Target for Infineon C166®
Release Notes

Contents

Summary by Version

This table provides quick access to what's new in each version. For clarification, see "About Release Notes" on page 1.

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Latest Version V1.4 (R2007a)	Yes Details	Yes Summary	Bug Reports Includes fixes	Printable Release Notes: PDF Current product documentation
V1.3 (R2006b)	Yes Details	Yes Summary	Bug Reports Includes fixes	No
V1.2.2 (R2006a)	No	No	Bug Reports at Web site	No
V1.2.1 (R14SP3)	No	No	Bug Reports at Web site	No
V1.2 (R14SP2)	Yes Details	No	Bug Reports at Web site	No
V1.1.1 (R14SP1)	Yes Details	No	Fixed bugs	No
V1.1 (R14)	Yes Details	No	No bug fixes	No

About Release Notes

Use release notes when upgrading to a newer version to learn about new features and changes, and the potential impact on your existing files and practices. Release notes are also beneficial if you use or support multiple versions.

If you are not upgrading from the most recent previous version, review release notes for all interim versions, not just for the version you are installing. For example, when upgrading from V1.0 to V1.2, review the New Features and

Changes, Version Compatibility Considerations, and Bug Reports for V1.1 and V1.2.

New Features and Changes

These include

- New functionality
- Changes to existing functionality
- Changes to system requirements (complete system requirements for the current version are at the MathWorks Web site)
- Any version compatibility considerations associated with each new feature or change

Version Compatibility Considerations

When a new feature or change introduces a known incompatibility between versions, its description includes a **Compatibility Considerations** subsection that details the impact. For a list of all new features and changes that have compatibility impact, see the "Compatibility Summary for Target for Infineon C166" on page 15.

Compatibility issues that become known after the product has been released are added to Bug Reports at the MathWorks Web site. Because bug fixes can sometimes result in incompatibilities, also review fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

MathWorks Bug Reports is a user-searchable database of known problems, workarounds, and fixes. The MathWorks updates the Bug Reports database as new problems and resolutions become known, so check it as needed for the latest information.

Access Bug Reports at the MathWorks Web site using your MathWorks Account. If you are not logged in to your MathWorks Account when you link to Bug Reports, you are prompted to log in or create an account. You then can view bug fixes and known problems for R14SP2 and more recent releases.

The Bug Reports database was introduced for R14SP2 and does not include information for prior releases. You can access a list of bug fixes made in prior versions via the links in the summary table.

Related Documentation at Web Site

Printable Release Notes (PDF). You can print release notes from the PDF version, located at the MathWorks Web site. The PDF version does not support links to other documents or to the Web site, such as to Bug Reports. Use the browser-based version of release notes for access to all information.

Product Documentation. At the MathWorks Web site, you can access complete product documentation for the current version and some previous versions, as noted in the summary table.

Version 1.4 (R2007a) Target for Infineon C166

This table summarizes what's new in Version 1.4 (R2007a) :

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes — Details labeled as **Compatibility Considerations** within descriptions of new features and changes, below. See also Summary.	Bug Reports at Web site	Printable Release Notes: PDF V1.4 product documentation

New features and changes introduced in this version are described here.

External Mode

External mode is now supported via CAN. You can use either external mode or a third party calibration tool to interact with the real-time application running on the target processor. The CAN Calibration Protocol block provides a means of monitoring signals and altering the parameter values in the application code running on the target.

See "Using External Mode" for details.

Real-Time Workshop GRT Target Support

Real-Time Workshop GRT target is supported for build and download, so Real-Time Workshop Embedded Coder is optional.

However Real-Time Workshop Embedded Coder ERT target is required for PIL, the use of the bit-addressable memory feature, and the CCP Data Acquisition (DAQ) List mode of operation. The CCP Polling mode of operation can be used both with or without Real-Time Workshop Embedded Coder.

Model Reference Support

Model reference is supported.

Host Side Profiling Via CAN Uses Vector "Application Channel"

You can now specify the CAN Application Channel to use with the execution profiling command, and run the Vector Informatik configuration utility to configure the bit rate of the channel. In previous versions, CAN channels other than CANCardX 1 and CAN AC2 PCI 1were inaccessible. The syntax to use this new argument is:

```
profile_c166('can','CANChannel','MATLAB 1')
```

The default is 'MATLAB 1' if no Application Channel is specified.

Compatibility Considerations

It is no longer possible to specify the CAN bit rate as an argument to `profile_c166`. The old syntax for specifying the bit rate, e.g.,

```
profile_c166('can','bitrate',1000000)
```

or

```
profile_c166('can','modelname','mymodel')
% Calculates required bit-rate by inspecting mymodel
```

now returns an error. The error describes the new approach for setting the CAN bit rate.

Version 1.3 (R2006b) Embedded Target for Infineon C166 Microcontrollers

This table summarizes what's new in Version 1.3 (R2006b) :

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes — Details labeled as **Compatibility Considerations** within descriptions of new features and changes, below. See also Summary.	Bug Reports at Web site	No

New features and changes introduced in this version are described here.

Compatibility with Link for TASKING

Embedded Target for Infineon C166 Microcontrollers is integrated with (and dependent on) Link for TASKING. This integration provides new capabilities to the Embedded Target including:

- A flexible build process, which allows you to automatically create and build projects in the TASKING EDE using code generated by Real-Time Workshop Embedded Coder.
- Customizable project templates for targeting embedded hardware or instruction set simulator.
- Processor-in-the-Loop (PIL) cosimulation techniques to verify generated code running in an instruction set simulator or real embedded hardware environment. You can set breakpoints, step through the code, and watch variables during cosimulation.
- MATLAB commands to rapidly and easily interact with projects in the TASKING EDE or debug generated code in the CrossView Pro debugger.

