

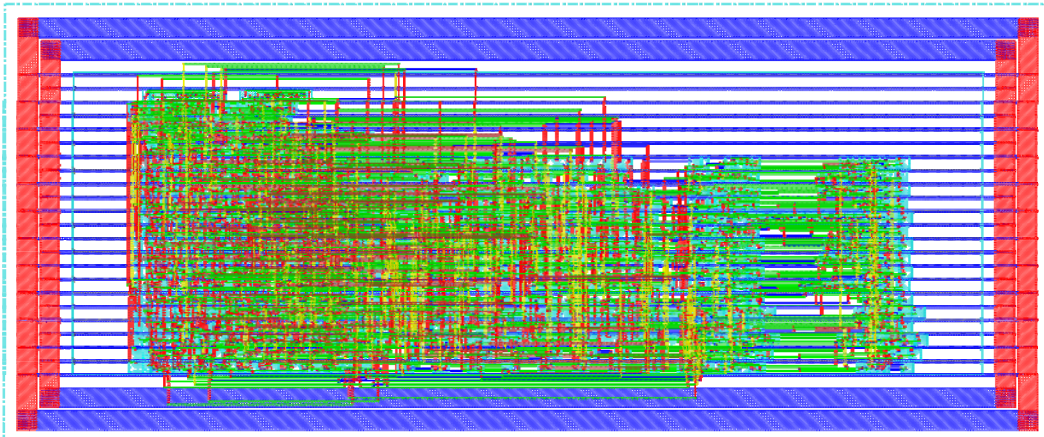
Synthesized Routing and Parameter Extraction of Multipliers

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Introduction

This project is an extension of the work done by the 2009-2010 Clay-Wolkin multipliers group. The project aimed to provide a more realistic simulation environment for multipliers by performing layout on a multiplier and extracting parameter values from that layout.

The overall objective of the multipliers project was to use automated sizing tools to perform fair comparisons of the energy and delay of different types of multiplier designs. To that end, the multipliers team developed scripts to generate Verilog code to describe many different designs of multipliers. This code also contained position information for cell placements, so that wire capacitance could be estimated based on relative cell positions.

During the spring semester, the multipliers team used a tool called Gatesizer to determine optimal cell sizes for a range of multiplier delays. In order to model wire capacitances, Gatesizer uses a SPEF file that contains a list of nets and wire capacitances. These wire capacitances are then incorporated into the Synopsis Primetime simulations in order to more accurately model the final multiplier delays. The multipliers team used a simple Manhattanized wire length estimation with a fixed capacitance per unit length to generate values for the SPEF file. However, this capacitance estimation was rather crude, and could provide misleading simulation results. The goal of this VLSI project was to improve the value of the Primetime simulations by performing actual routing and parameter extraction on multipliers designed by the research team. This allows the accuracy of the wire capacitance estimations to be evaluated by comparison to the extracted values.

The project uses a 130 nm IBM process with ARM standard cells. This limits the different cell sizes available to the sizing tool, as well as determining the size of each cell (and the row pitch). Unfortunately, the placements of the research multipliers assume gate sizes corresponding to minimum sized cells. Some cells, when upsized, take up more space in layout. The VLSI project must account for this by shifting cell placements when necessary.

Test Multiplier

While our scripts can function with any multiplier, and with minor modification, could work with any cell using the ARM libraries, we evaluated the tool flow on a test multiplier to evaluate its functionality and effectiveness. The multiplier is a 16-bit tree multiplier using the three-dimensional method of partial products reduction. It uses radix-4 Booth encoding to generate partial products, and has a custom final adder generated with Zimmerman's algorithm of optimization for bit arrival times.

The initial multiplier was run through the Gatesizer flow. This flattens the multiplier to minimum-sized cells within the ARM library, and then performs sizing optimizations for a range of different points.

Figure 1 shows the results of the Gatesizer run.

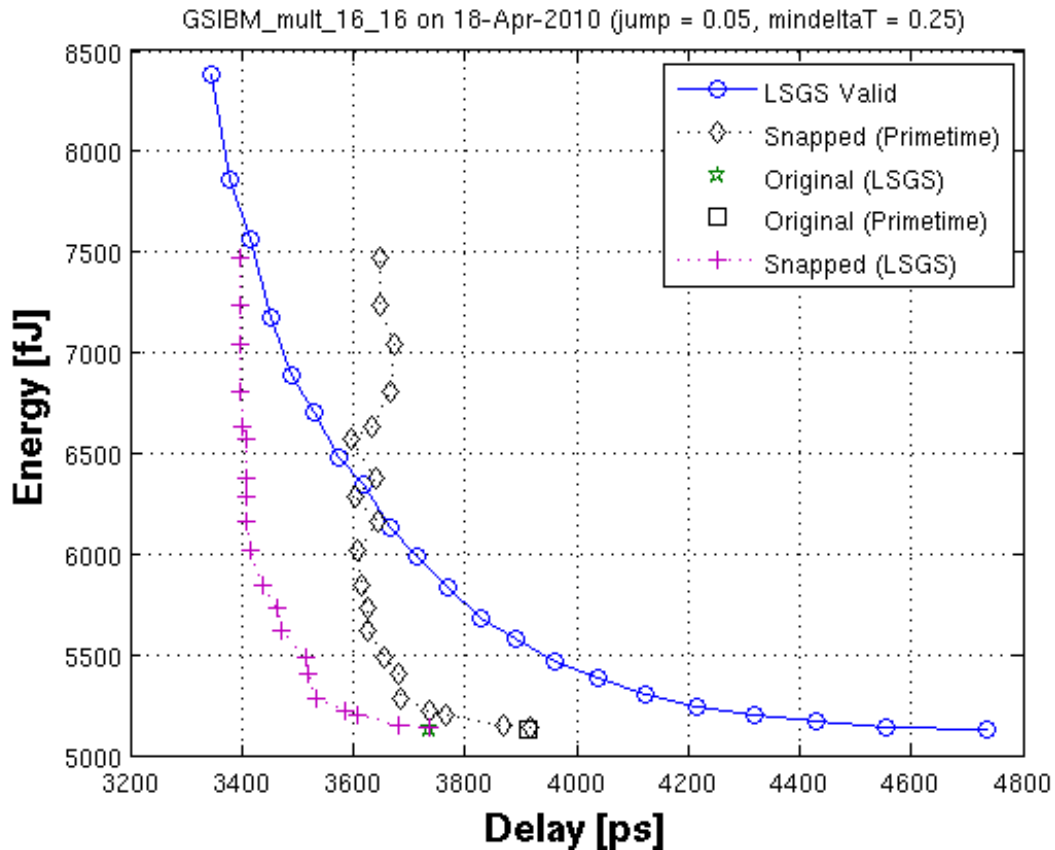


Figure 1: GATESIZER results

The snapped Primetime results are the results of the Primetime simulations that include the wire capacitance estimations. We used the knee point of these results, which is the point with the minimum energy-delay product, to evaluate our flow.

Project Flow

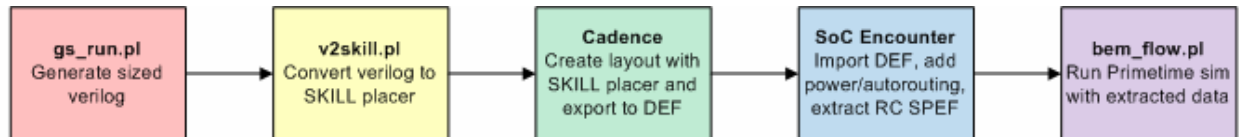


Figure 2: Tool flow overview

The tool flow for this project is illustrated in Figure 2 above. It begins with the creation of a Verilog multiplier module that is sized by GATESIZER. This file contains standard cell positions for layout that are embedded in each submodule instance name.

The next step is to run the multiplier through a script that was developed solely for this project, v2skill. This script reads the instance positions in the Verilog file and creates a script in SKILL that can be run in Cadence to automatically place the multiplier.

Cadence is used simply to convert the SKILL placement into a DEF file that can be imported in SoC Encounter. This DEF file is used in lieu of Encounter placement so that it will route the multiplier while keeping our desired datapath. Once routing is complete the RC data is extracted to a SPEF file by Encounter.

This SPEF data is run in Primetime to create a new delay estimate. The script bem_flow.pl does this using the original multiplier Verilog and the new extracted wire data.

SKILL Script Generation

SKILL is the built-in language of the Cadence tools. Every GUI interaction executes a SKILL routine, and scripts can be run from the Cadence command line to many of the things the GUI does.

For multiplier placement, it was determined that it would be easier to write a Perl script which does the necessary logic and writes a SKILL script than to learn how to write a SKILL script which does that logic. This script, v2skill.pl, is also able to handle standard cell modules of arbitrary sizes using a listing of “nudge” amounts. When it reads an instance of one of the cells in this hash table it nudges the rest of the row down by the amount listed to prevent overlap.

It also adjusts the position of the entire multiplier by a predefined amount to give room for the power ring in Encounter. This is done by the script because it was found that

moving modules in Encounter creates overlap issues, therefore the multiplier has to be imported with a gap from the x and y axes.

This script can easily be generalized to create a SKILL placer for any circuit. There are a few hardcoded variables such as the target library/cell name in Cadence, the lambda per micron value, the power ring offset, and the standard cell nudge amounts which would need to be changed for a different application.

Cadence Placement

The SKILL script generator includes instructions for how to run the script in Cadence. One aspect of the process worth noting is that the placer doesn't delete any existing layout and it can't create a new cell view, so it should be run on a clean, existing layout cell view. Figure 3 shows the placed cells in Cadence.

Once the layout is created, it is straightforward in to export the cell view as a DEF file using the Cadence DEFOUT tool. The default settings work fine for this process.

