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-------------------------------------------------------------------------
-- Boundary-Scan Description Language (BSDL) file
-- Manufacturer: Intel Corporation
-- Component   : Millbrook-1 Memory Buffer
-- Package(s)  : BGA (Ball Grid Array)
-- Version     : For MB1 C0-Step (Rev0.3)
-- Date        : 06/18/2009
-- Entity name : mb1_top (Based on top level verilog module)
-------------------------------------------------------------------------
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-- ***********************************************************************
--
-- This BSDL file has been syntax checked against the Scan Port Driver Tool
-- from Agilent("Revision 3070 07.00p").
--
-- ***********************************************************************
--  ======================================================================
--  Revision History
--  ----------------
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--
--
--  ======================================================================
--  NOTES:
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--  There is a sequencing requirement for VCCPWRGOOD and VDDPWRGOOD signals.
--  It needs to follow the  timing diagram titled "Cold Power Up Reset"
--  in Chapter  titled "Resets" of the Millbrook-1 EDS.
-- ----------------------------------------------------------------------------

entity mb1_top is

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

port(

--  INPUT DECLARATIONS

    CLK133N            : linkage bit;
    CLK133P            : linkage bit;
    FBDSBICLKN         : in      bit;
    FBDSBICLKP         : in      bit;
    FBDSBIN            : in      bit_vector  (10 downto 0);
    FBDSBIP            : in      bit_vector  (10 downto 0);

--  OUTPUT DECLARATIONS

    FBDCDCMP           : linkage bit;
    FBDNBOCLKN         : buffer  bit;
    FBDNBOCLKP         : buffer  bit;
    FBDNBON            : buffer  bit_vector ( 13 downto 0);
    FBDNBOP            : buffer  bit_vector ( 13 downto 0);

--  INOUT DECLARATIONS

    DDR0A              : buffer  bit_vector ( 15 downto 0);
    DDR0BA             : buffer  bit_vector (  2 downto 0);
    DDR0CAS_N          : buffer  bit;
    DDR0CB             : buffer  bit_vector (  7 downto 0);
    DDR0CKE            : buffer  bit_vector (  3 downto 0);
    DDR0CLKN           : buffer  bit_vector (  1 downto 0);
    DDR0CLKP           : buffer  bit_vector (  1 downto 0);
    DDR0CS_N           : buffer  bit_vector (  7 downto 0);
    DDR0DQ             : buffer  bit_vector ( 63 downto 0);
    DDR0DQSN           : buffer  bit_vector ( 17 downto 0);
    DDR0DQSP           : buffer  bit_vector ( 17 downto 0);
    DDR0ERR_N          : in      bit_vector (  1 downto 0);
    DDR0EVENT_N        : inout   bit;
    DDR0ODT            : buffer  bit_vector (  3 downto 0);
    DDR0PAR            : buffer  bit;
    DDR0RAS_N          : buffer  bit;
    DDR0RESET_N        : buffer  bit;
    DDR0WE_N           : buffer  bit;
    DDR1A              : buffer  bit_vector ( 15 downto 0);
    DDR1BA             : buffer  bit_vector (  2 downto 0);
    DDR1CAS_N          : buffer  bit;
    DDR1CB             : buffer  bit_vector (  7 downto 0);
    DDR1CKE            : buffer  bit_vector (  3 downto 0);
    DDR1CLKN           : buffer  bit_vector (  1 downto 0);
    DDR1CLKP           : buffer  bit_vector (  1 downto 0);
    DDR1CS_N           : buffer  bit_vector (  7 downto 0);
    DDR1DQ             : buffer  bit_vector ( 63 downto 0);
    DDR1DQSN           : buffer  bit_vector ( 17 downto 0);
    DDR1DQSP           : buffer  bit_vector ( 17 downto 0);
    DDR1ERR_N          : in      bit_vector (  1 downto 0);
    DDR1EVENT_N        : inout   bit;
    DDR1ODT            : buffer  bit_vector (  3 downto 0);
    DDR1PAR            : buffer  bit;
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    DDR1RAS_N          : buffer  bit;
    DDR1RESET_N        : buffer  bit;
    DDR1WE_N           : buffer  bit;
    DDRCOMP            : linkage bit_vector (  2 downto 0);
    LAIEV              : inout   bit_vector (  3 downto 0);
    LAIMODE_N          : inout   bit;
    LAISCL             : inout   bit;
    LAISDA             : inout   bit;
    RST_N              : in      bit;    -- Compliance Pin
    SA0                : inout   bit;
    SCL                : inout   bit;
    SDA                : inout   bit;
    TCK                : in      bit;
    TDI                : in      bit;
    TDO                : out     bit;
    TMS                : in      bit;
    TRST_N             : in      bit;
    VCC1P1             : linkage bit_vector ( 28 downto 0);
    VCCFBD1P1          : linkage bit_vector (  4 downto 0);
    VCCPWRGOOD         : in      bit; -- Compliance Pin
    VDD1P5             : linkage bit_vector ( 41 downto 0);
    VDDPWRGOOD         : in      bit; -- Compliance Pin
    VREG1P8            : linkage bit;
    VSS                : linkage bit_vector (151 downto 0);
        RSVD               : linkage bit_vector ( 37 downto 0)

);

use STD_1149_1_2001.all;

attribute COMPONENT_CONFORMANCE of mb1_top : entity is "STD_1149_1_1993";

attribute PIN_MAP of mb1_top : entity is PHYSICAL_PIN_MAP;

constant bga : PIN_MAP_STRING :=

" VSS              :(Y9,               " &
"                    Y5,               " &
"                    Y26,              " &
"                    Y21,              " &
"                    Y2,               " &
"                    Y19,              " &
"                    Y17,              " &
"                    Y15,              " &
"                    Y13,              " &
"                    Y11,              " &
"                    W7,               " &
"                    W3,               " &
"                    W27,              " &
"                    W22,              " &
"                    V28,              " &
"                    V25,              " &
"                    V22,              " &
"                    V20,              " &
"                    V1,               " &
"                    U8,               " &
"                    U5,               " &
"                    U21,              " &
"                    U2,               " &
"                    U18,              " &
"                    U16,              " &
"                    U14,              " &
"                    U12,              " &
```

```
"                    T6,                 " &
"                    T27,                " &
"                    T24,                " &
"                    T17,                " &
"                    T15,                " &
"                    T13,                " &
"                    R4,                 " &
"                    R28,                " &
"                    R18,                " &
"                    R16,                " &
"                    R14,                " &
"                    R12,                " &
"                    R10,                " &
"                    R1,                 " &
"                    P8,                 " &
"                    P5,                 " &
"                    P29,                " &
"                    P26,                " &
"                    P23,                " &
"                    P20,                " &
"                    P2,                 " &
"                    P17,                " &
"                    P15,                " &
"                    P13,                " &
"                    N9,                 " &
"                    N27,                " &
"                    N24,                " &
"                    N21,                " &
"                    N18,                " &
"                    N16,                " &
"                    N14,                " &
"                    N12,                " &
"                    M7,                 " &
"                    M4,                 " &
"                    M28,                " &
"                    M25,                " &
"                    M17,                " &
"                    M15,                " &
"                    M13,                " &
"                    M10,                " &
"                    L8,                 " &
"                    L5,                 " &
"                    L29,                " &
"                    L23,                " &
"                    L20,                " &
"                    L2,                 " &
"                    L18,                " &
"                    L16,                " &
"                    L14,                " &
"                    L12,                " &
"                    K6,                 " &
"                    K3,                 " &
"                    K27,                " &
"                    K24,                " &
"                    K21,                " &
"                    K17,                " &
"                    K15,                " &
"                    K13,                " &
"                    J28,                " &
"                    J18,                " &
"                    J16,                " &
"                    J14,                " &
"                    J12,                " &
```

