Target Support Package™ Release Notes

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Target Support Package™ Release Notes

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Summary by Version

This table provides quick access to what is new in each version. For clarification, see "Using 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 V4.1 (R2010a)	Yes Details	Yes "Compatibility Summary for Target Support Package" on page 14	Bug Reports Includes fixes	Printable Release Notes: PDF Current product documentation
New Product V4.0 (R2009b)	Yes Details	Yes "Compatibility Summary for Target Support Package" on page 14	Bug Reports Includes fixes	No

Using Release Notes

Use release notes when upgrading to a newer version to learn about:

• New features

• Changes

• Potential impact on your existing files and practices

Review the release notes for other MathWorks™ products required for this product (for example, MATLAB® or Simulink®) for enhancements, bugs, and compatibility considerations that also might impact you.

If you are upgrading from a software version other than the most recent one, review the 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 release notes for V1.1 and V1.2.

What's in the Release Notes

New Features and Changes

- New functionality
- Changes to existing functionality

Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, the **Compatibility Considerations** subsection explains the impact.

Compatibility issues reported after the product is released appear under Bug Reports at The MathWorks™ Web site. Bug fixes can sometimes result in incompatibilities, so you should also review the fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

The MathWorks offers a user-searchable Bug Reports database so you can view Bug Reports. The development team updates this database at release time and as more information becomes available. This includes provisions for any known workarounds or file replacements. Information is available for bugs existing in or fixed in Release 14SP2 or later. Information is not available for all bugs in earlier releases.

Access Bug Reports using your MathWorks Account.

Version 4.1 (R2010a) Target Support Package

This table summarizes what is new in V4.1 (R2010a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes See the following details	Yes "Compatibility Summary for Target Support Package" on page 14	Bug Reports Includes fixes	Printable Release Notes: PDF Current product documentation

New features and changes introduced in this version are

- "Target Support Package Software Runs on Linux" on page 4

- "Build Executables to Run on Windows, Linux, and Embedded Linux" on page 4

- "Support for ARM Processors Running Embedded Linux" on page 4

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- "Custom Clock Generation for TI C2000 Processor " on page 7

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- "Extended the Parametric Audio Equalizer Demo" on page 7

- "New UDP Send and UDP Receive Blocks" on page 7

- "Limitations" on page 8

Target Support Package Software Runs on Linux

You can now use Target Support Package™ software on host development systems running Linux® on 32-bit x86 compatible architectures. For more information, see the System Requirements for Target Support Package at www.mathworks.com/products/target-package/requirements.html.

Compatibility Considerations

The UDP Send and UDP Receive blocks from R2009b and earlier do not work on Linux. Replace them with the new UDP Send and UDP Receive blocks in release R2010a. For more information, see: "New UDP Send and UDP Receive Blocks" on page 7.

Build Executables to Run on Windows, Linux, and Embedded Linux

You can build executables that run on Intel® x86 and Athlon/K5/K6 processors running Windows® and Linux. For example, you can build executables and run them on your host development system, or you can run them on a target with the appropriate hardware and operating system.

This enhancement supports:

- External Mode feature, which lets you adjust parameters in the executable code in real time without recompiling. Supports

- MAT-file logging, which lets you log results without using the debugger.

For more information, see "Supported Operating Systems"

Support for ARM Processors Running Embedded Linux

Using MontaVista™ Linux Pro tools and Eclipse™ IDE, you can build executables that run on ARM® target processors running Embedded Linux. For example, you can build executables for the Texas Instruments™ TMS320DM355 DVEVM,

For more information, see "Supported Operating Systems" and "Additional Configuration Steps to Run Your Executable on a Remote Linux Target"

Support for Texas Instruments C64x+ Single and Multicore Processors

Use the new C64x+ Target Preferences block in your models to generate executables for Texas Instruments C64x+ single-core or multicore processors. The C64x+ Target Preferences block gets detailed hardware information for any C64x+ processor directly from DSP/BIOS. For more information, see "Generating Code for Any C64x+™ Processor or Board" in the *Target Support Package User's Guide for Use with Texas Instruments C6000™*.

eCAN Transmit and eCAN Receive Blocks Accept CAN_Message Datatype

The eCAN Transmit and eCAN Receive blocks support the CAN_Message data type. These blocks now work with the CAN Pack and CAN Unpack blocks (canmsglib) from the Vehicle Network Toolbox™ software. For more information, see the following topics in the *Target Support Package User's Guide for Use with Texas Instruments C2000™*:

- "C280x/C2803x/C28x3x eCAN Receive"

- "C280x/C2803x/C28x3x eCAN Transmit"

- "CAN_Pack"

- "CAN_Unpack"

Support for Texas Instruments Piccolo Series of C2803x Processors

This release introduces a new block library, the C2803x library (c2803xlib), for the Texas Instruments Piccolo™ Series. This library includes the following blocks:

