

RDBE Developer Access External Interface

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Document history

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1 **OVERVIEW**

This document describes the developer access software interface to the RDBE software running on the Roach board.

2 **RDBE SERVER VSI-S LOW-LEVEL COMMANDS**

In order to access the hardware on the Roach board, there is a set of low level commands directly accessing hardware on the board. These commands are intended for manual debug of the board or direct access to hardware resources.

Theses commands are VSI-S syntax compatible, but are not intended to be included in standard software definitions.

Command	Parameters	Description	Comment
exit		End program	
fpgard	{b,w,l} offset, length	Read length data from FPGA starting at offset	
fgpawr	{b,w,l} offset, datum	Write one word of data to FPGA	
cpldrd	{b,w,l} offset, length	Read length data from CPLD starting at offset	
cpldwr	{b,w,l} offset, datum	Write datum to CPLD at offset	
smaprd	{b,w,l} offset, length	Read length data from SMAP starting at offset	
smapwr	{b,w,l} offset, datum	Write a word of data to SMAP	
fpgaprg	Filename	Programs FPGA with local file "filename"	
loaddef	filename	Load register definitions from local file filename	TODO
Loadbuf	BUF <0..9> num_byte [bytes]	Load bytes from client to temporary storage on server	Need test
fpgaprgbuf	BUF <0..9>	Program the FPGA with contents of buffer N	

Notes:

2.1.1 **exit**

Command: → exit = ;
← !exit = <return code>;

Purpose: End the current TCP session and return the connection to the server. This command doesn't affect the state of the board, it just ends the current session with the client.

Settable Parameters:

Parameter	type	allowed Values	Comments

Notes:

2.1.2 Read data from FPGA

Command: → fpgard = <access type> :<offset>:<number word>;
← !fpgard = <return code>: [<data>] ;

Purpose: read a set of words of access type starting at offset from the FPGA device. Reads from the FPGA must be aligned on an appropriate boundary for the access type.

Settable Parameters:

Parameter	type	allowed Values	Comments
Access type	char	B W L	B 8 bit data W 16 bit data L 32 bit data
Offset	Number		Offset from start of device (byte address)
Number word	Number		Number of words to read from device

Monitor Only Parameters:

Parameter	type	allowed Values	Comments
Data	hex		Hex representation of the data read from device.

Notes:

1. The number of words returned will be 0 if an error is encountered.

2.1.3 Write data to FPGA

Command: → fpgawr = <access type> :<offset>:<datum>;
← !fpgawr = <return code> ;

Purpose: Write a words of access type to offset to the FPGA device. The FPGA must be aligned on an appropriate boundary for the access type.

Settable Parameters:

Parameter	type	allowed Values	Comments
Access type	char	B W L	B 8 bit data W 16 bit data L 32 bit data
Offset	Number		Offset from start of device (byte address)
Datum	Number		The word to be written to device

Monitor Only Parameters:

Parameter	type	allowed Values	Comments

Notes:

2.1.4 Read data from CPLD

Command: → cpldrd = <access type> :<offset>:<number word>;
← !cpldrd = <return code>: [<data>] ;

Purpose: read a set of words of access type starting at offset from the FPGA device. Reads from the CPLD must be aligned on an appropriate boundary for the access type.

Settable Parameters:

Parameter	type	allowed Values	Comments
Access type	char	B W L	B 8 bit data W 16 bit data L 32 bit data
Offset	Number		Offset from start of device (byte address)
Number word	Number		Number of words to read from device

Monitor Only Parameters:

Parameter	type	allowed Values	Comments
Data	hex		Hex representation of the data read from device.

Notes:

- The number of words returned will be 0 if an error is encountered.

2.1.5 Write data to CPLD

Command: → cpldwr = <access type> :<offset>:<datum>;
← !cpldwr = <return code> ;

Purpose: Write a words of access type to offset to the CPLD device. The CPLD must be aligned on an appropriate boundary for the access type.

Settable Parameters:

Parameter	type	allowed Values	Comments
Access type	char	B W L	B 8 bit data W 16 bit data L 32 bit data
Offset	Number		Offset from start of device (byte address)
Datum	Number		The word to be written to device

Monitor Only Parameters:

Parameter	type	allowed Values	Comments

Notes:

2.1.6 Read data from SMAP

Command: → smaprd = <access type> :<offset>:<number word>;
← !smaprd = <return code>: [<data>] ;

Purpose: read a set of words of access type starting at offset from the FPGA device. Reads from the SMAP must be aligned on an appropriate boundary for the access type.

Settable Parameters:

Parameter	type	allowed Values	Comments
Access type	char	B W L	B 8 bit data W 16 bit data L 32 bit data
Offset	Number		Offset from start of device (byte address)
Number word	Number		Number of words to read from device

Monitor Only Parameters:

Parameter	type	allowed Values	Comments
Data	hex		Hex representation of the data read from device.

Notes:

- The number of words returned will be 0 if an error is encountered.

2.1.7 Write data to SMAP

Command: → smpawr = <access type> :<offset>:<datum>;
 ← !smapwr = <return code> ;

Purpose: Write a word of access type to offset to the SMAP device. The SMAP must be aligned on an appropriate boundary for the access type.

Settable Parameters:

Parameter	type	allowed Values	Comments
Access type	char	B W L	B 8 bit data W 16 bit data L 32 bit data
Offset	Number		Offset from start of device (byte address)
Datum	Number		The word to be written to device

Monitor Only Parameters:

Parameter	type	allowed Values	Comments

Notes:

2.1.8 Program FPGA

Command: → fpgaprg = <bin file name>;
 ← !fpgaprg = <return code> ;

Purpose: Program the FPGA device with data from the local file.

Settable Parameters:

Parameter	type	allowed Values	Comments
Bin file name	char	Valid file name	

Monitor Only Parameters:

Parameter	type	allowed Values	Comments

2.1.9 Program FPGA from server buffer

Command: → fpgaprgbuf = BUF <buf number>;
 ← !fpgaprgbuf = <return code> ;

Purpose: Program the FPGA with contents from the server buffer number "buf number".

Settable Parameters:

Parameter	type	allowed Values	Comments
Buffer number	Int	0..9	

Monitor Only Parameters:

Parameter	type	allowed Values	Comments

2.1.10 Load server buffer from client

Command: → loadbuf = BUF <buf number>:<n data>;
[data](n data)
← !loadbuf = <return code> ;

Purpose: transfer data from client to server to buffer number "buf number".

Settable Parameters:

Parameter	type	allowed Values	Comments
Buffer number	Int	0..9	
N data	Int		Number of bytes to write
Data	Binary	Byte	Sequence of byte to set to buffer

Monitor Only Parameters:

Parameter	type	allowed Values	Comments

2.1.11 Load macro definition from file

Command: → loaddef = <file namer>;
← !loaddef = <return code> ;

Purpose: Load macro definitions from local file.

Settable Parameters:

Parameter	type	allowed Values	Comments
File name	Ascii	Valid file name	

Monitor Only Parameters:

Parameter	type	allowed Values	Comments