```
"                       J10,                " &
"                       J1,                 " &
"                       H8,                 " &
"                       H5,                 " &
"                       H26,                " &
"                       H23,                " &
"                       H2,                 " &
"                       G3,                 " &
"                       G27,                " &
"                       G24,                " &
"                       G20,                " &
"                       F7,                 " &
"                       F4,                 " &
"                       F28,                " &
"                       F17,                " &
"                       F1,                 " &
"                       E9,                 " &
"                       E29,                " &
"                       E26,                " &
"                       E2,                 " &
"                       E19,                " &
"                       D3,                 " &
"                       D27,                " &
"                       D21,                " &
"                       D11,                " &
"                       C29,                " &
"                       C23,                " &
"                       C13,                " &
"                       B5,                 " &
"                       B25,                " &
"                       B2,                 " &
"                       B15,                " &
"                       AC9,                " &
"                       AC7,                " &
"                       AC6,                " &
"                       AC27,               " &
"                       AC21,               " &
"                       AC19,               " &
"                       AC17,               " &
"                       AC15,               " &
"                       AC13,               " &
"                       AC11,               " &
"                       AB23,               " &
"                       AB2,                " &
"                       AA8,                " &
"                       AA6,                " &
"                       AA4,                " &
"                       AA29,               " &
"                       AA25,               " &
"                       AA22,               " &
"                       AA20,               " &
"                       AA18,               " &
"                       AA16,               " &
"                       AA14,               " &
"                       AA12,               " &
"                       AA10,               " &
"                       A7,                 " &
"                       A27,                " &
"                       A17,                " &
"                       J9,                 " &
"                       H19,                " &
"                       G12),               " &
" VREG1P8          : AC23,                  " &
```

```
" VDDPWRGOOD       : K10,                " &
" VDD1P5           :(Y7,                 " &
"                    W24,                " &
"                    V4,                 " &
"                    U29,                " &
"                    U26,                " &
"                    T9,                 " &
"                    T3,                 " &
"                    R7,                 " &
"                    R25,                " &
"                    R22,                " &
"                    N6,                 " &
"                    N3,                 " &
"                    M22,                " &
"                    M1,                 " &
"                    L26,                " &
"                    K9,                 " &
"                    J7,                 " &
"                    J4,                 " &
"                    J25,                " &
"                    J22,                " &
"                    H29,                " &
"                    G21,                " &
"                    G10,                " &
"                    F25,                " &
"                    F12,                " &
"                    E23,                " &
"                    E14,                " &
"                    D6,                 " &
"                    D16,                " &
"                    C8,                 " &
"                    C26,                " &
"                    C19,                " &
"                    C1,                 " &
"                    B28,                " &
"                    B20,                " &
"                    B10,                " &
"                    AC3,                " &
"                    AB28,               " &
"                    AA1,                " &
"                    A3,                 " &
"                    A22,                " &
"                    A12),               " &
" VCCPWRGOOD       : L10,                " &
" VCCFBD1P1        :(V18,                " &
"                    V16,                " &
"                    V14,                " &
"                    V12,                " &
"                    V10),               " &
" VCC1P1           :(U17,                " &
"                    U15,                " &
"                    U13,                " &
"                    T18,                " &
"                    T16,                " &
"                    T14,                " &
"                    T12,                " &
"                    R17,                " &
"                    R15,                " &
"                    R13,                " &
"                    P18,                " &
"                    P16,                " &
"                    P14,                " &
"                    P12,                " &
```

```
"                       N17,                " &
"                       N15,                " &
"                       N13,                " &
"                       M18,                " &
"                       M16,                " &
"                       M14,                " &
"                       M12,                " &
"                       L17,                " &
"                       L15,                " &
"                       L13,                " &
"                       K18,                " &
"                       K16,                " &
"                       K14,                " &
"                       K12,                " &
"                       J17),               " &
" TRST_N              : H12,                " &
" TMS                 : K11,                " &
" TDO                 : H11,                " &
" TDI                 : L11,                " &
" TCK                 : M11,                " &
" SDA                 : K19,                " &
" SCL                 : L19,                " &
" SA0                 : H18,                " &
" RST_N               : J19,                " &
" RSVD                :(V8,                 " &
"                       U9,                 " &
"                       U20,                " &
"                       U19,                " &
"                       J15,                " &
"                       J13,                " &
"                       AB6,                " &
"                       V11,                " &
"                       AB21,               " &
"                       W19,                " &
"                       W11,                " &
"                       AA21,               " &
"                       V19,                " &
"                       U10,                " &
"                       U11,                " &
"                       T10,                " &
"                       T11,                " &
"                       G15,                " &
"                       G16,                " &
"                       F20,                " &
"                       D20,                " &
"                       B14,                " &
"                       C15,                " &
"                       A14,                " &
"                       C16,                " &
"                       C17,                " &
"                       E15,                " &
"                       C18,                " &
"                       D15,                " &
"                       H13,                " &
"                       H14,                " &
"                       G13,                " &
"                       G14,                " &
"                       N10,                " &
"                       N11,                " &
"                       J11,                " &
"                       H10,                " &
"                       T19),               " &
" LAISDA              : H16,                " &
```

```
" LAISCL          : H17,              " &
" LAIMODE_N       : H15,              " &
" LAIEV           :(R19,              " &
"                   M19,              " &
"                   N19,              " &
"                   P19),             " &
" FBDSBIP         :(W21,              " &
"                   V15,              " &
"                   W20,              " &
"                   Y18,              " &
"                   W17,              " &
"                   W16,              " &
"                   V13,              " &
"                   Y12,              " &
"                   Y10,              " &
"                   V9,               " &
"                   W8),              " &
" FBDSBIN         :(V21,              " &
"                   W15,              " &
"                   Y20,              " &
"                   W18,              " &
"                   V17,              " &
"                   Y16,              " &
"                   W13,              " &
"                   W12,              " &
"                   W10,              " &
"                   W9,               " &
"                   Y8),              " &
" FBDSBICLKP      : Y14,              " &
" FBDSBICLKN      : W14,              " &
" FBDNBOP         :(AA13,             " &
"                   AB15,             " &
"                   AC22,             " &
"                   AC20,             " &
"                   AB19,             " &
"                   AC18,             " &
"                   AB17,             " &
"                   AC16,             " &
"                   AB12,             " &
"                   AA11,             " &
"                   AB10,             " &
"                   AA9,              " &
"                   AB8,              " &
"                   AA7),             " &
" FBDNBON         :(AB13,             " &
"                   AA15,             " &
"                   AB22,             " &
"                   AB20,             " &
"                   AA19,             " &
"                   AB18,             " &
"                   AA17,             " &
"                   AB16,             " &
"                   AC12,             " &
"                   AB11,             " &
"                   AC10,             " &
"                   AB9,              " &
"                   AC8,              " &
"                   AB7),             " &
" FBDNBOCLKP      : AB14,             " &
" FBDNBOCLKN      : AC14,             " &
" FBDCDCMP        : R11,              " &
" DDRCOMP         :(G11,              " &
"                   H9,               " &
```