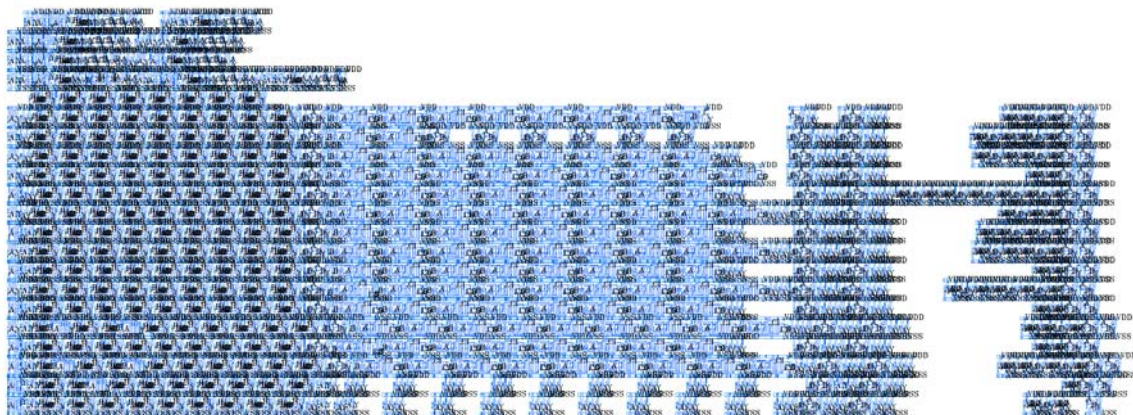


Figure 3: Placed cells in Cadence

SoC Encounter

The standard process for routing a synthesized design applies here, except no placement functions are performed. After the floorplan is specified, the DEF file is

imported and power structures are added. Again, no special settings are necessary to make this work. Nanoroute is then used to route the design, and Encounter's verification tools are used to check for geometry or connection violations. Our design passes these checks in SoC encounter.

Encounter's RC extract tool is then used to generate a SPEF file which contains data about the wire capacitances and resistances. These are used to increase the accuracy of the Primetime simulation. In particular, the script `bem_flow.pl` runs Primetime on a given Verilog module assuming a SPEF file of the same name is present.

Flow Issues

Our initial intent was to move the routed layout back into Cadence via a DEF file. This would allow the DRC and LVS checks from Cadence to be performed to ensure that the layout was valid. It would also allow for the use of Cadence's wire capacitance models in parameter extraction, which are potentially more sophisticated. Unfortunately, a re-import of a saved SoC Encounter DEF file failed to preserve the entire routed layout. Specifically, Cadence refused to include vias in the design because it believed that they could not be found in the appropriate library. The team was unable to resolve this flow issue, so rigorous DRC and LVS could not be performed on the routed design.

Conclusions

The test multiplier described above had a delay of 3.684 ns at the knee of the Gatesizer curve, using the research group's wire capacitance estimation. When the design was routed and the Primetime simulation was performed with the extracted wire capacitances, the delay was reduced slightly to 3.566 ns. On the whole, the extracted wire

capacitances were somewhat less than the research estimations, although this was not uniformly the case.

The flow presented here should be generalizable to other cells and even other processes without too much trouble, allowing for capacitance extraction from essentially arbitrary Verilog if placement information is included.

Appendix A: Flattened Verilog Code

```
module multiplier( y, x, p );
input [15:0] x;
input [15:0] y;
output [31:0] p;
supply0 gnd;
wire [31:0] finalsumA;
wire [31:0] finalsumB;
wire [15:0] xx;
wire [15:0] yy;
BUF8TF buffer_0_0(.A(x[0]), .Y( xx[0]));
BUF3TF buffer_0_34(.A(y[0]), .Y( yy[0]));
BUF8TF buffer_60_0(.A(x[1]), .Y( xx[1]));
BUF3TF buffer_60_34(.A(y[1]), .Y( yy[1]));
BUF6TF buffer_120_0(.A(x[2]), .Y( xx[2]));
BUF3TF buffer_120_34(.A(y[2]), .Y( yy[2]));
BUF6TF buffer_180_0(.A(x[3]), .Y( xx[3]));
BUF3TF buffer_180_34(.A(y[3]), .Y( yy[3]));
BUF4TF buffer_240_0(.A(x[4]), .Y( xx[4]));
BUF3TF buffer_240_34(.A(y[4]), .Y( yy[4]));
BUF6TF buffer_300_0(.A(x[5]), .Y( xx[5]));
BUF3TF buffer_300_34(.A(y[5]), .Y( yy[5]));
BUF4TF buffer_360_0(.A(x[6]), .Y( xx[6]));
BUF3TF buffer_360_34(.A(y[6]), .Y( yy[6]));
BUF6TF buffer_420_0(.A(x[7]), .Y( xx[7]));
BUF3TF buffer_420_34(.A(y[7]), .Y( yy[7]));
BUF4TF buffer_480_0(.A(x[8]), .Y( xx[8]));
BUF3TF buffer_480_34(.A(y[8]), .Y( yy[8]));
BUF6TF buffer_540_0(.A(x[9]), .Y( xx[9]));
BUF3TF buffer_540_34(.A(y[9]), .Y( yy[9]));
BUF3TF buffer_600_0(.A(x[10]), .Y( xx[10]));
BUF2TF buffer_600_34(.A(y[10]), .Y( yy[10]));
BUF6TF buffer_660_0(.A(x[11]), .Y( xx[11]));
BUF2TF buffer_660_34(.A(y[11]), .Y( yy[11]));
BUF3TF buffer_720_0(.A(x[12]), .Y( xx[12]));
BUF2TF buffer_720_34(.A(y[12]), .Y( yy[12]));
BUF4TF buffer_780_0(.A(x[13]), .Y( xx[13]));
BUF2TF buffer_780_34(.A(y[13]), .Y( yy[13]));
BUF3TF buffer_840_0(.A(x[14]), .Y( xx[14]));
BUF2TF buffer_840_34(.A(y[14]), .Y( yy[14]));
BUF4TF buffer_900_0(.A(x[15]), .Y( xx[15]));
BUF2TF buffer_900_34(.A(y[15]), .Y( yy[15]));
wire [8:0] single;
wire [8:0] double;
wire [8:0] neg;
wire [7:0] negbar;
wire singRes_r4be_1020_0;
wire doubRes_r4be_1020_0;
wire x0b_r4be_1020_0;
wire x1b_r4be_1020_0;
wire x2b_r4be_1020_0;
wire nandaRes_r4be_1020_0;
wire nandbRes_r4be_1020_0;
BUF3TF buff_r4be_1020_0(.A(xx[1]), .Y(neg[0]));
BUF6TF singbuff_r4be_1020_34(.A(singRes_r4be_1020_0), .Y(single[0]));
BUF8TF doubbuff_r4be_1020_68(.A(doubRes_r4be_1020_0), .Y(double[0]));
AOI22X1TF pseudoxor_r4be_1020_102(.A0(gnd), .A1(xx[0]), .B0(x0b_r4be_1020_0),
.B1(x1b_r4be_1020_0), .Y(singRes_r4be_1020_0));
INVX1TF x0inv_r4be_1020_142(.A(gnd), .Y(x0b_r4be_1020_0));
INVX4TF x1inv_r4be_1020_162(.A(xx[0]), .Y(x1b_r4be_1020_0));
INVX2TF x2inv_r4be_1020_182(.A(xx[1]), .Y(x2b_r4be_1020_0));
NAND3X2TF nanda_r4be_1020_202(.A(gnd), .B(xx[0]), .C(x2b_r4be_1020_0),
.Y(nandaRes_r4be_1020_0));
NAND3X2TF nandb_r4be_1020_236(.A(x0b_r4be_1020_0), .B(x1b_r4be_1020_0), .C(xx[1]),
.Y(nandbRes_r4be_1020_0));
NAND2X2TF nandc_r4be_1020_270(.A(nandaRes_r4be_1020_0), .B(nandbRes_r4be_1020_0),
.Y(doubRes_r4be_1020_0));
INVX1TF inverter_1020_297(.A(neg[0]), .Y(negbar[0]));
wire singRes_r4be_1080_0;
wire doubRes_r4be_1080_0;
wire x0b_r4be_1080_0;
wire x1b_r4be_1080_0;
wire x2b_r4be_1080_0;
wire nandaRes_r4be_1080_0;
wire nandbRes_r4be_1080_0;
BUF3TF buff_r4be_1080_0(.A(xx[3]), .Y(neg[1]));
BUF6TF singbuff_r4be_1080_34(.A(singRes_r4be_1080_0), .Y(single[1]));
BUF8TF doubbuff_r4be_1080_68(.A(doubRes_r4be_1080_0), .Y(double[1]));
```

```

AOI22X1TF pseudoxor_r4be_1080_102(.A0(xx[1]), .A1(xx[2]), .B0(x0b_r4be_1080_0),
.B1(x1b_r4be_1080_0), .Y(singRes_r4be_1080_0));
INVX2TF x0inv_r4be_1080_142(.A(xx[1]), .Y(x0b_r4be_1080_0));
INVX2TF x1inv_r4be_1080_162(.A(xx[2]), .Y(x1b_r4be_1080_0));
INVX1TF x2inv_r4be_1080_182(.A(xx[3]), .Y(x2b_r4be_1080_0));
NAND3X1TF nandA_r4be_1080_202(.A(xx[1]), .B(xx[2]), .C(x2b_r4be_1080_0),
.Y(nandaRes_r4be_1080_0));
NAND3X1TF nandB_r4be_1080_236(.A(x0b_r4be_1080_0), .B(x1b_r4be_1080_0), .C(xx[3]),
.Y(nandbRes_r4be_1080_0));
NAND2X2TF nandc_r4be_1080_270(.A(nandaRes_r4be_1080_0), .B(nandbRes_r4be_1080_0),
.Y(doubRes_r4be_1080_0));
INVX1TF inverter_1080_297(.A(neg[1]), .Y(negbar[1]));
wire singRes_r4be_1140_0;
wire doubRes_r4be_1140_0;
wire x0b_r4be_1140_0;
wire x1b_r4be_1140_0;
wire x2b_r4be_1140_0;
wire nandaRes_r4be_1140_0;
wire nandbRes_r4be_1140_0;
BUF3X3TF buff_r4be_1140_0(.A(xx[5]), .Y(neg[2]));
BUF6TF singbuff_r4be_1140_34(.A(singRes_r4be_1140_0), .Y(single[2]));
BUF12TF doubbuff_r4be_1140_68(.A(doubRes_r4be_1140_0), .Y(double[2]));
AOI22X1TF pseudoxor_r4be_1140_102(.A0(xx[3]), .A1(xx[4]), .B0(x0b_r4be_1140_0),
.B1(x1b_r4be_1140_0), .Y(singRes_r4be_1140_0));
INVX2TF x0inv_r4be_1140_142(.A(xx[3]), .Y(x0b_r4be_1140_0));
INVX2TF x1inv_r4be_1140_162(.A(xx[4]), .Y(x1b_r4be_1140_0));
INVX1TF x2inv_r4be_1140_182(.A(xx[5]), .Y(x2b_r4be_1140_0));
NAND3X1TF nandA_r4be_1140_202(.A(xx[3]), .B(xx[4]), .C(x2b_r4be_1140_0),
.Y(nandaRes_r4be_1140_0));
NAND3X1TF nandB_r4be_1140_236(.A(x0b_r4be_1140_0), .B(x1b_r4be_1140_0), .C(xx[5]),
.Y(nandbRes_r4be_1140_0));
NAND2X2TF nandc_r4be_1140_270(.A(nandaRes_r4be_1140_0), .B(nandbRes_r4be_1140_0),
.Y(doubRes_r4be_1140_0));
INVX1TF inverter_1140_297(.A(neg[2]), .Y(negbar[2]));
wire singRes_r4be_1200_53;
wire doubRes_r4be_1200_53;
wire x0b_r4be_1200_53;
wire x1b_r4be_1200_53;
wire x2b_r4be_1200_53;
wire nandaRes_r4be_1200_53;
wire nandbRes_r4be_1200_53;
BUF3X3TF buff_r4be_1200_53(.A(xx[7]), .Y(neg[3]));
BUF6TF singbuff_r4be_1200_87(.A(singRes_r4be_1200_53), .Y(single[3]));
BUF8TF doubbuff_r4be_1200_121(.A(doubRes_r4be_1200_53), .Y(double[3]));
AOI22X1TF pseudoxor_r4be_1200_155(.A0(xx[5]), .A1(xx[6]), .B0(x0b_r4be_1200_53),
.B1(x1b_r4be_1200_53), .Y(singRes_r4be_1200_53));
INVX2TF x0inv_r4be_1200_195(.A(xx[5]), .Y(x0b_r4be_1200_53));
INVX2TF x1inv_r4be_1200_215(.A(xx[6]), .Y(x1b_r4be_1200_53));
INVX1TF x2inv_r4be_1200_235(.A(xx[7]), .Y(x2b_r4be_1200_53));
NAND3X1TF nandA_r4be_1200_255(.A(xx[5]), .B(xx[6]), .C(x2b_r4be_1200_53),
.Y(nandaRes_r4be_1200_53));
NAND3X1TF nandB_r4be_1200_289(.A(x0b_r4be_1200_53), .B(x1b_r4be_1200_53), .C(xx[7]),
.Y(nandbRes_r4be_1200_53));
NAND2X2TF nandc_r4be_1200_323(.A(nandaRes_r4be_1200_53), .B(nandbRes_r4be_1200_53),
.Y(doubRes_r4be_1200_53));
INVX1TF inverter_1200_350(.A(neg[3]), .Y(negbar[3]));
wire singRes_r4be_1020_317;
wire doubRes_r4be_1020_317;
wire x0b_r4be_1020_317;
wire x1b_r4be_1020_317;
wire x2b_r4be_1020_317;
wire nandaRes_r4be_1020_317;
wire nandbRes_r4be_1020_317;
BUF3X3TF buff_r4be_1020_317(.A(xx[9]), .Y(neg[4]));
BUF6TF singbuff_r4be_1020_351(.A(singRes_r4be_1020_317), .Y(single[4]));
BUF8TF doubbuff_r4be_1020_385(.A(doubRes_r4be_1020_317), .Y(double[4]));
AOI22X1TF pseudoxor_r4be_1020_419(.A0(xx[7]), .A1(xx[8]), .B0(x0b_r4be_1020_317),
.B1(x1b_r4be_1020_317), .Y(singRes_r4be_1020_317));
INVX2TF x0inv_r4be_1020_459(.A(xx[7]), .Y(x0b_r4be_1020_317));
INVX2TF x1inv_r4be_1020_479(.A(xx[8]), .Y(x1b_r4be_1020_317));
INVX1TF x2inv_r4be_1020_499(.A(xx[9]), .Y(x2b_r4be_1020_317));
NAND3X1TF nandA_r4be_1020_519(.A(xx[7]), .B(xx[8]), .C(x2b_r4be_1020_317),
.Y(nandaRes_r4be_1020_317));
NAND3X1TF nandB_r4be_1020_553(.A(x0b_r4be_1020_317), .B(x1b_r4be_1020_317), .C(xx[9]),
.Y(nandbRes_r4be_1020_317));
NAND2X2TF nandc_r4be_1020_587(.A(nandaRes_r4be_1020_317), .B(nandbRes_r4be_1020_317),
.Y(doubRes_r4be_1020_317));
INVX1TF inverter_1020_614(.A(neg[4]), .Y(negbar[4]));
wire singRes_r4be_1080_317;
wire doubRes_r4be_1080_317;
wire x0b_r4be_1080_317;

