Modularizing a  
DO178-Compliant Helicopter  
Simulink System

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# Software Design Description

## Flight Control Computer (FCC)

### Interface

#### Inputs

|  |  |  |  |
| --- | --- | --- | --- |
| **Inports: (9)** | | | |
| **Block Path** | **Data Type** | **Port Dimensions** | **Sample Time** |
| FCC\_Sys\_New/Act\_Pos1 | int16 | 1 | 0.001 |
| FCC\_Sys\_New/Act\_Pos2 | int16 | 1 | 0.001 |
| FCC\_Sys\_New/Act\_Pos3 | int16 | 1 | 0.001 |
| FCC\_Sys\_New/Pilot\_theta\_cmd | int16 | 1 | 0.01 |
| FCC\_Sys\_New/Pilot\_phi\_cmd | int16 | 1 | 0.01 |
| FCC\_Sys\_New/Pilot\_r\_cmd | int16 | 1 | 0.01 |
| FCC\_Sys\_New/AHRS1 | AHRS\_Bus | 1 | 0.01 |
| FCC\_Sys\_New/AHRS2 | AHRS\_Bus | 1 | 0.01 |
| FCC\_Sys\_New/AHRS3 | AHRS\_Bus | 1 | 0.01 |

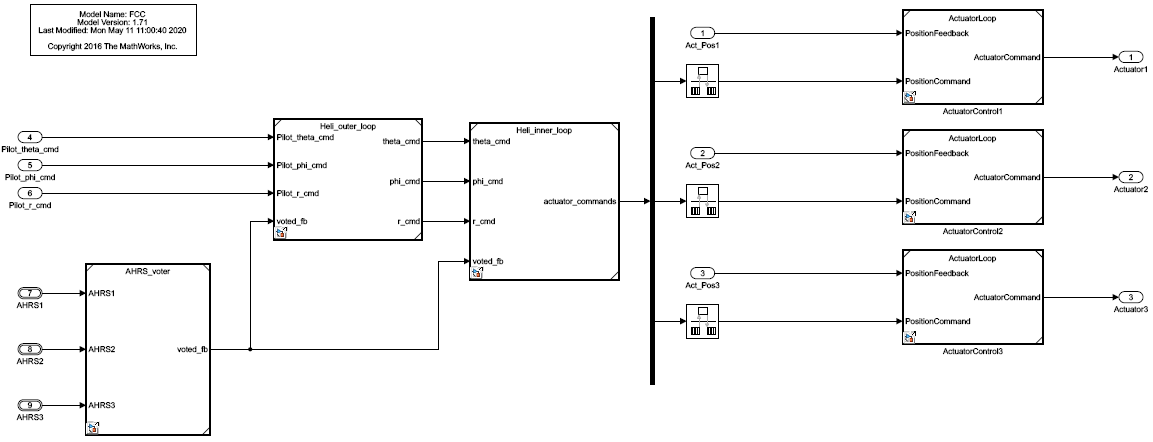
#### Outputs

|  |  |  |  |
| --- | --- | --- | --- |
| **Outports: (3)** | | | |
| **Block Path** | **Data Type** | **Port Dimensions** | **Sample Time** |
| FCC\_Sys\_New/Actuator1 | int16 | 1 | 0.001 |
| FCC\_Sys\_New/Actuator2 | int16 | 1 | 0.001 |
| FCC\_Sys\_New/Actuator3 | int16 | 1 | 0.001 |