- C2802x/C2803x ADC

- C2802x/C2803x AnalogIO Input

- C2802x/C2803x AnalogIO Output

- C2802x/C2803x COMP

- C280x/C2803x/C28x3x ePWM

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- C280x/C2802x/C2803x/C28x3x eCAP
- C280x/C2802x/C2803x/C28x3x GPIO Digital Input
- C280x/C2802x/C2803x/C28x3x GPIO Digital Output
- C280x/C2802x/C2803x/C28x3x I2C Receive
- C280x/C2802x/C2803x/C28x3x I2C Transmit
- C280x/C2802x/C2803x/C28x3x SCI Receive
- C280x/C2802x/C2803x/C28x3x SCI Transmit
- C280x/C2802x/C2803x/C28x3x Software Interrupt Trigger
- C280x/C2802x/C2803x/C28x3x SPI Receive
- C280x/C2802x/C2803x/C28x3x SPI Transmit
- C280x/C2803x/C28x3x eCAN Receive
- C280x/C2803x/C28x3x eCAN Transmit
- C280x/C2803x/C28x3x eQEP
- C28x Watchdog
- CAN Calibration Protocol
- Piccolo C28035 Target Preferences

Support for Intel® Integrated Performance Primitives (IPP)

You can now use the Intel® Integrated Performance Primitives (IPP) library of optimized software functions with the following blocks:

- 2–D FIR Filter in the `vipstatistics` library
- 2–D Convolution in the `vipstatistics` library
- 2–D Correlation in the `vipfilter` library

You access this feature using the **Target function library** option for your model under Configuration Parameters > Real-Time Workshop > Interface.

Custom Clock Generation for TI C2000 Processor

A new feature allows you to adjust the CPU clock frequency for some Texas Instruments C2000 processors. This feature uses the new **Peripherals** > **PLL** pane in C2000 Target Preferences blocks. For example, you could change the PLL settings if the external oscillator frequency differed from the value recommended by the manufacturer. For more information, see "Peripherals Pane" in the *Target Support Package User's Guide*.

New Custom Audio Device Driver Integration Demo

This demo shows how to use the Target Block Builder to integrate custom device driver code with the algorithmic code generated by Real-Time Workshop® software. For more information, see the Custom Device Driver Integration via Target Block Builder Tool demo.

Extended the Parametric Audio Equalizer Demo

This release provides an extended Parametric Audio Equalizer demo, which shows how to use the C64x+ Target Preferences block and processors running Linux and Windows. For more information, see the Parametric Audio Equalizer demo.

New UDP Send and UDP Receive Blocks

New UDP Send and UDP Receive blocks are available in the for use on host and target models, including target processors running Windows and Linux. For more information, see the UDP Receive and UDP Send topics.

Compatibility Considerations

- Replace old UDP Send and UDP Receive blocks in your models with these new ones.

- A future version of Target Support Package will generate warnings if your models contain the old UDP Send and UDP Receive blocks (from release R2009b and earlier).

- A future version of Target Support Package will remove the old UDP Send and UDP Receive blocks (from release R2009b and earlier). When that happens, models that contain those blocks will generate errors.

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- The `hostcommlib` UDP Send and UDP Receive blocks from before release R2010a do not work on Linux.

Note You can leave the old C6000 UDP Send and C6000 UDP Receive blocks from the Target Communications library (`targetcommlib`) in your target models. The new UDP Send and UDP receive blocks do not affect the C6000 blocks.

Limitations

Profiling is not available for Intel x86/Pentium and AMD K5/K6/Athlon processors running Windows or Linux

If you use Embedded IDE Link™ with Eclipse to build and run applications on processors running Windows or Linux: The stack profiling and real-time execution profiling is only available for ARM® processors running Linux. Profiling is not available for Intel x86/Pentium and AMD® K5/K6/Athlon processors running Windows or Linux.

Version 4.0 (R2009b) Target Support Package

This table summarizes what is new in V4.0 (R2009b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes See the following details	Yes "Compatibility Summary for Target Support Package" on page 14	Bug Reports Includes fixes	No

New features and changes introduced in this version are

- "New Target Support Package Product" on page 9

- "Support for Analog Devices™ Blackfin ADSP-BF537 EZ-KIT Lite Board" on page 10

- "Support for TI's Piccolo Series of C2802x Processors" on page 11

- "Support for TI C28044 Digital Signal Controller" on page 11

- "Support for TI TMS320VC5510 DSP Starter Kit (DSK)" on page 12

- "Support for TI OMAP-L137/TMS320C6747 Floating Point Starter Kit" on page 12

- "Removed To RTDX and From RTDX Blocks for TI C6000 Processors" on page 12

- "Incompatibilities with EDMA3 Driver in C6747EVM ADC/DAC Blocks" on page 13

New Target Support Package Product

As of R2009b, the following products have been merged into a new product:

- Target Support Package FM5

- Target Support Package IC1

- Target Support Package TC2

• Target Support Package TC6

Compatibility Considerations

The merged product structure has changed the **Start** menu functionality:

• To access Target Support Package FM5 features that used to be in the
  Start menu, enter `mpc555utils` in the Command Window or double-click
  Launch MPC555 Utilities in the Simulink block library. This action opens
  the Target Support Package Utilities for Use with MPC555 dialog box. For
  more information, see "Accessing Utilities for Freescale™ MPC555" in the
  Target Support Package documentation.

