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VehicleSim System Requirements & Software Compatibility

VehicleSim Products

- CarSim, TruckSim, BikeSim, and SuspensionSim
- Version 2024.1

System Requirements

Operating Systems

CarSim, TruckSim, BikeSim, and SuspensionSim

- Windows 10 (64-bit) and Windows 11 (64-bit), all VS products

CarSim, TruckSim, and BikeSim

- Ubuntu 18.04 LTS, 20.04 LTS, 22.04 LTS (64-bit) (does not support USB dongles)

Hardware

Minimum Hardware Specifications

- Hard Drive: 8 GB free disk space
- Memory: 4 GB RAM
- CPU: 2 GHz Intel® Core or equivalent
- Graphic processing unit (GPU): OpenGL 2.1 hardware support with 512 MB video memory (NVIDIA, AMD, or similar)

The software might run on a system with a lower specification, but these numbers represent what we consider to be the lower bound of acceptable user experience.

Recommended Hardware Specifications

- Hard Drive: 10 GB free disk space
- Memory: 16 GB RAM
- CPU: 2.2 GHz Intel® i5 or equivalent for laptop; 3.0 GHz for desktop
- GPU: OpenGL 3.0 hardware support, 1 GB video memory (NVIDIA, AMD, or similar)
- For a driving simulator, consider a high-end gaming computer

External Software Compatibility

VS Math Models in CarSim, TruckSim, and BikeSim are supported by VS Solver plug-in libraries (32- and 64-bit DLL for Windows and 64-bit SO for Linux).

SuspensionSim is only for Windows and is usually not run from external software.

Simulation workspaces

- MATLAB: releases 2016b and later. Running VS Models with 64-bit versions of MATLAB requires a compatible C compiler.

  See https://www.mathworks.com/support/requirements/supported-compilers.html for more information.

> **Notes** MATLAB versions 2019a through 2020b show a significant performance loss running VS Models deployed from the VS Browser. Please contact MathWorks support for additional information. Please use Mechanical Simulation's Support Center to attain additional information and a temporary workaround for this issue. https://www.carsim.com/contactus/support.php

- LabVIEW: tested with versions 2015 (32-bit and 64-bit), and 2019 (32-bit). No known issues for LabVIEW versions back to 8.5 (32-bit only)

> **Notes** For products and versions not listed, please contact Mechanical Simulation for more information. See also the summery for external tire and powertrain programs in Table 1 (page 3).

Tire Models

CarSim, TruckSim, and BikeSim work with the following commercial tire models:

- Siemens MF-Tyre 2312 on Windows and Linux
- Siemens MF-Swift 2312 (optional license required from Siemens) on Windows and Linux
- Siemens MF-Tyre/MF-Swift 2312 (dSPACE DS1006; dSPACE SCALEXIO/QNX release 2017A and up; dSPACE SCALEXIO/LNX 32-bit only release 2020B and up; and Concurrent/Linux Real-Time 64-bit) for CarSim RT (optional license required from Siemens)
- Siemens MF-Tyre/MF-Swift 2312 (dSPACE DS1006 release 2017A and up) for BikeSim RT (optional license required from Siemens)
- COSIN FTire 2021-3 and newer version (optional license required from COSIN) on Windows
- Michelin TameTire 5.1 (5.1.5545) and 6.1.2 for CarSim (optional license required from Michelin) on Windows
- Michelin TameTire RT 5.1.0 and 6.1.0 (dSPACE SCALEXIO/QNX release 2017A and up) for CarSim RT (optional license required from Michelin)

Table 1 summarizes the external tire model options.

Table 1. Summary of system compatibility with external software.

External software	Platform	C	T	B
Siemens MF-Tyre/MF-Swift 2312	Windows 32/64	○	○	○
	Linux 64-bit	○	○	○
	dSPACE DS1006	○		○
	Concurrent RT 64-bit	○		
	SCALEXIO/QNX	○		
	SCALEXIO/LNX 32-bit	○		
COSIN FTire (2021-3 and newer version)	Windows 32/64	○	○	○
Michelin TameTire (5.1.0/6.1.0/5.1.5545/6.1.2) * * Version 5.1.5545/6.1.2 are Windows only	Windows 32/64	○		
	SCALEXIO/QNX	○		
VI-DriveSim 20.3	Concurrent RT 64-bit	○		
Generic third-party tire model interface (VS/STI) VS Math Models support the interface; third-party tire models also need to support each platform.	Windows 32/64	○	○	○
	Linux 64-bit	○	○	○
	dSPACE DS1006	○	○	○
	Concurrent RT 32/64	○	○	
	SCALEXIO/QNX	○	○	
	SCALEXIO/LNX 32-bit	○	○	
	SCALEXIO/LNX 64-bit	○	○	
C: CarSim; T: TruckSim; B: BikeSim MF-Swift, MF-Tyre/Swift on RTs, FTire and TameTire require separate licenses.	○: tested and supported Blank: not supported			

Real-Time Systems

Following are the minimum hardware requirements for each supported RT system. In each case, a real-time license is required in addition to the basic software license.

dSPACE

We support dSPACE DS Board 6.6 and newer; we have tested releases 6.6, 7.4, 2016B, 2017A, 2017B, 2018A, 2019A, and 2021A.