```

```

wire x1b_r4be_1080_317;
wire x2b_r4be_1080_317;
wire nandaRes_r4be_1080_317;
wire nandbRes_r4be_1080_317;
BUF2TF buff_r4be_1080_317(.A(xx[11]), .Y(neg[5]));
BUF4TF singbuff_r4be_1080_351(.A(singRes_r4be_1080_317), .Y(single[5]));
BUF6TF doubbuff_r4be_1080_385(.A(doubRes_r4be_1080_317), .Y(double[5]));
AOI22X1TF pseudoxor_r4be_1080_419(.A0(xx[9]), .A1(xx[10]), .B0(x0b_r4be_1080_317),
.B1(x1b_r4be_1080_317), .Y(singRes_r4be_1080_317));
INVX1TF x0inv_r4be_1080_459(.A(xx[9]), .Y(x0b_r4be_1080_317));
INVX2TF x1inv_r4be_1080_479(.A(xx[10]), .Y(x1b_r4be_1080_317));
INVX1TF x2inv_r4be_1080_499(.A(xx[11]), .Y(x2b_r4be_1080_317));
NAND3X1TF nandA_r4be_1080_519(.A(xx[9]), .B(xx[10]), .C(x2b_r4be_1080_317),
.Y(nandaRes_r4be_1080_317));
NAND3X1TF nandB_r4be_1080_553(.A(x0b_r4be_1080_317), .B(x1b_r4be_1080_317), .C(xx[11]),
.Y(nandbRes_r4be_1080_317));
NAND2X1TF nandc_r4be_1080_587(.A(nandaRes_r4be_1080_317), .B(nandbRes_r4be_1080_317),
.Y(doubRes_r4be_1080_317));
INVX1TF inverter_1080_614(.A(neg[5]), .Y(negbar[5]));
wire singRes_r4be_1140_335;
wire doubRes_r4be_1140_335;
wire x0b_r4be_1140_335;
wire x1b_r4be_1140_335;
wire x2b_r4be_1140_335;
wire nandaRes_r4be_1140_335;
wire nandbRes_r4be_1140_335;
BUF2TF buff_r4be_1140_335(.A(xx[13]), .Y(neg[6]));
BUF4TF singbuff_r4be_1140_369(.A(singRes_r4be_1140_335), .Y(single[6]));
BUF6TF doubbuff_r4be_1140_403(.A(doubRes_r4be_1140_335), .Y(double[6]));
AOI22X1TF pseudoxor_r4be_1140_437(.A0(xx[11]), .A1(xx[12]), .B0(x0b_r4be_1140_335),
.B1(x1b_r4be_1140_335), .Y(singRes_r4be_1140_335));
INVX1TF x0inv_r4be_1140_477(.A(xx[11]), .Y(x0b_r4be_1140_335));
INVX2TF x1inv_r4be_1140_497(.A(xx[12]), .Y(x1b_r4be_1140_335));
INVX1TF x2inv_r4be_1140_517(.A(xx[13]), .Y(x2b_r4be_1140_335));
NAND3X1TF nandA_r4be_1140_537(.A(xx[11]), .B(xx[12]), .C(x2b_r4be_1140_335),
.Y(nandaRes_r4be_1140_335));
NAND3X1TF nandB_r4be_1140_571(.A(x0b_r4be_1140_335), .B(x1b_r4be_1140_335), .C(xx[13]),
.Y(nandbRes_r4be_1140_335));
NAND2X2TF nandc_r4be_1140_605(.A(nandaRes_r4be_1140_335), .B(nandbRes_r4be_1140_335),
.Y(doubRes_r4be_1140_335));
INVX1TF inverter_1140_632(.A(neg[6]), .Y(negbar[6]));
wire singRes_r4be_1200_429;
wire doubRes_r4be_1200_429;
wire x0b_r4be_1200_429;
wire x1b_r4be_1200_429;
wire x2b_r4be_1200_429;
wire nandaRes_r4be_1200_429;
wire nandbRes_r4be_1200_429;
BUF2TF buff_r4be_1200_429(.A(xx[15]), .Y(neg[7]));
BUF3TF singbuff_r4be_1200_463(.A(singRes_r4be_1200_429), .Y(single[7]));
BUF3TF doubbuff_r4be_1200_497(.A(doubRes_r4be_1200_429), .Y(double[7]));
AOI22X1TF pseudoxor_r4be_1200_531(.A0(xx[13]), .A1(xx[14]), .B0(x0b_r4be_1200_429),
.B1(x1b_r4be_1200_429), .Y(singRes_r4be_1200_429));
INVX2TF x0inv_r4be_1200_571(.A(xx[13]), .Y(x0b_r4be_1200_429));
INVX2TF x1inv_r4be_1200_591(.A(xx[14]), .Y(x1b_r4be_1200_429));
INVX1TF x2inv_r4be_1200_611(.A(xx[15]), .Y(x2b_r4be_1200_429));
NAND3X1TF nandA_r4be_1200_631(.A(xx[13]), .B(xx[14]), .C(x2b_r4be_1200_429),
.Y(nandaRes_r4be_1200_429));
NAND3X1TF nandB_r4be_1200_665(.A(x0b_r4be_1200_429), .B(x1b_r4be_1200_429), .C(xx[15]),
.Y(nandbRes_r4be_1200_429));
NAND2X1TF nandc_r4be_1200_699(.A(nandaRes_r4be_1200_429), .B(nandbRes_r4be_1200_429),
.Y(doubRes_r4be_1200_429));
INVX1TF inverter_1200_726(.A(neg[7]), .Y(negbar[7]));
wire singRes_r4be_1020_634;
wire doubRes_r4be_1020_634;
wire x0b_r4be_1020_634;
wire x1b_r4be_1020_634;
wire x2b_r4be_1020_634;
wire nandaRes_r4be_1020_634;
wire nandbRes_r4be_1020_634;
BUF2TF buff_r4be_1020_634(.A(gnd), .Y(neg[8]));
BUF3TF singbuff_r4be_1020_668(.A(singRes_r4be_1020_634), .Y(single[8]));
BUF3TF doubbuff_r4be_1020_702(.A(doubRes_r4be_1020_634), .Y(double[8]));
AOI22X1TF pseudoxor_r4be_1020_736(.A0(xx[15]), .A1(gnd), .B0(x0b_r4be_1020_634),
.B1(x1b_r4be_1020_634), .Y(singRes_r4be_1020_634));
INVX1TF x0inv_r4be_1020_776(.A(xx[15]), .Y(x0b_r4be_1020_634));
INVX1TF x1inv_r4be_1020_796(.A(gnd), .Y(x1b_r4be_1020_634));
INVX1TF x2inv_r4be_1020_816(.A(gnd), .Y(x2b_r4be_1020_634));
NAND3X1TF nandA_r4be_1020_836(.A(xx[15]), .B(gnd), .C(x2b_r4be_1020_634),
.Y(nandaRes_r4be_1020_634));

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NAND3X1TF nandB_r4be_1020_870(.A(x0b_r4be_1020_634), .B(x1b_r4be_1020_634), .C(gnd),
.Y(nandbRes_r4be_1020_634));
NAND2X1TF nandc_r4be_1020_904(.A(nandaRes_r4be_1020_634), .B(nandbRes_r4be_1020_634),
.Y(doubRes_r4be_1020_634));
wire pp_0_0;
wire pp_0_1;
wire pp_0_2;
wire pp_1_2;
wire pp_0_3;
wire pp_1_3;
wire pp_0_4;
wire pp_1_4;
wire pp_2_4;
wire pp_0_5;
wire pp_1_5;
wire pp_2_5;
wire pp_0_6;
wire pp_1_6;
wire pp_2_6;
wire pp_3_6;
wire pp_0_7;
wire pp_1_7;
wire pp_2_7;
wire pp_3_7;
wire pp_0_8;
wire pp_1_8;
wire pp_2_8;
wire pp_3_8;
wire pp_4_8;
wire pp_0_9;
wire pp_1_9;
wire pp_2_9;
wire pp_3_9;
wire pp_4_9;
wire pp_0_10;
wire pp_1_10;
wire pp_2_10;
wire pp_3_10;
wire pp_4_10;
wire pp_5_10;
wire pp_0_11;
wire pp_1_11;
wire pp_2_11;
wire pp_3_11;
wire pp_4_11;
wire pp_5_11;
wire pp_0_12;
wire pp_1_12;
wire pp_2_12;
wire pp_3_12;
wire pp_4_12;
wire pp_5_12;
wire pp_6_12;
wire pp_0_13;
wire pp_1_13;
wire pp_2_13;
wire pp_3_13;
wire pp_4_13;
wire pp_5_13;
wire pp_6_13;
wire pp_0_14;
wire pp_1_14;
wire pp_2_14;
wire pp_3_14;
wire pp_4_14;
wire pp_5_14;
wire pp_6_14;
wire pp_7_14;
wire pp_0_15;
wire pp_1_15;
wire pp_2_15;
wire pp_3_15;
wire pp_4_15;
wire pp_5_15;
wire pp_6_15;
wire pp_7_15;
wire pp_0_16;
wire pp_1_16;
wire pp_2_16;
wire pp_3_16;
wire pp_4_16;

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wire pp_5_16;
wire pp_6_16;
wire pp_7_16;
wire pp_8_16;
wire pp_1_17;
wire pp_2_17;
wire pp_3_17;
wire pp_4_17;
wire pp_5_17;
wire pp_6_17;
wire pp_7_17;
wire pp_8_17;
wire pp_1_18;
wire pp_2_18;
wire pp_3_18;
wire pp_4_18;
wire pp_5_18;
wire pp_6_18;
wire pp_7_18;
wire pp_8_18;
wire pp_2_19;
wire pp_3_19;
wire pp_4_19;
wire pp_5_19;
wire pp_6_19;
wire pp_7_19;
wire pp_8_19;
wire pp_2_20;
wire pp_3_20;
wire pp_4_20;
wire pp_5_20;
wire pp_6_20;
wire pp_7_20;
wire pp_8_20;
wire pp_3_21;
wire pp_4_21;
wire pp_5_21;
wire pp_6_21;
wire pp_7_21;
wire pp_8_21;
wire pp_3_22;
wire pp_4_22;
wire pp_5_22;
wire pp_6_22;
wire pp_7_22;
wire pp_8_22;
wire pp_4_23;
wire pp_5_23;
wire pp_6_23;
wire pp_7_23;
wire pp_8_23;
wire pp_4_24;
wire pp_5_24;
wire pp_6_24;
wire pp_7_24;
wire pp_8_24;
wire pp_5_25;
wire pp_6_25;
wire pp_7_25;
wire pp_8_25;
wire pp_5_26;
wire pp_6_26;
wire pp_7_26;
wire pp_8_26;
wire pp_6_27;
wire pp_7_27;
wire pp_8_27;
wire pp_6_28;
wire pp_7_28;
wire pp_8_28;
wire pp_7_29;
wire pp_8_29;
wire pp_7_30;
wire pp_8_30;
wire pp_8_31;
wire int_0_2;
wire int_1_2;
wire int_0_3;
wire int_1_3;
wire int_0_4;
wire int_1_4;

