



OpenECU Compatibility with Third Party Tools

Release 2.9.0 (r2020-1)



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Chapter 1. Third party tools

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1.1. Third party tool requirements

OpenECU developer software has been tested to work with Windows 10. OpenECU is compatible with Windows 7 SP1 (32-bit and 64-bit) and Windows XP SP3, but support for these operating systems is deprecated. OpenECU is not compatible with Windows Vista or Windows 8.

1.2. Third party tool requirements — C-API

For C based development, OpenECU requires (at a minimum) one of the following compiler tools:

- Wind River Diab compiler
- GCC Compiler

Note

GCC is an optional component in the OpenECU installation (installed by default). Additionally, GCC support is currently in a beta stage. As such, there a number of known limitations for compiling an OpenECU application with GCC. Please see the “Integration notes for third party tools” of the “Release notes” for a list of known issues building with GCC for further details.

To program and calibrate an OpenECU with an application, OpenECU integrates with the following calibration tools. Only one calibration tool is required:

- PiSnoop
- ATI VISION
- ETAS INCA
- Vector CANape

1.3. Third party tool requirements — Simulink-API

For Simulink model based development, OpenECU requires (at a minimum) the following MathWorks tools:

- MATLAB (base product)
- Simulink (to develop the models)
- Simulink Coder (to generate C code from the models)

- MATLAB Coder (Simulink Coder depends on this)

In addition, if you need to add state diagrams to the model, then you will also need:

- Stateflow (to develop state flow diagrams inside your model) Simulink Coder generates C code from the state flow diagrams inside your model.

Simulink Coder generates C code which does not lend itself to efficient repeatable testing. When creating a production version of your product, you may need better control of the structure of the C code generated from the model to reduce the cost of testing the C code against any industry standards. Under these circumstances you will also need:

- Embedded Coder (to generate C code from the models)

To compile the generated C code (from either Simulink Coder or Embedded Coder), you will need one of the following compilers:

- Wind River Diab compiler
- GCC compiler (free compiler but with known issues)

To program and calibrate an OpenECU with an application, OpenECU integrates with the following calibration tools. Only one calibration tool is required:

- PiSnoop
- ATI VISION
- ETAS INCA
- Vector CANape

1.4. Third party tool requirements — compatibility

In summary, the following third party tools are compatible with this version of OpenECU:

Table 1.1. Third party tool compatibility

Third party tool	Compatible versions
Operating systems	
Microsoft Windows ^a	Win10 (64-bit) Win7 SP1 (32-bit) (deprecated) Win7 SP1 (64-bit) (deprecated) XP SP3 (32-bit) (deprecated)
Modelling and code generation tools	
MathWorks MATLAB	R2015a, R2015b (32-bit)
MathWorks Simulink	R2015a, R2015b, R2016a, R2017a, R2017b, R2018a, R2018b, R2019a, R2019b, R2020a (64-bit)
MathWorks MATLAB Coder	
MathWorks Simulink Coder ^b	
MathWorks Embedded Coder	
Compiler tools ^c	
Wind River Diab C compiler	v5.5.1.0, v5.8.0.0, v5.9.0.0 for M110, M220, M221, M250, M460 and M461 targets

Third party tool	Compatible versions
	v5.9.0.0 for M670 target
GCC Compiler ^d	v4.7.3 for M110, M220, M250, M460, M461 and M670 targets
Reprogramming, data logging and calibration tools ^e	
PiSnoop	Any version
ATI Vision ^{f g}	v2.5 through v5.1.2
ETAS INCA	v7.2.7
Vector CANape	v8.0 through v16.0

^a OpenECU developer software has been tested to work with Windows 10. OpenECU is compatible with Windows 7 SP1 (32-bit and 64-bit) and Windows XP SP3, but support for these operating systems is deprecated. OpenECU is not compatible with Windows Vista or Windows 8.

OpenECU developer software may not function correctly on encrypted drives. OpenECU developer software must be able to create files on the host file system. If using an encrypted drive, be sure that permission settings will allow OpenECU to create files. Pi Innovo cannot provide support for issues with encrypted drives.

^b Mathworks Simulink Coder includes functionality of RTW and Stateflow Coder.

^c All OpenECU targets use Freescale PowerPC microcontrollers. The M110, M220, M221, M250, M460 and M461 use an MPC5534 microcontroller, the M670 uses an MPC5674F microcontroller. The M560 and M580 use an MPC5746C for the primary microcontroller and SPC560P34 for the secondary microcontroller.

See the Technical Specification for your target for more information.

^d OpenECU has only been tested using GCC Compiler version 4.7.3 and is in the beta stage. As such, there are a number of known issues to keep in mind when compiling an OpenECU application using GCC. For further details, please see "Integration notes for third party tools" for a list of known issues.

^e These tools have been tested for reprogramming, data logging, and calibration. Some of them have many other features which have not been tested with OpenECU.

^f The OpenECU method of configuring ATI Vision uses standardised ASAP2 files. As a result, all future versions of Vision are expected to be backwardly compatible (e.g., version 3.7 and version 4.0 are known to be compatible).

^g The following Vision toolkits are typically used when working with OpenECU: *Data Acquisition Toolkit*, *Calibration Toolkit*, *Universal ECU Interface Standard Toolkit*, *APOLLO Data Analysis Toolkit*, *CAN Interface Toolkit* and *HORIZON Scripting/Remote API Toolkit*. In particular, the *HORIZON Scripting/Remote API Toolkit* is required if OpenECU builds are to generate Vision strategy files (.vst).

Some third party tools have been marked deprecated and support for these tools will be removed in a future release of OpenECU.

Third party tool	Replacement
MathWorks MATLAB R2015a	MATLAB latest version (see Pi Innovo's website [http://www.pi-innovo.com/support-center/compatibility] for a complete list of supported versions of MATLAB).
MathWorks MATLAB R2015b	
MathWorks MATLAB R2016a	
MathWorks MATLAB R2016b	
MathWorks MATLAB R2017a	
MathWorks MATLAB R2017b	
WindRiver Diab 5.5.1.0	WindRiver Diab 5.8.0 and 5.9.0