

DS4121 ECU Interface Board

RTI Reference

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About This Reference

Content This reference provides a full description of the Real-Time Interface (RTI) support for the DS4121 ECU Interface Board.

Symbols

dSPACE user documentation uses the following symbols:

Symbol	Description
	Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
	Indicates a hazard that, if not avoided, could result in property damage.
	Indicates important information that you should take into account to avoid malfunctions.
	Indicates tips that can make your work easier.
	Indicates a link that refers to a definition in the glossary, which you can find at the end of the document unless stated otherwise.
	Precedes the document title in a link that refers to another document.

Naming conventions

dSPACE user documentation uses the following naming conventions:

%name% Names enclosed in percent signs refer to environment variables for file and path names.

< > Angle brackets contain wildcard characters or placeholders for variable file and path names, etc.

Examples:

- Where you find terms such as `rti<XXXX>` replace them by the RTI platform support you are using, for example, `rti1007`.
- Where you find terms such as `<model>` or `<submodel>` in this document, replace them by the actual name of your model or submodel. For example, if the name of your Simulink model is `smd_1007_sl.slx` and you are asked to edit the `<model>_usr.c` file, you actually have to edit the `smd_1007_sl_usr.c` file.

RTI block name conventions All I/O blocks have default names based on dSPACE's board naming conventions:

- Most RTI block names start with the board name.
- A short description of functionality is added.
- Most RTI block names also have a suffix.

Suffix	Meaning
B	Board number (for PHS-bus-based systems)
M	Module number (for MicroAutoBox II)
C	Channel number
G	Group number
CON	Converter number
BL	Block number
P	Port number
I	Interrupt number

A suffix is followed by the appropriate number. For example, DS2201IN_B2_C14 represents a digital input block located on a DS2201 board. The suffix indicates board number 2 and channel number 14 of the block. For more general block naming, the numbers are replaced by variables (for example, DS2201IN_Bx_Cy).

Special folders

Some software products use the following special folders:

Common Program Data folder A standard folder for application-specific configuration data that is used by all users.

`%PROGRAMDATA%\dSPACE\<InstallationGUID>\<ProductName>`

or

`%PROGRAMDATA%\dSPACE\<ProductName>\<VersionNumber>`

Documents folder A standard folder for user-specific documents.

`%USERPROFILE%\Documents\dSPACE\<ProductName>\<VersionNumber>`

Local Program Data folder A standard folder for application-specific configuration data that is used by the current, non-roaming user.

`%USERPROFILE%\AppData\Local\dSPACE\<InstallationGUID>\<ProductName>`

Accessing dSPACE Help and PDF Files


After you install and decrypt dSPACE software, the documentation for the installed products is available in dSPACE Help and as PDF files.

dSPACE Help (local) You can open your local installation of dSPACE Help:

- On its home page via Windows Start Menu
- On specific content using context-sensitive help via **F1**

dSPACE Help (Web) You can access the Web version of dSPACE Help at www.dspace.com.

To access the Web version, you must have a *mydSPACE* account.

PDF files You can access PDF files via the  icon in dSPACE Help. The PDF opens on the first page.

General Information on the DS4121 Blockset

Introduction

To get basic information on the DS4121 blockset.

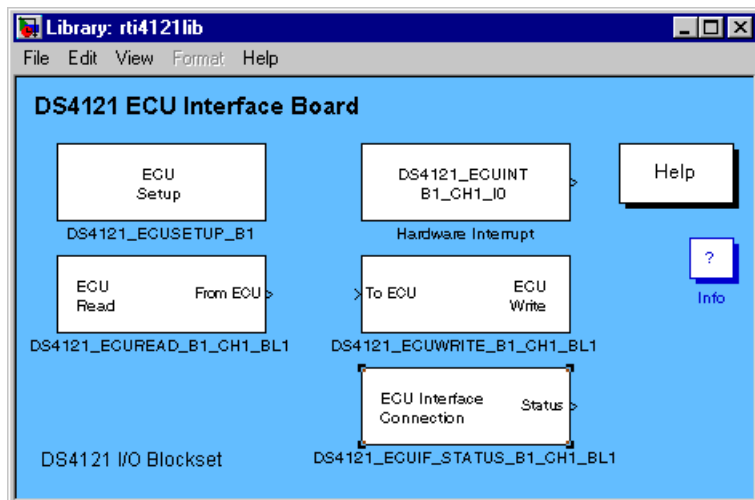
Overview of the DS4121 Blockset

Introduction

The Real-Time Interface (RTI) board library for the DS4121 – rti4121lib – provides RTI blocks that implement the functionality and I/O capabilities of the DS4121 board in Simulink models.

