Model: CDCFModel

Place Attributes:

Place Names	Initial Markings
Checker	1
CheckerFailed	0
CheckerSilent	0
Doer	1
DoerWrongValidation	0
Fallback	1
FallbackWrongValidation	0
SafeState	0
Selectors	2
UnsafeState	0

Timed Activity:	CCF
Distribution Parameters	**Rate** r_ccf
Activation Predicate	(none)
Reactivation Predicate	(none)
Case Distributions	**case 1** p_ccf2of3 **case 2** p_ccf2of3 **case 3** p_ccf2of3 **case 4** 1-p_ccf2of3*3

Timed Activity:	CheckerFailure
Distribution Parameters	**Rate** fr_asilC
Activation Predicate	(none)
Reactivation Predicate	(none)

Timed Activity:	DoerFailure
Distribution Parameters	**Rate** fr_asilB
Activation Predicate	(none)
Reactivation Predicate	(none)

Timed Activity:	DoerMRM
Distribution Parameters	**Rate** r_doerMRM
Activation Predicate	(none)
Reactivation Predicate	(none)

Timed Activity:	FallbackFailure
Distribution Parameters	**Rate** fr_asilB
Activation Predicate	(none)
Reactivation Predicate	(none)

Timed Activity:	FallbackMRM
Distribution Parameters	**Rate** r_fallbackMRM
Activation Predicate	(none)
Reactivation Predicate	(none)

Timed Activity:	SelectorsFailure
Distribution Parameters	**Rate** fr_asilD * Selectors->Mark()
Activation Predicate	(none)
Reactivation Predicate	(none)

Instantaneous Activity:	CheckerFailureType
Case Distributions	**case 1** p_checkersilent **case 2** p_doerwrongvalidation **case 3** 1-p_doerwrongvalidation-p_checkersilent

Instantaneous Activity:	prebufferedMRM
Case Distributions	**case 1** 1-p_MRM **case 2** p_MRM

Instantaneous Activities Without Cases:
CatastrophicFailure

Input Gate:	CheckCatastrophicFailure
Predicate	SafeState->Mark()+UnsafeState->Mark()==0 && Doer->Mark()==0 && (DoerWrongValidation->Mark()==1 || (Fallback->Mark()==0 && FallbackWrongValidation->Mark()==1))
Function	;

Input Gate:	CheckDoerMRM
Predicate	SafeState->Mark()+UnsafeState->Mark()==0 && Doer->Mark() && ((Fallback->Mark()==0 && Checker->Mark()==1) || Fallback->Mark()+FallbackWrongValidation->Mark()==2)
Function	;

Input Gate:	CheckFallbackMRM
Predicate	SafeState->Mark()+UnsafeState->Mark()==0 && Fallback->Mark() && ((Doer->Mark()==0 && Checker->Mark()==1) || Doer->Mark()+DoerWrongValidation->Mark()==2)
Function	;

Input Gate:	CheckNonCatastrophicFailure
Predicate	SafeState->Mark()+UnsafeState->Mark()==0 && (Selectors->Mark()==0 || CheckerSilent->Mark()==1 || (Doer->Mark()+Fallback->Mark()==0 && Checker->Mark()==1) || (FallbackWrongValidation->Mark()+Fallback->Mark()==2 && Doer->Mark()==0))
Function	;

Output Gate:	CCFDoerChecker

Function	if (Doer->Mark()+Checker->Mark()==2)
	{
	Doer->Mark()=0;
	Checker->Mark()=0;
	CheckerFailed->Mark()=1;
	}

Output Gate:	CCFDoerFallback

Function	if (Doer->Mark()+Fallback->Mark()==2)
	{
	Doer->Mark()=0;
	Fallback->Mark()=0;
	}

Output Gate:	CCFDoerFallbackChecker

Function	if (Doer->Mark()+Checker->Mark()+Fallback->Mark()==3)
	{
	Fallback->Mark()=0;
	Doer->Mark()=0;
	Checker->Mark()=0;
	CheckerFailed->Mark()=1;
	}

Output Gate:	CCFFallbackChecker

Function	if (Fallback->Mark()+Checker->Mark()==2)
	{
	Fallback->Mark()=0;
	Checker->Mark()=0;
	CheckerFailed->Mark()=1;
	}

Set Study: CDCFParameter:

Experiment	Variable	Type	Value
Experiment 1	fr_asilB	double	1.0E-7
	fr_asilC	double	1.0E-7
	fr_asilD	double	1.0E-8
	p_MRM	double	0.95
	p_ccf2of3	double	0.3
	p_checkersilent	double	0.9
	p_doerwrongvalidation	double	0.05
	r_ccf	double	1.0E-9
	r_doerMRM	double	6.0
	r_fallbackMRM	double	6.0

Performance Variable Model: CDCFReward		
Top Level Model Information	Child Model Name	CDCFModel
	Model Type	SAN Model

Performance Variable : p_safestate			
Affecting Models	CDCFModel		
Impulse Functions			
Reward Function	*(Reward is over all Available Models)* if (CDCFModel->SafeState->Mark()==1) return 1;		
Simulator Statistics	Type	Instant of Time	
	Options	Estimate Mean	
		Include Lower Bound on Interval Estimate	
		Include Upper Bound on Interval Estimate	
		Estimate out of Range Probabilities	
		Confidence Level is Relative	
	Parameters	Start Time	1000.0,2000.0,3000.0,4000.0,5000.0,6000.0,7000.0,8000.0,
	Confidence	Confidence Level	0.95
		Confidence Interval	0.1

Performance Variable : p_unsafestate			
Affecting Models	CDCFModel		
Impulse Functions			
Reward Function	*(Reward is over all Available Models)* if (CDCFModel->UnsafeState->Mark()==1) return 1;		
Simulator Statistics	Type	Instant of Time	
	Options	Estimate Mean	
		Include Lower Bound on Interval Estimate	
		Include Upper Bound on Interval Estimate	
		Estimate out of Range Probabilities	
		Confidence Level is Relative	
	Parameters	Start Time	1000.0,2000.0,3000.0,4000.0,5000.0,6000.0,7000.0,8000.0,
	Confidence	Confidence Level	0.95
		Confidence Interval	0.1

Performance Variable : mttf_safestate			
Affecting Models	CDCFModel		
Impulse Functions			
Reward Function	*(Reward is over all Available Models)* if (CDCFModel->SafeState->Mark()==0) return 1;		
Simulator Statistics	Type	Interval of Time	
	Options	Estimate Mean	
		Include Lower Bound on Interval Estimate	
		Include Upper Bound on Interval Estimate	
		Estimate out of Range Probabilities	
		Confidence Level is Relative	
	Parameters	Start Time	0,
		Stop Time	1000000000000,
	Confidence	Confidence Level	0.95
		Confidence Interval	0.1

Performance Variable : mttf_unsafestate			
Affecting Models	CDCFModel		
Impulse Functions			
Reward Function	*(Reward is over all Available Models)* if (CDCFModel->UnsafeState->Mark()==0) return 1;		
Simulator Statistics	Type	Interval of Time	
	Options	Estimate Mean	
		Include Lower Bound on Interval Estimate	
		Include Upper Bound on Interval Estimate	
		Estimate out of Range Probabilities	
		Confidence Level is Relative	
	Parameters	Start Time	0.0,
		Stop Time	1000000000000,
	Confidence	Confidence Level	0.95
		Confidence Interval	0.1