```
"                       G9),                " &
" DDR1WE_N            : D10,                " &
" DDR1RESET_N         : D24,                " &
" DDR1RAS_N           : C10,                " &
" DDR1PAR             : E12,                " &
" DDR1ODT             :(E7,                 " &
"                       D8,                 " &
"                       G7,                 " &
"                       F9),                " &
" DDR1EVENT_N         : F11,                " &
" DDR1ERR_N           :(G18,                " &
"                       G17),               " &
" DDR1DQ              :(V7,                 " &
"                       Y4,                 " &
"                       T7,                 " &
"                       T8,                 " &
"                       W6,                 " &
"                       Y6,                 " &
"                       U6,                 " &
"                       U7,                 " &
"                       P9,                 " &
"                       P7,                 " &
"                       N5,                 " &
"                       N7,                 " &
"                       R9,                 " &
"                       R8,                 " &
"                       P4,                 " &
"                       N4,                 " &
"                       M5,                 " &
"                       M6,                 " &
"                       M9,                 " &
"                       L9,                 " &
"                       N8,                 " &
"                       M3,                 " &
"                       M8,                 " &
"                       K7,                 " &
"                       K5,                 " &
"                       J6,                 " &
"                       F5,                 " &
"                       H7,                 " &
"                       K8,                 " &
"                       J8,                 " &
"                       G4,                 " &
"                       G5,                 " &
"                       H21,                " &
"                       H22,                " &
"                       K23,                " &
"                       K22,                " &
"                       H20,                " &
"                       J20,                " &
"                       K25,                " &
"                       L25,                " &
"                       N25,                " &
"                       N26,                " &
"                       M20,                " &
"                       N20,                " &
"                       L24,                " &
"                       M24,                " &
"                       L21,                " &
"                       M21,                " &
"                       R27,                " &
"                       R26,                " &
"                       T20,                " &
```

```
"                    R20,                " &
"                    P24,                " &
"                    P25,                " &
"                    R21,                " &
"                    P21,                " &
"                    U22,                " &
"                    U24,                " &
"                    Y22,                " &
"                    AA23,               " &
"                    T21,                " &
"                    T23,                " &
"                    Y24,                " &
"                    Y23),               " &
" DDR1DQSP          :(F24,                " &
"                    V5,                 " &
"                    P6,                 " &
"                    L7,                 " &
"                    H6,                 " &
"                    J23,                " &
"                    N22,                " &
"                    T22,                " &
"                    W23,                " &
"                    E24,                " &
"                    W5,                 " &
"                    T5,                 " &
"                    L4,                 " &
"                    J3,                 " &
"                    J21,                " &
"                    L22,                " &
"                    R24,                " &
"                    U23),               " &
" DDR1DQSN          :(F26,                " &
"                    V6,                 " &
"                    R6,                 " &
"                    L6,                 " &
"                    H4,                 " &
"                    J24,                " &
"                    N23,                " &
"                    P22,                " &
"                    V23,                " &
"                    E25,                " &
"                    W4,                 " &
"                    R5,                 " &
"                    K4,                 " &
"                    J5,                 " &
"                    K20,                " &
"                    M23,                " &
"                    R23,                " &
"                    V24),               " &
" DDR1CS_N          :(F6,                 " &
"                    G6,                 " &
"                    E8,                 " &
"                    D9,                 " &
"                    E6,                 " &
"                    E5,                 " &
"                    F8,                 " &
"                    G8),                " &
" DDR1CLKP          :(D17,                " &
"                    F14),               " &
" DDR1CLKN          :(D18,                " &
"                    F13),               " &
" DDR1CKE           :(F22,                " &
"                    F23,                " &
```

```
"                       G22,                " &
"                       G19),               " &
" DDR1CB               :(C27,               " &
"                       D26,                " &
"                       H25,                " &
"                       H24,                " &
"                       C25,                " &
"                       D25,                " &
"                       G25,                " &
"                       G23),               " &
" DDR1CAS_N            : E10,               " &
" DDR1BA               :(D23,               " &
"                       C11,                " &
"                       E11),               " &
" DDR1A                :(F21,               " &
"                       E22,                " &
"                       F10,                " &
"                       D22,                " &
"                       E20,                " &
"                       C12,                " &
"                       E21,                " &
"                       D19,                " &
"                       F19,                " &
"                       F18,                " &
"                       E18,                " &
"                       E17,                " &
"                       E16,                " &
"                       F15,                " &
"                       F16,                " &
"                       D12),               " &
" DDR0WE_N             : B9,                " &
" DDR0RESET_N          : A25,               " &
" DDR0RAS_N            : A9,                " &
" DDR0PAR              : B13,               " &
" DDR0ODT              :(A5,                " &
"                       A6,                 " &
"                       B6,                 " &
"                       D7),                " &
" DDR0EVENT_N          : A13,               " &
" DDR0ERR_N            :(C21,               " &
"                       C20),               " &
" DDR0DQ               :(AC4,               " &
"                       AA5,                " &
"                       W2,                 " &
"                       W1,                 " &
"                       AC5,                " &
"                       AB5,                " &
"                       Y3,                 " &
"                       Y1,                 " &
"                       V2,                 " &
"                       U3,                 " &
"                       P3,                 " &
"                       T4,                 " &
"                       U4,                 " &
"                       V3,                 " &
"                       R3,                 " &
"                       P1,                 " &
"                       M2,                 " &
"                       L3,                 " &
"                       G1,                 " &
"                       G2,                 " &
"                       N2,                 " &
"                       N1,                 " &
```

```
"                       H1,                 " &
"                       H3,                 " &
"                       F2,                 " &
"                       E3,                 " &
"                       B3,                 " &
"                       B4,                 " &
"                       E4,                 " &
"                       F3,                 " &
"                       C3,                 " &
"                       D4,                 " &
"                       J26,                " &
"                       H27,                " &
"                       L27,                " &
"                       M26,                " &
"                       F27,                " &
"                       G26,                " &
"                       K26,                " &
"                       L28,                " &
"                       N28,                " &
"                       N29,                " &
"                       U28,                " &
"                       V29,                " &
"                       M27,                " &
"                       M29,                " &
"                       T29,                " &
"                       U27,                " &
"                       U25,                " &
"                       V26,                " &
"                       W25,                " &
"                       Y25,                " &
"                       T25,                " &
"                       T26,                " &
"                       Y29,                " &
"                       W26,                " &
"                       AA27,               " &
"                       AB27,               " &
"                       AC24,               " &
"                       AB24,               " &
"                       Y27,                " &
"                       AA28,               " &
"                       AC25,               " &
"                       AA24),              " &
" DDR0DQSP            :(E28,                " &
"                       AA2,                " &
"                       R2,                 " &
"                       J2,                 " &
"                       C2,                 " &
"                       K29,                " &
"                       T28,                " &
"                       Y28,                " &
"                       AB25,               " &
"                       D28,                " &
"                       AB4,                " &
"                       U1,                 " &
"                       L1,                 " &
"                       E1,                 " &
"                       J27,                " &
"                       P27,                " &
"                       V27,                " &
"                       AA26),              " &
" DDR0DQSN            :(E27,                " &
"                       AA3,                " &
"                       T1,                 " &
```