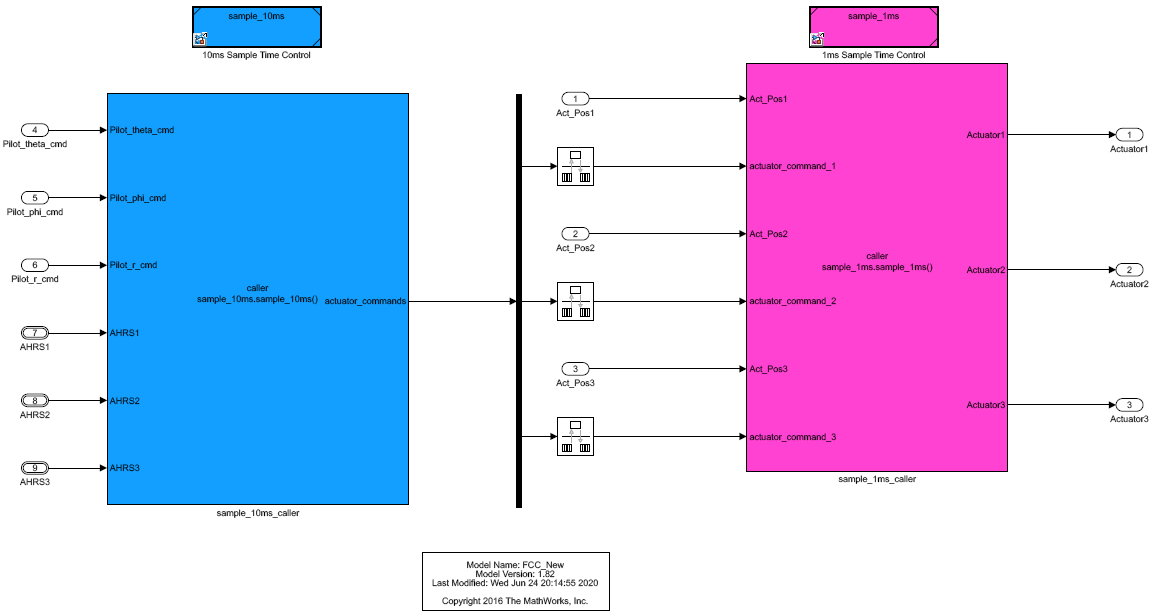
#### Exports

N/A

### Original Design



### New Design



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# Verification

## Notes

## Original Model

## New Model

## Verification Model

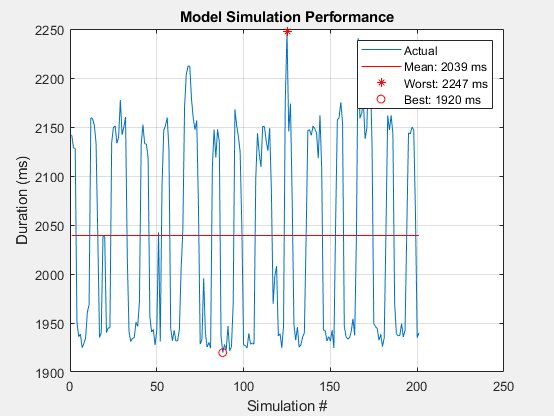
## Conclusion

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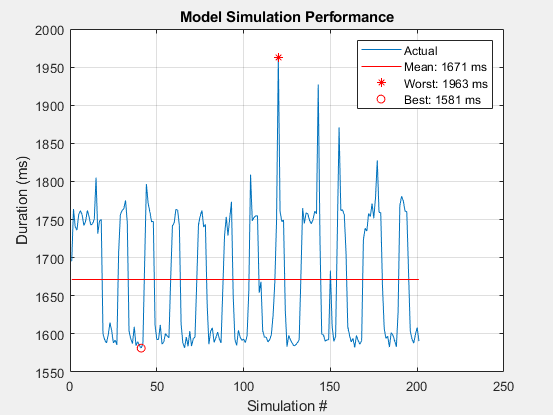
# Analysis

