

# **Release Notes for xPC Target™**

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*Release Notes for xPC Target™*

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# R2013a

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Version: 5.4  
New Features: Yes  
Bug Fixes: Yes

## **xPC Target Support Package for BitFlow Neon CLB Camera Link hardware**

**Compatibility Considerations: Yes**

The BitFlow™ Neon CLB Camera Link® hardware driver is no longer shipped with the base product. It must be downloaded as an xPC Target™ support package.

### **Compatibility Considerations**

The first time you attempt to use a BitFlow Neon CLB Camera Link block, Simulink® displays a dialog box asking you to install the support package. Use the Simulink menu item **Tools > Run on Target Hardware > Install/Update Support Package** or the `targetinstaller` command to install the support package.

## **Support for Speedgoat IO331 I/O module with Spartan 6 FPGA**

You can now use HDL Coder™ to program the Speedgoat IO331 I/O module supporting the Spartan 6 FPGA.

## **Coprocessor mode communication between CPU and FPGA**

xPC Target supports the following FPGA operation modes: Free running (default), Coprocessing blocking , and Coprocessing nonblocking with delay. For more information, see “FPGA Synchronization Modes”.

## **Add signal port to connect a signal trigger source**

For a Scope (xPC) block in Signal triggering mode, you can use the **Add signal port to connect a signal trigger source** check box to add the port Trigger signal to the scope block. You can connect this port to an arbitrary signal and use it to trigger the scope, even if the signal was not previously added to the scope.

## **Parameter tuning in Stateflow blocks using names derived from parameter names**

**Compatibility Considerations: Yes**

In previous releases, Stateflow® parameters in the generated code were not derived from the parameter names. In R2013a, parameter names appear unchanged in the code, which provides better traceability between the chart and the generated code.

### **Compatibility Considerations**

When tuning parameters in the target application running on the target computer, you must use a name of the form `sfunctionname_parametername` instead of a name of the form `SFunction_p1_k`, `SFunction_p2_k`, and so on.

For example, suppose model `myTestModel` contains a Stateflow block named `myStateflowChart` with a Stateflow parameter named `myParam`. In the generated code, this parameter is represented by the name `myTestModel.myStateFlowChart_myParam`.



## Functionality being removed or changed

### Compatibility Considerations: Yes

The following functionality is being removed or changed.

Functionality	What Happens When You Use This Functionality?	Use This Instead	Compatibility Considerations
The xPC Target Microsoft® COM interface is no longer being enhanced.	Still works	xPC Target Microsoft .NET Framework interface	Replace calls to the COM interface with calls to the .NET interface.
<b>Bus type</b> ISA will be removed in a future release.  This change affects only ISA Ethernet adapters used for host-target communication.	Still works	<b>Bus type</b> PCI or USB	Update your target computer hardware to be compatible with <b>Bus type</b> PCI or USB.
MATLAB® property TcpIpTargetBusType value 'ISA' will be removed in a future release.  This change affects only ISA Ethernet adapters used for host-target communication.	Still works	Property TcpIpTargetBusType values 'PCI' or 'USB'	Update your target computer hardware to be compatible with TcpIpTargetBusType 'PCI' or 'USB'.



# R2012b

---

Version: 5.3  
New Features: Yes  
Bug Fixes: Yes

## **Redesign of xPC Target Explorer for 32-bit and 64-bit MATLAB, including signal and parameter groups**

xPC Target Explorer has been redesigned for both 32-bit and 64-bit MATLAB. You can control your real-time application, view signals, and tune parameters. You can also create signal and parameter groups, providing custom views of system and subsystem elements.

## **Intel Gigabit support for EtherCAT and real-time Ethernet**

xPC Target supports Intel® Gigabit Ethernet adapters for:

- Real-time Ethernet
- EtherCAT®

## **ShowHardware kernel environment property**

xPC Target includes a new environment property, ShowHardware, with values 'off' and 'on' (by default, 'off'). If you create a target boot kernel when ShowHardware is 'on' and boot the target computer with it, the kernel displays on the target monitor the index, bus, slot, function, and target driver for each Ethernet card.

## **xPC Target compiler support**

**Compatibility Considerations: Yes**

The xPC Target compiler support has changed as follows:

- Removed support for Microsoft Visual Studio® 2005 SP1 (8.0) on 32-bit and 64-bit Windows® platforms.
- Removed support for Open WATCOM compilers.

See Supported and Compatible Compilers for a complete list of supported compilers.

## Functionality being removed or changed

**Compatibility Considerations: Yes**

The following functionality is being removed or changed:

<b>Functionality</b>	<b>What Happens When You Use This Functionality?</b>	<b>Use This Instead</b>	<b>Compatibility Considerations</b>
MATLAB property value <code>Watcom</code> has been removed.	The set and get commands using this property run, but the target application build fails.	Use the <code>xpcgetCC</code> function to configure the Microsoft Visual C++ compiler.	Use the <code>xpcgetCC</code> function to configure the Microsoft Visual C++ compiler.
MATLAB properties <code>CCompiler</code> and <code>CompilerPath</code> are no longer supported.	The set and get commands using these properties still run.	Use the <code>xpcgetCC</code> function to configure the Microsoft Visual C++ compiler.	Use the <code>xpcgetCC</code> function to configure the Microsoft Visual C++ compiler.
EtherCAT tasks doing multirate data transfers run at the greatest common divisor of the task rates in the model.	EtherCAT data transfers happen at a slightly different rate from in previous releases.	N/A	Previously, tasks ran at the rate of the first task, which had to run at the fastest rate.



# R2012a

---

Version: 5.2  
New Features: Yes  
Bug Fixes: Yes

## **Board and Block Support**

xPC Target supports the following new boards and blocks:

- Speedgoat IO312
- Speedgoat IO314

## **New FPGA Functionality**

xPC Target supports the following new FPGA functionality:

- Vector signals for FPGAs
- DMA for FPGA data transfers

## **xPC Target Compiler Support**

The xPC Target compiler support has changed as follows:

- Removed support for Microsoft Visual Studio 2010 Express on win32,win64

See Supported and Compatible Compilers for a complete list of supported compilers.

## xPC Target Examples

This release contains the following new or updated examples:

- Demo: Audio Processing — This model demonstrates audio input, output and display with xPC Target using the General Standards 24DSI12 and 16AO16 boards.
- Demo: Audio Power Spectrum — This model demonstrates how to use xPC Target to compute the power spectrum of an audio signal input from the General Standards 24DSI12 board.
- Demo: Audio Tone Control using General Standards Boards — This model demonstrates tone control audio processing using General Standards I/O boards.

## Functionality Being Removed or Changed

Compatibility Considerations: Yes

Functionality	What Happens When You Use This Functionality?	Use This Instead	Compatibility Considerations
The <b>Allow tasks to execute concurrently</b> check box in the <b>Simulation &gt; Configuration Parameters &gt; Code Generation &gt; xPC Target options</b> node has been removed.		<b>Solver &gt; Enable concurrent tasking</b> in a configuration for concurrent execution	Set <b>Solver &gt; Enable concurrent tasking</b> in a configuration for concurrent execution.
xPC Target Explorer <b>Host target communication</b> mode RS-232 will be removed in a future release.	xPC Target Explorer <b>Create Boot Disk and Create DOS Loader</b> still run, with warning.	<b>Host target communication</b> mode TCP/IP	Set xPC Target Explorer <b>Host target communication</b> mode to TCP/IP
MATLAB property <b>HostTargetComm</b> value RS232 will be removed in a future release.	xpcbootdisk command still runs, with warning.	MATLAB property <b>HostTargetComm</b> value TcpIp	Set <b>HostTargetComm</b> value to TcpIp
xPC Target Explorer <b>Select C Compiler</b> value Watcom will be removed in a future release.	xPC Target Explorer <b>Create Boot Disk and Create DOS Loader</b> still run.	<b>Select C Compiler</b> value Watcom	Set xPC Target Explorer <b>Select C Compiler</b> value to Watcom

<b>Functionality</b>	<b>What Happens When You Use This Functionality?</b>	<b>Use This Instead</b>	<b>Compatibility Considerations</b>
MATLAB property CCompiler value Watcom will be removed in a future release.	xpcbootdisk command still runs.	MATLAB property CCompiler value VisualC	Set CCompiler value to VisualC
xpexplr command in a 64-bit installation.	In a 64-bit installation, the xpexplr command brings up a window instead of printing an error message.	In a 64-bit installation, use the MATLAB command-line interface. (See Configuring Environment From the MATLAB Command Line.)	To see the xPC Target Explorer window, run the xpexplr command in a 32-bit installation.

---

**Tip** To create a configuration for concurrent execution, select **Configuration > Add Configuration for concurrent execution** in the **Model Hierarchy** pane of Simulink Model Explorer.

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# R2011b

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Version: 5.1  
New Features: Yes  
Bug Fixes: Yes

## **Signal Upload Inside Reference Models in Simulink External Mode**

In Simulink External Mode, xPC Target supports uploading non-bus signal information from models referenced inside a top model. Uploading information from buses and virtual signals inside a reference model generates a warning.

## **Hard Drive Bootdisk**

You can create an xPC Target “bootdisk” using CompactFlash and removable hard drives as well as floppy disk and CD-ROM. This disk boots the xPC Target kernel without requiring DOS, as with DOSLoader.

## Multicore Support

### Distributed Target Execution Using Multicore Processors

In addition to supporting preemptive rate monotonic scheduling for single-core processors, the xPC Target software supports distributing a target application built from a Simulink model as concurrent tasks across processors in a multicore machine.

### Multicore Mode Target Execution Using Intel Core i5 and Intel Core i7 Processors

The xPC Target kernel supports distributing a target execution in multicore mode using the Intel Core™ i5 and Intel Core i7 processors.