Library access

Double-click the **DS4121** board library button in the rtilibm window to open the Library: rti4121lib window:



Library components

The following rti4121lib components are available in the Library: rti4121lib window:

- [DS4121_ECUSETUP_Bx](#) on page 12
- [DS4121_ECUINT_Bx_CHy_IO](#), [DS4121_ECUINT_Bx_CHy_Slz](#) on page 16
- [DS4121_ECUREAD_Bx_CHy_BLz](#) on page 19
- [DS4121_ECUWRITE_Bx_CHy_BLz](#) on page 23
- [DS4121_ECUIF_STATUS_Bx_CHy_BLz](#) on page 27

Note

If several DS4121 boards are connected to different PHS buses of a multiprocessor system, identical board numbers are assigned to these boards. RTI-MP does not allow you to configure a multiprocessor system using identical board numbers on different processors. If you encounter this problem, contact dSPACE Support.

Demo models

For Simulink models that show how to use the RTI blocks of the DS4121, refer to the RTI demo library of your processor board. You will also find the model files in the %ProgramData%\dSPACE\<InstallationGUID>\Demos\<processor board>\ folder.

You can access the %ProgramData%\dSPACE\<InstallationGUID> folder via a shortcut in the Windows Start menu below dSPACE RCP and HIL <version>.

Related topics**References**

DS4121_ECUIF_STATUS_Bx_CHy_BLz	27
DS4121_ECUINT_Bx_CHy_IO , DS4121_ECUINT_Bx_CHy_Slz	16
DS4121_ECUREAD_Bx_CHy_BLz	19
DS4121_ECUSETUP_Bx	12
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ECU Interface Unit

Introduction

The Library: rti4121lib provides access to the ECU interface unit of the DS4121.

Where to go from here

Information in this section

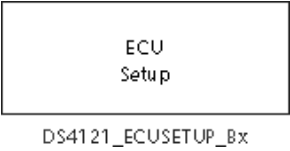
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To set up the ECU interface for data transfer and interrupt functionality.	
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To make the hardware interrupts of the DS4121 available as trigger sources in a Simulink® model.	
DS4121_ECUREAD_Bx_CHy_BLz.....	19
To read from the dual-ported memory (DPMEM) of the ECU interface unit.	
DS4121_ECUWRITE_Bx_CHy_BLz.....	23
To write to the dual-ported memory (DPMEM) of the ECU interface.	
DS4121_ECUIF_STATUS_Bx_CHy_BLz.....	27
To read the connection status of the ECU interface.	

DS4121_ECUSETUP_Bx

Purpose	To set up the ECU interface for data transfer and interrupt functionality.
Where to go from here	<div><div>Information in this section</div><div><div>Block Description (DS4121_ECUSETUP_Bx)..... 12</div><div>To set up the ECU interface for data transfer and interrupt functionality.</div><div>Unit Page (DS4121_ECUSETUP_Bx)..... 14</div><div>To specify the board number.</div><div>Options Page (DS4121_ECUSETUP_Bx)..... 14</div><div>To specify the ECU configuration file.</div></div></div>

Block Description (DS4121_ECUSETUP_Bx)

Illustration



Purpose

To set up the ECU interface for data transfer and interrupt functionality.

Note

- The DS4121_ECUSETUP_Bx block must always be in your model if you want to use any of the other ECU interface unit blocks.
- If several DS4121 boards are connected to different PHS buses of a multiprocessor system, identical board numbers are assigned to these boards. RTI-MP does not allow you to configure a multiprocessor system using identical board numbers on different processors. If you encounter this problem, contact dSPACE Support.
- When you copy the block to a new model, the software automatically checks for an ECU configuration file in the following folders:
 - MATLAB working directory
 - `<RCP_HIL_InstallationPath>\matlab\rti\rti100x\rti`
 If there is no or more than one ECU configuration file in this folder, a message is displayed.
- If the connection between the ECU and ECU interface unit is disturbed, a message is displayed in ControlDesk.