```
wire int_2_4;
wire int_3_4;
wire int_0_5;
wire int_1_5;
wire int_2_5;
wire int_3_5;
wire int_0_6;
wire int_1_6;
wire int_2_6;
wire int_3_6;
wire int_4_6;
wire int_5_6;
wire int_0_7;
wire int_1_7;
wire int_2_7;
wire int_3_7;
wire int_4_7;
wire int_5_7;
wire int_0_8;
wire int_1_8;
wire int_2_8;
wire int_3_8;
wire int_4_8;
wire int_5_8;
wire int_6_8;
wire int_7_8;
wire int_0_9;
wire int_1_9;
wire int_2_9;
wire int_3_9;
wire int_4_9;
wire int_5_9;
wire int_6_9;
wire int_7_9;
wire int_0_10;
wire int_1_10;
wire int_2_10;
wire int_3_10;
wire int_4_10;
wire int_5_10;
wire int_6_10;
wire int_7_10;
wire int_8_10;
wire int_9_10;
wire int_0_11;
wire int_1_11;
wire int_2_11;
wire int_3_11;
wire int_4_11;
wire int_5_11;
wire int_6_11;
wire int_7_11;
wire int_8_11;
wire int_9_11;
wire int_0_12;
wire int_1_12;
wire int_2_12;
wire int_3_12;
wire int_4_12;
wire int_5_12;
wire int_6_12;
wire int_7_12;
wire int_8_12;
wire int_9_12;
wire int_10_12;
wire int_11_12;
wire int_0_13;
wire int_1_13;
wire int_2_13;
wire int_3_13;
wire int_4_13;
wire int_5_13;
wire int_6_13;
wire int_7_13;
wire int_8_13;
wire int_9_13;
wire int_10_13;
wire int_11_13;
wire int_0_14;
wire int_1_14;
wire int_2_14;
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```
wire int_3_14;
wire int_4_14;
wire int_5_14;
wire int_6_14;
wire int_7_14;
wire int_8_14;
wire int_9_14;
wire int_10_14;
wire int_11_14;
wire int_12_14;
wire int_13_14;
wire int_0_15;
wire int_1_15;
wire int_2_15;
wire int_3_15;
wire int_4_15;
wire int_5_15;
wire int_6_15;
wire int_7_15;
wire int_8_15;
wire int_9_15;
wire int_10_15;
wire int_11_15;
wire int_12_15;
wire int_13_15;
wire int_0_16;
wire int_1_16;
wire int_2_16;
wire int_3_16;
wire int_4_16;
wire int_5_16;
wire int_6_16;
wire int_7_16;
wire int_8_16;
wire int_9_16;
wire int_10_16;
wire int_11_16;
wire int_12_16;
wire int_13_16;
wire int_0_17;
wire int_1_17;
wire int_2_17;
wire int_3_17;
wire int_4_17;
wire int_5_17;
wire int_6_17;
wire int_7_17;
wire int_8_17;
wire int_9_17;
wire int_10_17;
wire int_11_17;
wire int_12_17;
wire int_13_17;
wire int_0_18;
wire int_1_18;
wire int_2_18;
wire int_3_18;
wire int_4_18;
wire int_5_18;
wire int_6_18;
wire int_7_18;
wire int_8_18;
wire int_9_18;
wire int_10_18;
wire int_11_18;
wire int_12_18;
wire int_13_18;
wire int_0_19;
wire int_1_19;
wire int_2_19;
wire int_3_19;
wire int_4_19;
wire int_5_19;
wire int_6_19;
wire int_7_19;
wire int_8_19;
wire int_9_19;
wire int_10_19;
wire int_11_19;
wire int_12_19;
wire int_13_19;
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```
wire int_0_20;
wire int_1_20;
wire int_2_20;
wire int_3_20;
wire int_4_20;
wire int_5_20;
wire int_6_20;
wire int_7_20;
wire int_8_20;
wire int_9_20;
wire int_10_20;
wire int_11_20;
wire int_12_20;
wire int_13_20;
wire int_0_21;
wire int_1_21;
wire int_2_21;
wire int_3_21;
wire int_4_21;
wire int_5_21;
wire int_6_21;
wire int_7_21;
wire int_8_21;
wire int_9_21;
wire int_10_21;
wire int_11_21;
wire int_0_22;
wire int_1_22;
wire int_2_22;
wire int_3_22;
wire int_4_22;
wire int_5_22;
wire int_6_22;
wire int_7_22;
wire int_8_22;
wire int_9_22;
wire int_10_22;
wire int_11_22;
wire int_0_23;
wire int_1_23;
wire int_2_23;
wire int_3_23;
wire int_4_23;
wire int_5_23;
wire int_6_23;
wire int_7_23;
wire int_8_23;
wire int_9_23;
wire int_0_24;
wire int_1_24;
wire int_2_24;
wire int_3_24;
wire int_4_24;
wire int_5_24;
wire int_6_24;
wire int_7_24;
wire int_8_24;
wire int_9_24;
wire int_0_25;
wire int_1_25;
wire int_2_25;
wire int_3_25;
wire int_4_25;
wire int_5_25;
wire int_6_25;
wire int_7_25;
wire int_0_26;
wire int_1_26;
wire int_2_26;
wire int_3_26;
wire int_4_26;
wire int_5_26;
wire int_6_26;
wire int_7_26;
wire int_0_27;
wire int_1_27;
wire int_2_27;
wire int_3_27;
wire int_4_27;
wire int_5_27;
wire int_0_28;
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wire int_1_28;
wire int_2_28;
wire int_3_28;
wire int_4_28;
wire int_5_28;
wire int_0_29;
wire int_1_29;
wire int_2_29;
wire int_3_29;
wire int_0_30;
wire int_1_30;
wire int_2_30;
wire int_3_30;
wire int_0_31;
wire int_1_31;
wire aaoiRes_r4bs_0_68;
AOI22X1TF aaoi_r4bs_0_68(.A0(yy[0]), .A1(single[0]), .B0(gnd), .B1(double[0]),
.Y(aaoiRes_r4bs_0_68));
XNOR2X1TF xor_r4bs_0_108(.A(neg[0]), .B(aaoiRes_r4bs_0_68), .Y(pp_0_0));
wire aaoiRes_r4bs_60_68;
AOI22X1TF aaoi_r4bs_60_68(.A0(yy[1]), .A1(single[0]), .B0(yy[0]), .B1(double[0]),
.Y(aaoiRes_r4bs_60_68));
XNOR2X1TF xor_r4bs_60_108(.A(neg[0]), .B(aaoiRes_r4bs_60_68), .Y(pp_0_1));
wire aaoiRes_r4bs_120_68;
AOI22X1TF aaoi_r4bs_120_68(.A0(yy[2]), .A1(single[0]), .B0(yy[1]), .B1(double[0]),
.Y(aaoiRes_r4bs_120_68));
XNOR2X2TF xor_r4bs_120_108(.A(neg[0]), .B(aaoiRes_r4bs_120_68), .Y(pp_0_2));
wire aaoiRes_r4bs_60_162;
AOI22X1TF aaoi_r4bs_60_162(.A0(yy[1]), .A1(single[1]), .B0(yy[0]), .B1(double[1]),
.Y(aaoiRes_r4bs_60_162));
XNOR2X2TF xor_r4bs_60_202(.A(neg[1]), .B(aaoiRes_r4bs_60_162), .Y(pp_1_3));
wire aaoiRes_r4bs_180_68;
AOI22X1TF aaoi_r4bs_180_68(.A0(yy[3]), .A1(single[0]), .B0(yy[2]), .B1(double[0]),
.Y(aaoiRes_r4bs_180_68));
XNOR2X1TF xor_r4bs_180_108(.A(neg[0]), .B(aaoiRes_r4bs_180_68), .Y(pp_0_3));
wire aaoiRes_r4bs_240_68;
AOI22X1TF aaoi_r4bs_240_68(.A0(yy[4]), .A1(single[0]), .B0(yy[3]), .B1(double[0]),
.Y(aaoiRes_r4bs_240_68));
XNOR2X2TF xor_r4bs_240_108(.A(neg[0]), .B(aaoiRes_r4bs_240_68), .Y(pp_0_4));
wire aaoiRes_r4bs_180_162;
AOI22X1TF aaoi_r4bs_180_162(.A0(yy[3]), .A1(single[1]), .B0(yy[2]), .B1(double[1]),
.Y(aaoiRes_r4bs_180_162));
XNOR2X1TF xor_r4bs_180_202(.A(neg[1]), .B(aaoiRes_r4bs_180_162), .Y(pp_1_5));
wire aaoiRes_r4bs_300_68;
AOI22X1TF aaoi_r4bs_300_68(.A0(yy[5]), .A1(single[0]), .B0(yy[4]), .B1(double[0]),
.Y(aaoiRes_r4bs_300_68));
XNOR2X1TF xor_r4bs_300_108(.A(neg[0]), .B(aaoiRes_r4bs_300_68), .Y(pp_0_5));
wire aaoiRes_r4bs_360_68;
AOI22X1TF aaoi_r4bs_360_68(.A0(yy[6]), .A1(single[0]), .B0(yy[5]), .B1(double[0]),
.Y(aaoiRes_r4bs_360_68));
XNOR2X1TF xor_r4bs_360_108(.A(neg[0]), .B(aaoiRes_r4bs_360_68), .Y(pp_0_6));
wire aaoiRes_r4bs_300_162;
AOI22X1TF aaoi_r4bs_300_162(.A0(yy[5]), .A1(single[1]), .B0(yy[4]), .B1(double[1]),
.Y(aaoiRes_r4bs_300_162));
XNOR2X1TF xor_r4bs_300_202(.A(neg[1]), .B(aaoiRes_r4bs_300_162), .Y(pp_1_7));
wire aaoiRes_r4bs_420_68;
AOI22X1TF aaoi_r4bs_420_68(.A0(yy[7]), .A1(single[0]), .B0(yy[6]), .B1(double[0]),
.Y(aaoiRes_r4bs_420_68));
XNOR2X1TF xor_r4bs_420_108(.A(neg[0]), .B(aaoiRes_r4bs_420_68), .Y(pp_0_7));
wire aaoiRes_r4bs_480_68;
AOI22X1TF aaoi_r4bs_480_68(.A0(yy[8]), .A1(single[0]), .B0(yy[7]), .B1(double[0]),
.Y(aaoiRes_r4bs_480_68));
XNOR2X1TF xor_r4bs_480_108(.A(neg[0]), .B(aaoiRes_r4bs_480_68), .Y(pp_0_8));
wire aaoiRes_r4bs_420_162;
AOI22X1TF aaoi_r4bs_420_162(.A0(yy[7]), .A1(single[1]), .B0(yy[6]), .B1(double[1]),
.Y(aaoiRes_r4bs_420_162));
XNOR2X1TF xor_r4bs_420_202(.A(neg[1]), .B(aaoiRes_r4bs_420_162), .Y(pp_1_9));
wire aaoiRes_r4bs_540_68;
AOI22X1TF aaoi_r4bs_540_68(.A0(yy[9]), .A1(single[0]), .B0(yy[8]), .B1(double[0]),
.Y(aaoiRes_r4bs_540_68));
XNOR2X1TF xor_r4bs_540_108(.A(neg[0]), .B(aaoiRes_r4bs_540_68), .Y(pp_0_9));
wire aaoiRes_r4bs_600_68;
AOI22X1TF aaoi_r4bs_600_68(.A0(yy[10]), .A1(single[0]), .B0(yy[9]), .B1(double[0]),
.Y(aaoiRes_r4bs_600_68));
XNOR2X1TF xor_r4bs_600_108(.A(neg[0]), .B(aaoiRes_r4bs_600_68), .Y(pp_0_10));
wire aaoiRes_r4bs_540_162;
AOI22X1TF aaoi_r4bs_540_162(.A0(yy[9]), .A1(single[1]), .B0(yy[8]), .B1(double[1]),
.Y(aaoiRes_r4bs_540_162));
XNOR2X1TF xor_r4bs_540_202(.A(neg[1]), .B(aaoiRes_r4bs_540_162), .Y(pp_1_11));
wire aaoiRes_r4bs_660_68;