### Legacy MPFPS Enabled by Environment Property

As part of its support for multiple processors, the xPC Target software uses the Advanced Configuration and Power Interface (ACPI) to discover ACPI-compliant hardware in the target computer and creates a MultiProcessor Floating Pointer Structure (MPFPS) representing it. If the hardware is not entirely ACPI compliant, you can use the following xPC Target environment property to access the legacy MPFPS in the computer BIOS:

```
setxpcenv('LegacyMultiCoreConfig', 'on')
```

---

**Note** To display the allowed values of xPC Target environment properties, type `setxpcenv` without arguments. To display their current values, type `getxpcenv` without arguments.

---

## USB Support

### Data Storage and Transfer Using USB Drives and Sticks

The xPC Target kernel supports data storage and transfer using 1 LUN (logical unit) USB drives, 2 LUN USB drives, and 4–LUN card readers.

### Host-Target Communication Using USB Ethernet Adapters

The xPC Target kernel allow the host and target computers to communicate using USB Ethernet adapters. In xPC Target Explorer, do the following:

- Set TCP/IP target bus to USB.
- Set TCP/IP target driver to USBAX772, USBAX172, or Auto.

From the MATLAB command line, do the following:

- `setxpcenv('TcpIpTargetBusType','USB')`
- `setxpcenv('TcpIpTargetDriver','USBAX772')`, or  
`setxpcenv('TcpIpTargetDriver','USBAX172')`, or  
`setxpcenv('TcpIpTargetDriver','Auto')`

If you set the target driver to Auto, the software defaults the target driver to USBAX772, the driver most commonly used.

---

**Note** To display the allowed values of xPC Target environment properties, type `setxpcenv` without arguments. To display their current values, type `getxpcenv` without arguments.

---

## **Board and Block Support**

**Compatibility Considerations: Yes**

### **Triggering and Region of Interest Support in Camera Link Interface Standard Blocks**

The xPC Target software supports multiple triggering modes and extracting a region of interest using the NEON BitFlow Image Input block. See Acquiring Images from Camera Link Cameras.

### **IsValid Output Port on From File Block**

The From File IsValid port outputs 1 if the file read succeeds and 0 if it fails. Select the **Show IsValid port** check box on the From File Source Block Parameters dialog to make it visible in the model.

### **CAN Remote Frame Support**

The xPC Target kernel supports the CAN protocol with remote frame transmission.

### **I/O Pin Mapping for National Instruments 6221/37 M-Series Board**

xPC Target supports the default I/O pin map for the 37-pin variant of the NI 6221 M-Series board, as shown in the M-Series User Manual from National Instruments®.

### **Direct Frequency Measurement Using National Instruments PCI-6601 and PCI-6602 Boards**

The xPC Target driver supports direct frequency measurement (pulse counting) using the capabilities of the NI PCI-6601 and PCI-6602 boards.

### **Speedgoat FPGA Support**

The software supports the following additional Speedgoat boards and functionality:

- Speedgoat IO302 board

- A/D input port on Speedgoat IO325 board. HDL Workflow Advisor will automatically add the A/D input port calibration block to the model.
- Differential ports on Speedgoat IO303/IO325 board.
- Digital Clock Manager (DCM) configuration on Speedgoat FPGA boards.
- The xPC Target computer can synchronize target application execution to interrupts produced by supported FPGA boards.

### **Compatibility Considerations**

The Watcom 1.8 compiler cannot compile an IO325 model. Use a Microsoft compiler instead.

## **TLC Option `-axPCModelStackSizeKB` Added to Adjust Stack Size**

You can change the stack size of the real-time threads by setting a TLC option in the Configuration Parameters dialog, Code Generation node, section Build Process. For example, to set the stack size to 256 kBytes, type the following in the TLC option box:

```
-axPCModelStackSizeKB=256
```



## xPC Target Compiler Support

The xPC Target compiler support has changed as follows:

- Added Intel Visual Fortran Composer XE 2011 on win32 and win64.
- Added Windows SDK 7.1 on win32 and win64.

---

**Note** To access Windows SDK 7.1, type `xpcsetCC('setup')` at the MATLAB prompt and select Microsoft Visual Studio 10.0.

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- Removed Microsoft Visual Studio 2005 SP1 (8.0) on win32 and win64.

See Supported and Compatible Compilers for a complete list of supported compilers.

## **xPC Target Demos**

This release contains the following new demos:

- **Concurrent Execution on xPC Target** — This demo demonstrates how to realize concurrent execution of a model on xPC Target, illustrating the execution of each model thread using the xPC Target profiling tool.

# R2011a

---

Version: 5.0  
New Features: Yes  
Bug Fixes: Yes

## New Profiling Capability

You can now profile an application running on a target PC. This capability enables you to determine:

- Whether your target PC is taking advantage of its multiple cores
- The execution sequence of the target application
- The task execution time (TET) of the target application for the active rate groups

See Multicore Processor Configuration in the xPC Target User's Guide.

In support of this new capability, the following configuration parameters are new in the **Configuration Parameters > Code Generation > xPC Target options** node:

- Enable profiling
- Number of events (each uses 20 bytes)

To help you build, download, and display the profile data, a script is available in `matlabroot\toolbox\rtw\targets\xpc\xpcdemos\profile_xpc_demo.m`. This script uses an example model, `matlabroot\toolbox\rtw\targets\xpc\xpcdemos\xpcprofdemo`.

## Support for FPGA Applications

With the HDL Coder software, you can now implement Simulink algorithms. You can also configure I/O functionality on select FPGA I/O boards that xPC Target supports. The HDL Workflow Advisor streamlines and automates the entire process.

The software supports the following Speedgoat FPGA boards:

- Speedgoat IO301
- Speedgoat IO303
- Speedgoat IO311
- Speedgoat IO313
- Speedgoat IO325

See Speedgoat in the xPC Target I/O Reference for information on the blocks the software uses to program and communicate with the FPGA boards.

For more information on how to use the HDL Workflow Advisor with xPC Target, see FPGA Models in the xPC Target User's Guide.

## Support for Real-Time UDP Applications

The xPC Target software now supports real-time UDP applications with the following blocks:

- Network Configuration
- Receive
- Send

For more information, see Real-Time UDP Communication Support in the xPC Target I/O Reference.

The following core Internet Protocol (IP) blocks were also added to support the real-time UDP blocks. In general, you do not need to access these blocks directly.

- UDP Consume
- UDP Produce
- UDP Rx
- UDP Tx

For more information, see IP Library for Real-Time UDP Communication Support in the xPC Target I/O Reference.

## Support for Image Processing Applications

The xPC Target software now supports images and video frames from the following devices:

Device	Description
USB webcams	Supported by the From USB Video Device and USB Video Device List blocks
Cameras that support the Automated Imaging Association's Camera Link interface standard	Supported by the NEON BitFlow Image Input block

To support these capabilities, the Video Utilities library provides the following blocks:

- Image Receive
- Image Transmit
- Jpeg Compression
- Jpeg Decompression

For more information, see Video Image Processing and BitFlow in the xPC Target I/O Reference.

## xPC Target Demos

This release contains the following new demos:

- FPGA demos
  - Servo Control with the Speedgoat IO301 FPGA Board — Demonstrates programming and configuring the Speedgoat IO301 board with a simple PWM servo controller, hardware counter, and digital I/O.
  - Digital I/O with the Speedgoat IO303 FPGA Board — Demonstrates programming and configuring the Speedgoat IO303 board for digital I/O.
- xPC Target API for Microsoft .NET Framework demos
  - Simple Client Application with the .NET API — Demonstrates the use of the xPC Target API for Microsoft .NET Framework to create a client human machine interface (HMI) for your target application.
- Camera Link demos
  - Edge Detection with Camera Link and Bitflow Neon-CLB Frame Grabber — Demonstrates processing (Sobel edge detection) of video images captured with a Camera Link camera connected to the BitFlow Neon-CLB board.
  - Image Capture with Camera Link and Bitflow Neon-CLB Frame Grabber — Demonstrates a method to capture and view video images from a Camera Link camera attached to the BitFlow Neon-CLB board.



## **Microsoft Windows 64-Bit Support**

The xPC Target software now supports Microsoft Windows 64-bit systems from the MATLAB command line.

xPC Target Explorer does not run on 64-bit systems. It continues to run on 32-bit systems. You can install the 32-bit version of MATLAB products on your 64-bit system.

If you install the 64-bit version of MATLAB products on your 64-bit system, use the command-line interface to set up xPC Target systems (see *Configuring Environment From the MATLAB Command Line* in the *xPC Target User's Guide*).

## **I/O Driver Support**

### **Threshold for Ethernet Library Buffer Block**

The Buffer block in the xPC Target library for Ethernet now has a minimum threshold parameter so that you can specify when the block begins to output buffers.

## **Additional Ethernet Card Support**

Support for a number of Ethernet cards has been added. For the most current list of supported cards, see [http://www.mathworks.com/products/xpctarget/-supported-hardware/xPC\\_Target\\_Supported\\_Ethernet\\_Chipsets.pdf](http://www.mathworks.com/products/xpctarget/-supported-hardware/xPC_Target_Supported_Ethernet_Chipsets.pdf).

## xPC Target Compiler Support Changes

The xPC Target software now supports the following compilers:

- Microsoft Visual Studio 2010 (10.0) Professional and Express, 32-bit and 64-bit

---

**Note** The Express edition must be the most recent version of the compiler. If you have an earlier Express edition installed, uninstall it and install the latest version from the Microsoft site.

---

The xPC Target software no longer supports the Microsoft Visual Studio 2009 (9.0) Express compiler.

## **New Commands to Support Compiler Configuration**

Use the `xpcgetCC` and `xpcsetCC` functions to configure the compiler. Use these commands instead of the `CCompiler` and `CompilerPath` properties. For more information, see “Functions and Function Elements Being Removed” on page 45.

## Enhanced readxpcfile

The structure returned by the `xpctarget.fs.readxpcfile` function contains a new field, `signalNames`. This field is a cell array of the signal names acquired by the file scope.