Description

ECU configuration file The DS4121_ECUSETUP_Bx block provides ECU-hardware-related information via an *ECU configuration file*.

The information is required by the following blocks:

- DS4121_ECUREAD_Bx_CHy_BLz
- DS4121_ECUWRITE_Bx_CHy_BLz
- DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Slz

You have to specify an ECU configuration file on the block's Options Page (DS4121_ECUSETUP_Bx).

Dialog pages

The following dialog pages are available:

- [Unit Page \(DS4121_ECUSETUP_Bx\)](#) on page 14
- [Options Page \(DS4121_ECUSETUP_Bx\)](#) on page 14

Related RTLib functions

- ds4121_init
- ds4121_connection_check

Related topics**References**

DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Slz.....	16
DS4121_ECUREAD_Bx_CHy_BLz.....	19
DS4121_ECUWRITE_Bx_CHy_BLz.....	23
Options Page (DS4121_ECUSETUP_Bx).....	14

Unit Page (DS4121_ECUSETUP_Bx)

Purpose	To specify the board number.	
Dialog settings	Board number	Lets you select the board number within the range of 1 ... 16.
Related topics	References DS4121_ECUSETUP_Bx..... 12	

Options Page (DS4121_ECUSETUP_Bx)

Purpose	To specify the ECU configuration file.	
Dialog settings	<p>ECU configuration file Lets you select the ECU configuration file to be used for the specific ECU. The file is provided by dSPACE for each specific ECU/POD. It provides ECU-hardware-related information required by other blocks of the ECU interface unit.</p> <p>The Setup block lets you select an ECU configuration file located in one of the following folders:</p> <ul style="list-style-type: none"> ▪ MATLAB working directory ▪ <RCP_HIL_InstallationPath>\matlab\rti\rti100x\rti <p>If you select an ECU configuration file that is available in <i>both</i> folders, the Setup block uses the file in the MATLAB working directory.</p> <p>All the blocks with the same board number get the information from the selected ECU configuration file.</p> <p>Search for Displays the folder containing the selected ECU configuration file that the Setup block will use.</p> <p>Forbid overlapping DPMEM addresses Lets you enable the check for overlapping addresses. This option generates messages if you use DPMEM addresses twice in an application. This applies to all ECU blocks accessing the DPMEM.</p> <p>Apply DPMEM start offset to absolute addresses Lets you add the start offset of the DPMEM to all absolute addresses used in the DPMEM access functions.</p>	

Related topics

References

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DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Slz

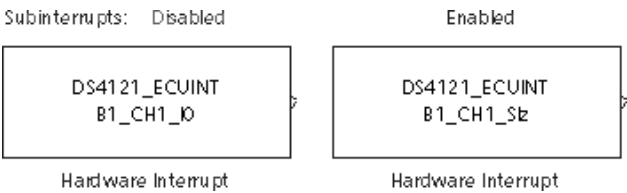
Purpose To make the hardware interrupts of the DS4121 available as trigger sources in a Simulink® model.

Where to go from here Information in this section

Block Description (DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Slz).....	16
To make the hardware interrupts of the DS4121 available as trigger sources in a Simulink model.	
Unit Page (DS4121_ECUINT_Bx_CHy).....	17
To specify the board number, the channel number and the active ECU configuration file.	
Options Page (DS4121_ECUINT_Bx_CHy).....	18
To specify the subinterrupts.	

Block Description (DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Slz)




Illustration



Purpose To make the hardware interrupts of the DS4121 available as trigger sources in a Simulink® model.

Note

The ECU access depends on the hardware-related parameters of the ECU/plug-on device (POD). Therefore, you have to insert a DS4121_ECUSETUP_Bx block first. The DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Slz block must have the same board number as the DS4121_ECUSETUP_Bx block.

