

PolySpace™ Model Link TL 4.2

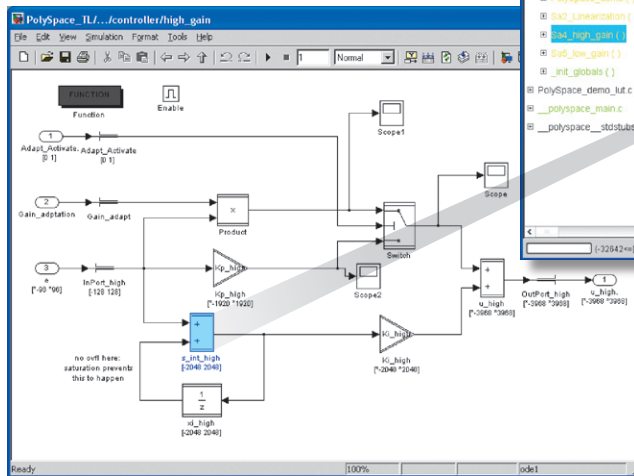
Trace PolySpace™ results to TargetLink® models

PolySpace™ Model Link TL extends PolySpace™ Client for C/C++ and PolySpace™ Server for C/C++ with tools that let you verify C code generated by TargetLink® and trace PolySpace™ results from the generated C code to your model. As a result, you can identify which parts of the model are reliable, and correct design problems that will cause run-time errors in the code. With PolySpace Model Link TL, you work in the Simulink® environment to verify C code generated by TargetLink. You can verify a mix of generated and hand-written code before it is compiled.

You can start the code verification directly from within your TargetLink model, using context-sensitive predefined settings.

KEY FEATURES

- Uses advanced code-based verification techniques to automatically verify all program executions
- Incorporates the entire range of parameter values specified in the model
- Traces run-time errors back to the model
- Launches from within TargetLink®



The image shows two overlapping windows. The top window is 'PolySpace Viewer' showing a table with columns for 'Codegen/review/progress', 'Code', 'Req.', and 'No check currently selected'. The bottom window is 'PolySpace_demo.c' showing C code with PolySpace annotations. The code includes comments like '/* # combined # Product: PolySpace_demo/controller/high' and '/* Sum: PolySpace_demo/controller/high gain/s int high'. The code also contains conditional statements and arithmetic operations, such as 'if ((Aux_S16 >= 0) && (X_Sa4_xi_high >= 0) && (Sa4 = Int16) && (Sa4 >= 0) && (Sa4 <= 1);' and 'if ((Aux_S16 < 0) && (X_Sa4_xi_high < 0) && (Sa4 = Int16) && (Sa4 <= -1);'.

PolySpace Client for C/C++ GUI showing a Simulink model of a high-gain control system and the PolySpace results of the C code generated from the Simulink model by TargetLink (inset). PolySpace Model Link TL highlights comments in the PolySpace results that link back to the corresponding block in the model.

Typical Run-Time Errors Detected

In Models

Overflows and underflows

Division by zero and other arithmetic errors

Out-of-bounds array access

Dead code

In Code

Illegally dereferenced pointers

Read-only access to noninitialized data

Dangerous type conversions

Working with PolySpace Model Link TL

PolySpace Model Link TL integrates with PolySpace Client for C/C++ and PolySpace Server for C/C++ (both available separately) to support the model development workflow. You can:

- Fix implementation errors caused by latent design deficiencies
- Independently verify generated code
- Determine how robust the code is on a particular target
- Correct errors during implementation, before deployment and testing

You can verify a subsystem or any reusable component of your system. You can quickly navigate from the code to the relevant section of your TargetLink model, facilitating design edits and debugging.

Required Products

PolySpace™ Client for C/C++
PolySpace™ Server for C/C++
Simulink®

Related Products

PolySpace™ Model Link SL (for Simulink®)
PolySpace™ UML Link RH (for Telelogic® Rhapsody®)

Platform and System Requirements

For platform and system requirements, visit www.mathworks.com/products/polyspacemodeltl ■

Resources

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