## Functions and Function Elements Being Removed

Compatibility Considerations: Yes

Function or Function Element Name	What Happens When You Use the Function or Element?	Use This Instead	Compatibility Considerations
xpctarget.xpc.scope (target application object) target scope Mode property	Still works	DisplayMode	Replace the existing instances of Mode with DisplayMode.
xpctarget.xpc.scope (target application object) file scope Mode property	Still works	WriteMode	Replace the existing instances of Mode with WriteMode.
xPC Target COM API	Still works	xPC Target API for Microsoft .NET Framework	Create custom applications using xPC Target API for Microsoft .NET Framework instead of xPC Target COM API. Existing custom application executables should continue to work on 32-bit host PCs.
CCompiler and CompilerPath	Still works. Warns.	xpcsetCC and xpcgetCC	Configure your compiler using the new functions.

## **xPC Target Product Now in Simulink Start, Help, and Demos Category**

**Compatibility Considerations: Yes**

The Simulink category now contains the xPC Target software product.

### **Compatibility Considerations**

This change impacts you in the following ways:

- Finding and viewing this product through the MATLAB Desktop **Start** button and in the Help browser **Contents** and **Demos** panes.
- Using the `demo` command to access the product demos.



## **xPC Target Upgrade Requirements**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target PC boot image and you must rebuild your xPC Target applications. See Target Boot Method in the xPC Target Getting Started Guide.



# R2010b

---

Version: 4.4  
New Features: Yes  
Bug Fixes: Yes

## **xPC Target – A Complete Real-Time Testing Solution for Simulink**

xPC Target Turnkey is a complete, fully assembled, real-time testing solution that combines the xPC Target software with a variety of high-performance real-time target machines and I/O modules. Your real-time target machine will be assembled based on your requirements and be ready to use when you receive it.

## Multicore Support for Multirate Models

### Compatibility Considerations: Yes

The xPC Target software now allows you to run multirate target applications on multiple cores on your target PC. You can use this capability if your target PC has a multicore processor and you want to take advantage of them for multirate models.

This is a model-level feature that you can access from the Simulink model editor. In the Simulink model editor, see the **Allow tasks to execute concurrently** check box in the **Simulation > Configuration Parameters > Code Generation > xPC Target options** node.

These models must use the Rate Transition block to transition between rates. If the model uses other blocks for rate transitions, you cannot build the model using this feature.

### Compatibility Considerations

Support to take advantage of multicore processors was added in xPC Target version 4.2 (R2009b). That feature required you to select the **Multicore CPU support** check box in the xPC Target Explorer Settings node.

The new multirate feature takes advantage of the multicore processor feature to generate xPC Target code for multirate models. It requires you to select both the target PC **Multicore CPU support** check box in the xPC Target Explorer and the model **Allow tasks to execute concurrently** check box in the Simulink model editor configurations parameters.

However, if the following is true:

- You built and downloaded a model from an earlier release using just the **Multicore CPU support** check box.
- You now want to rebuild and download that same model using the **Allow tasks to execute concurrently**.

Be aware that the data results might numerically differ slightly between these releases, and might also numerically differ slightly from run to run. If

you want the same results as from earlier releases, clear the model-specific **Allow tasks to execute concurrently** check box.

## **xPC Target Support for EtherCAT Networks**

To support EtherCAT networks (open and real-time Ethernet networks), the xPC Target library provides the blocks described in Model-Based EtherCAT Communications Support, in the xPC Target I/O Reference.

## **Support for an XCP Client on a CAN Network**

Blocks have been added to support the use of Universal Measurement and Calibration Protocol (XCP) clients on a CAN network. Use these blocks to take advantage of the XCP features, synchronous data stimulation (STIM), and synchronous data acquisition (DAQ). See XCP Over CAN Support in the xPC Target I/O Reference.



## Support for Parallel Model Reference Builds

The xPC Target software now supports the ability to build models that contain referenced models in parallel when possible. This capability enables you to more quickly build and download xPC Target applications to the target PC. For more information, see *Reduce Build Time for Referenced Models* in the *Real-Time Workshop® User's Guide*. This capability requires the Parallel Computing Toolbox™ product.

If you want to build models that contain referenced models on multiple remote PCs, you must also install the MATLAB Distributed Computing Server™ product. See *Building Referenced Models in Parallel* in the xPC Target User's Guide.

## **Compiling Model Reference Models with Open Watcom Compiler**

The xPC Target software now supports the ability to build models that contain referenced models with the supported Open Watcom compiler.

## Improved Support for Stateflow Charts

The xPC Target software now supports, with Simulink external mode, the ability to:

- Animate Stateflow charts.
- Use Simulink floating scopes and the Signal & Scope Manager to display Stateflow states for which you have set test points.

For more information, see [Monitoring Stateflow States in the xPC Target User's Guide](#).

## Support for BLAS Library

The xPC Target software now supports the Basic Linear Algebra Subprograms (BLAS) library. This library speeds up large matrices (16 x 16) operations in the target application. You do not need to do anything to access this capability.

---

**Note** Your model accesses this library if you build your model with a Microsoft Visual C/C++ compiler. If you build your model with the Open Watcom compiler, the xPC Target software does not use the BLAS library. Behavior remains as in previous releases.

---

## **I/O Driver Support**

### **New Blocks for HUMUSOFT AD622 and MF624 Boards**

Blocks have been added to support the HUMUSOFT® AD622 and MF624 boards. See H in the xPC Target I/O Reference for more information.

## **Non-Inline S-Functions in Referenced Models**

The Real-Time Workshop product supports the building of models containing referenced models that have noninline S-functions. This capability is not supported when building models containing referenced models that have xPC Target I/O blocks and xPC Target scopes.

## **xPC Target Upgrade Requirements**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target PC boot image and you must rebuild your xPC Target applications. See Target Boot Method in the xPC Target Getting Started Guide.





# R2010a

---

Version: 4.3  
New Features: Yes  
Bug Fixes: Yes

## Updated Ethernet Rx Block

The Ethernet Rx block has been updated to allow the filtering of Ethernet packets. This change enables to use multiple Ethernet Rx blocks with the same device ID. However, you must configure each block to filter a unique set of packets.

The block dialog box now contains the tabs **Rx** and **Filter**. **Rx** contains the original block parameters. **Filter** contains the filter characteristics you choose for the received Ethernet frames.

## Support for Bus-off Failure Recovery in CAN Systems

The following CAN setup blocks have been updated to support the ability to recover from CAN bus failures.

- Softing CAN-AC2-PCI with SJA1000 Setup
- Softing CAN-AC2-104 with SJA1000 Setup
- Softing CAN-AC2-PCI with Philips SJA1000 FIFO Setup
- Softing CAN-AC2-104 with Philips SJA1000 FIFO Setup

Each block now has two additional parameters: **Show bus-off status output** and **Bus-off recovery**.

## **Support for Diamond Systems Athena II Board**

The Diamond Systems Athena II board is now supported. Use the Prometheus/Athena blocks to access this board. For further information, see Diamond Prometheus, Athena, and Athena II in the xPC Target I/O Reference.

## **New setxpcenv Property**

The target application setxpcenv function has a new property, EthernetIndex. Use this property to specify the index number of a particular Ethernet card. Otherwise, the software assumes that there is only one Ethernet card available, and uses the first Ethernet card found.

## **.NET API xPC Target Framework Updates**

The .NET API xPC Target Framework has the following updates:

- MinimumTet and MaximumTet property added to the xPCApplication class
- SaveParameterSet and LoadParameterSet methods added to the xPCParameters class
- TriggerSlope property added to the xPCScope class

## **New MPL PATI EEPROM Write Block**

The new MPL PATI EEPROM Write block writes MPL boot code on the EEPROM. Use this block before running a model that contains MPL blocks. See the xPC Target MPL PATI EEPROM Write block for more information.

## xPC Target Demos

This release contains the following new and changed demos:

- The .NET API xPC Target Framework has a new demo, located in

```
matlabroot\toolbox\rtw\targets\xpc\api\xPCFrameworkSamples\FileSystemBrowser
```

This is a C# application project developed with the Microsoft Visual Studio 2008 IDE. It illustrates how to build a standalone Windows executable to connect to target PC and a host PC. See the `Readme.txt` file in the demo directory for instructions.

- The series of CAN I/O and CAN I/O FIFO demos using `CAN_MESSAGE` and standard data types have been reorganized:
  - CAN (`CAN_MESSAGE` Data Types) — Contains demos that use `CAN_MESSAGE` data types. Many of these demos are updated from previous releases to use `CAN_MESSAGE` data types instead of the standard data types. See xPC Target CAN Library in the xPC Target I/O Reference.
  - CAN Legacy (Standard Data Types) — Contains demos that use standard data types. These are the legacy demos from previous releases. See xPC Target CAN FIFO Demonstrations for CAN-AC2-PCI and CAN-AC2-104 Boards in the xPC Target I/O Reference.
- New Ethernet Rx block demo, Ethernet Rx Block Filtering.



## Simulink SimState Support

The Simulink product supports the ability to save complete model simulation state (see Saving and Restoring the Complete SimState in the Simulink Release Notes). The xPC Target software now supports this behavior when simulating, on a host PC, a Simulink model that contains some xPC Target blocks. The software does not support this behavior when executing such a model on the target PC. If an xPC Target block does not support the SimState behavior, the software generates a message. For example, you might get a message like the following:

```
Simulink is unable to access the simulation state...
```

To prevent warning or error messages from blocks that do not support the SimState behavior, clear the **Save complete SimState in final state** check box in the **Configuration Parameters Data Import/Export** node for your model. See xPC Target Support and SimState in the xPC Target I/O Reference for a list of blocks that do not support SimState behavior.