	CarSim	TruckSim	BikeSim
DS1006	2.0 GHz	2.0 GHz	2.0 GHz
SCALEXIO (7.4 – 2023B) include DS6001	2.2 GHz	2.2 GHz	2.2 GHz

*For SCALEXIO, we support RTOS: QNX (until dSPACE 2020A), Linux 32bit (dSPACE 2020B to 2021B), and Linux 64bit (dSPACE 2022A and newer).

*DS6001 requires dSPACE Release 2018B and above. There is an additional setting of the network. Please contact our support to get help.

RT-Lab

We support RT-Lab 10.4.x and newer based on documented support from Opal-RT; we have tested releases 11.3 Linux 32bit and 2021.3.4 Linux 32bit/64bit.

CarSim	TruckSim	BikeSim
2.0 GHz Dual Core	2.4 GHz Dual Core	2.0 GHz Dual Core

ETAS

We support LabCar 5 and newer; we have tested release 5.31, 5.40, 5.4.2, 5.4.4, 5.4.8, & 5.4.11.

We have tested and support COSYM 2.3.0.

CarSim	TruckSim	BikeSim
2.0 GHz Dual Core	2.4 GHz Dual Core	2.0 GHz Dual Core

National Instruments

For NI ETS Real-Time system, we support and have tested LabVIEW 2015/2016/2017/2018 & VeriStand 2015/2016/2017/2018.

	CarSim	TruckSim	BikeSim
LabVIEW-RT	2.0 GHz Dual Core	2.4 GHz Dual Core	2.0 GHz Dual Core
VeriStand	2.0 GHz Dual Core	2.4 GHz Dual Core	2.0 GHz Dual Core

For NI Linux Real-Time system, we support LabVIEW 2015 and newer; we have tested LabVIEW 2015/2016/2017/2018/2019/2020 & VeriStand 2015/2016/2017/2018/2019/2020. On cRIO/cDAQ Real-Time Linux target, “Write all outputs” should not be checked. We have tested the NI Industrial Controller (IC-3173) with Linux RT system and LabVIEW 2016. We support LabVIEW 2019 and above with NI Linux Real-Time on PXIe controllers.

	BikeSim, CarSim and TruckSim
LabVIEW-RT	cRIO/cDAQ 1.9 GHz CPU and IC-3173 i7 CPU PXIe-8840 Quad-Core, PXIe-8861 and PXIe-8880
VeriStand	cRIO 1.9 GHz CPU PXIe-8840 Quad-Core, PXIe-8861 and PXIe-8880

NI cRIO with 1.9 GHz CPU is either cRIO-9034 (4 slots) or cRIO-9039 (8 slots). NI cDAQ with 1.9 GHz CPU is either cDAQ-9136 (4 slots) or cDAQ-9137 (8 slots).

Concurrent Redhawk with SIMulation Workbench (SimWB)

We support Concurrent Redhawk 32bit/64bit Real-Time system, Linux Real-Time system, with Simulation Workbench (SimWB). For 32bit Linux from Redhawk 5.4 with SimWB 6.0 or newer. For 64bit Linux from Redhawk 6.3 with SimWB 7.2 or newer.

CarSim	TruckSim	BikeSim
2.4 GHz Dual Core	2.4 GHz Dual Core	2.0 GHz Dual Core

Speedgoat

We support Speedgoat QNX 7.1/64bit Real-Time system with version MATLAB/Speedgoat R2021a and newer.

BikeSim, CarSim and TruckSim

Speedgoat Hardware: Performance or Mobile with Intel i7 CPU.

A&D

We support A&D hardware and the following software.

AD5436	01.04.00 and up
AD5445	02.07.00 and up
VirtualDSPConsole	03.03 and up
Helios	02.05.03 and up

CANoe

We support the CANoe Vector Tool Platform (VTP) devices which include VN8900, VT6000, and RT Rack to run both Interface and Distributed Mode. We have tested CANoe 17 on VN8914.

Currently, Extended Real Time (ERT) and Standalone Mode are not supported. Multiple S-Function wrappers, parallel solvers for VS Math Models, and external tire models are not supported on CANoe RT either.

Note	Mechanical Simulation has tested CarSim, TruckSim, and BikeSim on some versions of each supported RT system, but not all combinations. For more details about specific combinations, please contact us by creating an Engineering Support request at https://www.carsim.com/contactus/support.php or by calling 734-668-2930 and requesting Engineering Support assistance. Please have your License number (i.e., KeyID, as in K123456) available.