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AOI22X1TF      aaoi_r4bs_660_68(.A0(yy[11]), .A1(single[0]), .B0(yy[10]), .B1(double[0]),
.Y(aaoiRes_r4bs_660_68));
XNOR2X1TF xor_r4bs_660_108(.A(neg[0]), .B(aaoiRes_r4bs_660_68), .Y(pp_0_11));
wire aaoiRes_r4bs_720_68;
AOI22X1TF      aaoi_r4bs_720_68(.A0(yy[12]), .A1(single[0]), .B0(yy[11]), .B1(double[0]),
.Y(aaoiRes_r4bs_720_68));
XNOR2X1TF xor_r4bs_720_108(.A(neg[0]), .B(aaoiRes_r4bs_720_68), .Y(pp_0_12));
wire aaoiRes_r4bs_660_162;
AOI22X1TF      aaoi_r4bs_660_162(.A0(yy[11]), .A1(single[1]), .B0(yy[10]),
.B1(double[1]), .Y(aaoiRes_r4bs_660_162));
XNOR2X1TF xor_r4bs_660_202(.A(neg[1]), .B(aaoiRes_r4bs_660_162), .Y(pp_1_13));
wire aaoiRes_r4bs_780_68;
AOI22X1TF      aaoi_r4bs_780_68(.A0(yy[13]), .A1(single[0]), .B0(yy[12]), .B1(double[0]),
.Y(aaoiRes_r4bs_780_68));
XNOR2X1TF xor_r4bs_780_108(.A(neg[0]), .B(aaoiRes_r4bs_780_68), .Y(pp_0_13));
wire aaoiRes_r4bs_840_68;
AOI22X1TF      aaoi_r4bs_840_68(.A0(yy[14]), .A1(single[0]), .B0(yy[13]), .B1(double[0]),
.Y(aaoiRes_r4bs_840_68));
XNOR2X1TF xor_r4bs_840_108(.A(neg[0]), .B(aaoiRes_r4bs_840_68), .Y(pp_0_14));
wire aaoiRes_r4bs_780_162;
AOI22X1TF      aaoi_r4bs_780_162(.A0(yy[13]), .A1(single[1]), .B0(yy[12]),
.B1(double[1]), .Y(aaoiRes_r4bs_780_162));
XNOR2X1TF xor_r4bs_780_202(.A(neg[1]), .B(aaoiRes_r4bs_780_162), .Y(pp_1_15));
wire aaoiRes_r4bs_900_68;
AOI22X1TF      aaoi_r4bs_900_68(.A0(yy[15]), .A1(single[0]), .B0(yy[14]), .B1(double[0]),
.Y(aaoiRes_r4bs_900_68));
XNOR2X1TF xor_r4bs_900_108(.A(neg[0]), .B(aaoiRes_r4bs_900_68), .Y(pp_0_15));
wire aaoiRes_r4bs_0_162;
AOI22X1TF      aaoi_r4bs_0_162(.A0(yy[0]), .A1(single[1]), .B0(gnd), .B1(double[1]),
.Y(aaoiRes_r4bs_0_162));
XNOR2X1TF xor_r4bs_0_202(.A(neg[1]), .B(aaoiRes_r4bs_0_162), .Y(pp_1_2));
wire aaoiRes_r4bs_0_256;
AOI22X1TF      aaoi_r4bs_0_256(.A0(yy[0]), .A1(single[2]), .B0(gnd), .B1(double[2]),
.Y(aaoiRes_r4bs_0_256));
XNOR2X1TF xor_r4bs_0_296(.A(neg[2]), .B(aaoiRes_r4bs_0_256), .Y(pp_2_4));
wire aaoiRes_r4bs_120_162;
AOI22X1TF      aaoi_r4bs_120_162(.A0(yy[2]), .A1(single[1]), .B0(yy[1]), .B1(double[1]),
.Y(aaoiRes_r4bs_120_162));
XNOR2X1TF xor_r4bs_120_202(.A(neg[1]), .B(aaoiRes_r4bs_120_162), .Y(pp_1_4));
wire aaoiRes_r4bs_60_256;
AOI22X1TF      aaoi_r4bs_60_256(.A0(yy[1]), .A1(single[2]), .B0(yy[0]), .B1(double[2]),
.Y(aaoiRes_r4bs_60_256));
XNOR2X1TF xor_r4bs_60_296(.A(neg[2]), .B(aaoiRes_r4bs_60_256), .Y(pp_2_5));
wire aaoiRes_r4bs_0_350;
AOI22X1TF      aaoi_r4bs_0_350(.A0(yy[0]), .A1(single[3]), .B0(gnd), .B1(double[3]),
.Y(aaoiRes_r4bs_0_350));
XNOR2X1TF xor_r4bs_0_390(.A(neg[3]), .B(aaoiRes_r4bs_0_350), .Y(pp_3_6));
wire aaoiRes_r4bs_120_256;
AOI22X1TF      aaoi_r4bs_120_256(.A0(yy[2]), .A1(single[2]), .B0(yy[1]), .B1(double[2]),
.Y(aaoiRes_r4bs_120_256));
XNOR2X2TF xor_r4bs_120_296(.A(neg[2]), .B(aaoiRes_r4bs_120_256), .Y(pp_2_6));
wire aaoiRes_r4bs_240_162;
AOI22X1TF      aaoi_r4bs_240_162(.A0(yy[4]), .A1(single[1]), .B0(yy[3]), .B1(double[1]),
.Y(aaoiRes_r4bs_240_162));
XNOR2X1TF xor_r4bs_240_202(.A(neg[1]), .B(aaoiRes_r4bs_240_162), .Y(pp_1_6));
wire aaoiRes_r4bs_60_350;
AOI22X1TF      aaoi_r4bs_60_350(.A0(yy[1]), .A1(single[3]), .B0(yy[0]), .B1(double[3]),
.Y(aaoiRes_r4bs_60_350));
XNOR2X1TF xor_r4bs_60_390(.A(neg[3]), .B(aaoiRes_r4bs_60_350), .Y(pp_3_7));
wire aaoiRes_r4bs_180_256;
AOI22X1TF      aaoi_r4bs_180_256(.A0(yy[3]), .A1(single[2]), .B0(yy[2]), .B1(double[2]),
.Y(aaoiRes_r4bs_180_256));
XNOR2X1TF xor_r4bs_180_296(.A(neg[2]), .B(aaoiRes_r4bs_180_256), .Y(pp_2_7));
wire aaoiRes_r4bs_120_350;
AOI22X1TF      aaoi_r4bs_120_350(.A0(yy[2]), .A1(single[3]), .B0(yy[1]), .B1(double[3]),
.Y(aaoiRes_r4bs_120_350));
XNOR2X1TF xor_r4bs_120_390(.A(neg[3]), .B(aaoiRes_r4bs_120_350), .Y(pp_3_8));
wire aaoiRes_r4bs_240_256;
AOI22X1TF      aaoi_r4bs_240_256(.A0(yy[4]), .A1(single[2]), .B0(yy[3]), .B1(double[2]),
.Y(aaoiRes_r4bs_240_256));
XNOR2X2TF xor_r4bs_240_296(.A(neg[2]), .B(aaoiRes_r4bs_240_256), .Y(pp_2_8));
wire aaoiRes_r4bs_360_162;
AOI22X1TF      aaoi_r4bs_360_162(.A0(yy[6]), .A1(single[1]), .B0(yy[5]), .B1(double[1]),
.Y(aaoiRes_r4bs_360_162));
XNOR2X1TF xor_r4bs_360_202(.A(neg[1]), .B(aaoiRes_r4bs_360_162), .Y(pp_1_8));
wire aaoiRes_r4bs_60_444;
AOI22X1TF      aaoi_r4bs_60_444(.A0(yy[1]), .A1(single[4]), .B0(yy[0]), .B1(double[4]),
.Y(aaoiRes_r4bs_60_444));
XNOR2X1TF xor_r4bs_60_484(.A(neg[4]), .B(aaoiRes_r4bs_60_444), .Y(pp_4_9));
wire aaoiRes_r4bs_180_350;