## **xPC Target Compiler Support Changes**

The xPC Target software now supports the following compilers:

- Intel Visual Fortran 11.0 compiler
- Open Watcom 1.8

xPC Target software no longer supports the following compilers:

- Intel Visual Fortran 10.1 compiler
- Open Watcom 1.7
- Microsoft Visual Studio 7.1

## **Multiple Ethernet Cards of the Same Type**

### **Compatibility Considerations: Yes**

If your target PC has multiple Ethernet cards of the same type, your target PC might have communication issues. Situations that might cause these issues include:

- The presence of more than one Ethernet card on the target PC
- Updated xPC Target releases

Changes to the xPC Target kernel might cause these issues.

See [Are Multiple Ethernet Cards in the Target Computer Causing Communication Problems During Download?](#) in the xPC Target User's Guide for details on how to resolve this issue.

### **Compatibility Considerations**

If you have an updated xPC Target releases, you might have this communication issue. See [Are Multiple Ethernet Cards in the Target Computer Causing Communication Problems During Download?](#) in the xPC Target User's Guide for details on how to resolve this issue.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target PC boot image and you must rebuild your xPC Target applications. See Target Boot Method in the xPC Target Getting Started Guide.

# R2009bSP1

---

Version: 4.2.1  
New Features: No  
Bug Fixes: Yes



# R2009b

---

Version: 4.2  
New Features: Yes  
Bug Fixes: Yes

## Changed CAN Block Messaging

### Compatibility Considerations: Yes

You can use the new CAN Pack and CAN Unpack blocks that are available with your xPC Target license to perform message packing and message unpacking functions. Refer to the CAN Blocks Transition document for more information. These new blocks add the following functionality:

- Consolidate multiple blocks to handle basic and advanced pack and unpack functions, which include manually specified signals and CANdb file-specified signals.
- Improved compatibility with Vector Informatik CANdb files.

The message handling capability of the xPC Target CAN block library has changed. These blocks now use the CAN\_MESSAGE data type. In previous releases, these blocks transferred data as 8 bytes in a double.

The Send and Receive blocks (including FIFO Write and Read blocks) for the Softing CAN-AC2-PCI with Philips SJA1000 CAN Controller and CAN-AC2-104 (PC/104) with Philips SJA1000 CAN Controller boards support the new message handling capability. The Send and Receive blocks for the Softing CAN-AC2 (ISA) with Philips PCA 82C200 CAN Controller and CAN-AC2 (ISA) with Intel 82527 CAN Controller support only the old message handling capability.

### Compatibility Considerations

If you have models that use old CANDBC blocks from the xPC Target block library (available by typing `xpcobsoletelib`), you will see an obsolescence warning message. (In the previous release, you saw this message when typing `xpclib`; this message now appears only when typing `xpcobsoletelib`.) These models will continue to work as before. You should update your models to use the new CAN Pack and the CAN Unpack blocks available from the xPC Target block library, as the old CAN Message blocks might be removed from a future release of the xPC Target product.

For information on how you can identify obsolete blocks and transition to the new blocks, see CAN Blocks Transition.



The following blocks have been moved to the xPC Target library of obsolete drivers:

- CAN Message Packing
- CAN Message Packing (CANdb)
- CAN Message Filter
- CAN Message Unpacking
- CAN Message Unpacking (CANdb)
- CANDBC Translator
- FIFO Mode CAN Message
- Object Mode CAN Message

You can still access these driver blocks by typing the command `xpcobsoletelib` at the MATLAB Command Window. Existing models that use these drivers will still work. However, they may not be supported in future releases. Do not use these driver blocks in new models. Instead, use the corresponding blocks contained in the CAN Message Handling blocks library.

## **CAN Message Warning Message Does Not Appear**

In xPC Target Version 4.1 (R2009a), typing `xpc1ib` in the MATLAB Command Window caused a `CAN_MESSAGE` warning. This warning now appears only when you type `.xpcobsoletelib`.

## **New .NET API xPC Target Framework Enables Users to Create Applications that Interface with a Target PC**

The xPC Target environment now provides a .NET API for the Microsoft .NET Framework. You can use this xPC Target API framework in an integrated development environment (IDE) that also supports the Microsoft .NET Framework environment. Use this API framework to create custom standalone applications (for example, Windows Forms applications running on a host PC that communicates with your target application running on a target PC). See xPC Target API Reference for Microsoft .NET Framework in the xPC Target API Guide.

To access the types available from the xPC Target environment, reference this namespace in your application:

```
using MathWorks.xPCTarget.FrameWork;
```

The primary object is xPCTargetPC.

## **Enhanced UDP Send and Receive Block Allows Sending Variable Length Packets**

The UDP library has been enhanced to support variable length packets. The following blocks are updated:

- UDP Receive
- UDP Send

The default behavior of these blocks remains the same as before. Your existing UDP models will continue to work without modification.

## Enhanced J1939 Support for Address Claiming

### Compatibility Considerations: Yes

The J1939 library has been enhanced to support address claiming. See SAE J1939 in the xPC Target I/O Reference.

The following block is new:

- J1939 Controller Application

The following blocks have changed to take into account the capabilities of the new J1939 Controller Application block:

- J1939 Protocol Stack — See the reference for the updated block parameters. The following parameters have been removed: **TX CAN Board**, **RX CAN Board**, **TX CAN Port**, **RX CAN Port**, **Transport Protocol Enabled**, **Transport Protocol Max Send (# of Fragments)**, **Transport Protocol Max Receive (# of Fragments)**.

The following parameters are new: **Max CAN Message Receive (Per Sample Time)**, **Max CAN Message Transmit (Per Sample Time)**, **Enable Transport Protocol**, **Maximum Concurrent Sessions**, **Enable Address Claiming**.

- J1939 Receive Message — See the reference for the updated block parameters. The following parameters have been removed: **J1939 Protocol Stack Id**, **Node Address (0–255)**.

The following parameter is new: **CA ID**.

- J1939 Transmit Message — See the reference for the updated block parameters. The following parameters have been removed: **J1939 Protocol Stack Id**, **Node Address (0–255)**.

The following parameter is new: **CA ID**.

### Compatibility Considerations

If you have existing models that use the updated J1939 blocks, note that you must now add the J1939 Controller Application block to your model. You must then configure the J1939 Protocol Stack, J1939 Receive Message, and J1939 Transmit Message blocks to reference the controller application.

## **National Instruments PCI-6225 Support**

xPC Target 4.2 now supports National Instruments PCI-6225 as part of its support for the National Instruments M series data acquisition boards.

## Enhanced File Scopes

xPC Target file scopes now support dynamic naming and multiple files. For further information, see:

- Acquiring Signal Data into Multiple, Dynamically Named Files with File Scopes in the xPC Target User's Guide.
- See the `DynamicFileName`, `FileName`, and `MaxWriteFileSize` properties in the `xpctarget.xpcsc.set (scope object)` method.
- See Acquiring Signal Data into Multiple, Dynamically Named Files on the Target Computer in the xPC Target User's Guide.

## Support to Load Parameter Sets from Target PC File System

The xPC Target software now enables you to load parameter sets from the target PC file system. The **Configuration Parameters** dialog box has the following changes for xPC Target models. In the **Application tunable parameter options** section of the **xPC Target options** node, the following parameters are new:

- **Load a parameter set from a file on the target file system**
- **File name**

See xPC Target Options Configuration Parameter in the xPC Target User's Guide.



## **New Property for Target Application Object set Method**

The target application `xpctarget.xpc.set` (target application object) method has a new property, `CommunicationTimeout`. Use this property to increase the timeout value for the communication between the target and host PC.

## New xPC Target Support for Multicore Processors

If your target PC has multicore processors, the xPC Target software can now take advantage of these processors for background tasks.

To enable this feature, do one of the following. By default, this feature is off.

- At the MATLAB Command Window, type:

```
setxpcenv('MulticoreSupport','on')
```

- In the xPC Target Explorer Settings node, select the **Multicore CPU support** check box.

If you use polling mode, enabling the multicore processor feature also removes the following restrictions. Other restrictions still apply. (See *Introducing Execution Modes* in the xPC Target User's Guide for further details on these restrictions.)

- Host-target communication is now available during the execution of the target application.
- Target screen now updates during the execution of the target application.
- External interrupts are now allowed during the execution of the real-time model. This does not mean that you can trigger your model with an external interrupt.
- File scopes can now log data into a file on the target PC.

## **xPC Target Compiler Support**

The xPC Target software now supports the Intel Visual Fortran 10.1 compiler.

The xPC Target software no longer supports the Intel Visual Fortran 9.1 compiler.

## **xPC Target Demos**

This release contains the following new demos:

- UDP demos
  - Target to Host Transmission using UDP — Demonstrates how to use UDP blocks to send data from a target PC to a host PC.
  - Target to Target Transmission using UDP — Demonstrates how to use UDP blocks to send data between two target PCs.
- CAN I/O and CAN I/O FIFO demos using CAN\_MESSAGE data type
  - CAN I/O - Simple Use Case (with CAN\_MESSAGE) — Demonstrates simple CAN I/O communication using the Softing® CAN-AC2-PCI board.
  - CAN I/O FIFO Mode - Simple Use Case (with CAN\_MESSAGE) — Demonstrates CAN I/O communication using the First In First Out (FIFO) mode of the Softing CAN-AC2-PCI board.
  - CAN I/O FIFO Mode - Simple Use Case (with CAN\_MESSAGE and Function Call Output) — Demonstrates CAN I/O communication using the First In First Out (FIFO) mode of the Softing CAN-AC2-PCI board. The FIFO Read block uses a function call output format.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target PC boot image and you must rebuild your xPC Target applications. See Target Boot Method in the xPC Target Getting Started Guide.



# R2009a

---

Version: 4.1  
New Features: Yes  
Bug Fixes: Yes

## **Target PC Boot CD/DVD Creation Tool**

xPC Target Explorer now enables you to create a target PC boot CD or DVD directly from the CD boot image file. In the previous release, you used third-party CD writing software to write ISO image files. See Booting Target Computers from CD or DVD in the xPC Target Getting Started Guide.