## Model Execution Time Comparison

### Original



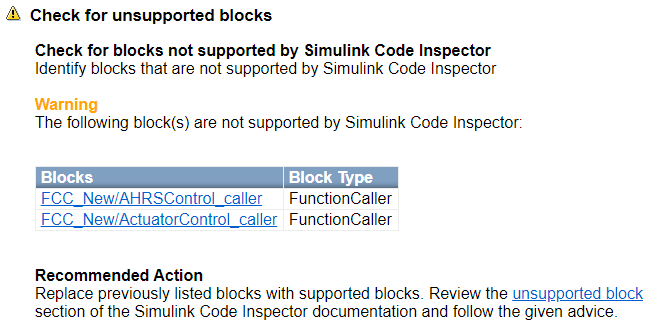
### New

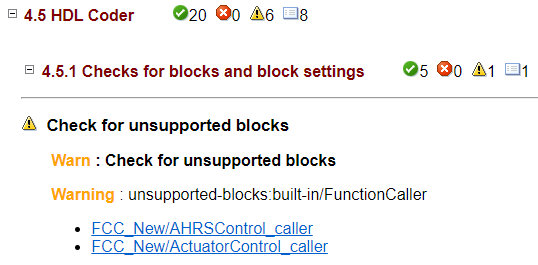


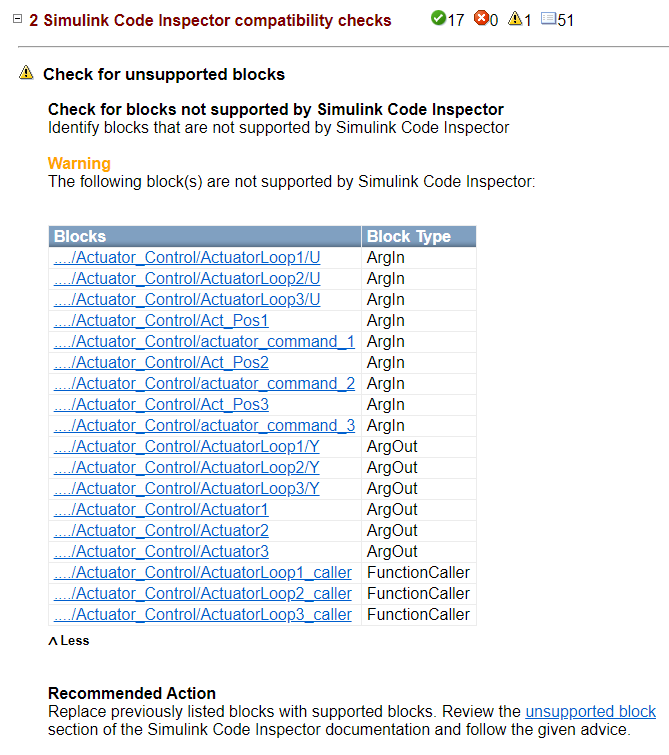
## Model Metrics

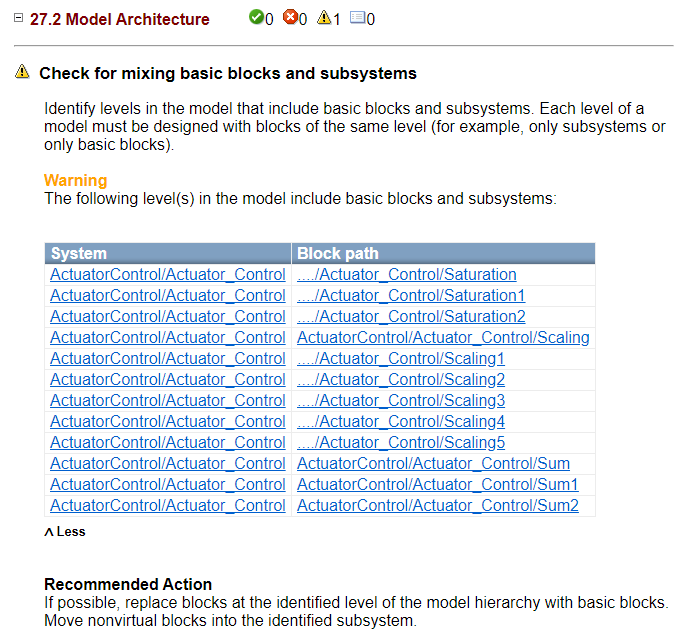