Description	<p>The block performs the following actions:</p> <ul style="list-style-type: none"> ▪ Initialize the DS4121 as interrupt receiver. ▪ Make the hardware interrupt available as trigger source in a Simulink® model. ▪ Generate the structures to use subinterrupts via the ECU Software Porting Kit. For more information, refer to ECU Software Porting Kit (DS4121 Features ). ▪ If subinterrupt handling is enabled, the subinterrupt number is increased automatically when you copy the block.
Dialog pages	<p>The following dialog pages are available:</p> <ul style="list-style-type: none"> ▪ Unit Page (DS4121_ECUINT_Bx_CHy) on page 17 ▪ Options Page (DS4121_ECUINT_Bx_CHy) on page 18
Related RTLib functions	<ul style="list-style-type: none"> ▪ ds4121_end_of_int_set ▪ ds4121_subint_init
Related topics	<p>References</p> <div> ds4121_end_of_int_set (DS4121 RTLib Reference )</div> <div> ds4121_subint_init (DS4121 RTLib Reference )</div> <div> Options Page (DS4121_ECUINT_Bx_CHy)..... 18 </div> <div> Unit Page (DS4121_ECUINT_Bx_CHy)..... 17 </div>

Unit Page (DS4121_ECUINT_Bx_CHy)

Purpose	To specify the board number, the channel number and the active ECU configuration file.
Dialog settings	<p>Board number Lets you select the board number within the range of 1 ... 16.</p> <p>Channel number Lets you select the number of the channel the ECU is connected to.</p> <p>Active ECU configuration file Displays the ECU configuration file on the Options Page (DS4121_ECUSETUP_Bx) on page 14. If no file is specified yet, <not found> is displayed.</p>

Related topics**References**

[DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Siz.....](#) 16

Options Page (DS4121_ECUINT_Bx_CHy)

Purpose

To specify the subinterrupts.

Dialog settings

Enable Subinterrupts Lets you make subinterrupts available in your model.

Subinterrupt number Lets you select the number of the subinterrupt to be used within the range of 0 ... 15.

Note

The subinterrupt handling must be enabled in the ECU configuration file. Otherwise both settings are disabled.

Related topics**References**

[DS4121_ECUINT_Bx_CHy_I0, DS4121_ECUINT_Bx_CHy_Siz.....](#) 16

DS4121_ECUREAD_Bx_CHy_BLz

Purpose

To read from the dual-ported memory (DPMEM) of the ECU interface unit.

Where to go from here

Information in this section

Block Description (DS4121_ECUREAD_Bx_CHy_BLz).....

19

To read from the dual-ported memory (DPMEM) of the ECU interface unit.

Unit Page (DS4121_ECUREAD_Bx_CHy_BLz).....

20

To specify the board number, the channel number, and display the active ECU configuration file.

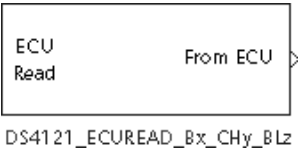
DPMEM Page (DS4121_ECUREAD_Bx_CHy_BLz).....

21

To specify the DPMEM parameters.

Block Description (DS4121_ECUREAD_Bx_CHy_BLz)

Illustration



Purpose

To read from the dual-ported memory (DPMEM) of the ECU interface unit.

Note

- The read access depends on the hardware-related parameters of the ECU/plug-on device (POD). Therefore, you have to insert an DS4121_ECUSETUP_Bx block first.
The DS4121_ECUREAD_Bx_CHy_BLz block must have the same board number as the DS4121_ECUSETUP_Bx block.
- The values entered in the fields Vector of DPMEM addresses or Start address access 8-bit ECU addresses. An internal algorithm converts these addresses to be used by the dSPACE processor board.

I/O characteristics

The block outputs a vector of values – converted from 16-bit values to the data type you specified – that have been read from the specified DPMEM addresses.

Output values are read from the DPMEM addresses specified on the [DPMEM Page \(DS4121_ECUREAD_Bx_CHy_BLz\)](#) on page 21. With Data type, you choose the type of the block output variable as well as the way the values are read from the DPMEM. If you select one of the 32-bit data types, the following DPMEM address is also taken to build up the vector of values. The DPMEM addresses specified in the dialog are identical to the addresses in the ECU code.