## **New Function Summarizing Diagnostic Information for Target PC**

A new function, `getxpcinfo`, has been added to help you capture diagnostic information for your xPC Target configuration. This function stores this information in a text file. You can send this text file to MathWorks Technical Support if you encounter host PC/target PC configuration problems.

## **J1939 Library Enhanced to Support Transport Protocol**

**Compatibility Considerations: Yes**

The J1939 library has been enhanced to support transport protocol. See SAE J1939 in the xPC Target I/O Reference.

The following block is new:

- J1939 Protocol Stack

The following blocks and their names have been updated.

- J1939 Database (CANdb) Setup
- J1939 Message Trigger
- J1939 Receive Message
- J1939 Transmit Message

### **Compatibility Considerations**

This release updates the following J1939 blocks. The previous versions of these blocks are available by typing the command `xpcobsoletelib` in the MATLAB Command Window. If you have existing models that contain these blocks, they will continue to work. You should update your models with the new blocks and use them going forward.

- J1939 Database (CANdb) Setup
- J1939 Message Trigger
- J1939 Receive Message
- J1939 Transmit Message

In addition, the following blocks are obsolete:

- J1939 Pack
- J1939 Unpack

The J1939 Receive Message and J1939 Transmit Message now contain the functionality from these blocks.

## **Support for the GE Fanuc PCI-5565PIORC Shared/Reflective Memory Board**

Support for the GE Fanuc PCI-5565PIORC shared/reflective memory board has been added. See GE Fanuc Embedded Systems Shared Memory in the xPC Target I/O Reference.

## **Support for Counters and Incremental Encoders for National Instruments M Series Boards**

Pulse generation, pulse width measurement, and incremental encoder blocks have been added for the following National Instruments boards:

- National Instruments PCI-6221
- National Instruments PCI-6229
- National Instruments PCI-6251
- National Instruments PCI-6259
- National Instruments PCI-6280
- National Instruments PCI-6281
- National Instruments PCI-6289

## **Enhanced Floating-Point Operations**

The SSE2 (Intel Streaming SIMD Extensions 2) is now supported. It provides enhanced performance for certain floating-point operations.

## **xPC Target Demos**

This release contains the following new demos:

- Distributed Closed-Loop Control with GE® Fanuc Embedded Systems PCI-5565 Boards — Demonstrates closed-loop control using two xPC Target models communicating over shared memory.
- J1939 I/O Using Transport Protocol — Demonstrates the transmission and reception of J1939 data through a loopback connection of two CAN ports in a single target PC.
- Audio Tone Control Using General Standards Boards — Demonstrates tone control audio processing using General Standards I/O boards.

## **xPC Target Compiler Support**

### **Compatibility Considerations: Yes**

The xPC Target software now supports the Microsoft Visual Studio C/C++ 2008 SP1 and Express Edition compilers.

The xPC Target software no longer supports the Microsoft Visual Studio C/C++ 2005 Express Edition compiler.

### **Compatibility Considerations**

For a complete list of the xPC Target supported and compatible compilers, see:

[http://www.mathworks.com/support/compilers/current\\_release/](http://www.mathworks.com/support/compilers/current_release/)



## CANdb Blocks

The CANdb message block documentation, accessible by clicking the **Help** button on a block, has the string `Obsolete` in the reference page titles. This string indicates that the blocks might be removed from a future release.

For this release, you can continue to use the CANdb blocks as usual. In addition, existing models will continue to work as expected.

If you type `xpc1ib` in the MATLAB Command Window, the following message appears. This string indicates that the CAN Message blocks might be removed from a future release. xPC Target users can ignore this warning and continue to use the CANdb blocks as usual.

**Warning:** The CAN Message blocks are obsolete and may be removed from the product at a future date. If your model uses these blocks, refer to the CAN blocks transition page and update your model accordingly.

## **Save complete SimState in final state Check Box**

The Simulink product now supports the ability to save complete model simulation state (see Saving and Restoring the Complete SimState in the Simulink Release Notes). This capability is not supported when simulating a Simulink model that contains xPC Target blocks. Doing so might generate warning or error messages. To prevent these messages, clear the **Save complete SimState in final state** check box in the **Configuration Parameters Data Import/Export** node for your model.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications. See *Booting Target Computers from Removable Boot Drives* in the *xPC Target Getting Started Guide*.



# R2008b

---

Version: 4.0  
New Features: Yes  
Bug Fixes: Yes

## **Enhanced Support for Booting Target PCs Within Dedicated Network**

The ability to boot target PCs within dedicated networks has been enhanced in this release. These enhancements include:

- Full integration into the xPC Target Explorer environment.
- Multitarget support in a dedicated network environment with network booting.

In the previous release, you manually started the network boot server process, and the capability was limited to one target PC within the dedicated network group. In this release, the xPC Target Explorer environment now fully integrates this feature and supports multiple target PCs.

See *Booting Target Computers Within a Dedicated Network* in the *Installation and Configuration* chapter of the *xPC Target Getting Started Guide*. You can continue to use the manual procedure as described in *xPC Target Version 3.4*, or use the method integrated into *xPC Target Explorer*.

## **Support for Booting from CDs**

The xPC Target software now supports target boot CDs. See Booting Target Computers from CD or DVD in the Installation and Configuration chapter of the xPC Target Getting Started Guide.

## **Changes to xpcbootdisk Function**

The `xpcbootdisk` function has been updated to allow for the creation of CD boot images. As a result, this function can now create 3.5-inch boot disks, CD boot images, and DOSLoader files. In previous releases, this function could create 3.5-inch boot disks and DOSLoader files.



## Configuration Parameter Dialog Box Update

The **Configuration Parameters** dialog box has the following change for xPC Target models. In the **Execution options** section of the **xPC Target options** node, the **PCI slot/ISA base address** parameter has been changed to **PCI slot (-1: autosearch) or ISA base address**. Its purpose and use remains the same.

## Automatic IRQ Selection

The **Configuration Parameters** dialog box has the following change for xPC Target models. In the **Execution options** section of the **xPC Target options** node, the **Real-time interrupt source** parameter now has an Auto (PCI only) option. This option enables the xPC Target software to automatically determine and use the IRQ number that the BIOS assigned. In previous releases, you had to manually choose an IRQ number for the real-time interrupt source. See Setting Configuration Parameters in the xPC Target Reference.

## **CPU Overload Management**

The xPC Target software now supports the management of CPU overloads. See [Can I Allow CPU Overloads?](#) in the xPC Target User's Guide.

## Enhanced Scopes

The following enhancements have been made for scopes.

- Number of scopes of type host is now limited only by available resources.
- Number of signals that scopes of type host and file can log is now limited only by available resources.

Note, the number of allowed scopes of type target and the number of signals that scopes of type target can log remain 10. The number of scopes of type file remains eight.

## **Exporting Data from Scopes of Type File to MATLAB Workspace**

From xPC Target Explorer, you can now export data from target PC files to the MATLAB workspace. In previous releases, you had to use the file system objects to transfer data from the target PC to the host PC.

## **Support for Model-Based Ethernet Communications**

Support for model-based Ethernet communications. See Model-Based Ethernet Communications Support in the xPC Target I/O Reference.

## Enhancements to xPC Target C API

The following enhancements have been made to the xPC Target C API:

- xPC Target C API can be invoked by multiple threads at the same time.
- The following functions and structures are new:
  - fileinfo
  - xPCGetNumScopes
  - xPCScGetNumSignals
  - xPCGetScopeList
  - xPCScGetSignalList
  - xPCGetSessionTime
  - xPCFSFileInfo

See “Functions, Properties, and Arguments Being Removed” on page 124 for additional notes.

## **Support for Serial ATA (SATA) Drives**

Target PCs with serial ATA (SATA) drives are now supported. In previous releases, only IDE or parallel ATA (PATA) drives were supported. Your target PC must have a PATA or SATA drive to log data to the target PC file system. See Logging Signal Data with FTP and File System Objects in the xPC Target User's Guide.



## **I/O Driver Support**

Support for the following National Instruments M series data acquisition boards. See National Instruments in the xPC Target I/O Reference.

- National Instruments PCI-6221
- National Instruments PCI-6229
- National Instruments PCI-6251
- National Instruments PCI-6259
- National Instruments PCI-6280
- National Instruments PCI-6281
- National Instruments PCI-6289

## **Changes to xPC Target Library**

When you double-click the xPC Target Driver Demos block, the Demos tab in the MATLAB Help Navigator now opens, displaying the xPC Target demos. In previous releases, double-clicking this block opened a sublibrary that displayed a list of xPC Target driver demos.

## **Target PC Monitor Update**

The target PC monitor display has been updated to reflect the PCI bus and slot number of the Ethernet card in the target PC used for host PC-target PC communications. In previous releases, the display showed the memory base address and IRQ of the Ethernet card.

## **xPC Target Demos**

This release contains the following new demos:

- Data Logging With a File Scope — Illustrates data logging to scopes of type file.
- Real-Time Transmit and Receive over Ethernet — Demonstrates how to perform real-time communications over the Ethernet protocol.
- Filtering on MAC Address — Demonstrates how to filter Ethernet packets based on MAC addresses.
- Filtering on EtherType — Demonstrates how to filter Ethernet packets based on EtherTypes.
- IO Test with Diamond Systems MM-32-AT Board — Demonstrates a simple analog and digital I/O loopback test using the Diamond Systems MM-32-AT (PC/104) board.
- IO Test with General Standards PMC-ADADIO Board — Demonstrates a simple analog I/O loopback test using the General Standards PMC-ADADIO board.
- IO Test with National Instruments PCI-6070E Board — Demonstrates a simple analog and digital I/O loopback test using the National Instruments PCI-6070E (E Series) board.
- IO Test with National Instruments PCI-6289 Board — Demonstrates a simple analog and digital I/O loopback test using the National Instruments PCI-6289 (M Series) board.
- Master/Slave Synchronization with the GE Fanuc Embedded Systems PCI-5565 — Demonstrates how to synchronize two xPC Target models with shared memory interrupts.

