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1  -----
2  -- Company:
3  -- Engineer:
4  --
5  -- Create Date:    13:54:26 10/25/2018
6  -- Design Name:
7  -- Module Name:    fourtosixteen - Behavioral
8  -- Project Name:
9  -- Target Devices:
10 -- Tool versions:
11 -- Description:
12 --
13 -- Dependencies:
14 --
15 -- Revision:
16 -- Revision 0.01 - File Created
17 -- Additional Comments:
18 --
19 -----
20 library IEEE;
21 use IEEE.STD_LOGIC_1164.ALL;
22
23 -- Uncomment the following library declaration if using
24 -- arithmetic functions with Signed or Unsigned values
25 --use IEEE.NUMERIC_STD.ALL;
26
27 -- Uncomment the following library declaration if instantiating
28 -- any Xilinx primitives in this code.
29 --library UNISIM;
30 --use UNISIM.VComponents.all;
31
32 entity fourtosixteen is
33     Port ( Y0 : out  STD_LOGIC;
34           Y1 : out  STD_LOGIC;
35           Y2 : out  STD_LOGIC;
36           Y3 : out  STD_LOGIC;
37           Y4 : out  STD_LOGIC;
38           Y5 : out  STD_LOGIC;
39           Y6 : out  STD_LOGIC;
40           Y7 : out  STD_LOGIC;
41           Y8 : out  STD_LOGIC;
42           Y9 : out  STD_LOGIC;
43           Y10 : out  STD_LOGIC;
44           Y11 : out  STD_LOGIC;
45           Y12 : out  STD_LOGIC;
46           Y13 : out  STD_LOGIC;
47           Y14 : out  STD_LOGIC;
48           Y15 : out  STD_LOGIC;
49           A : in   STD_LOGIC;
50           B : in   STD_LOGIC;
51           C : in   STD_LOGIC;
52           D : in   STD_LOGIC;
53           En : in   STD_LOGIC);
54 end fourtosixteen;
55
56 architecture Behavioral of fourtosixteen is
57
```

```
58  begin
59  Y0 <= ((not A) and (not B) and (not C) and (not D) and En);
60  Y1 <= ((not A) and (not B) and (not C) and (D) and En);
61  Y2 <= ((not A) and (not B) and (C) and (not D) and En);
62  Y3 <= ((not A) and (not B) and (C) and (D) and En);
63  Y4 <= ((not A) and (B) and (not C) and (not D) and En);
64  Y5 <= ((not A) and (B) and (not C) and (D) and En);
65  Y6 <= ((not A) and (B) and (C) and (not D) and En);
66  Y7 <= ((not A) and (B) and (C) and (D) and En);
67  Y8 <= ((A) and (not B) and (not C) and (not D) and En);
68  Y9 <= ((A) and (not B) and (not C) and (D) and En);
69  Y10 <= ((A) and (not B) and (C) and (not D) and En);
70  Y11 <= ((A) and (not B) and (C) and (D) and En);
71  Y12 <= ((A) and (B) and (not C) and (not D) and En);
72  Y13 <= ((A) and (B) and (not C) and (D));
73  Y14 <= ((A) and (B) and (C) and (not D));
74  Y15 <= ((A) and (B) and (C) and (D));
75
76  end Behavioral;
77
78
```