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--  BSDL model for ISSI's IS61NLP/NVP/NLF/NVF51218 NoWait SRAM
--  Author: S.J. Jang
--  Revision History: Rev0.0 (9/2/05)
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entity IS61NXX51218 is

   generic (PHYSICAL_PIN_MAP : string := "BGA_11x15");

   port (   A   :   in      bit_vector(0 to 18);
      ADV   :   in      bit;
      BW_A_b:   in      bit;
      BW_B_b:   in      bit;
      CLK   :   in      bit;
      DP_A  :   in      bit;
      DP_B  :   in      bit;
      DQ_A  :   in      bit_vector(0 to 7);
      DQ_B  :   in      bit_vector(0 to 7);
      CE_b  :   in      bit;
      CE2   :   in      bit;
      CE2_b :   in      bit;
      TCK   :   in      bit;
      TDI   :   in      bit;
      TDO   :   out      bit;
      TMS   :   in      bit;
      MODE  :   in      bit;
      OE_b  :   in      bit;
      CKE_b :   in      bit;
      WE_b  :   in      bit;
      NC    :   linkage bit_vector(0 to 39);
      Vdd   :   linkage bit_vector(0 to 17);
      Vddq  :   linkage bit_vector(0 to 19);
      Vss   :   linkage bit_vector(0 to 33);
      ZZ    :   in      bit);

   use STD_1149_1_1994.all;

   attribute COMPONENT_CONFORMANCE of IS61NXX51218: entity is "STD_1149_1_1993";

   attribute PIN_MAP of IS61NXX51218: entity is PHYSICAL_PIN_MAP;

   constant BGA_11x15: PIN_MAP_STRING :=

   " A      : (R6, P6, P4, R4, R3, A10, R11, R10, P10, P9, R9, R8, P8," &
   "             P3, A2, A9, B2, B10, A11),        " &
   " ADV      :    A8,                    " &
   " BW_A_b   :    B5,                    " &
   " BW_B_b   :    A4,                    " &
   " CLK      :    B6,                    " &
   " DP_A     :    C11,                    " &
   " DP_B     :    N1,                    " &
   " DQ_A     :    (D11, E11, F11, G11, J10, K10, L10, M10), " &
   " DQ_B     :    (M1, L1, K1, J1, G2, F2, E2, D2),         " &
   " CE_b     :    A3,                    " &
   " CE2      :    B3,                    " &
   " CE2_b    :    A6,                    " &
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" TCK      :    R7,                    " &
" TDI      :    P5,                    " &
" TDO      :    P7,                    " &
" TMS      :    R5,                    " &
" MODE     :    R1,                    " &
" OE_b     :    B8,                    " &
" CKE_b    :    A7,                    " &
" WE_b     :    B7,                    " &
" NC  :    (A1, B1, C1, D1, E1, F1, G1, H1, P1, C2, H2, J2, K2, L2, " &
"          M2, N2, P2, R2, H3, B4, A5, N5, N6, N7, B9, H9, C10, D10," &
"          E10, F10, G10, H10, N10, B11, J11, K11, L11, M11,       " &
"          N11, P11),                                              " &
" Vdd :    (D4, E4, F4, G4, H4, J4, K4, L4, M4, D8, E8, F8, G8,    " &
"          H8, J8, K8, L8, M8),                                    " &
" Vddq:   (C3, D3, E3, F3, G3, J3, K3, L3, M3, N3, C9, D9, E9,     " &
"          F9, G9, J9, K9, L9, M9, N9),                            " &
" Vss :    (C4, N4, C5, D5, E5, F5, G5, H5, J5, K5, L5, M5, C6,    " &
"          D6, E6, F6, G6, H6, J6, K6, L6, M6, C7, D7, E7, F7,     " &
"          G7, H7, J7, K7, L7, M7, C8, N8),                        " &
" ZZ       :    H11                                               " ;

attribute TAP_SCAN_IN      of   TDI : signal is true;
attribute TAP_SCAN_OUT     of   TDO : signal is true;
attribute TAP_SCAN_MODE    of   TMS : signal is true;
attribute TAP_SCAN_CLOCK   of   TCK : signal is (100.0e6, BOTH);

attribute INSTRUCTION_LENGTH   of   IS61NXX51218 : entity is 3;

attribute INSTRUCTION_OPCODE   of   IS61NXX51218 : entity is
   "EXTEST      (000),   " &
   "IDCODE      (001),   " &
   "SAMPLEZ     (010),   " &
   "SAMPLE      (100),   " &
   "BYPASS      (111)    " ;

attribute INSTRUCTION_CAPTURE   of   IS61NXX51218 : entity is "001";

attribute IDCODE_REGISTER   of   IS61NXX51218 : entity is
   "0000"            &   -- Revision Number
   "0100000011"      &   -- Part configuration
   "000000"          &   -- ISSI Device ID
   "00011010101"     &   -- ISSI JEDEC ID
   "1"               ;   -- Presence Register

attribute REGISTER_ACCESS    of   IS61NXX51218 : entity is
   "BOUNDARY   (EXTEST, SAMPLEZ, SAMPLE),   " &
   "BYPASS      (BYPASS)         " ;