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AOI22X1TF      aaoi_r4bs 180_350(.A0(yy[3]), .A1(single[3]), .B0(yy[2]), .B1(double[3]),
.Y(aaoiRes_r4bs_180_350));
XNOR2X1TF xor_r4bs 180_390(.A(neg[3]), .B(aaoiRes_r4bs_180_350), .Y(pp_3_9));
wire aaoiRes_r4bs_300_256;
AOI22X1TF      aaoi_r4bs 300_256(.A0(yy[5]), .A1(single[2]), .B0(yy[4]), .B1(double[2]),
.Y(aaoiRes_r4bs_300_256));
XNOR2X1TF xor_r4bs 300_296(.A(neg[2]), .B(aaoiRes_r4bs_300_256), .Y(pp_2_9));
wire aaoiRes_r4bs_240_350;
AOI22X1TF      aaoi_r4bs 240_350(.A0(yy[4]), .A1(single[3]), .B0(yy[3]), .B1(double[3]),
.Y(aaoiRes_r4bs_240_350));
XNOR2X1TF xor_r4bs 240_390(.A(neg[3]), .B(aaoiRes_r4bs_240_350), .Y(pp_3_10));
wire aaoiRes_r4bs_360_256;
AOI22X1TF      aaoi_r4bs 360_256(.A0(yy[6]), .A1(single[2]), .B0(yy[5]), .B1(double[2]),
.Y(aaoiRes_r4bs_360_256));
XNOR2X1TF xor_r4bs 360_296(.A(neg[2]), .B(aaoiRes_r4bs_360_256), .Y(pp_2_10));
wire aaoiRes_r4bs_480_162;
AOI22X1TF      aaoi_r4bs 480_162(.A0(yy[8]), .A1(single[1]), .B0(yy[7]), .B1(double[1]),
.Y(aaoiRes_r4bs_480_162));
XNOR2X1TF xor_r4bs 480_202(.A(neg[1]), .B(aaoiRes_r4bs_480_162), .Y(pp_1_10));
wire aaoiRes_r4bs_180_444;
AOI22X1TF      aaoi_r4bs 180_444(.A0(yy[3]), .A1(single[4]), .B0(yy[2]), .B1(double[4]),
.Y(aaoiRes_r4bs_180_444));
XNOR2X1TF xor_r4bs 180_484(.A(neg[4]), .B(aaoiRes_r4bs_180_444), .Y(pp_4_11));
wire aaoiRes_r4bs_300_350;
AOI22X1TF      aaoi_r4bs 300_350(.A0(yy[5]), .A1(single[3]), .B0(yy[4]), .B1(double[3]),
.Y(aaoiRes_r4bs_300_350));
XNOR2X1TF xor_r4bs 300_390(.A(neg[3]), .B(aaoiRes_r4bs_300_350), .Y(pp_3_11));
wire aaoiRes_r4bs_420_256;
AOI22X1TF      aaoi_r4bs 420_256(.A0(yy[7]), .A1(single[2]), .B0(yy[6]), .B1(double[2]),
.Y(aaoiRes_r4bs_420_256));
XNOR2X1TF xor_r4bs 420_296(.A(neg[2]), .B(aaoiRes_r4bs_420_256), .Y(pp_2_11));
wire aaoiRes_r4bs_360_350;
AOI22X1TF      aaoi_r4bs 360_350(.A0(yy[6]), .A1(single[3]), .B0(yy[5]), .B1(double[3]),
.Y(aaoiRes_r4bs_360_350));
XNOR2X1TF xor_r4bs 360_390(.A(neg[3]), .B(aaoiRes_r4bs_360_350), .Y(pp_3_12));
wire aaoiRes_r4bs_480_256;
AOI22X1TF      aaoi_r4bs 480_256(.A0(yy[8]), .A1(single[2]), .B0(yy[7]), .B1(double[2]),
.Y(aaoiRes_r4bs_480_256));
XNOR2X1TF xor_r4bs 480_296(.A(neg[2]), .B(aaoiRes_r4bs_480_256), .Y(pp_2_12));
wire aaoiRes_r4bs_600_162;
AOI22X1TF      aaoi_r4bs 600_162(.A0(yy[10]), .A1(single[1]), .B0(yy[9]), .B1(double[1]),
.Y(aaoiRes_r4bs_600_162));
XNOR2X1TF xor_r4bs 600_202(.A(neg[1]), .B(aaoiRes_r4bs_600_162), .Y(pp_1_12));
wire aaoiRes_r4bs_300_444;
AOI22X1TF      aaoi_r4bs 300_444(.A0(yy[5]), .A1(single[4]), .B0(yy[4]), .B1(double[4]),
.Y(aaoiRes_r4bs_300_444));
XNOR2X1TF xor_r4bs 300_484(.A(neg[4]), .B(aaoiRes_r4bs_300_444), .Y(pp_4_13));
wire aaoiRes_r4bs_420_350;
AOI22X1TF      aaoi_r4bs 420_350(.A0(yy[7]), .A1(single[3]), .B0(yy[6]), .B1(double[3]),
.Y(aaoiRes_r4bs_420_350));
XNOR2X1TF xor_r4bs 420_390(.A(neg[3]), .B(aaoiRes_r4bs_420_350), .Y(pp_3_13));
wire aaoiRes_r4bs_540_256;
AOI22X1TF      aaoi_r4bs 540_256(.A0(yy[9]), .A1(single[2]), .B0(yy[8]), .B1(double[2]),
.Y(aaoiRes_r4bs_540_256));
XNOR2X1TF xor_r4bs 540_296(.A(neg[2]), .B(aaoiRes_r4bs_540_256), .Y(pp_2_13));
wire aaoiRes_r4bs_480_350;
AOI22X1TF      aaoi_r4bs 480_350(.A0(yy[8]), .A1(single[3]), .B0(yy[7]), .B1(double[3]),
.Y(aaoiRes_r4bs_480_350));
XNOR2X1TF xor_r4bs 480_390(.A(neg[3]), .B(aaoiRes_r4bs_480_350), .Y(pp_3_14));
wire aaoiRes_r4bs_600_256;
AOI22X1TF      aaoi_r4bs 600_256(.A0(yy[10]), .A1(single[2]), .B0(yy[9]), .B1(double[2]),
.Y(aaoiRes_r4bs_600_256));
XNOR2X1TF xor_r4bs 600_296(.A(neg[2]), .B(aaoiRes_r4bs_600_256), .Y(pp_2_14));
wire aaoiRes_r4bs_720_162;
AOI22X1TF      aaoi_r4bs 720_162(.A0(yy[12]), .A1(single[1]), .B0(yy[11]),
.B1(double[1]), .Y(aaoiRes_r4bs_720_162));
XNOR2X1TF xor_r4bs 720_202(.A(neg[1]), .B(aaoiRes_r4bs_720_162), .Y(pp_1_14));
wire aaoiRes_r4bs_420_444;
AOI22X1TF      aaoi_r4bs 420_444(.A0(yy[7]), .A1(single[4]), .B0(yy[6]), .B1(double[4]),
.Y(aaoiRes_r4bs_420_444));
XNOR2X1TF xor_r4bs 420_484(.A(neg[4]), .B(aaoiRes_r4bs_420_444), .Y(pp_4_15));
wire aaoiRes_r4bs_540_350;
AOI22X1TF      aaoi_r4bs 540_350(.A0(yy[9]), .A1(single[3]), .B0(yy[8]), .B1(double[3]),
.Y(aaoiRes_r4bs_540_350));
XNOR2X1TF xor_r4bs 540_390(.A(neg[3]), .B(aaoiRes_r4bs_540_350), .Y(pp_3_15));
wire aaoiRes_r4bs_660_256;
AOI22X1TF      aaoi_r4bs 660_256(.A0(yy[11]), .A1(single[2]), .B0(yy[10]),
.B1(double[2]), .Y(aaoiRes_r4bs_660_256));
XNOR2X1TF xor_r4bs 660_296(.A(neg[2]), .B(aaoiRes_r4bs_660_256), .Y(pp_2_15));
wire aaoiRes_r4bs_720_256;

