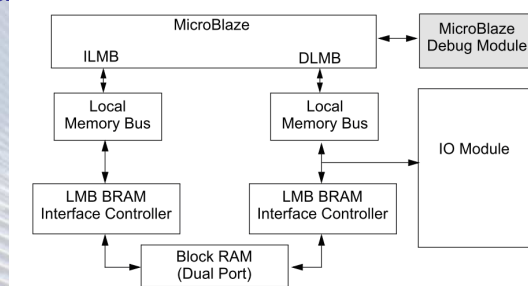


Microblaze MCS

Microblaze Micro Controller

Tulajdonságok

- **MicroBlaze** processzor
- **LMB BRAM** memória
- **MicroBlaze Debug Module (MDM)**
- **LMB buszra** illesztett IO modulok
 - Külső IO Busz
 - Megszakítás vezérlő
 - UART
 - Fixed Interval Timers (FIT)
 - Prog.Interval Timers (PIT)
 - General Purpose Input
 - General Purpose Output



Konfiguráció 1

The screenshot shows the MicroBlaze MCS configuration tool. On the left, the 'IP Symbol' window displays a block diagram with various peripheral connections: Clk, Reset, UART_Rx, UART_Tx, PIT_Enable, FIT_Enable, PIT2_Enable, PIT3_Enable, PIT4_Enable, GPI0[31:0], GPI1[31:0], GPI2[31:0], GPI3[31:0], INTC_Interrupt[0], IO_BUS, and TRACE. On the right, the 'MicroBlaze MCS' configuration window is open, showing the 'Component Name' as 'MBMCS'. The 'Micro Controller System' section includes: Instance Hierarchical Design Name (mcs_0), Input Clock Frequency (MHz) (16), Memory Size (16KB), Enable ID Bus (checked), Enable Debug Support (checked), and Enable MicroBlaze Trace Bus (unchecked). Below this, the 'Software Development Information' section provides instructions for generating the core and includes a 'Datasheet' button. At the bottom right, there are 'Generate', 'Cancel', and 'Help' buttons.

Page 3

Konfiguráció 2

The screenshot shows the configuration tool with multiple windows open. The 'External Interrupt Inputs' window is the primary focus, displaying the following settings: 'Use External Interrupts' (unchecked), 'Number of External Inputs' (1), 'Level or Edge of External Interrupts' (0x0000), 'Positive or Negative External Interrupts' (0xFFFF), and 'Initial Value of GPIO' (0x00000000). The background shows other configuration windows for 'Universal Asynchronous Receiver Transmitter', 'FIT', and 'PIT'.

Page 4

Interfészek

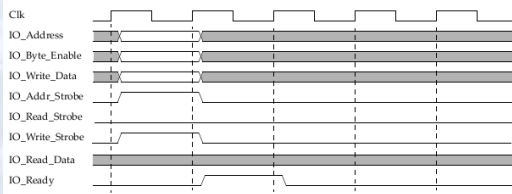
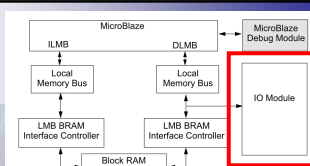


Figure 3: IO Bus Write

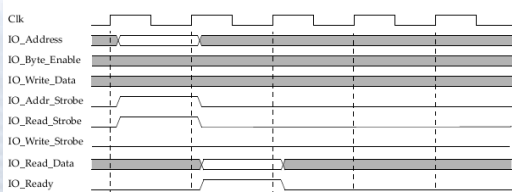
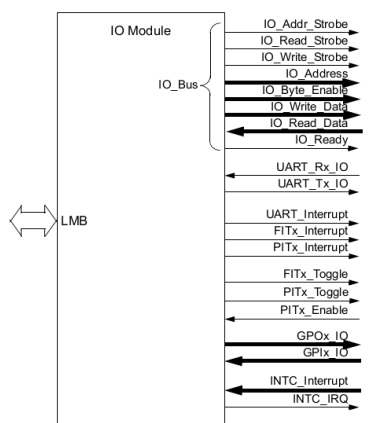