```
"                       K1,                 " &
"                       D1,                 " &
"                       K28,                " &
"                       R29,                " &
"                       W29,                " &
"                       AC26,               " &
"                       D29,                " &
"                       AB3,                " &
"                       T2,                 " &
"                       K2,                 " &
"                       D2,                 " &
"                       J29,                " &
"                       P28,                " &
"                       W28,                " &
"                       AB26),              " &
" DDR0CS_N             :(A4,                " &
"                       D5,                 " &
"                       C6,                 " &
"                       B7,                 " &
"                       C5,                 " &
"                       C4,                 " &
"                       C7,                 " &
"                       C9),                " &
" DDR0CLKP             :(C14,               " &
"                       D13),               " &
" DDR0CLKN             :(D14,               " &
"                       E13),               " &
" DDR0CKE              :(A24,               " &
"                       C24,                " &
"                       B24,                " &
"                       C22),               " &
" DDR0CB               :(B27,               " &
"                       C28,                " &
"                       G29,                " &
"                       H28,                " &
"                       A26,                " &
"                       B26,                " &
"                       F29,                " &
"                       G28),               " &
" DDR0CAS_N            : A8,                " &
" DDR0BA               :(B22,               " &
"                       B11,                " &
"                       A10),               " &
" DDR0A                :(B23,               " &
"                       A23,                " &
"                       B8,                 " &
"                       B21,                " &
"                       A20,                " &
"                       A11,                " &
"                       A21,                " &
"                       A19,                " &
"                       B19,                " &
"                       B18,                " &
"                       A18,                " &
"                       B17,                " &
"                       B16,                " &
"                       A15,                " &
"                       A16,                " &
"                       B12),               " &
" CLK133P              : P10,               " &
" CLK133N              : P11 ";

attribute PORT_GROUPING of mb1_top : entity is
```

```
"Differential_Voltage   ((FBDNBOP(0),  FBDNBON(0))      ,"&
"                                                 (FBDNBOP(1),  FBDNBON(1))      ,"&
"                                                 (FBDNBOP(2),  FBDNBON(2))      ,"&
"                                                 (FBDNBOP(3),  FBDNBON(3))      ,"&
"                                                 (FBDNBOP(4),  FBDNBON(4))      ,"&
"                                                 (FBDNBOP(5),  FBDNBON(5))      ,"&
"                                                 (FBDNBOP(6),  FBDNBON(6))      ,"&
"                                                 (FBDNBOP(7),  FBDNBON(7))      ,"&
"                                                 (FBDNBOP(8),  FBDNBON(8))      ,"&
"                                                 (FBDNBOP(9),  FBDNBON(9))      ,"&
"                                                 (FBDNBOP(10), FBDNBON(10))     ,"&
"                                                 (FBDNBOP(11), FBDNBON(11))     ,"&
"                                                 (FBDNBOP(12), FBDNBON(12))     ,"&
"                                                 (FBDNBOP(13), FBDNBON(13)) ,"&
"                                                 (FBDNBOCLKP,  FBDNBOCLKN )) ";

attribute TAP_SCAN_IN of TDI : signal is true;
attribute TAP_SCAN_MODE of TMS : signal is true;
attribute TAP_SCAN_OUT of TDO : signal is true;
attribute TAP_SCAN_CLOCK of TCK : signal is (40.0e6, BOTH);
attribute TAP_SCAN_RESET of TRST_N : signal is true;

-- This section specifies compliance enable description (Section 4.8)
   attribute COMPLIANCE_PATTERNS of mb1_top : entity is
      "(VCCPWRGOOD, VDDPWRGOOD, RST_N) (110)";

attribute INSTRUCTION_LENGTH of mb1_top : entity is 7;
attribute INSTRUCTION_OPCODE of mb1_top : entity is
    "extest          (0000000)," &
    "sample          (0000001)," &
    "idcode          (0000010)," &
    "clamp           (0000100)," &
    "highz           (0001000)," &
    "bypass          (1111111)," &
        "reserved        (0110100, 0110101, 1000011, 1000110, 1000111,  " &
        "                 1001000, 1001001, 1001101, 1001110, 1001111,  " &
        "                 1010000, 1010001, 1010010, 1010011, 1010101,  " &
        "                 1010110, 1010111, 1100000, 1100001, 1100010,  " &
        "                 1100011, 1110000)";

attribute INSTRUCTION_CAPTURE of mb1_top : entity is "0000001";
attribute INSTRUCTION_PRIVATE of mb1_top : entity is "reserved";

attribute IDCODE_REGISTER of mb1_top : entity is
    "1000" &               -- Version Number (C0-Step)
    "111110" &             -- Product Segment
    "000000" &             -- Product Type
    "000010" &             -- Component Number
    "000001001" &          -- Manufacturer ID
    "1";                   -- Required by IEEE Std. to be 1

attribute REGISTER_ACCESS of mb1_top : entity is
    "BOUNDARY (extest, sample)," &
    "DEVICE_ID (idcode)," &
    "BYPASS (bypass, highz)";

attribute BOUNDARY_LENGTH of mb1_top: entity is 439;
attribute BOUNDARY_REGISTER of mb1_top : entity is
-- GC=1/0, RX is input; GC=0, RX is output GC has to be 0 for RX to be output, for
input we do not care.
-- num  cell            port                              function                safe
[ccell  disval  rslt]
--------------------------------------------------------------------------------
```

```
-
"  438( bc_1,           *,                                      control,
0)," &
"  437( bc_7,           SCL,                          bidir,                X,
      438,    0,              WEAK1)," &
"  436( bc_1,           *,                                      control,
0)," &
"  435( bc_7,           LAIEV(0),                     bidir,                X,
436,    0,      WEAK1)," &
"  434( bc_1,           *,                                      control,
0)," &
"  433( bc_7,           LAIEV(1),                     bidir,                X,
434,    0,      WEAK1)," &
"  432( bc_1,           *,                                      control,
0)," &
"  431( bc_7,           LAIEV(2),                     bidir,                X,
432,    0,      WEAK1)," &
"  430( bc_1,           *,                                      internal,
0)," &
"  429( bc_1,           *,                                      internal,
X)," &
"  428( bc_1,           *,                                      control,
0)," &
"  427( bc_7,           SDA,                          bidir,                X,
428,    0,      WEAK1)," &
"  426( bc_1,           *,                                      internal,
0)," &
"  425( bc_1,           *,                                      internal,
X)," &
"  424( bc_1,           *,                                      control,
0)," &
"  423( bc_7,           SA0,                          bidir,                X,
424,    0,      Z)," &
"  422( bc_1,           *,                                      control,
0)," &
"  421( bc_7,           LAIMODE_N,                    bidir,                X,
422,    0,      Z)," &
"  420( bc_1,           *,                                      control,
0)," &
"  419( bc_7,           LAIEV(3),                     bidir,                X,
420,    0,      WEAK1)," &
"  418( bc_1,           *,                                      control,
0)," &
"  417( bc_7,           LAISCL,                       bidir,                X,
418,    0,      WEAK1)," &
"  416( bc_1,           *,                                      internal,
0)," &
"  415( bc_1,           *,                                      internal,
X)," &
"  414( bc_1,           *,                                      internal,
0)," &
"  413( bc_1,           *,                                      internal,
X)," &
"  412( bc_1,           *,                                      control,
0)," &
"  411( bc_7,           DDR0EVENT_N,            bidir,                  X,      412,
   0,      Z)," &
"  410( bc_1,           *,                                      control,
0)," &
"  409( bc_7,           LAISDA,                       bidir,                X,
410,    0,      WEAK1)," &
"  408( bc_1,           *,                                      control,
0)," &
```

