

PolySpace™ Model Link SL 4.2

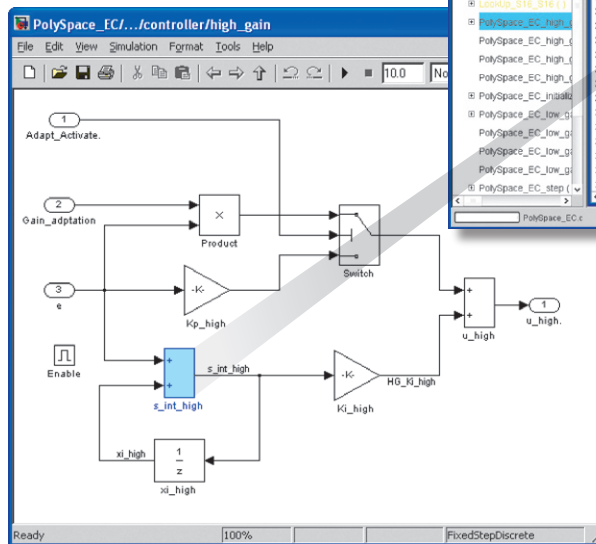
Trace PolySpace™ results to Simulink® models

PolySpace™ Model Link SL extends PolySpace™ Client for C/C++ and PolySpace™ Server for C/C++ with tools that let you trace PolySpace™ results from generated C code directly to your Simulink® 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 SL, you work in the Simulink environment to verify C code generated by Real-Time Workshop® Embedded Coder. You can verify a mix of generated and hand-written code before it is compiled.

You can start the code verification directly from the Simulink 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 Simulink model
- Launches from within Simulink or from the MATLAB® command line



```
286 int16_T tmp_4;
287
288 /* UnitDelay: '<89>/xi_high' */
289 xi_high = PolySpace_EC_DWork_xi_high_DEFAULT;
290
291 /* Sum: '<89>/= int_high' */
292 s_int_high = (int16_T)(e + xi_high);
293
294 /* Gain: '<89>/Ki_high' */
295 HG_Ki_high = (int16_T)(Ki_high * s_int_high);
296
297 /* Switch: '<89>/Switch' */
298 if (Gain_adapt_Activate >= 1) {
299 /* Product: '<89>/Product' */
300 tmp_1 = Gain_adapt_value * e;
301 if (tmp_1 > 32767) {
302 tmp_2 = MAX_int16_T;
303 } else if (tmp_1 <= -32768) {
304 tmp_2 = MIN_int16_T;
305 } else {
```

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 model (inset). PolySpace Model Link SL highlights comments in the PolySpace results that link back to the corresponding block in the Simulink 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 SL

PolySpace Model Link SL integrates with PolySpace Client for C/C++ and PolySpace Server for C/C++ (both available separately) to support development projects using Model-Based Design with Simulink. 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, a model reference block, an S-function, or any reusable component of your system. You can quickly navigate from the code to the relevant section of your Simulink model, facilitating design edits and debugging.

Required Products

PolySpace™ Client for C/C++

PolySpace™ Server for C/C++

Simulink®

Related Products

PolySpace™ Model Link TL (for dSPACE® TargetLink)

PolySpace™ UML Link RH (for Telelogic® Rhapsody®)

Real-Time Workshop®

Real-Time Workshop® Embedded Coder

Stateflow®

Stateflow® Coder

Platform and System Requirements

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

Resources

VISIT

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