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AOI22X1TF      aaoi_r4bs_720_256(.A0(yy[12]), .A1(single[2]), .B0(yy[11]),
.B1(double[2]), .Y(aaoiRes_r4bs_720_256));
XNOR2X1TF xor_r4bs_720_296(.A(neg[2]), .B(aaoiRes_r4bs_720_256), .Y(pp_2_16));
wire aaoiRes_r4bs_840_162;
AOI22X1TF      aaoi_r4bs_840_162(.A0(yy[14]), .A1(single[1]), .B0(yy[13]),
.B1(double[1]), .Y(aaoiRes_r4bs_840_162));
XNOR2X1TF xor_r4bs_840_202(.A(neg[1]), .B(aaoiRes_r4bs_840_162), .Y(pp_1_16));
wire aaoiRes_r4bs_960_68;
AOI22X1TF      aaoi_r4bs_960_68(.A0(gnd), .A1(single[0]), .B0(yy[15]), .B1(double[0]),
.Y(aaoiRes_r4bs_960_68));
XNOR2X1TF xor_r4bs_960_108(.A(neg[0]), .B(aaoiRes_r4bs_960_68), .Y(pp_0_16));
wire aaoiRes_r4bs_780_256;
AOI22X1TF      aaoi_r4bs_780_256(.A0(yy[13]), .A1(single[2]), .B0(yy[12]),
.B1(double[2]), .Y(aaoiRes_r4bs_780_256));
XNOR2X1TF xor_r4bs_780_296(.A(neg[2]), .B(aaoiRes_r4bs_780_256), .Y(pp_2_17));
wire aaoiRes_r4bs_900_162;
AOI22X1TF      aaoi_r4bs_900_162(.A0(yy[15]), .A1(single[1]), .B0(yy[14]),
.B1(double[1]), .Y(aaoiRes_r4bs_900_162));
XNOR2X1TF xor_r4bs_900_202(.A(neg[1]), .B(aaoiRes_r4bs_900_162), .Y(pp_1_17));
wire aaoiRes_r4bs_0_444;
AOI22X1TF      aaoi_r4bs_0_444(.A0(yy[0]), .A1(single[4]), .B0(gnd), .B1(double[4]),
.Y(aaoiRes_r4bs_0_444));
XNOR2X1TF xor_r4bs_0_484(.A(neg[4]), .B(aaoiRes_r4bs_0_444), .Y(pp_4_8));
wire aaoiRes_r4bs_0_538;
AOI22X1TF      aaoi_r4bs_0_538(.A0(yy[0]), .A1(single[5]), .B0(gnd), .B1(double[5]),
.Y(aaoiRes_r4bs_0_538));
XNOR2X1TF xor_r4bs_0_578(.A(neg[5]), .B(aaoiRes_r4bs_0_538), .Y(pp_5_10));
wire aaoiRes_r4bs_120_444;
AOI22X1TF      aaoi_r4bs_120_444(.A0(yy[2]), .A1(single[4]), .B0(yy[1]), .B1(double[4]),
.Y(aaoiRes_r4bs_120_444));
XNOR2X1TF xor_r4bs_120_484(.A(neg[4]), .B(aaoiRes_r4bs_120_444), .Y(pp_4_10));
wire aaoiRes_r4bs_60_538;
AOI22X1TF      aaoi_r4bs_60_538(.A0(yy[1]), .A1(single[5]), .B0(yy[0]), .B1(double[5]),
.Y(aaoiRes_r4bs_60_538));
XNOR2X1TF xor_r4bs_60_578(.A(neg[5]), .B(aaoiRes_r4bs_60_538), .Y(pp_5_11));
wire aaoiRes_r4bs_0_632;
AOI22X1TF      aaoi_r4bs_0_632(.A0(yy[0]), .A1(single[6]), .B0(gnd), .B1(double[6]),
.Y(aaoiRes_r4bs_0_632));
XNOR2X1TF xor_r4bs_0_672(.A(neg[6]), .B(aaoiRes_r4bs_0_632), .Y(pp_6_12));
wire aaoiRes_r4bs_120_538;
AOI22X1TF      aaoi_r4bs_120_538(.A0(yy[2]), .A1(single[5]), .B0(yy[1]), .B1(double[5]),
.Y(aaoiRes_r4bs_120_538));
XNOR2X1TF xor_r4bs_120_578(.A(neg[5]), .B(aaoiRes_r4bs_120_538), .Y(pp_5_12));
wire aaoiRes_r4bs_240_444;
AOI22X1TF      aaoi_r4bs_240_444(.A0(yy[4]), .A1(single[4]), .B0(yy[3]), .B1(double[4]),
.Y(aaoiRes_r4bs_240_444));
XNOR2X1TF xor_r4bs_240_484(.A(neg[4]), .B(aaoiRes_r4bs_240_444), .Y(pp_4_12));
wire aaoiRes_r4bs_60_632;
AOI22X1TF      aaoi_r4bs_60_632(.A0(yy[1]), .A1(single[6]), .B0(yy[0]), .B1(double[6]),
.Y(aaoiRes_r4bs_60_632));
XNOR2X1TF xor_r4bs_60_672(.A(neg[6]), .B(aaoiRes_r4bs_60_632), .Y(pp_6_13));
wire aaoiRes_r4bs_180_538;
AOI22X1TF      aaoi_r4bs_180_538(.A0(yy[3]), .A1(single[5]), .B0(yy[2]), .B1(double[5]),
.Y(aaoiRes_r4bs_180_538));
XNOR2X1TF xor_r4bs_180_578(.A(neg[5]), .B(aaoiRes_r4bs_180_538), .Y(pp_5_13));
wire aaoiRes_r4bs_120_632;
AOI22X1TF      aaoi_r4bs_120_632(.A0(yy[2]), .A1(single[6]), .B0(yy[1]), .B1(double[6]),
.Y(aaoiRes_r4bs_120_632));
XNOR2X1TF xor_r4bs_120_672(.A(neg[6]), .B(aaoiRes_r4bs_120_632), .Y(pp_6_14));
wire aaoiRes_r4bs_240_538;
AOI22X1TF      aaoi_r4bs_240_538(.A0(yy[4]), .A1(single[5]), .B0(yy[3]), .B1(double[5]),
.Y(aaoiRes_r4bs_240_538));
XNOR2X1TF xor_r4bs_240_578(.A(neg[5]), .B(aaoiRes_r4bs_240_538), .Y(pp_5_14));
wire aaoiRes_r4bs_360_444;
AOI22X1TF      aaoi_r4bs_360_444(.A0(yy[6]), .A1(single[4]), .B0(yy[5]), .B1(double[4]),
.Y(aaoiRes_r4bs_360_444));
XNOR2X1TF xor_r4bs_360_484(.A(neg[4]), .B(aaoiRes_r4bs_360_444), .Y(pp_4_14));
wire aaoiRes_r4bs_60_726;
AOI22X1TF      aaoi_r4bs_60_726(.A0(yy[1]), .A1(single[7]), .B0(yy[0]), .B1(double[7]),
.Y(aaoiRes_r4bs_60_726));
XNOR2X1TF xor_r4bs_60_766(.A(neg[7]), .B(aaoiRes_r4bs_60_726), .Y(pp_7_15));
wire aaoiRes_r4bs_180_632;
AOI22X1TF      aaoi_r4bs_180_632(.A0(yy[3]), .A1(single[6]), .B0(yy[2]), .B1(double[6]),
.Y(aaoiRes_r4bs_180_632));
XNOR2X1TF xor_r4bs_180_672(.A(neg[6]), .B(aaoiRes_r4bs_180_632), .Y(pp_6_15));
wire aaoiRes_r4bs_300_538;
AOI22X1TF      aaoi_r4bs_300_538(.A0(yy[5]), .A1(single[5]), .B0(yy[4]), .B1(double[5]),
.Y(aaoiRes_r4bs_300_538));
XNOR2X1TF xor_r4bs_300_578(.A(neg[5]), .B(aaoiRes_r4bs_300_538), .Y(pp_5_15));
wire aaoiRes_r4bs_360_538;