Dialog pages

The following dialog pages are available:






- [Unit Page \(DS4121_ECUREAD_Bx_CHy_BLz\)](#) on page 20
- [DPMEM Page \(DS4121_ECUREAD_Bx_CHy_BLz\)](#) on page 21

Related RTLib functions

- ds4121_p_int_read8
- ds4121_s_int_read8
- ds4121_le_p_int_read16, ds4121_le_p_int_read32, ds4121_le_s_int_read16, ds4121_le_s_int_read32
- ds4121_be_p_int_read16, ds4121_be_p_int_read32, ds4121_be_s_int_read16, ds4121_be_s_int_read32
- ds4121_le_p_fl_read32, ds4121_le_s_fl_read32, ds4121_be_p_fl_read32, ds4121_be_s_fl_read32

Related topics

References

DPMEM Page (DS4121_ECUREAD_Bx_CHy_BLz)	21
ds4121_be_p_int_read16, ds4121_be_p_int_read32, ds4121_be_s_int_read16, ds4121_be_s_int_read32 (DS4121 RTLib Reference )	
ds4121_le_p_fl_read32, ds4121_le_s_fl_read32, ds4121_be_p_fl_read32, ds4121_be_s_fl_read32 (DS4121 RTLib Reference )	
ds4121_le_p_int_read16, ds4121_le_p_int_read32, ds4121_le_s_int_read16, ds4121_le_s_int_read32 (DS4121 RTLib Reference )	
ds4121_p_int_read8 (DS4121 RTLib Reference )	
ds4121_s_int_read8 (DS4121 RTLib Reference )	
Unit Page (DS4121_ECUREAD_Bx_CHy_BLz)	20

Unit Page (DS4121_ECUREAD_Bx_CHy_BLz)

Purpose

To specify the board number, the channel number, and display the active ECU configuration file.

Dialog settings

Board number Lets you select the board number within the range of 1 ... 16.

Channel number Lets you select the number of the channel the ECU is connected to.

Active ECU configuration file Displays the ECU configuration file on the [Options Page \(DS4121_ECUSETUP_Bx\)](#) on page 14. If no file is specified yet, <not found> is displayed.

Related topics

References

[DS4121_ECUREAD_Bx_CHy_BLz](#)..... 19

DPMEM Page (DS4121_ECUREAD_Bx_CHy_BLz)

Purpose

To specify the DPMEM parameters.

Tip

For examples on how to specify DPMEM addresses with or without start address, refer to [Specifying DPMEM Addresses Seen from the ECU \(DS4121 Features !\[\]\(8bba887393ca45b761e5cb49e755e762_img.jpg\)](#)).

Dialog settings

Datatype of output port Lets you select one of the following data types for the block output.

- 8 bit signed integer
- 8 bit unsigned integer
- 16 bit signed integer
- 16 bit unsigned integer
- 32 bit signed integer
- 32 bit unsigned integer
- Single float 32 bit (IEEE Std. 754)

DPMEM start offset Displays the start offset defined in the ECU configuration file.

If the checkbox **Apply DPMEM start offset to absolute addresses** on the [Options Page \(DS4121_ECUSETUP_Bx\)](#) on page 14 is cleared, <DISABLED> is displayed, otherwise the first usable DPMEM address.

The DPMEM start offset is added to the DPMEM addresses specified by **Data typed pointer/Vector of indices** or **Vector of DPMEM addresses**.

Relative DPMEM addresses Lets you use relative DPMEM addresses for the data.

Data typed pointer (0xXXXX) Lets you enter the pointer to the memory location where the data have to be read from. You have to select **Relative**

DPMEM addresses first. The values in DPMEM start offset, Data typed pointer and Vector of indices define the DPMEM address to read from.

If you use a MATLAB workspace variable in this field, you have to specify the variable as a string with the leading characters **0x**.

Vector of indices: [x,x] Lets you enter a vector of indices for the data values to be read. You have to select **Relative DPMEM addresses** first. If you use a MATLAB workspace variable in this field, you have to specify the variable as a vector of double values.

Tip

The calculated DPMEM addresses will be displayed as a tooltip, when you place the mouse pointer on the edit field.

Absolute DPMEM addresses Lets you use absolute DPMEM addresses for the data.

Vector of DPMEM addresses Lets you enter a vector of addresses for the data values to be read. You have to select **Absolute DPMEM addresses** first. The values in DPMEM start offset and Vector of DPMEM addresses define the DPMEM addresses to read from.

If you use a MATLAB workspace variable in this field, you have to specify the variable as a string describing a vector of HEX values: **[0x0,0x10]**, for example.

Tip

The calculated DPMEM addresses will be displayed as a tooltip, when you place the mouse pointer on the edit field.

Related topics**References**

DS4121_ECUREAD_Bx_CHy_BLz..... 19

DS4121_ECUWRITE_Bx_CHy_BLz

Purpose To write to the dual-ported memory (DPMEM) of the ECU interface.