```
"  407( bc_7,          DDR1EVENT_N,          bidir,                X,      408,
   0,      Z)," &
"  406( bc_1,          *,                                  internal,
0)," &
"  405( bc_1,          *,                                  internal,
X)," &
"  404( bc_1,          *,                                  internal,
X)," &
"  403( bc_1,          *,                                  internal,
X)," &
"  402( bc_10,         DDR0DQ(57),                output2,              X),"
&
"  401( bc_10,         DDR0DQ(56),                output2,              X),"
&
"  400( bc_10,         DDR0DQ(59),                output2,              X),"
&
"  399( bc_10,         DDR0DQ(58),                output2,              X),"
&
"  398( bc_0,          DDR0DQSN(7),          output2,              X)," &
"  397( bc_0,          DDR0DQSP(7),          output2,              X)," &
"  396( bc_0,          DDR0DQSN(16),         output2,              X)," &
"  395( bc_0,          DDR0DQSP(16),         output2,              X)," &
"  394( bc_10,         DDR0DQ(61),                output2,              X),"
&
"  393( bc_10,         DDR0DQ(60),                output2,              X),"
&
"  392( bc_10,         DDR0DQ(63),                output2,              X),"
&
"  391( bc_10,         DDR0DQ(62),                output2,              X),"
&
"  390( bc_1,          *,                                  internal,
X)," &
"  389( bc_10,         DDR1DQ(57),                output2,              X),"
&
"  388( bc_10,         DDR1DQ(56),                output2,              X),"
&
"  387( bc_10,         DDR1DQ(59),                output2,              X),"
&
"  386( bc_10,         DDR1DQ(58),                output2,              X),"
&
"  385( bc_0,          DDR1DQSN(7),          output2,              X)," &
"  384( bc_0,          DDR1DQSP(7),          output2,              X)," &
"  383( bc_0,          DDR1DQSN(16),         output2,              X)," &
"  382( bc_0,          DDR1DQSP(16),         output2,              X)," &
"  381( bc_10,         DDR1DQ(60),                output2,              X),"
&
"  380( bc_10,         DDR1DQ(61),                output2,              X),"
&
"  379( bc_10,         DDR1DQ(63),                output2,              X),"
&
"  378( bc_10,         DDR1DQ(62),                output2,              X),"
&
"  377( bc_1,          *,                                  internal,
X)," &
"  376( bc_10,         DDR0DQ(49),                output2,              X),"
&
"  375( bc_10,         DDR0DQ(48),                output2,              X),"
&
"  374( bc_10,         DDR0DQ(50),                output2,              X),"
&
"  373( bc_10,         DDR0DQ(51),                output2,              X),"
&
"  372( bc_0,          DDR0DQSN(6),          output2,              X)," &
```

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"  371( bc_0,          DDR0DQSP(6),          output2,              X)," &
"  370( bc_0,          DDR0DQSN(15),         output2,              X)," &
"  369( bc_0,          DDR0DQSP(15),         output2,              X)," &
"  368( bc_10,         DDR0DQ(53),                 output2,                X),"
&
"  367( bc_10,         DDR0DQ(55),                 output2,                X),"
&
"  366( bc_10,         DDR0DQ(54),                 output2,                X),"
&
"  365( bc_10,         DDR0DQ(52),                 output2,                X),"
&
"  364( bc_1,          *,                                 internal,
X)," &
"  363( bc_10,         DDR1DQ(50),                 output2,                X),"
&
"  362( bc_10,         DDR1DQ(48),                 output2,                X),"
&
"  361( bc_10,         DDR1DQ(49),                 output2,                X),"
&
"  360( bc_10,         DDR1DQ(51),                 output2,                X),"
&
"  359( bc_0,          DDR1DQSN(6),          output2,              X)," &
"  358( bc_0,          DDR1DQSP(6),          output2,              X)," &
"  357( bc_0,          DDR1DQSN(15),         output2,              X)," &
"  356( bc_0,          DDR1DQSP(15),         output2,              X)," &
"  355( bc_10,         DDR1DQ(55),                 output2,                X),"
&
"  354( bc_10,         DDR1DQ(54),                 output2,                X),"
&
"  353( bc_10,         DDR1DQ(52),                 output2,                X),"
&
"  352( bc_10,         DDR1DQ(53),                 output2,                X),"
&
"  351( bc_1,          *,                                 internal,
X)," &
"  350( bc_10,         DDR0DQ(40),                 output2,                X),"
&
"  349( bc_10,         DDR0DQ(41),                 output2,                X),"
&
"  348( bc_10,         DDR0DQ(42),                 output2,                X),"
&
"  347( bc_10,         DDR0DQ(43),                 output2,                X),"
&
"  346( bc_0,          DDR0DQSN(5),          output2,              X)," &
"  345( bc_0,          DDR0DQSP(5),          output2,              X)," &
"  344( bc_0,          DDR0DQSN(14),         output2,              X)," &
"  343( bc_0,          DDR0DQSP(14),         output2,              X)," &
"  342( bc_10,         DDR0DQ(44),                 output2,                X),"
&
"  341( bc_10,         DDR0DQ(45),                 output2,                X),"
&
"  340( bc_10,         DDR0DQ(46),                 output2,                X),"
&
"  339( bc_10,         DDR0DQ(47),                 output2,                X),"
&
"  338( bc_1,          *,                                 internal,
X)," &
"  337( bc_10,         DDR1DQ(41),                 output2,                X),"
&
"  336( bc_10,         DDR1DQ(40),                 output2,                X),"
&
"  335( bc_10,         DDR1DQ(43),                 output2,                X),"
&
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"  334( bc_10,          DDR1DQ(42),                    output2,               X),"
&
"  333( bc_0,           DDR1DQSN(5),           output2,               X)," &
"  332( bc_0,           DDR1DQSP(5),           output2,               X)," &
"  331( bc_0,           DDR1DQSN(14),          output2,               X)," &
"  330( bc_0,           DDR1DQSP(14),          output2,               X)," &
"  329( bc_10,          DDR1DQ(44),                    output2,               X),"
&
"  328( bc_10,          DDR1DQ(45),                    output2,               X),"
&
"  327( bc_10,          DDR1DQ(46),                    output2,               X),"
&
"  326( bc_10,          DDR1DQ(47),                    output2,               X),"
&
"  325( bc_1,           *,                                     internal,
X)," &
"  324( bc_10,          DDR0DQ(33),                    output2,               X),"
&
"  323( bc_10,          DDR0DQ(32),                    output2,               X),"
&
"  322( bc_10,          DDR0DQ(35),                    output2,               X),"
&
"  321( bc_10,          DDR0DQ(34),                    output2,               X),"
&
"  320( bc_0,           DDR0DQSN(4),           output2,               X)," &
"  319( bc_0,           DDR0DQSP(4),           output2,               X)," &
"  318( bc_0,           DDR0DQSN(13),          output2,               X)," &
"  317( bc_0,           DDR0DQSP(13),          output2,               X)," &
"  316( bc_10,          DDR0DQ(36),                    output2,               X),"
&
"  315( bc_10,          DDR0DQ(37),                    output2,               X),"
&
"  314( bc_10,          DDR0DQ(39),                    output2,               X),"
&
"  313( bc_10,          DDR0DQ(38),                    output2,               X),"
&
"  312( bc_1,           *,                             internal,              X),"
&
"  311( bc_10,          DDR1DQ(35),                    output2,               X),"
&
"  310( bc_10,          DDR1DQ(34),                    output2,               X),"
&
"  309( bc_10,          DDR1DQ(33),                    output2,               X),"
&
"  308( bc_10,          DDR1DQ(32),                    output2,               X),"
&
"  307( bc_0,           DDR1DQSN(4),           output2,               X)," &
"  306( bc_0,           DDR1DQSP(4),           output2,               X)," &
"  305( bc_0,           DDR1DQSN(13),          output2,               X)," &
"  304( bc_0,           DDR1DQSP(13),          output2,               X)," &
"  303( bc_10,          DDR1DQ(36),                    output2,               X),"
&
"  302( bc_10,          DDR1DQ(38),                    output2,               X),"
&
"  301( bc_10,          DDR1DQ(37),                    output2,               X),"
&
"  300( bc_10,          DDR1DQ(39),                    output2,               X),"
&
"  299( bc_1,           *,                                     internal,
X)," &
"  298( bc_10,          DDR0ODT(0),                    output2,               X),"
&
"  297( bc_10,          DDR0CS_N(1),           output2,               X)," &
```

```
"  296( bc_10,          DDR0CS_N(0),            output2,                X)," &
"  295( bc_10,          DDR0CS_N(4),            output2,                X)," &
"  294( bc_10,          DDR0ODT(2),                     output2,                X),"
&
"  293( bc_10,          DDR0CS_N(7),            output2,                X)," &
"  292( bc_10,          DDR0ODT(1),                     output2,                X),"
&
"  291( bc_10,          DDR0CS_N(3),            output2,                X)," &
"  290( bc_10,          DDR0ODT(3),                     output2,                X),"
&
"  289( bc_10,          DDR0CS_N(6),            output2,                X)," &
"  288( bc_10,          DDR0CS_N(5),            output2,                X)," &
"  287( bc_10,          DDR0CS_N(2),            output2,                X)," &
"  286( bc_1,           *,                                      internal,
X)," &
"  285( bc_10,          DDR1CS_N(1),            output2,                X)," &
"  284( bc_10,          DDR1CS_N(4),            output2,                X)," &
"  283( bc_10,          DDR1CS_N(5),            output2,                X)," &
"  282( bc_10,          DDR1ODT(0),                     output2,                X),"
&
"  281( bc_10,          DDR1CS_N(0),            output2,                X)," &
"  280( bc_10,          DDR1CS_N(6),            output2,                X)," &
"  279( bc_10,          DDR1ODT(1),                     output2,                X),"
&
"  278( bc_10,          DDR1CS_N(2),            output2,                X)," &
"  277( bc_10,          DDR1ODT(3),                     output2,                X),"
&
"  276( bc_10,          DDR1CS_N(3),            output2,                X)," &
"  275( bc_10,          DDR1ODT(2),                     output2,                X),"
&
"  274( bc_10,          DDR1CS_N(7),            output2,                X)," &
"  273( bc_1,           *,                                      internal,
X)," &
"  272( bc_1,           *,                                      internal,
X)," &
"  271( bc_1,           *,                                      internal,
X)," &
"  270( bc_1,           *,                                      internal,
X)," &
"  269( bc_1,           *,                                      internal,
X)," &
"  268( bc_10,          DDR1CLKP(1),            output2,                X)," &
"  267( bc_10,          DDR1CLKN(1),            output2,                X)," &
"  266( bc_1,           *,                                      internal,
X)," &
"  265( bc_1,           *,                                      internal,
X)," &
"  264( bc_1,           *,                                      internal,
X)," &
"  263( bc_1,           *,                                      internal,
X)," &
"  262( bc_10,          DDR1CLKP(0),            output2,                X)," &
"  261( bc_10,          DDR1CLKN(0),            output2,                X)," &
"  260( bc_1,           *,                                      internal,
X)," &
"  259( bc_1,           *,                                      internal,
X)," &
"  258( bc_1,           *,                                      internal,
X)," &
"  257( bc_10,          DDR0CLKP(0),            output2,                X)," &
"  256( bc_10,          DDR0CLKN(0),            output2,                X)," &
"  255( bc_1,           *,                                      internal,
X)," &
```

```
"  254( bc_1,          *,                                    internal,
X)," &
"  253( bc_1,          *,                                    internal,
X)," &
"  252( bc_1,          *,                                    internal,
X)," &
"  251( bc_10,         DDR0CLKP(1),          output2,                X)," &
"  250( bc_10,         DDR0CLKN(1),          output2,                X)," &
"  249( bc_1,          *,                                    internal,
X)," &
"  248( bc_1,          *,                                    internal,
X)," &
"  247( bc_1,          *,                                    internal,
X)," &
"  246( bc_10,         DDR0A(13),                  output2,              X),"
&
"  245( bc_10,         DDR0BA(1),                  output2,              X),"
&
"  244( bc_10,         DDR0BA(0),                  output2,              X),"
&
"  243( bc_10,         DDR0A(0),                   output2,              X),"
&
"  242( bc_10,         DDR0PAR,                    output2,              X),"
&
"  241( bc_10,         DDR0A(10),                  output2,              X),"
&
"  240( bc_10,         DDR0A(1),                   output2,              X),"
&
"  239( bc_10,         DDR0A(4),                   output2,              X),"
&
