SIEMENS EDA

MatchLib Connections
Release Notes

Software Version v1.2.6
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SIEMENS

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Release 1.2.6

The following topics describes the changes that were made to the *MatchLib Connections* library since the last release. This release provides new functionality, enhancements and bug fixes.

Enhancements

N/A

Corrected Issues

- CAT-29206: waveform tracing bug in connections.h
- CAT-29221: automatically error out on huge marshaller invocations
- CAT-29244: improved error checking

Release 1.2.4

The following topics describes the changes that were made to the *MatchLib Connections* library since the last release. This release provides new functionality, enhancements and bug fixes. This version of *MatchLib Connections* was included in Catapult releases 10.6a.

Enhancements

Added support for VCS-MX compilation to the 45_vlog_tb_dma_dut example.

Moved the PDF documentation to the 'pdfdocs' folder.

Compilation of Connections now defaults to CONNECTIONS_ACCURATE_SIM.

CAT-27198 – Added support for ac_float to marshaller.h

CAT-26848 – Add waveform tracing for Matchlib SyncChannel

Corrected Issues

N/A

Release 1.2.3

The following topics describes the changes that were made to the *MatchLib Connections* library since the last release. This release provides new functionality, enhancements and bug fixes. This version of *MatchLib Connections* was included in Catapult releases 10.6a.

Enhancements

N/A

Corrected Issues

N/A

Release 1.2.2

The following topics describes the changes that were made to the *MatchLib Connections* library since the last release. This release provides new functionality, enhancements and bug fixes. This version of *MatchLib Connections* was included in Catapult releases 10.6.

Enhancements

Formatted with AStyle

Corrected Issues

N/A

Release 1.2.1

The following topics describes the changes that were made to the *MatchLib Connections* library since the last release. This release provides new functionality, enhancements and bug fixes.

Enhancements

None

Corrected Issues

The following bugs were fixed:

- **(no bug #)**: Corrected p2p_checker to be sync_checker

Release 1.2.0

The following topics describes the changes that were made to the *MatchLib Connections* library since the last release. This release provides new functionality, enhancements and bug fixes.

Enhancements

This update to the Connections library contains significant enhancements to support multiple clocks and resets, as well as enhanced error checking. User models written using earlier version of the Connections library should work with this updated version without any modifications.

Multiple clocks are now supported.

Prior versions of the library only supported a single global clock, specified via the set_sim_clk() call. It is no longer necessary for user models to make this call, however if they do <u>it is silently ignored</u>.

Now, all clocks (sc_clock instances) are automatically discovered in the entire design.

For each SystemC process using Connections ports, the Connections library automatically determines the associated clock, sync reset, and async reset signals.

Dynamic resets are properly handled by the Connections library.

Error Reporting

Important errors are now automatically detected and reported by the connections library. The library checks:

- that every process sensitive to a clock consistently use the sync reset and async reset signals.
- that every process using Connections is reset at the start of simulation, and that every port or channel that such processes use have their Connections Reset methods called.
- that all message passing calls (Push, Pop, PushNB, PopNB) occur exactly at the time of the correct clock edge.

Channel Logging

The channel logging feature now supports both buffered and unbuffered output.

The channel_logs class enables logging information to be output from all Connections channel instances in a design.

There is a new optional argument to the channel_logs::enable(std::string file_name, bool unbuffered = false) call. For designs where simulation "hangs" or deadlocks, it is useful to set the unbuffered option to true. This will immediately flush all channel transactions to the output, making it easy to identify the last transactions in the system that occured immediately before the design deadlocked.

Marshaller Changes

Marshalling support added for ac_fixed, sc_fixed, ac_complex, ac_std_float, and ac::bfloat.

Connections Pin-level Signal Names

Connections pin level signal names were changed to be compatible with Catapult naming scheme

rdy/vld/dat used with C++ designs. To continue using the original naming (rdy/val/msg), set the compiler flag -DCONNECTIONS_NAMING_ORIGINAL

Removed P2P Dependency

Removed dependency on Catapult's p2p_sync types for data-less Connections SyncIn/SyncOut ports and SyncChannel.

Random Stall

Add Connections input port methods to allow user override of randomization parameters when using CONN_RAND_STALL feature. Connections by defaults randomizes the Pacer stall and hold bounds. Use set_rand_stall_prob(float&) and set_rand_hold_stall_prob(float&) to override.

Corrected Issues

The following bugs were fixed:

- CAT-25216: Change Connections interface pins to match naming of ac_channel for the C++ flow.
- CAT-25338: Add connections support for ac_std_float and ac::bfloat
- CAT-25473: Sign bit needs to be handled properly in marshaller SpecialWrapper2
- CAT-25488: Merge MatchLib toolkit mc_connections.h, macros, tracing, and logging into Connections
- CAT-25772: Multiple clock and error message enhancements
- CAT-25773: Update Connections with new channel_logs class
- CAT-24885: MatchLib connections support for ac_fixed and sc_fixed
- CAT-24940: Support marshalling in ac_complex.h
- CAT-25256: Matchlib connection support for C datatypes
- CAT-25279: ac_channel bind() fails with more than three template parameters for ac_fixed

Supported Compilers

The MatchLib Connections package requires a C++ compiler that supports the C++11 or newer language standard.