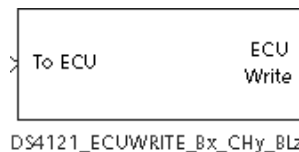
Where to go from here

Information in this section

Block Description (DS4121_ECUWRITE_Bx_CHy_BLz)	23
To write to the dual-ported memory (DPMEM) of the ECU interface.	
Unit Page (DS4121_ECUWRITE_Bx_CHy_BLz)	24
To specify the board number, the channel number, and display the active ECU configuration file.	
DPMEM Page (DS4121_ECUWRITE_Bx_CHy_BLz)	25
To specify the DPMEM parameters.	

Block Description (DS4121_ECUWRITE_Bx_CHy_BLz)

Illustration



Purpose To write to the dual-ported memory (DPMEM) of the ECU interface.

Note

The write access depends on the hardware-related parameters of the ECU and plug-on device (POD). Therefore, you have to insert an DS4121_ECUSETUP_Bx block first.
The DS4121_ECUWRITE_Bx_CHy_BLz block must have the same board number Bx as the ECU Setup block.

I/O characteristics

The block input expects a vector of values – converted from the given data type to 16-bit values – that will be written to the specified DPMEM addresses.

Input values are written to the DPMEM addresses specified on the [DPMEM Page \(DS4121_ECUWRITE_Bx_CHy_BLz\)](#) on page 25. With Data type, you choose the type of the block input variable as well as the way the values will be written

to the DPMEM. If one of the 32-bit data types is selected, the following DPMEM address is also used to build up the vector of values. The DPMEM addresses specified in the dialog are identical to the addresses in the ECU code.

Tip

For examples on how to specify DPMEM addresses with or without start address, refer to [Specifying DPMEM Addresses Seen from the ECU \(DS4121 Features !\[\]\(3d8c13c92b853674f749aac6fa869926_img.jpg\)\)](#).

Dialog pages

The following dialog pages are available:






- [Unit Page \(DS4121_ECUWRITE_Bx_CHy_BLz\)](#) on page 24
- [DPMEM Page \(DS4121_ECUWRITE_Bx_CHy_BLz\)](#) on page 25

Related RTLib functions

- `ds4121_p_int_write8`
- `ds4121_s_int_write8`
- `ds4121_le_p_int_write16`, `ds4121_le_p_int_write32`,
`ds4121_le_s_int_write16`, `ds4121_le_s_int_write32`
- `ds4121_be_p_int_write16`, `ds4121_be_p_int_write32`,
`ds4121_be_s_int_write16`, `ds4121_be_s_int_write32`
- `ds4121_le_p_fl_write32`, `ds4121_le_s_fl_write32`, `ds4121_be_p_fl_write32`,
`ds4121_be_s_fl_write32`

Related topics

References

DPMEM Page (DS4121_ECUWRITE_Bx_CHy_BLz)	25
ds4121_be_p_int_write16 , ds4121_be_p_int_write32 , ds4121_be_s_int_write16 , ds4121_be_s_int_write32 (DS4121 RTLib Reference )	
ds4121_le_p_fl_write32 , ds4121_le_s_fl_write32 , ds4121_be_p_fl_write32 , ds4121_be_s_fl_write32 (DS4121 RTLib Reference )	
ds4121_le_p_int_write16 , ds4121_le_p_int_write32 , ds4121_le_s_int_write16 , ds4121_le_s_int_write32 (DS4121 RTLib Reference )	
ds4121_p_int_write8 (DS4121 RTLib Reference )	
ds4121_s_int_write8 (DS4121 RTLib Reference )	
Unit Page (DS4121_ECUWRITE_Bx_CHy_BLz)	24

Unit Page (DS4121_ECUWRITE_Bx_CHy_BLz)

Purpose

To specify the board number, the channel number, and display the active ECU configuration file.

Dialog settings

Board number Lets you select the board number within the range of 1 ... 16.

Channel number Lets you select the number of the channel the ECU is connected to.

Active ECU configuration file Displays the ECU configuration file on the [Options Page \(DS4121_ECUSETUP_Bx\)](#) on page 14. If no file is specified yet, <not found> is displayed.

Related topics**References**

[DS4121_ECUWRITE_Bx_CHy_BLz](#).....23

DPMEM Page (DS4121_ECUWRITE_Bx_CHy_BLz)

Purpose

To specify the DPMEM parameters.