## **Compilers**

### **Compatibility Considerations: Yes**

The xPC Target product now supports the following additional compilers:

- Microsoft Visual C/C++ compiler Version 9.0
- Open Watcom C/C++ compiler Version 1.7

### **Compatibility Considerations**

The xPC Target product no longer supports the Open Watcom C/C++ compiler Version 1.3.

## Functions, Properties, and Arguments Being Removed

**Compatibility Considerations: Yes**

The following changes affect the xPC Target C API.

<b>Function Name</b>	<b>What Happens When you use Function</b>	<b>Use This Instead</b>	<b>Compatibility Considerations</b>
xPCGetScopes	Still runs	xPCGetScopeList	The xPCGetScopes function continues to run. However, use xPCGetScopeList instead.
xPCScGetSignals	Still runs	xPCScGetSignalList	The xPCScGetSignals function continues to run. However, use xPCScGetSignalList instead.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications. See *Booting Target Computers from Removable Boot Drives* in *xPC Target Getting Started Guide*.





# R2008a

---

Version: 3.4  
New Features: Yes  
Bug Fixes: Yes

## **xPC Target Now Supports Booting Target PCs Within a Dedicated Network**

You can now boot a target PC from a host PC within a dedicated network. In previous releases, you could only boot a target PC with a target boot disk. See Target Boot Method in the xPC Target Getting Started Guide.

Associated with this feature, the `xpcnetboot` function was added. This function creates the xPC Target kernel to boot target PC over dedicated network.

## xPC Target Explorer Enhancements

xPC Target Explorer has the following enhancements:

- You can now drag a prebuilt target application, DLM, to a target PC icon. If a connection does not already exist, xPC Target Explorer prompts you to create a connection to that target PC. See *Downloading and Running Target Applications on a Target PC* in the xPC Target Getting Started Guide.
- You can now start xPC Target Explorer from the Simulink model window (**Tools > Code Generation > xPC Target Explorer**).
- If a scope does not exist, you can now drag a signal to a Host Scope, Target Scope, or File Scope icon to create a scope of that type in xPC Target Explorer. See *Adding Signals to Scopes* in the xPC Target User's Guide.
- You can now change the refresh rate of xPC Target Explorer. See *Menus, Toolbars, and Shortcut Keys* in the xPC Target User's Guide.
- The xPC Target Explorer PCI Devices node now displays the subsystem vendor and device IDs. In previous releases, this node displayed only system vendor and device IDs.

## Changes in xPC Target Configuration Parameters

The following are changes to the xPC Target options pane of the Simulink Configuration Parameters dialog box.

- New check box, **Use default communication timeout**, and a new associated text entry field, **Specify the communication timeout in seconds**. See Setting Configuration Parameters in the xPC Target Reference.
- New IRQ options 3 and 4 available for the **Real-time interrupt source** parameter.

## **xPC Target Software Support for Vector CANape TCP Layer**

The interface between the xPC Target software and Vector CANape® software has been enhanced to support the Vector CANape TCP communication layer. This enhancement enables xPC Target to acquire signal data at the base sample rate of the model. If you have existing models that use earlier Vector CANape solutions, they should continue to be valid. See Vector CANape Support in the xPC Target User's Guide.

## **xPC Target Now Supports Multidimensional Signals and Parameters**

xPC Target now supports the logging and monitoring of multidimensional signals and the tuning of multidimensional parameters. In previous releases, the xPC Target software ignored multidimensional signals and parameters. If a target application contains a multidimensional signal or parameter:

The xPC Target Explorer Model Hierarchy now displays signals and parameters in column-major format. See Signals and Parameters in the xPC Target User's Guide.

## **xPC Target Driver Authoring Tool**

The xPC Target Driver Authoring Tool has been added to help with the creation of custom xPC Target device drivers. See [Using the xPC Target Driver Authoring Tool](#) in the xPC Target Device Drivers Guide.

## Changes to Simulink External Mode

The following limitations no longer apply to Simulink external mode:

- You can now add scopes of type host to the system. In previous releases, you could add scopes of only type target or file to the system when updating data to Simulink external mode.
- xPC Target can now upload data to more than 10 Simulink scopes. In previous releases, xPC Target could upload up to 10 Simulink scopes.
- Each Simulink scope can now upload more than the first 10 input signals from the target PC. In previous releases, each Simulink scope could upload only the first 10 input signals from the target PC.



## **Arbitrarily Sized Target Application (DLM) Files**

### **Compatibility Considerations: Yes**

Arbitrarily-sized target application (DLM) files can now be loaded in BootFloppy and DOSLoader modes. These modes ignore the MaxModelSize setting.

### **Compatibility Considerations**

For StandAlone mode, you still must specify the target application size.

## **getxpcpci Function Has New verbose Option**

The `xpctarget.xpc.getxpcpci` function has a new `verbose` option. This option includes the base address register information in the PCI device display. This information is useful if you to want to use a PCI-based parallel port.

## **Intel Visual Fortran 9.1 Support**

### **Compatibility Considerations: Yes**

The xPC Target product now supports the Intel Visual Fortran 9.1 compiler for the incorporation of Fortran code into Simulink models. See Incorporating Fortran S-Functions in the xPC Target User's Guide for details.

### **Compatibility Considerations**

The xPC Target product no longer supports the Intel Visual Fortran 9.0 and Compaq® Visual Fortran Compiler Version 6.5 or later compilers.

## **xPC Target Product Does Not Support Open Watcom 1.7**

xPC Target product does not support Open Watcom 1.7. Open Watcom 1.3 continues to be supported.

## **xPC Target Mouse**

The xPC Target software no longer supports the use of a mouse on the target PC. The **Target mouse** field has been removed from the xPC Target Explorer **Appearance Component** pane.

## **I/O Blocks**

**Compatibility Considerations: Yes**

### **Updated Condor Engineering ARINC blocks**

The block mask and documentation have been updated for the following Condor Engineering ARINC blocks:

- Condor Encode ARINC 429 Words for Send
- Condor Decode ARINC 429 Words from Receive

### **Compatibility Considerations**

If you have existing models that contain these blocks, you should reevaluate the configuration parameters with regard to the way the blocks work with binary data.

### **New ASCII Decode Block for Serial Communication**

The ASCII Decode V2 block has been added to the RS232 library to provide improved performance over the ASCII Decode block. The original ASCII Decode block will continue to be available.

### **Changes to the RS232 Library**

The xPC Target RS232 library has been reorganized as follows:

- The drivers in `Conventional drivers (Obsolete)` have been moved to the `Obsolete` category.
- The drivers in `V1.0 compatible` have been moved to the `Obsolete V 1.0` category.

## Obsolete I/O Blocks

### Compatibility Considerations

xPC Target has obsoleted the counter blocks for the following boards. The xPC Target block library continues to support the noncounter blocks for these boards.

- Diamond Quartz-MM-5
- Diamond Quartz-MM-10
- Measurement Computing CIO-CTR05
- Measurement Computing PCI-CTR05
- National Instruments PC-TIO-10
- Real Time Devices DM6804

You can still access these driver blocks by typing the command `xpcobsolete1ib` at the MATLAB Command Window. Existing models that use these drivers will still work. However, they may not be supported in future releases. Do not use these driver blocks in new models. Instead, consider the following alternative boards:

- National Instruments PCI-6601
- National Instruments PCI/PXI-6602
- MPL PATI

## **xPC Target Demos**

The following demos were updated in this release to use parallel ports, instead of Measurement Computing PCI-CTR05 boards, as interrupt sources.

- xpcasynctrans
- xpcasynbuffer

The following demos were updated in this release to improve clarity:

- xpcserialbaseboardbinarysplit
- xpcserialbaseboardbinarytest
- xpcserialbinarysplit
- xpcserialbinarytest



## **xPC Target Device Drivers Guide**

The xPC Target Device Drivers Guide is now part of the xPC Target documentation set in the MATLAB Help browser.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications. See *Booting Target Computers from Removable Boot Drives* in *xPC Target Getting Started Guide*.

## “What’s This?” Context-Sensitive Help Available for Simulink Configuration Parameters Dialog

R2008a introduces “What’s This?” context-sensitive help for parameters that appear in the Simulink Configuration Parameters dialog. This feature provides quick access to a detailed description of the parameters, saving you the time it would take to find the information in the Help browser.

To use the “What’s This?” help, do the following:

- 1 Place your cursor over the label of a parameter.
- 2 Right-click. A **What’s This?** context menu appears.

For example, the following figure shows the **What’s This?** context menu appearing after a right-click on the **Start time** parameter in the **Solver** pane.



- 3 Click **What’s This?** A context-sensitive help window appears showing a description of the parameter.



# R2007b

---

Version: 3.3  
New Features: Yes  
Bug Fixes: No

## **J1939 Support**

To support SAE J1939, an automotive CAN protocol, xPC Target provides the blocks described in SAE J1939, in the xPC Target I/O Reference.

## Shared Interrupts

xPC Target now supports shared interrupts to allow multiple boards to have the same interrupt numbers. See Setting Configuration Parameters in the xPC Target Reference.

## **I/O Driver Support**

xPC Target 3.3 has new driver blocks, including support for the following boards:

- General Standards 24DSI12 (see General Standards 24DSI12 Analog Input)
- General Standards PMC66-16AO16 (see General Standards 16AO16 Analog Output)

Both are described in the xPC Target I/O Reference.



## **Communication Timeout Applies to xPC Target API Functions**

The communication timeout of the `xPCSetLoadTimeOut` and `xPCGetLoadTimeOut` functions now apply to all communications between the target PC and the host PC. In previous releases, the communication timeout applied only to the initialization and loading of applications.