"  238( bc_10,         DDR0A(2),                   output2,              X),"
&
"  237( bc_10,         DDR0A(3),                   output2,              X),"
&
"  236( bc_1,          *,                                    internal,
X)," &
"  235( bc_10,         DDR1A(10),                  output2,              X),"
&
"  234( bc_10,         DDR1A(0),                   output2,              X),"
&
"  233( bc_10,         DDR1BA(1),                  output2,              X),"
&
"  232( bc_10,         DDR1A(13),                  output2,              X),"
&
"  231( bc_10,         DDR1A(4),                   output2,              X),"
&
"  230( bc_10,         DDR1A(3),                   output2,              X),"
&
"  229( bc_10,         DDR1A(2),                   output2,              X),"
&
"  228( bc_10,         DDR1A(1),                   output2,              X),"
&
"  227( bc_10,         DDR1BA(0),                  output2,              X),"
&
"  226( bc_10,         DDR1PAR,                    output2,              X),"
&
"  225( bc_1,          *,                                    internal,
X)," &
"  224( bc_10,         DDR0DQ(0),                  output2,              X),"
&
"  223( bc_10,         DDR0DQ(1),                  output2,              X),"
&
"  222( bc_10,         DDR0DQ(2),                  output2,              X),"
```

```
&
"  221( bc_10,          DDR0DQ(3),                      output2,               X),"
&
"  220( bc_0,           DDR0DQSN(0),           output2,               X)," &
"  219( bc_0,           DDR0DQSP(0),           output2,               X)," &
"  218( bc_0,           DDR0DQSN(9),           output2,               X)," &
"  217( bc_0,           DDR0DQSP(9),           output2,               X)," &
"  216( bc_10,          DDR0DQ(5),                      output2,               X),"
&
"  215( bc_10,          DDR0DQ(4),                      output2,               X),"
&
"  214( bc_10,          DDR0DQ(6),                      output2,               X),"
&
"  213( bc_10,          DDR0DQ(7),                      output2,               X),"
&
"  212( bc_1,           *,                                      internal,
X)," &
"  211( bc_10,          DDR1DQ(0),                      output2,               X),"
&
"  210( bc_10,          DDR1DQ(1),                      output2,               X),"
&
"  209( bc_10,          DDR1DQ(3),                      output2,               X),"
&
"  208( bc_10,          DDR1DQ(2),                      output2,               X),"
&
"  207( bc_0,           DDR1DQSN(0),           output2,               X)," &
"  206( bc_0,           DDR1DQSP(0),           output2,               X)," &
"  205( bc_0,           DDR1DQSN(9),           output2,               X)," &
"  204( bc_0,           DDR1DQSP(9),           output2,               X)," &
"  203( bc_10,          DDR1DQ(5),                      output2,               X),"
&
"  202( bc_10,          DDR1DQ(4),                      output2,               X),"
&
"  201( bc_10,          DDR1DQ(6),                      output2,               X),"
&
"  200( bc_10,          DDR1DQ(7),                      output2,               X),"
&
"  199( bc_1,           *,                                      internal,
X)," &
"  198( bc_10,          DDR0DQ(8),                      output2,               X),"
&
"  197( bc_10,          DDR0DQ(9),                      output2,               X),"
&
"  196( bc_10,          DDR0DQ(11),                     output2,               X),"
&
"  195( bc_10,          DDR0DQ(10),                     output2,               X),"
&
"  194( bc_0,           DDR0DQSN(1),           output2,               X)," &
"  193( bc_0,           DDR0DQSP(1),           output2,               X)," &
"  192( bc_0,           DDR0DQSN(10),          output2,               X)," &
"  191( bc_0,           DDR0DQSP(10),          output2,               X)," &
"  190( bc_10,          DDR0DQ(13),                     output2,               X),"
&
"  189( bc_10,          DDR0DQ(12),                     output2,               X),"
&
"  188( bc_10,          DDR0DQ(14),                     output2,               X),"
&
"  187( bc_10,          DDR0DQ(15),                     output2,               X),"
&
"  186( bc_1,           *,                                      internal,
X)," &
"  185( bc_10,          DDR1DQ(8),                      output2,               X),"
&
```

```
"  184( bc_10,          DDR1DQ(9),                      output2,               X),"
&
"  183( bc_10,          DDR1DQ(10),                     output2,               X),"
&
"  182( bc_10,          DDR1DQ(11),                     output2,               X),"
&
"  181( bc_0,           DDR1DQSN(1),            output2,               X)," &
"  180( bc_0,           DDR1DQSP(1),            output2,               X)," &
"  179( bc_0,           DDR1DQSN(10),           output2,               X)," &
"  178( bc_0,           DDR1DQSP(10),           output2,               X)," &
"  177( bc_10,          DDR1DQ(13),                     output2,               X),"
&
"  176( bc_10,          DDR1DQ(12),                     output2,               X),"
&
"  175( bc_10,          DDR1DQ(15),                     output2,               X),"
&
"  174( bc_10,          DDR1DQ(14),                     output2,               X),"
&
"  173( bc_1,           *,                                      internal,
X)," &
"  172( bc_10,          DDR0DQ(17),                     output2,               X),"
&
"  171( bc_10,          DDR0DQ(16),                     output2,               X),"
&
"  170( bc_10,          DDR0DQ(18),                     output2,               X),"
&
"  169( bc_10,          DDR0DQ(19),                     output2,               X),"
&
"  168( bc_0,           DDR0DQSN(2),            output2,               X)," &
"  167( bc_0,           DDR0DQSP(2),            output2,               X)," &
"  166( bc_0,           DDR0DQSN(11),           output2,               X)," &
"  165( bc_0,           DDR0DQSP(11),           output2,               X)," &
"  164( bc_10,          DDR0DQ(21),                     output2,               X),"
&
"  163( bc_10,          DDR0DQ(20),                     output2,               X),"
&
"  162( bc_10,          DDR0DQ(22),                     output2,               X),"
&
"  161( bc_10,          DDR0DQ(23),                     output2,               X),"
&
"  160( bc_1,           *,                                      internal,
X)," &
"  159( bc_10,          DDR1DQ(17),                     output2,               X),"
&
"  158( bc_10,          DDR1DQ(16),                     output2,               X),"
&
"  157( bc_10,          DDR1DQ(18),                     output2,               X),"
&
"  156( bc_10,          DDR1DQ(19),                     output2,               X),"
&
"  155( bc_0,           DDR1DQSN(2),            output2,               X)," &
"  154( bc_0,           DDR1DQSP(2),            output2,               X)," &
"  153( bc_0,           DDR1DQSN(11),           output2,               X)," &
"  152( bc_0,           DDR1DQSP(11),           output2,               X)," &
"  151( bc_10,          DDR1DQ(23),                     output2,               X),"
&
"  150( bc_10,          DDR1DQ(20),                     output2,               X),"
&
"  149( bc_10,          DDR1DQ(22),                     output2,               X),"
&
"  148( bc_10,          DDR1DQ(21),                     output2,               X),"
&
"  147( bc_1,           *,                                      internal,
```

```
X)," &
"  146( bc_10,          DDR0DQ(25),                    output2,               X)," 
&
"  145( bc_10,          DDR0DQ(24),                    output2,               X)," 
&
"  144( bc_10,          DDR0DQ(27),                    output2,               X)," 
&
"  143( bc_10,          DDR0DQ(26),                    output2,               X)," 
&
"  142( bc_0,           DDR0DQSN(3),           output2,               X)," &
"  141( bc_0,           DDR0DQSP(3),           output2,               X)," &
"  140( bc_0,           DDR0DQSN(12),          output2,               X)," &
"  139( bc_0,           DDR0DQSP(12),          output2,               X)," &
"  138( bc_10,          DDR0DQ(29),                    output2,               X)," 
&
"  137( bc_10,          DDR0DQ(28),                    output2,               X)," 
&
"  136( bc_10,          DDR0DQ(30),                    output2,               X)," 
&
"  135( bc_10,          DDR0DQ(31),                    output2,               X)," 
&
"  134( bc_1,           *,                                     internal,
X)," &
"  133( bc_10,          DDR1DQ(24),                    output2,               X)," 
&
"  132( bc_10,          DDR1DQ(26),                    output2,               X)," 
&
"  131( bc_10,          DDR1DQ(27),                    output2,               X)," 
&
"  130( bc_10,          DDR1DQ(25),                    output2,               X)," 
&
"  129( bc_0,           DDR1DQSN(3),           output2,               X)," &
"  128( bc_0,           DDR1DQSP(3),           output2,               X)," &
"  127( bc_0,           DDR1DQSN(12),          output2,               X)," &
"  126( bc_0,           DDR1DQSP(12),          output2,               X)," &
"  125( bc_10,          DDR1DQ(28),                    output2,               X)," 
&
"  124( bc_10,          DDR1DQ(29),                    output2,               X)," 
&
"  123( bc_10,          DDR1DQ(30),                    output2,               X)," 
&
"  122( bc_10,          DDR1DQ(31),                    output2,               X)," 
&
"  121( bc_1,           *,                                     internal,
X)," &
"  120( bc_10,          DDR0CB(1),                     output2,               X)," 
&
"  119( bc_10,          DDR0CB(0),                     output2,               X)," 
&
"  118( bc_10,          DDR0CB(2),                     output2,               X)," 
&
"  117( bc_10,          DDR0CB(3),                     output2,               X)," 
&
"  116( bc_0,           DDR0DQSN(8),           output2,               X)," &
"  115( bc_0,           DDR0DQSP(8),           output2,               X)," &
"  114( bc_0,           DDR0DQSN(17),          output2,               X)," &
"  113( bc_0,           DDR0DQSP(17),          output2,               X)," &
"  112( bc_10,          DDR0CB(5),                     output2,               X)," 
&
"  111( bc_10,          DDR0CB(4),                     output2,               X)," 
&
"  110( bc_10,          DDR0CB(6),                     output2,               X)," 
&
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```
"  109( bc_10,          DDR0CB(7),                      output2,                X),"
&
"  108( bc_1,           *,                                      internal,
X)," &
"  107( bc_10,          DDR1CB(0),                      output2,                X),"
&
"  106( bc_10,          DDR1CB(1),                      output2,                X),"
&
"  105( bc_10,          DDR1CB(3),                      output2,                X),"
&
"  104( bc_10,          DDR1CB(2),                      output2,                X),"
&
"  103( bc_0,           DDR1DQSN(8),            output2,                X)," &
"  102( bc_0,           DDR1DQSP(8),            output2,                X)," &
"  101( bc_0,           DDR1DQSN(17),           output2,                X)," &
"  100( bc_0,           DDR1DQSP(17),           output2,                X)," &
"  99(  bc_10,          DDR1CB(4),                      output2,                X),"
&
"  98(  bc_10,          DDR1CB(5),                      output2,                X),"
&
"  97(  bc_10,          DDR1CB(6),                      output2,                X),"
&
"  96(  bc_10,          DDR1CB(7),                      output2,                X),"
&
"  95(  bc_1,           *,                                      internal,
X)," &
"  94(  bc_10,          DDR0A(12),                      output2,                X),"
&
"  93(  bc_10,          DDR0A(14),                      output2,                X),"
&
"  92(  bc_10,          DDR0A(15),                      output2,                X),"
&
"  91(  bc_10,          DDR0BA(2),                      output2,                X),"
&
"  90(  bc_10,          DDR0CKE(2),                     output2,                X),"
&
"  89(  bc_10,          DDR0CKE(1),                     output2,                X),"
&
"  88(  bc_10,          DDR0CKE(3),                     output2,                X),"
&
"  87(  bc_10,          DDR0CKE(0),                     output2,                X),"
&
"  86(  bc_1,           *,                                      internal,
X)," &
"  85(  bc_4,           DDR0ERR_N(1),           observe_only,   X)," &
"  84(  bc_4,           DDR0ERR_N(0),           observe_only,   X)," &
"  83(  bc_4,           *,                                      internal,
X)," &
"  82(  bc_10,          DDR0RESET_N,            output2,                X)," &
"  81(  bc_10,          DDR1A(12),                      output2,                X),"
&
"  80(  bc_10,          DDR1BA(2),                      output2,                X),"
&
"  79(  bc_10,          DDR1A(14),                      output2,                X),"
&
"  78(  bc_10,          DDR1A(15),                      output2,                X),"
&
"  77(  bc_10,          DDR1CKE(0),                     output2,                X),"
&
"  76(  bc_10,          DDR1CKE(1),                     output2,                X),"
&
"  75(  bc_10,          DDR1CKE(2),                     output2,                X),"
&
```