### Modelling Guideline Compliance

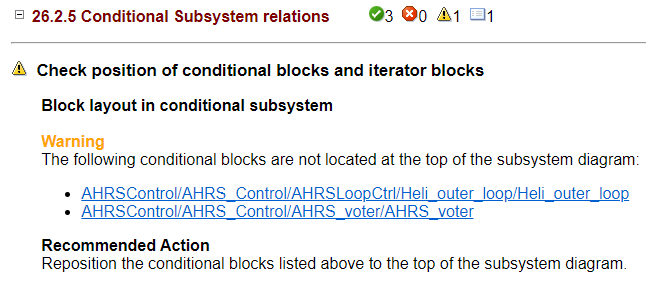
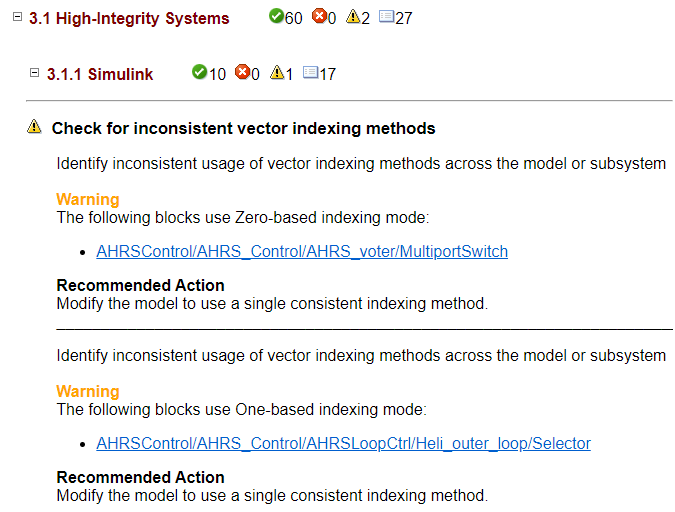
### Notes



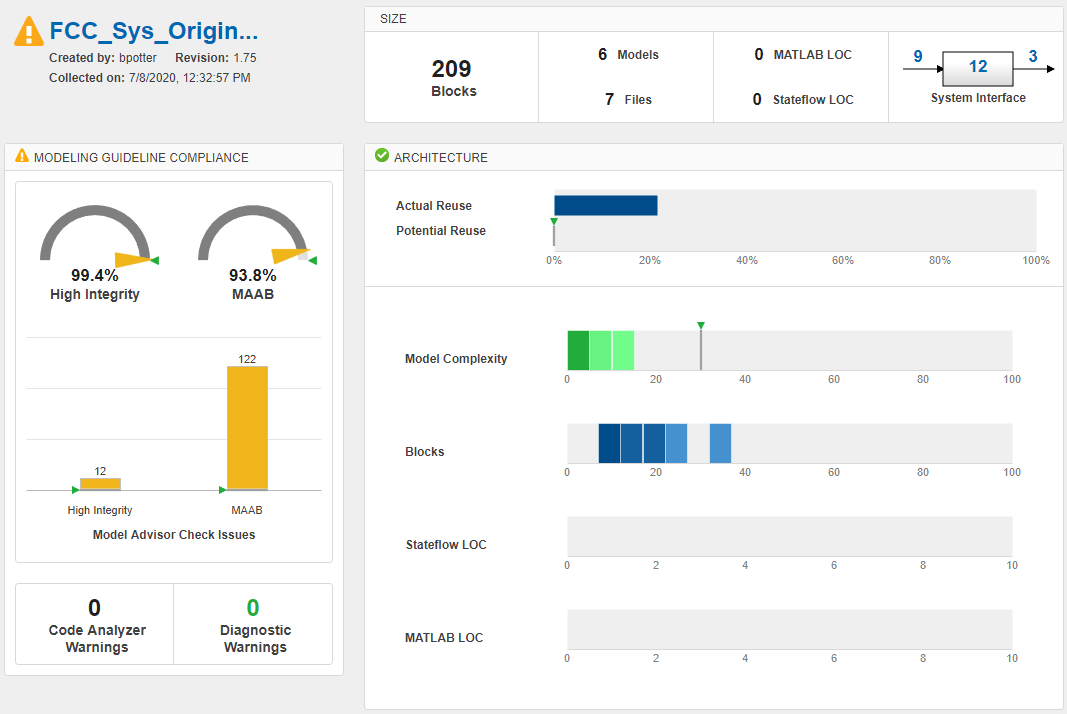








#### Original



#### New