attribute BOUNDARY_LENGTH   of   IS61NXX51218 :   entity is 75;

attribute BOUNDARY_REGISTER   of   IS61NXX51218 : entity is

"0    (BC_4,   MODE,   input,      X),   " &
"1    (BC_4,   *,      internal,   X),   " &
"2    (BC_4,   *,      internal,   X),   " &
"3    (BC_4,   A(12),  input,      X),   " &
"4    (BC_4,   A(11),  input,      X),   " &
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"5    (BC_4,   A(10),  input,      X),   " &
"6    (BC_4,   A(9),   input,      X),   " &
"7    (BC_4,   A(8),   input,      X),   " &
"8    (BC_4,   A(7),   input,      X),   " &
"9    (BC_4,   A(6),   input,      X),   " &
"10   (BC_4,   ZZ,     input,      X),   " &
"11   (BC_4,   *,      internal,   X),   " &
"12   (BC_4,   *,      internal,   X),   " &
"13   (BC_4,   *,      internal,   X),   " &
"14   (BC_4,   *,      internal,   X),   " &
"15   (BC_4,   *,      internal,   X),   " &
"16   (BC_4,   DQ_A(7),input,      X),   " &
"17   (BC_4,   DQ_A(6),input,      X),   " &
"18   (BC_4,   DQ_A(5),input,      X),   " &
"19   (BC_4,   DQ_A(4),input,      X),   " &
"20   (BC_4,   DQ_A(3),input,      X),   " &
"21   (BC_4,   DQ_A(2),input,      X),   " &
"22   (BC_4,   DQ_A(1),input,      X),   " &
"23   (BC_4,   DQ_A(0),input,      X),   " &
"24   (BC_4,   DP_A,   input,      X),   " &
"25   (BC_4,   *,      internal,   X),   " &
"26   (BC_4,   *,      internal,   X),   " &
"27   (BC_4,   *,      internal,   X),   " &
"28   (BC_4,   *,      internal,   X),   " &
"29   (BC_4,   A(18),  input,      X),   " &
"30   (BC_4,   A(5),   input,      X),   " &
"31   (BC_4,   A(17),  input,      X),   " &
"32   (BC_4,   A(15),  input,      X),   " &
"33   (BC_4,   *,      internal,   X),   " &
"34   (BC_4,   ADV,    input,      X),   " &
"35   (BC_4,   OE_b,   input,      X),   " &
"36   (BC_4,   CKE_b,  input,      X),   " &
"37   (BC_4,   WE_b,   input,      X),   " &
"38   (BC_4,   CLK,    input,      X),   " &
"39   (BC_4,   *,      internal,   X),   " &
"40   (BC_4,   *,      internal,   X),   " &
"41   (BC_4,   CE2_b,  input,      X),   " &
"42   (BC_4,   BW_A_b, input,      X),   " &
"43   (BC_4,   *,      internal,   X),   " &
"44   (BC_4,   BW_B_b, input,      X),   " &
"45   (BC_4,   *,      internal,   X),   " &
"46   (BC_4,   CE2,    input,      X),   " &
"47   (BC_4,    CE_b,  input,      X),   " &
"48   (BC_4,   A(14),  input,      X),   " &
"49   (BC_4,   A(16),  input,      X),   " &
"50   (BC_4,   *,      internal,   X),   " &
"51   (BC_4,   *,      internal,   X),   " &
"52   (BC_4,   *,      internal,   X),   " &
"53   (BC_4,   *,      internal,   X),   " &
"54   (BC_4,   *,      internal,   X),   " &
"55   (BC_4,   *,      internal,   X),   " &
"56   (BC_4,   DQ_B(7),input,      X),   " &
"57   (BC_4,   DQ_B(6),input,      X),   " &
"58   (BC_4,   DQ_B(5),input,      X),   " &
"59   (BC_4,   DQ_B(4),input,      X),   " &
"60   (BC_4,   DQ_B(3),input,      X),   " &
"61   (BC_4,   DQ_B(2),input,      X),   " &
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    "62   (BC_4,   DQ_B(1),input,      X),   " &
    "63   (BC_4,   DQ_B(0),input,      X),   " &
    "64   (BC_4,   DP_B,   input,      X),   " &
    "65   (BC_4,   *,      internal,   X),   " &
    "66   (BC_4,   *,      internal,   X),   " &
    "67   (BC_4,   *,      internal,   X),   " &
    "68   (BC_4,   *,      internal,   X),   " &
    "69   (BC_4,   A(13),  input,      X),   " &
    "70   (BC_4,   A(4),   input,      X),   " &
    "71   (BC_4,   A(3),   input,      X),   " &
    "72   (BC_4,   A(2),   input,      X),   " &
    "73   (BC_4,   A(1),   input,      X),   " &
    "74   (BC_4,   A(0),   input,      X)    " ;

   attribute DESIGN_WARNING of IS61NXX51218:entity is
    "WARNING: THIS DEVICE OPERATES ON A SUBSET OF IEEE STANDARD 1149.1, "&
    "THE JTAG INSTRUCTIONS EXTEST IS NOT 1149.1 COMPLIANT.";

end IS61NXX51218;
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