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"  74(  bc_10,          DDR1CKE(3),                    output2,               X),"
&
"  73(  bc_1,           *,                                     internal,
X)," &
"  72(  bc_4,           DDR1ERR_N(0),           observe_only,   X)," &
"  71(  bc_4,           DDR1ERR_N(1),           observe_only,   X)," &
"  70(  bc_4,           *,                                     internal,
X)," &
"  69(  bc_10,          DDR1RESET_N,            output2,                X)," &
"  68(  bc_1,           *,                                     internal,
X)," &
"  67(  bc_10,          DDR0A(6),                      output2,               X),"
&
"  66(  bc_10,          DDR0A(11),                     output2,               X),"
&
"  65(  bc_10,          DDR0A(8),                      output2,               X),"
&
"  64(  bc_10,          DDR0A(7),                      output2,               X),"
&
"  63(  bc_10,          DDR0A(5),                      output2,               X),"
&
"  62(  bc_10,          DDR0WE_N,                      output2,               X),"
&
"  61(  bc_10,          DDR0A(9),                      output2,               X),"
&
"  60(  bc_10,          DDR0CAS_N,                     output2,               X),"
&
"  59(  bc_10,          DDR0RAS_N,                     output2,               X),"
&
"  58(  bc_1,           *,                                     internal,
X)," &
"  57(  bc_10,          DDR1A(6),                      output2,               X),"
&
"  56(  bc_10,          DDR1A(11),                     output2,               X),"
&
"  55(  bc_10,          DDR1A(5),                      output2,               X),"
&
"  54(  bc_10,          DDR1A(8),                      output2,               X),"
&
"  53(  bc_10,          DDR1A(9),                      output2,               X),"
&
"  52(  bc_10,          DDR1WE_N,                      output2,               X),"
&
"  51(  bc_10,          DDR1CAS_N,                     output2,               X),"
&
"  50(  bc_10,          DDR1A(7),                      output2,               X),"
&
"  49(  bc_10,          DDR1RAS_N,                     output2,               X),"
&
"  48(  bc_1,           *,                                     internal,
X)," &
"  47(  bc_1,           *,                                     internal,
X)," &
"  46(  bc_4,           *,                                     internal,
X)," &
"  45(  bc_4,           *,                                     internal,
X)," &
"  44(  bc_1,           FBDSBIP(0),                    input,                 X),"
&
"  43(  bc_1,           FBDSBIN(0),                    input,                 X),"
&
"  42(  bc_1,           FBDSBIP(1),                    input,                 X),"
&
```