- Execution profiling and code coverage reports are returned from the TASKING EDE to MATLAB for your review.

Compatibility Considerations

The Link for TASKING build process requires changes to existing models for C166 from previous releases. When you open a model created in a previous release, the Link for TASKING component is automatically added to your configuration set. Your model is ready to use with the Link for TASKING build process and all the existing Embedded Target for Infineon C166 Microcontrollers features such as real-time execution, device drivers, and real-time execution profiling.

See also the 2006b Transition Web page.

Note Model Reference is no longer supported due to the dependency on Link for TASKING.

Version 1.2.2 (R2006a) Embedded Target for Infineon C166 Microcontrollers

This table summarizes what's new in V1.2.2 (R2006a) :

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
No	No	Bug Reports at Web site	No

Version 1.2.1 (R14SP3) Embedded Target for Infineon C166 Microcontrollers

This table summarizes what's new in V1.2.2 (R2006a) :

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
No	No	Bug Reports at Web site	No

Version 1.2 (R14SP2) Embedded Target for Infineon C166 Microcontrollers

This table summarizes what's new in V1.2.2 (R2006a) :

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Bug Reports at Web site	No

New features and changes introduced in this version are

Switch Target Configuration Block

This new block runs a convenience function that configures your model and Target Preferences to one of a set of pre-defined hardware configurations. The function can also be used as a template for setting up your own customized configurations.

Fast External Interrupt Block

This new block generates an asynchronous function-call trigger when an interrupt occurs. You can use this block to execute a function-call triggered subsystem in the context of the service routine for a fast external interrupt.

Digital Input/Output Blocks

You can use the new digital input/output device driver blocks to read and set the logical state of a specified port/pin number.

Version 1.1.1 (R14SP1) Embedded Target for Infineon C166 Microcontrollers

This table summarizes what's new in V1.2.2 (R2006a) :

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Fixed bugs	No

New features and changes introduced in this version are

Support for Model Reference

Model reference is now supported by the Embedded Target for Infineon C166 Microcontrollers.

Fixed Bugs

Correct Value for Number of Concurrent Overruns

In Version 1.1 (Release 14) an incorrect value was used for the maximum allowed number of concurrent base rate overruns. The effective value for this setting was one minus the value actually entered in the dialog under **Tools --> Real-Time Workshop -> Options-> C166 Options(1)**. For example, if a value of 2 is entered for **Maximum number of concurrent base-rate overruns** then the maximum number of concurrent base rate overruns is actually 1. In particular, if a value of 0 is entered the application would fail.

This problem is fixed in Version 1.1.1 (Release 14 Service Pack 1).

Overruns No Longer Stop Further Execution of Sub-rates

Previously, when an overrun occurred in sub-rate 1 the following could happen: consider the case when sub-rate 1 is currently executing and another instance of sub-rate 1 is scheduled to run (i.e. a task overrun has occurred). When the current instance of sub-rate 1 completes, the function does not

execute further instances of sub-rate 1. Instead the execution of sub-rate 1 can be delayed and the processor may be idle. The pending instance of sub-rate 1 will only be invoked on completion of the next base rate task.

This problem is fixed in version 1.1.1

Version 1.1 (R14) Embedded Target for Infineon C166 Microcontrollers

This table summarizes what's new in V1.2.2 (R2006a) :

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	No bug fixes	No

New features and changes introduced in this version are

CAN Support

There are new driver blocks for transmitting and receiving messages using the CAN module on the Infineon C166 microprocessor. There are blocks for packing, unpacking and filtering CAN messages, outputting the bus status or resetting a CAN module. There is also an implementation of the CAN Calibration Protocol (CCP) standard for host-target communication over CAN, so you can use a calibration tool (such as Vector CANape or ATI Vision) for remote signal monitoring and parameter tuning.

Support for XC16x Processor Variants

There is now support for XC16x variants of the Infineon C166 microprocessor. There is a new sublibrary of TwinCAN blocks providing CAN support (including CCP) for the TwinCAN nodes of XC16x processor variants.

Task Execution Profiling

This is a new feature that allows execution profiling data to be recorded, uploaded and displayed in the form of a MATLAB® graphic and as an HTML report. Execution profiling data can be collected over serial, CAN or TwinCAN. See the demo model `c166_multitasking`.

Temporary Task Overruns Now Permitted by the Scheduler

It is now possible for task overruns in the base rate or one of the sub- rates to occur without causing a failure. The benefit is that if it occasionally it takes longer than the normally allowed time to complete a task, this is now possible without having to increase the sample time. The overrun behavior is configurable and is illustrated by the new demo model `c166_multitasking`.

Use of Real Time Clock as System Timer

It is now possible to select the Real Time Clock (RTC) for use as the system timer. This allows the timers T2 ... T6 to be used for other purposes. This parameter is found in the C166 Resource Configuration block. Note that the RTC is not available on all hardware variants of the C166; please consult your hardware documentation.

Compatibility Summary for Target for Infineon C166

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided in the description of the new feature or change.

Version (Release)	New Features and Changes with Version Compatibility Impact
Latest Version V1.4 (R2007a)	See the **Compatibility Considerations** subheading for this new feature or change: “Host Side Profiling Via CAN Uses Vector "Application Channel"” on page 5
V1.3 (R2006b)	See the **Compatibility Considerations** subheading for this new feature or change: “Compatibility with Link for TASKING ” on page 6
V1.2.2 (R2006a)	None
V1.2.1 (R14SP3)	None
V1.2 (R14SP2)	None
V1.1.1 (R14SP1)	None
V1.1 (R14)	None