summary.

Length:	1.2 seconds (7 sample periods)
Objectives Satisfied:	40

Objectives.

Step	Time	Model Item	Objectives
1	0	swim_airspeed/Airspeed Monitoring/Relational Operator3 swim_airspeed/Airspeed Monitoring/Relational Operator2 swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/Relational Operator swim_airspeed/IssueWarning/Relational Operator2 swim_airspeed/IssueWarning/Relational Operator3 swim_airspeed/IssueWarning/Logical Operator1 swim_airspeed/IssueWarning/Logical Operator1 swim_airspeed/Airspeed Monitoring/Logical Operator swim_airspeed/Airspeed Monitoring/Relational Operator swim_airspeed/Airspeed Monitoring/Logical Operator swim_airspeed/Airspeed Monitoring/If swim_airspeed/Airspeed Monitoring/If1 swim_airspeed/IssueWarning/Relational Operator4 swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/If swim_airspeed/IssueWarning/Logical Operator2	RelationalOperator: input1 == input2 false RelationalOperator: input1 == input2 true RelationalOperator: input1 == input2 false RelationalOperator: input1 == input2 true RelationalOperator: input1 == input2 true Logic: input port 1 false Logic: input port 2 true Logic: input port 1 true RelationalOperator: input1 > input2 true Logic: input port 2 true input logical value true input logical value false RelationalOperator: input1 == input2 true input logical value false Logic: input port 1 true input logical value true Logic: input port 2 true Logic: input port 3 true RelationalOperator: input1 == input2 false input logical value false RelationalOperator: input1 < input2 false

Step	Time	Model Item	Objectives
		swim_airspeed/IssueWarning/If swim_airspeed/IssueWarning/Logical Operator2 swim_airspeed/IssueWarning/Logical Operator2 swim_airspeed/IssueWarning/Relational Operator1 swim_airspeed/IssueWarning/If Action Subsystem/If swim_airspeed/IssueWarning/If Action Subsystem/Relational Operator	
2	0.2	swim_airspeed/IssueWarning/Relational Operator2 swim_airspeed/IssueWarning/Logical Operator1 swim_airspeed/IssueWarning/Relational Operator3 swim_airspeed/IssueWarning/Logical Operator2 swim_airspeed/IssueWarning/If	RelationalOperator: input1 == input2 false Logic: input port 2 false RelationalOperator: input1 == input2 false Logic: input port 1 false input logical value false
3	0.4	swim_airspeed/IssueWarning/Logical Operator1 swim_airspeed/IssueWarning/Logical Operator2 swim_airspeed/IssueWarning/Relational Operator1	Logic: input port 1 true Logic: input port 2 false RelationalOperator: input1 == input2 true
4	0.6	swim_airspeed/Airspeed Monitoring/Relational Operator2 swim_airspeed/Airspeed Monitoring/Relational Operator3 swim_airspeed/IssueWarning/Relational Operator4 swim_airspeed/Airspeed Monitoring/If1 swim_airspeed/Airspeed Monitoring/If swim_airspeed/Airspeed Monitoring/Relational Operator swim_airspeed/Airspeed Monitoring/Logical Operator	RelationalOperator: input1 == input2 false RelationalOperator: input1 == input2 true RelationalOperator: input1 == input2 false input logical value true input logical value false RelationalOperator: input1 > input2 false Logic: input port 1 false
5	0.8	swim_airspeed/IssueWarning/Logical Operator2	Logic: input port 3 false
6	1	swim_airspeed/Airspeed Monitoring/Logical Operator	Logic: input port 2 false
7	1.2	swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/If swim_airspeed/Calculate the minimum calibrated airspeed based on Cat Switch/Relational Operator	input logical value true RelationalOperator: input1 == input2 true

Generated Input Data.

Time	**0**	**0.2**	**0.4**	**0.6**	**0.8**	**1**	**1.2**
Step	**1**	**2**	**3**	**4**	**5**	**6**	7
muxGet_-T_Mux_A-ircraftGr-ossWeig-ht_lbs	5.9566	5.9566	5.9566	5.9566	5.9566	5.9566	0
diGet_S_-CatSwitc-hPosition	-10	-1	-1	-1	-1	-1	0
E_AI_IM-PACT_PR-ESSURE	0.8763	0	0	-121.7263	0	-121.7263	0
diGet_S_-Landing-GearAltF-lap	1	1	1	0	0	1	0
muxGet_-T_Mux_A-irspeedM-onitorEn-able	0	0	1	0	1	0	0
cvGet_V-_AgcasL-owSpeed-Warn	1	0	1	0	1	0	0
olcGet_A-gcasInter-locks	0	1	1	0	0	0	0

Test Case 2

Summary.

Length:	0.2 second (2 sample periods)
Objectives Satisfied:	2

Objectives.

Step	**Time**	**Model Item**	**Objectives**
2	0.2	swim_airspeed/IssueWarning/If Action Subsystem/If swim_airspeed/IssueWarning/If Action Subsystem/Relational Operator	input logical value true RelationalOperator: input1 < input2 tr-ue

Generated Input Data.

Time	**0**	**0.2**
Step	**1**	**2**
muxGet_T_Mux_AircraftGrossWeight_lbs	0	0
diGet_S_CatSwitchPosition	0	0
E_AI_IMPACT_PRESSURE	0	-170.492
diGet_S_LandingGearAltFlap	1	1
muxGet_T_Mux_AirspeedMonitorEnable	0	1
cvGet_V_AgcasLowSpeedWarn	1	1
olcGet_AgcasInterlocks	1	0