System Composer
Intuitively design system and software architectures

Description
==
Architecture
System Composer
Perform trade studies based on data driven analysis to optimize architectures

Add custom data

Create analysis model

Calculate mass roll-up data
System Composer
Tackle Architecture complexity with spotlight views
System Composer
Tackle Architecture complexity with views

Composition

Views
System Composer
System and software architectures connected to implementations in Simulink

Generate Simulink models from architecture components

Link Simulink models to architecture components

Autogenerated by System Composer on March 25, 2019 2:00 pm EST
System Composer
Link system models to Simulink Requirements
System Composer

- Be Intuitive
- Facilitate Analysis
- Tackle Complexity
- Enable Implementation

Digital Thread for Requirements Coverage Reporting and Impact Analysis

MATLAB

Simulink Requirements
System Composer and Model-Based Design
A Systems Engineer

Simulink Requirements

Systems engineering techniques are used in complex projects: spacecraft design, computer chip design, robotics, software integration, and bridge building. Systems engineering uses a host of tools that include modeling and simulation, requirements analysis and scheduling to manage complexity.

Simulink Models

Requirements, Models and Tests – Bottom-up
Systems Engineering and Requirements – Top Down
Independence Forced by Tooling

Requirements

Models

Tests
Flexibility between Systems and Software

System Composer Models and Requirements

Simulink Models

Simulink Test
Now let’s see it in action
How to run the DeHavilland model:
1. See the Aerospace Blockset User’s Guide for instructions to set up FlightGear.
2. Install the dh2 geometry model to FlightGear’s data/Aircraft directory. The geometry is downloadable from www.flightgear.org.
3. To start FlightGear, open FlightGear.exe and go to the menu File > Add Model... and select the dh2 model.
#35: Propulsion Power

Propulsion Power Subsystem

Implemented: 27, Justified: 0, None: 0, Total: 27

Index | Summary | Implemented
--- | --- | ---
1 | Aircraft Capabilities | Implemented: 27, Justified: 0, None: 0, Total: 27
1.1 | Anworthiness |
1.1.1 |
1.1.2 |
1.1.3 |
1.2 | Range |
1.3 | Power |
1.4 | Rain Conditions |
Propulsion Power Subsystem

Engine_Power_Wm.s

apControls

EnvBus

enginePower

Actuator Power Subsystem

< Actuators >
**Requirement #35: Propulsion Power**

**Engine:** Nine-cylinder, air-cooled, radial aircraft engine

**Fuel Type:** 80/87 grade aviation gasoline

**Dry Weight/Lb:** (1.03 kW/kg): 290 kg

**Power Output:** 400 hp (298 kW) at 2,200 RPM up to 5,000 ft (1,524 m)
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<thead>
<tr>
<th>Instance</th>
<th>Mass (kg)</th>
<th>Power (mW)</th>
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Key Takeaways

- System Composer connects architectures with requirements and simulation
- A flexible canvas
- Enables analysis and simulation
- Helps manage complexity
Learn More

- System Composer Webpage
- Simulink Requirement Webpage
- System Modeling and Simulation Webpage
- See more at the System Modelling demo station
  - Including AUTOSAR composition authoring

- Trial