FAQ 009

Information about MEX Compilers

Question

What do I have to know about MEX compilers and MEX DLLs for Simulink S-functions?

Solution

In certain situations, the build process requires a MEX compiler. For example, if S-function without a corresponding MEX DLL is part of the Simulink model.

For more information about S-functions, visit:

- https://mathworks.com/help/simulink/sfg/what-is-an-s-function.html
- https://mathworks.com/help/matlab/matlab_external/build-an-executable-mex-file.html

S-functions are used not only to integrate user-specific C code into a Simulink model. S-functions are also generated automatically when you work with certain blocksets, such as the RTI CAN MultiMessage Blockset.

For simulation in Simulink and C code generation, the S-function code must be compiled to a MEX DLL.

Generating the MEX DLL on the PC requires a compatible PC compiler. Depending on the MATLAB Release, the DLL has the file name extension *.mexw32 or *.mexw64.

To set up the compiler, enter the following command in the MATLAB Command Window:

```
mex -setup
```

Selecting a Compatible MEX Compiler for MATLAB 64-Bit

As of Release 2017-B, dSPACE RCP and HIL (64-bit) software supports the following compilers for building MEX functions:

- MinGW (GNU Compilers Collection)
  - Version 4.9.2 in combination with MATLAB R2016a, R2016b and R2017a
  - Version 5.3.0 in combination with MATLAB R2017b and R2018a
  - Version 6.3.0 in combination with MATLAB R2018b and R2019a
- Microsoft Visual Studio 2015 pro

Up to and including Release 2017-A, dSPACE RCP and HIL (64-bit) software supports only Microsoft Windows SDK 7.1 for building MEX functions. This is also valid if you use Windows 10.

You can get the Microsoft Windows SDK 7.1 from the Microsoft website:

- http://www.microsoft.com/en-us/download/details.aspx?id=8279

Selecting a Compatible MEX Compiler for MATLAB 32-Bit

32-bit MATLAB variants include the LCC compiler that can be used as an MEX compiler in most cases.

Note

The MEX compiler is not the same compiler that is used for building the complete application afterwards for the dSPACE simulation platform, e.g., SCALEXIO, MicroLabBox, VEOS.

FAQ Overview

http://www.dspace.com/go/faq

Support

To request support, please use the form at http://www.dspace.com/go/supportrequest

Updates and Patches

Software updates and patches are available at http://www.dspace.com/go/patches.
dSPACE strongly recommends to use the most recent patches for your dSPACE installation.

Important Notice

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