Commands for PC Parallel Port – FPGA Communication

Read FPGA Parameters Registers (*rd_regs.exe* command)

Internal FPGA parameters registers, parameter register 0 to parameter register 15 where parameter register 0 to parameter register 7 are used for values coming from the PC and parameter register 8 to parameter register 15 are used for values coming from the FPGA, are read by the *rd_regs.exe* command.

As is shown below, the command reads the register <*n*> and writes its value in <*radix*> format to the standard output or to an ASCII file if the optional '*-f*' modifier is used. Hexadecimal format is the default if the optional <*radix*> is not used.

rd_regs -r <n> [-<radix>] [-f < file name >]

where *<n>:* *register number in the range [0-15]*
<radix>: *'b' for binary radix*
'd' for decimal radix
'h' for hexadecimal radix
<file name >: name of an ASCII file

As is shown bellow, the command reads all the internal registers and writes their values in <*radix*> format to the standard output or to an ASCII file if the optional '*-f*' modifier is used. Hexadecimal format is the default if the optional <*radix*> is not used.

rd_regs -all [-<radix>] [-f <file name >]

where *<radix>:* *'b' for binary radix*
'd' for decimal radix
'h' for hexadecimal radix
< file name >: name of an ASCII file

Write FPGA Parameters Registers (*wr_regs.exe* command)

Internal 8-bit FPGA parameters registers, parameter register 0 to parameter register 7, are written by the *wr_regs.exe* command.

As is shown below, the command writes <*value*> in <*radix*> format into the register <*n*>. Hexadecimal format is the default if the optional <*radix*> is not used.

wr_regs -r <n> <value> [-<radix>]

where *<n>: register number in the range [0-7]*
<value>: decimal value in the range [0-255]
hexadecimal value in the range [00-FF]
binary value in the range [00000000-11111111]
<radix>: 'b' for binary radix
'd' for decimal radix
'h' for hexadecimal radix

As is shown below, the command reads the registers values from an ASCII file and writes them in <*radix*> format into the internal registers. Hexadecimal format is the default if the optional <*radix*> is not used.

wr_regs -f < file name > [-<radix>]

where *<file name >: name of an ASCII file*
<radix>: 'b' for binary radix
'd' for decimal radix
'h' for hexadecimal radix

The content of the ASCII file is the following (similar to the file generated by *rd_regs* command):

Reg. Value
<num> <value>
<num> <value>
<num> <value>
<num> <value>
<num> <value>
<num> <value>
<num> <value>
<num> <value>

where <num>: register number in the range [0-7]
<value>: register value in the range [0-255], [00-FF] or [00000000-11111111]

Notes: - The command reads until eight registers or until EOF.
- The first line is ignored.

Read FPGA Memory (*rd_mem.exe* command)

rd_mem.exe command is used to read the internal FPGA memory. Initial memory address and number of memory words are user inputs. As is shown below, the command reads <*n-words*> memory words starting from the initial address <*address*>, and writes the words in <*radix*> format to the standard output or to an ASCII file if the optional '*-f*' modifier is used. Hexadecimal format is the default if the optional <*radix*> is not used.

rd_mem <address> <n-words> [-<radix>] [-f < file name >]

where <*address*>: *initial memory adress*
<*n-words*>: *number of memory words*
<*radix*>: *'b' for binary radix*
'd' for decimal radix
'h' for hexadecimal radix
<*file name* >: *name of an ASCII file*

Write FPGA Memory (*wr_mem.exe* command)

wr_mem.exe command is used to write the internal FPGA memory. Initial memory address is an user input.

As is shown below, the command writes <*value*> in <*radix*> format into the memory address <*address*>. Hexadecimal format is the default if the optional <*radix*> is not used.

wr_mem -a <address> <value> [-<radix>]

where <*address*>: *initial memory address*
<*value*>: *decimal value in the range [0-255]*
hexadecimal value in the range [00-FF]
binary value in the range [00000000-11111111]
<*radix*>: *'b' for binary radix*
'd' for decimal radix
'h' for hexadecimal radix

As is shown below, the command reads a block of memory words from an ASCII file and writes them in <*radix*> format into the memory. Hexadecimal format is the default if the optional <*radix*> is not used.

wr_mem -f < file name > [-<radix>]

where *<file name >: name of an ASCII file*

<radix>: 'b' for binary radix

'd' for decimal radix

'h' for hexadecimal radix

The content of the ASCII file is the following (similar to the file generated by *rd_mem* command):

Addr.	*Value*
<in-add>	*<value>*
in-add+1	*<value>*
in-add+2	*<value>*
in-add+3	*<value>*
in-add+4	*<value>*

…

where <value>: register value in the range [0-255], [00-FF] or [00000000-11111111]

<in-add>: initial memory address

Notes: - The command reads until the last memory word or until EOF.

- The first line and the addresses after *<in-add>* are ignored.