## **Support for Working with Referenced Model Signals**

xPC Target now supports the monitoring and logging of signals from referenced models. See *Monitoring Signals from Referenced Models* in the *xPC Target User's Guide*.

## **DOSLoader Mode**

### **Compatibility Considerations: Yes**

You no longer need xPC Target Embedded Option™ to use DOSLoader Mode. See DOS Loader Boot Method and Embedded Target Boot Method in the xPC Target User's Guide.

### **Compatibility Considerations**

In previous releases, xPC TargetBox®, which uses xPC Target software, was able to use StandAlone Mode without xPC Target Embedded Option. Starting with this release, this is no longer possible. xPC TargetBox users must have xPC Target Embedded Option to use StandAlone Mode.

## **CANdb Enhancements**

The FIFO Mode CAN Message and Object Mode CAN Message blocks capture the data received by the xPC Target CAN receive blocks for translation into CANdb format (see *Accessing CANdb DBC Format Databases from the xPC Target Environment* in the *xPC Target I/O Reference*).

## **xPC Target Demos**

This release contains the following new demos:

- `xpccandb` — Illustrates how to access CANdb DBC format databases from xPC Target.
- `j1939example` — Illustrates how to access use the J1939 blocks from xPC Target.

## **Link and Target Products Regrouped in New Start, Help, and Demos Category**

**Compatibility Considerations: Yes**

A new product category, Links and Targets, now contains the MathWorks® software products that link, target, or cosimulate code.

### **Compatibility Considerations**

This change impacts you in the following ways:

- Finding and viewing these products through the MATLAB Desktop **Start** button and in the Help browser **Contents** and **Demos** panes.
- Using the `demo` command to access the product demos.

For more about this new product category, see Demos and Help Browser Contents Now Include New Category for Links and Targets, in the *MATLAB Release Notes*.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications. See *Booting Target Computers from Removable Boot Drives* in *xPC Target Getting Started Guide*.





# R2007a

---

Version: 3.2  
New Features: Yes  
Bug Fixes: No

## CANdb Blocks

xPC Target now supports the encoding and decoding of messages specified via a CANdb file (see Accessing CANdb DBC Format Databases from the xPC Target Environment in the xPC Target I/O Reference). The CANDBC library (available from within the CAN library) includes blocks for the decoding and formatting of these messages. The CAN library also includes a CANDBC Translator block, which translates the CANdb message to one that xPC Target can write into the transmit FIFO with a FIFO mode Write block.

The new `xpccandbcfifo` model illustrates how to read the CANdb messages contained in `matlabroot\toolbox\rtw\targets\xpc\xpcdemos\demo.dbc`.

## Selecting Signals Using Signal Labels Now Supported

xPC Target now supports the selection of signals using signal labels (see the **Signal name** parameter of the Signal Properties Dialog Box in the Simulink documentation) in addition to block paths. This is supported for target application objects, C and COM API, and xPC Target Explorer.

### Target Application Object Methods

xPC Target has the following new target application object functions:

- `xpctarget.xpc.getsignallabel`
- `xpctarget.xpc.getsignalidsfromlabel`

### API

xPC Target has the following new C API functions:

- `xPCGetSigIdxfromLabel`
- `xPCGetSigLabelWidth`
- `xPCGetSignalLabel`

xPC Target has the following new COM API functions:

- `xPCTarget.GetSignalidsfromLabel`
- `xPCTarget.GetSignalLabel`

### xPC Target Explorer

xPC Target Explorer can now display signals by their label instead of by block path. You can view signals by their labels by right-clicking the Model Hierarchy node and selecting **View Only Labeled Signals**. To view signals by their block paths, right-click the Model Hierarchy node and select **View All Signals**. Hovering over the signal label or block path displays the signal block path or signal label, respectively. For details, see **Signal Monitoring with xPC Target Explorer** in the xPC Target User's Guide.

## Folder Contents Display

xPC Target has new API functions and structures to display the contents of a folder.

The new C API structure is `dirStruct`. The new C API functions are:

- `xPCFSDirItems`
- `xPCFSDirStructSize`
- `xPCFSDirSize`

The new COM API structures are `FSDir` and `FSDiskInfo`. The new COM API functions are:

- `xPCFileSystem.DirList`
- `xPCFileSystem.GetDiskInfo`

## **From xPC Target Block Now Accepts Cell Array of Signals**

The From xPC Target block now allows you to manually enter a cell array of signals (**Signal name** parameter) to read. Using a cell array of signal names, the From xPC Target block will output a vector of signal values. This can improve the performance of the application. In previous releases, this parameter accepted only one signal.

## **Target Application Versions Now Checked**

You cannot download a target application that was built from a different version of xPC Target than the xPC Target kernel on the target PC. Attempts to download such a target application generates an error message on the target PC monitor:

```
Mismatch between model and kernel versions
```

In previous releases, downloading a mismatched target application causes the target PC to crash.

## **Discrete States Logging Now Supported**

xPC Target now supports the logging and monitoring of discrete states in a model. In previous releases, you could not log and monitor discrete states (see Signal Logging in the xPC Target User's Guide).

## **Microsoft Visual C++ 2005 Express Edition Compiler Now Supported**

xPC Target now supports the Microsoft Visual C++® 2005 Express Edition compiler. See Host Computer Configuration in the xPC Target Getting Started Guide for details.

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**Note** If you use Microsoft Visual C++ 2005 Express Edition, xPC Target does not support the generation of COM objects from the xPC Target model.

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## **Parallel Ports Now Supported**

xPC Target now supports the parallel ports of your target PC (see Parallel Ports in the xPC Target I/O Reference). This feature also enables you to generate interrupts using parallel ports.

## I/O Driver Support

xPC Target 3.2 has new driver blocks, including support for the following boards:

- Commtech Fastcom 422/2-PCI-335 board (see xPC Target RS-232 and 422/485 Drivers (Composite) in the xPC Target I/O Reference)
- Measurement Computing™ PCI-DAS1002 and PCI-DAC6703 (see Measurement Computing PCI-DAS1002 and Measurement Computing PCI-DAC6703 in the xPC Target I/O Reference)
- Quanser Q4 (see Quanser Q4 in the xPC Target I/O Reference)
- National Instruments PCI-6528 (see National Instruments PCI-6528 in the xPC Target I/O Reference)

## **Writing Device Drivers for xPC Target**

xPC Target now enables you to write your own custom device drivers for xPC Target. This documentation is only available for download as a PDF file. See <http://www.mathworks.com/products/xpctarget/> for details on how to access this file.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications.

# R2006b

---

Version: 3.1  
New Features: Yes  
Bug Fixes: No

## **Ethernet Chip Support**

In addition to the existing list of Ethernet chip families, xPC Target now also supports the Intel I8254X fast Gigabit Ethernet chip family.

## **xpctarget.targets Enhancement**

The `xpctarget.targets` has a new property, `FloppyDrive`. This property allows you to set the 3.5-inch drive letter to the one designated by your target PC, for example `a:` or `b:`.

## **Simulink External Mode**

The xPC Target Simulink external mode is now enabled by default. In previous releases, you had to type the `xpcextmodeenable` command to access this feature.



## **Microsoft Visual C++ Compiler Version 8.0**

xPC Target now supports Microsoft Visual C++ Professional Edition Version 8.0.

## **I/O Driver Support**

xPC Target has new driver blocks to support the Texas Instruments™ DM642 EVM with Target for TI C6000™. This enables you to build and download an xPC Target application to a target PC that contains a DM642 EVM board. This application can then communicate and exchange data with the DM642 EVM through an Target for TI C6000 model that contains blocks that enable communication with xPC Target.

To access these blocks, type `xpctexasinstrumentslib` at the MATLAB Command Window.

## **Obsolete Driver Blocks**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

xPC Target has obsoleted the driver blocks for the Sensoray 626 board. You can still access these driver blocks by typing the command `xpcobsoletelib` at the MATLAB Command Window. Existing models that use these drivers will still work. However, they may not be supported in future releases. Do not use these driver blocks in new models.

## **xPC Target Demos**

The xPC Target demo, Exchanging Data with the TI DM642 EVM (TI`dm642xpc`), has been added to the **xpcdemos** folder. With its Target for TI C6000 counterpart, Using the PCI Bus to Exchange Data with xPC (c6000pcixpc), this demo illustrates how xPC Target can exchange data with the DM642 EVM through an Target for TI C6000 model.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications.



# R2006a+

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Version: 3.0  
New Features: Yes  
Bug Fixes: No

## Ethernet Card Support

In addition to the existing list of Ethernet cards, xPC Target now also supports

- National Semiconductor DP83815
- 3Com 3C90x

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**Note** xPC Target does not support the 3C905-TX board (PCI device ID 0x9050).

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- Realtek RTL8139, RTL8139C, RTL8139C+ (tested and verified for Zonet ZEN3200 and AOpen AON-325)



## **Intel Visual Fortran 9.0 Support**

xPC Target now supports the Intel Visual Fortran 9.0 compiler for the incorporation of Fortran code into Simulink models. See Incorporating Fortran S-Functions in the xPC Target User's Guide for details.

## To/From Blocks and Target PCs

### Compatibility Considerations: Yes

The To/From xPC Target blocks now support multiple target PCs with the following additional parameters:

- **Use default target PC**

Selecting this option directs the To xPC Target block to communicate to the default target PC.

- **Specify target name**

If you deselect the **Use default target PC** check box, this field is displayed. Enter the name of the configured target PC.

### Compatibility Considerations

In earlier releases, to run a model that contained From or To xPC Target blocks in a multiple target PC environment, you had to configure your model with the **Simulation > Configuration Parameters** menu (see To xPC Target and From xPC Target Blocks ). You can now configure the blocks directly for this behavior; you do not have to configure the model that contains these blocks.

## xpctarget.fs Method Enhancements

The `xpctarget.fs.fopen` method now supports the following operations:

Option Description	
'a'	Open the file for appending to the file.
'r+'	Open the file for reading and writing.
'w+'	Open the file for reading and writing.
'a+'	Open the file for reading and appending to the file.

