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2  -- $Archive:: /VHDL/product/dsk6455/emu_mux/emu_mux.vhd          $
3  -- $Revision:: 2                                                $
4  -- $Date:: 11/21/05 11:17a                                       $
5  -- $Author:: Tonyc                                              $
6  --
7  --
8  -- Copyright (c) 2005, Spectrum Digital Incorporated
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10 -----
11
12 -- Start the real code
13 -----
14 library IEEE;
15 use IEEE.std_logic_1164.all;
16
17 entity emu_mux is
18     port
19     (
20
21         EMU_DETECTn      : in    std_logic;
22         HURRICANE_DETECTn : in    std_logic;
23         DSPB_PRESENTn    : in    std_logic;
24         HURRICANE_B_DETECT : in    std_logic;
25
26
27         HURRICANE_DETECT : out    std_logic;
28
29         USB_IN_USE       : out    std_logic;
30
31         -- 14 Pin Header signals
32         XDS_TDO           : out    std_logic;
33         XDS_TDI           : in     std_logic;
34         XDS_TMS           : in     std_logic;
35         XDS_TRSTn        : in     std_logic;
36         XDS_TCK           : in     std_logic;
37         XDS_TCKRET        : out    std_logic;
38
39         -- Embedded emulator signals
40         T_TDO             : out    std_logic;
41         T_TDI             : in     std_logic;
42         T_TMS             : in     std_logic;
43         T_TRSTn           : in     std_logic;
44         T_TCK             : in     std_logic;
45         T_TCKRET          : out    std_logic;
46
47         -- DSPA JTAG Port
48         DSPA_TCK          : out    std_logic;
49         DSPA_TDO          : in     std_logic;
50         DSPA_TDI          : out    std_logic;
51         DSPA_TMS          : out    std_logic;
52         DSPA_TSRTn        : out    std_logic;
53
54         -- DSPB JTAG Port

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55     DSPB_TCK          : out   std_logic;
56     DSPB_TDO          : in    std_logic;
57     DSPB_TDI          : out   std_logic;
58     DSPB_TMS          : out   std_logic;
59     DSPB_TSRTn        : out   std_logic;
60
61 );
62 end emu_mux;
63
64 -----
65 -- Include standard libraries
66 -----
67 library IEEE;
68 use IEEE.std_logic_1164.all;
69 -- use work.std_arith.all;
70 use IEEE.std_logic_arith.all;
71 use IEEE.std_logic_unsigned.all;
72
73 architecture behavior_emu_mux of emu_mux is
74
75 -----
76 -- Add local components in here
77 -----
78
79 -----
80 -- Add signals
81 -----
82 signal muxTDIA        : std_logic;
83 signal muxTDIB        : std_logic;
84 signal muxTDO         : std_logic;
85 signal muxTMS         : std_logic;
86 signal muxTCK         : std_logic;
87 --signal muxTCKRET    : std_logic;
88 signal muxTRSTn       : std_logic;
89 signal JtagBEnable    : std_logic;
90
91 -----
92 -- The implementation
93 -----
94
95 begin
96
97 -- Map the other components
98 -----
99
100 -----
101 -- Now define the logic
102 -----
103
104 -- Enable JTAG to CPU_B when the board is present and neither of the Hurricane
105 -- headers are in use.
106
107 JtagBEnable <= '1' when DSPB_PRESENTn = '0'
108 and HURRICANE_B_DETECT = '0'

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109         and HURRICANE_DETECTn = '1' else '0';
110
111     muxTDIA    <= XDS_TDI when EMU_DETECTn = '0' else T_TDI;
112     muxTDIB    <= DSPA_TDO when JtagBEnable = '1' else '1';
113     muxTDO     <= DSPB_TDO when JtagBEnable = '1' else DSPA_TDO;
114
115     muxTMS     <= XDS_TMS when EMU_DETECTn = '0' else T_TMS;
116     muxTCK     <= XDS_TCK when EMU_DETECTn = '0' else T_TCK;
117     muxTRSTn   <= XDS_TRSTn when EMU_DETECTn = '0' else T_TRSTn;
118
119     -- DSPA Port
120     DSPA_TCK    <= muxTCK when HURRICANE_DETECTn = '1' else 'Z';
121     DSPA_TDI    <= muxTDIA when HURRICANE_DETECTn = '1' else 'Z';
122     DSPA_TMS    <= muxTMS when HURRICANE_DETECTn = '1' else 'Z';
123     DSPA_TSRTn  <= muxTRSTn when HURRICANE_DETECTn = '1' else 'Z';
124
125     -- DSPB Port
126     DSPB_TCK    <= muxTCK when JtagBEnable = '1' else 'Z';
127     DSPB_TDI    <= muxTDIB when JtagBEnable = '1' else 'Z';
128     DSPB_TMS    <= muxTMS when JtagBEnable = '1' else 'Z';
129     DSPB_TSRTn  <= muxTRSTn when JtagBEnable = '1' else 'Z';
130
131     -- XDS Port
132     XDS_TCKRET  <= XDS_TCK when EMU_DETECTn = '0' else '0';
133     XDS_TDO     <= muxTDO when EMU_DETECTn = '0' else '0';
134
135     -- Embedded EMU Port
136     T_TCKRET    <= T_TCK when EMU_DETECTn = '1' else '0';
137     T_TDO       <= muxTDO when EMU_DETECTn = '1' else '0';
138
139     USB_IN_USE  <= '0' when EMU_DETECTn = '1' and HURRICANE_DETECTn = '1'
140                     else '1';
141
142     HURRICANE_DETECT <= not HURRICANE_DETECTn;
143
144 end behavior_emu_mux;
145
146

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