

Requirements

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Requirement	Importance	Verifiable	Description	Remarks
FPGA Hardware	Medium	Yes but later	To Flash the VHDL code into FPGA	Will be provided later!
Top Level	-	-	-	-
Reset Signal	High	Yes, with testbench	To reset the system	-
Clock Signal	High	Yes, with testbench	System clock	-
Rxd_i Signal	High	Yes, with testbench	ASCII data input	RS232-data input
Snd_o Signal	High	Yes, with testbench	Sound Output as Buzzer	-
cw_o Signal	High	Yes, with testbench	LED showing morse-code	-
txd_o Signal	High	Yes, with testbench	transmits the morse code in ASCII format	-
urx Component	High	Yes, with testbench	UART block receiving data	-
Reset Signal	High	Yes, with testbench	To reset the system	-
Clock Signal	High	Yes, with testbench	System clock	-
Rxd_i Signal	High	Yes, with testbench	ASCII data input	RS232-data input
d_s Signal	High	Yes, with testbench	data received by UART	Output of urx comp
dv_s Signal	High	Yes, with testbench	data valid signal	Output of urx comp
cw4 Component	High	Yes, with testbench	Conversion into morse code and drive to led/snd	-
Reset Signal	High	Yes, with testbench	To reset the system	-
Clock Signal	High	Yes, with testbench	System clock	-
d_s Signal	High	Yes, with testbench	data received by UART	Input of cw4 comps
dv_s Signal	High	Yes, with testbench	data valid signal	Input of cw4 comps
snd_o Signal	High	Yes, with testbench	Sound buzzer output	Output of cw4 comps

Table 1: Requirements for Morse-Code Generator

Requirement	Importance	Verifiable	Description	Remarks
cw_o Signal	High	Yes, with testbench	LED showing morse code	Output of cw4 comps
utx Component	High	Yes, with testbench	UART block transmitting data	-
Reset Signal	High	Yes, with testbench	To reset the system	-
Clock Signal	High	Yes, with testbench	System clock	-
d_s Signal	High	Yes, with testbench	data received by UART	Input of utx comps
dv_s Signal	High	Yes, with testbench	data valid signal	Input of utx comps
txd_o Signal	High	Yes, with testbench	ASCII output transmit	Output of utx comps
brd Component	High	Yes, with testbench	Baudrate generator	-
Reset Signal	High	Yes, with testbench	To reset the system	-
Clock Signal	High	Yes, with testbench	System clock	-
clk_1KHz_s Signal	High	Yes, with testbench	data received by UART	Output of brd comps
brd_s Signal	High	Yes, with testbench	Baud Rate Generator	Output of brd comps
clk_1Hz_s Signal	High	Yes, with testbench	Heart Beat Signal	Output of brd comps

Table 2: Requirements for Morse-Code Generator