• To access Target Support Package IC1 features that used to be in the
  Start menu, enter `c166utils` in the Command Window or double-click
  Launch C166 Utilities in the Simulink block library. This action opens the
  Target Support Package Utilities for Use with C166 dialog box. For more
  information, see "Accessing Utilities for Infineon® C166®" in the Target
  Support Package documentation.

To use Target Support Package with Freescale MPC5xx, install the latest
version of the boot code. See "Download Boot Code to Flash Memory" in the
Target Support Package documentation. If you do not have the latest boot
code version installed on your MPC5xx processor, then the processor does not
handle interrupts correctly, causing real-time, stand-alone applications to
fail at run time.

Support for Analog Devices Blackfin ADSP-BF537 EZ-KIT Lite Board

This release introduces a new block library for the ADSP-BF537 EZ-Kit Lite
(`bf537ezkitlite`), which includes the following blocks:

• ADSP-BF537 EZ-KIT Lite Target Preferences

• Blackfin537 bf537_adc

• Blackfin537 bf537_dac

• Blackfin537 bf537_uart_config

• Blackfin537 bf537_uart_rx

- Blackfin537 bf537_uart_tx

Support for TI's Piccolo Series of C2802x Processors

This release introduces a new block library, the C2802x Chip Support library (`c2802xlib`), for the Texas Instruments Piccolo Series, which includes the following blocks:

- C2802x/C2803x ADC
- C2802x/C2803x AnalogIO Input
- C2802x/C2803x AnalogIO Output
- C2802x/C2803x COMP
- C280x/C2802x/C2803x/C28x3x GPIO Digital Input
- C280x/C2802x/C2803x/C28x3x GPIO Digital Output
- C280x/C2802x/C2803x/C28x3x I2C Receive
- C280x/C2802x/C2803x/C28x3x I2C Transmit
- C280x/C2802x/C2803x/C28x3x SCI Receive
- C280x/C2802x/C2803x/C28x3x SCI Transmit
- C280x/C2802x/C2803x/C28x3x SPI Receive
- C280x/C2802x/C2803x/C28x3x SPI Transmit
- C280x/C2802x/C2803x/C28x3x Software Interrupt Trigger
- C28x Watchdog
- C280x/C2802x/C2803x/C28x3x eCAP
- C2802x/C2803x ePWM

Support for TI C28044 Digital Signal Controller

This release adds the following support for the C28044 digital signal controller:

- Configure your models for the Spectrum Digital eZdsp™ F28044 board using two new blocks:
  - F28044 eZdsp Target Preferences

- F28044 eZdsp Stand alone code using Flash Memory Target Preferences

- Use high-resolution pulse width modulation (HRPWM) on the C28044. To do so, select the **Allow use of 16 HRPWMs (for C28044) instead of 6 PWMs** parameter in the C280x/C28x3x ePWM block.

- Use any of the blocks in the C280x DSP Chip Support (c280xdspchiplib) library for the C28044.

Support for TI TMS320VC5510 DSP Starter Kit (DSK)

This release introduces a new block library for the C5510 DSK (c5510dsk), which includes the following blocks:

- C5510DSK Target Preferences

- C5510 DSK ADC

- C5510 DSK DAC

Support for TI OMAP-L137/TMS320C6747 Floating Point Starter Kit

This release introduces a new block library, the C6747 EVM library (c6747evmlib), which includes the following blocks:

- C6747EVM Target Preferences

- C6747EVM ADC

- C6747EVM DAC

- C6747EVM DIP Switch

- C6000 IP Config

- C6747EVM LED

Removed To RTDX and From RTDX Blocks for TI C6000 Processors

The **To RTDX** and **From RTDX** blocks are no longer available for the C6000 family of processors.

Compatibility Considerations

Consider replacing the RTDX blocks with TCP/IP or UDP blocks instead.

Incompatibilities with EDMA3 Driver in C6747EVM ADC/DAC Blocks

TI's EDMA3 driver is incompatible with TI's NDK v2.00.00. The C6747EVM ADC and C6747EVM DAC blocks use the EDMA3 driver. The TCP/IP and UDP blocks, and External Mode use TI's NDK v2.00.00. As a result, you may experience silent run-time failures when your model uses these capabilities together.

For more information, see the Texas Instruments FAQ.

Compatibility Summary for Target Support Package

This table summarizes new features and changes that can cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. The description of the new feature or change provides additional details.

Version (Release)	New Features and Changes with Version Compatibility Impact
Latest Version V4.1 (R2010b)	See the **Compatibility Considerations** subheading for this new feature or change: • "New UDP Send and UDP Receive Blocks" on page 7
New Product V4.0 (R2009b)	See the **Compatibility Considerations** subheading for this new feature or change: • "New Target Support Package Product" on page 9 • "Removed To RTDX and From RTDX Blocks for TI C6000 Processors" on page 12 • "Incompatibilities with EDMA3 Driver in C6747EVM ADC/DAC Blocks" on page 13