Tip

For examples on how to specify DPMEM addresses with or without start address, refer to [Specifying DPMEM Addresses Seen from the ECU \(DS4121 Features !\[\]\(4b7a79268f6ba26c1471d4232fffa85a_img.jpg\)\)](#).

Dialog settings

Data type of input port Lets you select one of the following data types for the block input.

- 8 bit signed integer
- 8 bit unsigned integer
- 16 bit signed integer
- 16 bit unsigned integer
- 32 bit signed integer
- 32 bit unsigned integer
- Single float 32 bit (IEEE Std. 754)

DPMEM start offset Displays the start offset defined in the ECU configuration file. If the checkbox **Apply DPMEM start offset to absolute addresses** is not activated in [DS4121_ECUSETUP_Bx](#) on page 12, <DISABLED> will be displayed, otherwise the first usable DPMEM address. The DPMEM start

offset will be added to the DPMEM addresses specified by **Data typed pointer/Vector of indices** or **Vector of DPMEM addresses**.

Relative DPMEM addresses Lets you use relative DPMEM addresses for the data.

Data typed pointer (0xXXXX) Lets you enter the pointer to the memory location where the data have to be written to. You have to select **Relative DPMEM addresses** first. The values in **DPMEM start offset**, **Data typed pointer** and **Vector of indices** define the DPMEM address to write to.

If you use a MATLAB workspace variable in this field, you have to specify the variable as a string with the leading characters **0x**.

Vector of indices: [x,x] Lets you enter a vector of indices for the data values to be read. You have to select **Relative DPMEM addresses** first. If you use a MATLAB workspace variable in this field, you have to specify the variable as a vector of double values.

Tip

The calculated DPMEM addresses will be displayed as a tooltip, when you place the mouse pointer on the edit field.

Absolute DPMEM addresses Lets you use absolute DPMEM addresses for the data.

Vector of DPMEM addresses (0xXXXX) Lets you enter a vector of addresses for the data values to be written. You have to select **Absolute DPMEM addresses** first. The values in **DPMEM start offset** and **Vector of DPMEM addresses** define the DPMEM addresses to write to.

If you use a MATLAB workspace variable in this field, you have to specify the variable as a string describing a vector of HEX values: **[0x0,0x10]**, for example.

Tip

The calculated DPMEM addresses will be displayed as a tooltip, when you place the mouse pointer on the edit field.

Related topics

References

[DS4121_ECUWRITE_Bx_CHy_BLz.....](#) 23

DS4121_ECUIF_STATUS_Bx_CHy_BLz

Purpose	To read the connection status of the ECU interface.
Where to go from here	Information in this section <div> <p>Block Description (DS4121_ECUIF_STATUS_Bx_CHy_BLz)..... 27 To read the connection status of the ECU interface.</p> <p>Parameters Page (DS4121_ECUIF_STATUS_Bx_CHy_BLz)..... 28 To specify the board number and channel number.</p> </div>

Block Description (DS4121_ECUIF_STATUS_Bx_CHy_BLz)

Illustration

DS4121_ECUIF_STATUS_B1_CH1_BL1

Purpose

Description

I/O characteristics

Dialog pages

Related RTLib functions

To read the connection status of the ECU interface.

The block outputs whether a plug-on device (POD) is connected to the ECU interface or not.

The following table shows the characteristics of the block's output in Simulink:

Port	Value	Description
Status	1	POD is connected and powered
	0	POD is not connected and/or not powered

The dialog settings can be specified on the [Parameters Page \(DS4121_ECUIF_STATUS_Bx_CHy_BLz\)](#) on page 28.

ds4121_connection_check

Related topics

References

ds4121_connection_check (DS4121 RTLib Reference )	
Parameters Page (DS4121_ECUIF_STATUS_Bx_CHy_BLz)	28

Parameters Page (DS4121_ECUIF_STATUS_Bx_CHy_BLz)

Purpose	To specify the board number and channel number.	
Dialog settings	Board number	Lets you select the board number within the range of 1 ... 16.
	Channel number	Lets you select the number of the channel the ECU is connected to.

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D

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DPMEM

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DS4121_ECUINT_Bx_CHy_Slz 16

DS4121_ECUREAD_Bx_CHy_BLz 19

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