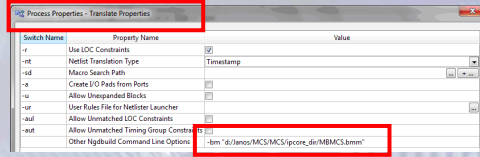
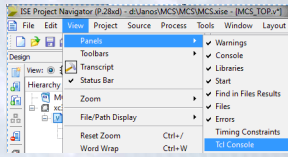
Figure 4: IO Bus Read



Címtartomány

Address (hex)	Name	Access Type	Description
0xD- C_MEMSIZE-1	Local Memory	RW	Local Memory for MicroBlaze software
C_MEMSIZE- 0x7FFFFFFF	Reserved		
0x80000000	UART_RX	R	UART Receive Data Register
0x80000004	UART_TX	W	UART Transmit Data Register
0x80000008	UART_STATUS	R	UART Status Register
0x8000000C	Reserved		
0x80000010	GPO1	W	General Purpose Output 1 Register
0x80000014	GPO2	W	General Purpose Output 2 Register
0x80000018	GPO3	W	General Purpose Output 3 Register
0x8000001C	GPO4	W	General Purpose Output 4 Register
0x80000020	GPI1	R	General Purpose Input 1 Register
0x80000024	GPI2	R	General Purpose Input 2 Register
0x80000028	GPI3	R	General Purpose Input 3 Register
0x8000002C	GPI4	R	General Purpose Input 4 Register
0x8000007C	Reserved		
0x80000080- 0xBF	Reserved		
0xC0000000- 0xFFFF	IO Bus	RW	Mapped to IO Bus address output IO_Address

Implementáció



source ipcore_dir/microblaze_mcs_setup.tcl

Példányosítás

```

1  *!imemcals 1m // 1m
2
3  module MCS_TOP (
4      input clk16,
5      input reset,
6
7      input uart_tx,
8      output uart_tx,
9
10     input [7:0] sw,
11     output [7:0] led
12
13 ):
14
15
16 MEMCS mcs_0 (
17     .clk(clk16), // input clk
18     .Reset(reset), // input Reset
19
20     .UART_Rx(uart_tx), // input UART_Rx
21     .UART_Tx(uart_tx), // output UART_Tx
22     .OPPI1Enb0 // output [7 : 0] OPPI1
23     .OPPI1Enb1 // output [7 : 0] OPPI1
24     .OPPI1Interrupt0 // output OPPI1_Interrupt0
25 );
26
27 endmodule
28

```

Erőforrás kihasználás

Parameter Values (other parameters at default value)													Device Resources		
C_USE_UART_RX	C_USE_UART_TX	C_INTC_USE_EXT_INTR	C_INTC_INTR_SIZE	C_USE_FIT1	C_FIT1_No_CLOCKS	C_USE_FIT1	C_PIT1_SIZE	C_USE_GPH1	C_GPH1_SIZE	C_USE_GPD1	C_GPD1_SIZE	C_USE_IO_BUS	C_DEBUG_ENABLE	LUTs	Flip-Flops
1	1	0	0	0	0	0	0	0	0	0	0	0	0	716	299
1	1	1	5	0	0	0	0	0	0	0	0	0	0	733	330
1	1	1	5	1	65000	0	0	0	0	0	0	0	0	740	342
1	1	1	5	1	65000	1	32	0	0	0	0	0	0	783	434
1	1	1	5	1	65000	1	32	1	32	0	0	0	0	804	466
1	1	1	5	1	65000	1	32	1	32	1	32	0	0	805	498
1	1	1	5	1	65000	1	32	1	32	1	32	1	0	820	602
1	1	1	5	1	65000	1	32	1	32	1	32	1	1	1022	959