```
"  41(  bc_1,          FBDSBIN(1),                    input,                X),"
&
"  40(  bc_1,          FBDSBIP(2),                    input,                X),"
&
"  39(  bc_1,          FBDSBIN(2),                    input,                X),"
&
"  38(  bc_1,          *,                                    internal,
X)," &
"  37(  bc_1,          *,                                    internal,
X)," &
"  36(  bc_1,          FBDSBIP(3),                    input,                X),"
&
"  35(  bc_1,          FBDSBIN(3),                    input,                X),"
&
"  34(  bc_1,          *,                                    internal,
X)," &
"  33(  bc_1,          *,                                    internal,
X)," &
"  32(  bc_1,          FBDSBIP(8),                    input,                X),"
&
"  31(  bc_1,          FBDSBIN(8),                    input,                X),"
&
"  30(  bc_1,          FBDSBIP(7),                    input,                X),"
&
"  29(  bc_1,          FBDSBIN(7),                    input,                X),"
&
"  28(  bc_1,          FBDSBICLKP,                    input,                X),"
&
"  27(  bc_1,          FBDSBICLKN,                    input,                X),"
&
"  26(  bc_1,          FBDSBIP(9),                    input,                X),"
&
"  25(  bc_1,          FBDSBIN(9),                    input,                X),"
&
"  24(  bc_1,          FBDSBIP(4),                    input,                X),"
&
"  23(  bc_1,          FBDSBIN(4),                    input,                X),"
&
"  22(  bc_1,          FBDSBIP(6),                    input,                X),"
&
"  21(  bc_1,          FBDSBIN(6),                    input,                X),"
&
"  20(  bc_1,          FBDSBIP(5),                    input,                X),"
&
"  19(  bc_1,          FBDSBIN(5),                    input,                X),"
&
"  18(  bc_1,          FBDSBIP(10),            input,                X)," &
"  17(  bc_1,          FBDSBIN(10),            input,                X)," &
"  16(  bc_1,          *,                                    internal,
X)," &
"  15(  bc_1,          *,                                    internal,
X)," &
"  14(  bc_1,          FBDNBOP(1),                    output2,              X),"
&
"  13(  bc_1,          FBDNBOP(0),                    output2,              X),"
&
"  12(  bc_1,          FBDNBOP(3),                    output2,              X),"
&
"  11(  bc_1,          FBDNBOP(2),                    output2,              X),"
&
"  10(  bc_1,          FBDNBOP(13),            output2,              X)," &
"  9(   bc_1,          FBDNBOP(12),            output2,              X)," &
"  8(   bc_1,          FBDNBOCLKP,                    output2,              X),"
```

```
&
"  7(   bc_1,           FBDNBOP(7),                    output2,               X),"
&
"  6(   bc_1,           FBDNBOP(6),                    output2,               X),"
&
"  5(   bc_1,           FBDNBOP(8),                    output2,               X),"
&
"  4(   bc_1,           FBDNBOP(4),                    output2,               X),"
&
"  3(   bc_1,           FBDNBOP(10),           output2,               X)," &
"  2(   bc_1,           FBDNBOP(5),                    output2,               X),"
&
"  1(   bc_1,           FBDNBOP(11),           output2,               X)," &
"  0(   bc_1,           FBDNBOP(9),                    output2,               X)
";

end mb1_top;
```