## **Numerical Formats for xPC Target Scope Blocks**

In previous releases, the format string for numerical format entries of scopes of type target had a limit of 100 characters for all the signals combined. You can now have 100 characters per signal in a format string (see [Entering Parameters for an xPC Target Scope Block in the xPC Target Getting Started Guide](#)).

## **Simulink External Mode and Tuning Parameters**

In previous releases, the act of tuning target application parameters in Simulink external mode displayed messages on the target PC monitor. These messages are no longer displayed when you tune parameters in Simulink external mode.

## **xPC Target Explorer**

xPC Target Explorer has a new check box in the **Settings** node, **Target PC is a 386/486**. You must select this check box if your target PC has a 386 or 486 compatible processor. If your target PC has a higher version of the Pentium chip or compatible processor, selecting this check box will slow the execution of your target PC.

## **I/O Device Driver Support**

**Compatibility Considerations: Yes**

### **New Board Support**

xPC Target 3.0 has new driver blocks, including support for the following boards:

- SBS
  - SBS IP-UD-IHV-16I80
  - SBS IP-UD-IHV-8I160
  - SBS PCI-40B
- MPL PATI (PowerPC® controlled Analog and Timing I/O Intelligence)
  - MPL PATI Digital Input
  - MPL PATI Digital Output
  - MPL PATI Incremental Encoder
  - MPL PATI Timebase Setup

### **Compatibility Considerations**

The previous xPC Target release introduced the MPL PATI PWM measure and MPL PATI PWM generate blocks. The time base for these blocks was hard coded to 20 MHz.

In xPC Target Version 3.0, you must use the new MPL PATI Timebase Setup block with these blocks to select the 20 MHz frequency for the time base. If you do not use the MPL PATI Timebase Setup block with the MPL PATI PWM measure or MPL PATI PWM generate blocks, the TCR1 time base defaults to 1.25 MHz.

### **Updated Driver Support**

The drivers for the following blocks have been added or updated:

<b>Manufacturer</b>	<b>Change</b>
MPL	<ul style="list-style-type: none"> <li>• The MPL PATI PWM generate block has been updated to support armed input.</li> </ul>
National Instruments	<p>The following blocks were added:</p> <ul style="list-style-type: none"> <li>• National Instruments PCI/PXI-6711 Pulse Generation</li> <li>• National Instruments PCI/PXI-6711 Pulse Width/Period Measurement</li> <li>• National Instruments PCI/PXI-6713 Pulse Generation</li> <li>• National Instruments PCI/PXI-6713 Pulse Width/Period Measurement</li> <li>• National Instruments PCI/PXI-6731 Pulse Generation</li> <li>• National Instruments PCI/PXI-6731 Pulse Width/Period Measurement</li> <li>• National Instruments PCI/PXI-6733 Pulse Generation</li> <li>• National Instruments PCI/PXI-6733 Pulse Width/Period Measurement</li> </ul>

### **Utilities Library**

The xPC Target library has a new sublibrary, Utilities. It contains blocks that provide generic functions. The following blocks were added to the Utilities sublibrary.

- Byte Packing
- Byte Unpacking
- Bit Packing
- Bit Unpacking

### **Miscellaneous Library**

The following blocks were added to the Miscellaneous library. These blocks provide counter and delta blocks for the Pentium chip.



- Pentium Time Stamp Counter
- Time Stamp Delta

## xPC Target Mouse

### Limitation

The mouse does not work on the target PC. Setting **Target mouse** to a setting on the xPC Target Explorer **Configuration > Appearance** node has no affect.

## **xPC Target Demos**

The VMIC5565 demo has been added to the xpcdemos folder. This demo illustrates sending and receiving data over the VMIC shared memory.

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications.

# R2006a

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Version: 2.9  
New Features: Yes  
Bug Fixes: No

## **xPC Target Explorer**

xPC Target Explorer has the following enhancements:

- The ability to save an xPC Target application session, including scope and target PC settings, to a standard MATLAB MAT-file on the host PC (see Saving and Reloading xPC Target Application Sessions in the xPC Target User's Guide)
- The ability to copy (with drag and drop) a signal from one scope to another
- The ability to remember resized and relocated xPC Target Explorer windows
- Enhanced file system support manipulation

## **xPC Target Options Pane**

The xPC Target Options pane (see Setting Configuration Parameters in the xPC Target Reference) has a new check box, **Include model hierarchy on the target application**. Selecting this check box includes the model hierarchy as part of the target application.

## **Simulink External Mode**

xPC Target support for Simulink external mode has the following enhancement and change:

- xPC Target now supports uploading real-time data to Simulink scopes when using Simulink external mode (see Signal Tracing with Simulink External Mode in the xPC Target User's Guide).
- xPC Target now supports Simulink external mode for all target PCs you have set up, not just the default one.



## **MATLAB Compiler Support**

xPC Target now supports the MATLAB Compiler. With this capability, you can use the MATLAB Compiler to take M-files as input and generate redistributable, standalone applications that include xPC Target functionality.

## **Open Watcom Compiler Support**

xPC Target now supports Open Watcom C/C++ Version 1.3. It no longer supports Watcom compiler C/C++ Version 11.0.

## **xPC Target C API**

To better support target PC file systems, the xPC Target C API has been enhanced:

- The `xpctarget.fs.diskinfo` data structure was added. It contains information, such as FAT type and number of clusters, for target PC file system disks.
- The `xPCFSDiskInfo` function was added. It returns information, such as FAT type and number of clusters, for target PC file system disks.

## **Support for Model Referencing**

If you download a target application to a target PC, and that target application was built from a model that contains referenced models, you can now tune the parameters of the top level of the model. The referenced models themselves must have Inline Parameters on, as in previous releases.

## I/O Device Driver Support

### New Board Support

xPC Target 2.9 has new driver blocks, including support for the following boards:

- Contec
  - PIO-32/32F(PCI)
  - PIO-32/32L(PCD)H
  - PI-64L(PCI)H
  - PO-64L(PCD)H
  - CNT32-8M(PCI)
- MPL PATI (PowerPC controlled Analog and Timing I/O Intelligence)

### Updated Driver Support

The drivers for the following have been updated:

Manufacturer	Change
Diamond Systems	<ul style="list-style-type: none"> <li>• The Diamond Prometheus driver has been updated to also support the Diamond Athena board.</li> <li>• The Emerald-MM block now lists the baud rates with an HS label to indicate the rate if the board contains the high-speed crystal option.</li> </ul>
National Instruments	The PCI-MIO-16XE-50 blocks have been renamed to PCI-6911E.
United Electronic Industries (UEI)	The PD2-MF and PDX1-MF 12-bit series blocks have been enhanced to support 3 MHz in addition to 1.25 MHz.

### Utility Sublibraries

xPC Target has added the following utility sublibraries:

<b>Sublibrary</b>	<b>Description</b>
Digital Input/Utilities, Digital Output/Utilities	Contains the following new blocks: <ul style="list-style-type: none"><li>• Digital IO bit-packing — Constructs data frames for digital I/O blocks</li><li>• Digital IO bit-unpacking — Extracts data frames for digital I/O blocks</li></ul>
Incremental Encoder/Utilities/Rollover	Contains the following new blocks: <ul style="list-style-type: none"><li>• Rollover Counter — Sample rollover counter block</li><li>• Extended Counter — Sample extended counter block</li></ul>

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications.





# R14SP3

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Version: 2.8  
New Features: Yes  
Bug Fixes: No

## **xPC Target Explorer**

The xPC Target Explorer has the following enhancements:

- **Apply** and **Revert** buttons have been added to the bottom of many panes.
  - **Apply** — Click this button to apply changes.
  - **Revert** — Use the **Revert** button to retrieve old values.
- Target PC nodes now have a PCI Devices node. This lists the PCI devices detected on the target PC.

## Fixed-Point Support

xPC Target now supports Simulink fixed-point data. This enables you to

- Monitor and log signals of fixed-point data types
- Tune parameters of fixed-point data types

## **Target PC Environments**

This release now allows you to set up multiple target PCs from the command line. See the Target Environment Command-Line Interface in the xPC Target User's Guide for details.

## **New Supplied Ethernet Card**

xPC Target now ships with the Intel PRO/100 M card.

## **I/O Device Driver Support**

### **Compatibility Considerations: Yes**

xPC Target 2.8 has new driver blocks, including support for the following boards:

- Condor® QPCI/PCI-1553 to support the MIL-STD-1553 military avionics databus protocol
- National Instruments
  - PCI/PXI-6731, PCI/PXI-6711
  - PCI/PXI-6733, PCI/PXI-6713

### **Compatibility Considerations**

The xPC Target MIL-STD-1553 drivers have the following limitations:

- Condor PCI/QPCI-1553 RT Initialize block — You cannot change the values of the following parameters at run-time:
  - Initial status
  - Initial BIT word
  - Inhibit terminal flag

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications.





# R14SP2

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Version: 2.7.2  
New Features: Yes  
Bug Fixes: No

## **xPC Target Explorer**

xPC Target Explorer has been enhanced and now fully supports the following:

- Inlined parameters
- Monitoring of test-pointed Stateflow states

## I/O Device Driver Support

xPC Target 2.7.2 has new driver blocks, including support for the following board:

<b>Manufacturer</b>	<b>Board</b>
National Instruments	PXI-6052E

The drivers for the following boards have been updated:

<b>Manufacturer</b>	<b>Board</b>
Contec	Contec DA12-16(PCI)
Measurement Computing	CIO-DAS16JR/16

## **Recreate Target Boot Disk and Rebuild Applications**

**Compatibility Considerations: Yes**

### **Compatibility Considerations**

If you upgrade your xPC Target software from a previous version, you must recreate the target boot disk and you must rebuild your xPC Target applications.