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AOI22X1TF      aaoi_r4bs_360_538(.A0(yy[6]), .A1(single[5]), .B0(yy[5]), .B1(double[5]),
.Y(aaoiRes_r4bs_360_538));
XNOR2X1TF xor_r4bs_360_578(.A(neg[5]), .B(aaoiRes_r4bs_360_538), .Y(pp_5_16));
wire aaoiRes_r4bs_480_444;
AOI22X1TF      aaoi_r4bs_480_444(.A0(yy[8]), .A1(single[4]), .B0(yy[7]), .B1(double[4]),
.Y(aaoiRes_r4bs_480_444));
XNOR2X1TF xor_r4bs_480_484(.A(neg[4]), .B(aaoiRes_r4bs_480_444), .Y(pp_4_16));
wire aaoiRes_r4bs_600_350;
AOI22X1TF      aaoi_r4bs_600_350(.A0(yy[10]), .A1(single[3]), .B0(yy[9]), .B1(double[3]),
.Y(aaoiRes_r4bs_600_350));
XNOR2X1TF xor_r4bs_600_390(.A(neg[3]), .B(aaoiRes_r4bs_600_350), .Y(pp_3_16));
wire aaoiRes_r4bs_420_538;
AOI22X1TF      aaoi_r4bs_420_538(.A0(yy[7]), .A1(single[5]), .B0(yy[6]), .B1(double[5]),
.Y(aaoiRes_r4bs_420_538));
XNOR2X1TF xor_r4bs_420_578(.A(neg[5]), .B(aaoiRes_r4bs_420_538), .Y(pp_5_17));
wire aaoiRes_r4bs_540_444;
AOI22X1TF      aaoi_r4bs_540_444(.A0(yy[9]), .A1(single[4]), .B0(yy[8]), .B1(double[4]),
.Y(aaoiRes_r4bs_540_444));
XNOR2X1TF xor_r4bs_540_484(.A(neg[4]), .B(aaoiRes_r4bs_540_444), .Y(pp_4_17));
wire aaoiRes_r4bs_660_350;
AOI22X1TF      aaoi_r4bs_660_350(.A0(yy[11]), .A1(single[3]), .B0(yy[10]),
.B1(double[3]), .Y(aaoiRes_r4bs_660_350));
XNOR2X1TF xor_r4bs_660_390(.A(neg[3]), .B(aaoiRes_r4bs_660_350), .Y(pp_3_17));
wire aaoiRes_r4bs_840_256;
AOI22X1TF      aaoi_r4bs_840_256(.A0(yy[14]), .A1(single[2]), .B0(yy[13]),
.B1(double[2]), .Y(aaoiRes_r4bs_840_256));
XNOR2X1TF xor_r4bs_840_296(.A(neg[2]), .B(aaoiRes_r4bs_840_256), .Y(pp_2_18));
wire aaoiRes_r4bs_960_162;
AOI22X1TF      aaoi_r4bs_960_162(.A0(gnd), .A1(single[1]), .B0(yy[15]), .B1(double[1]),
.Y(aaoiRes_r4bs_960_162));
XNOR2X1TF xor_r4bs_960_202(.A(neg[1]), .B(aaoiRes_r4bs_960_162), .Y(pp_1_18));
wire aaoiRes_r4bs_900_256;
AOI22X1TF      aaoi_r4bs_900_256(.A0(yy[15]), .A1(single[2]), .B0(yy[14]),
.B1(double[2]), .Y(aaoiRes_r4bs_900_256));
XNOR2X1TF xor_r4bs_900_296(.A(neg[2]), .B(aaoiRes_r4bs_900_256), .Y(pp_2_19));
wire aaoiRes_r4bs_0_726;
AOI22X1TF      aaoi_r4bs_0_726(.A0(yy[0]), .A1(single[7]), .B0(gnd), .B1(double[7]),
.Y(aaoiRes_r4bs_0_726));
XNOR2X1TF xor_r4bs_0_766(.A(neg[7]), .B(aaoiRes_r4bs_0_726), .Y(pp_7_14));
wire aaoiRes_r4bs_0_820;
AOI22X1TF      aaoi_r4bs_0_820(.A0(yy[0]), .A1(single[8]), .B0(gnd), .B1(double[8]),
.Y(aaoiRes_r4bs_0_820));
XNOR2X1TF xor_r4bs_0_860(.A(neg[8]), .B(aaoiRes_r4bs_0_820), .Y(pp_8_16));
wire aaoiRes_r4bs_120_726;
AOI22X1TF      aaoi_r4bs_120_726(.A0(yy[2]), .A1(single[7]), .B0(yy[1]), .B1(double[7]),
.Y(aaoiRes_r4bs_120_726));
XNOR2X1TF xor_r4bs_120_766(.A(neg[7]), .B(aaoiRes_r4bs_120_726), .Y(pp_7_16));
wire aaoiRes_r4bs_240_632;
AOI22X1TF      aaoi_r4bs_240_632(.A0(yy[4]), .A1(single[6]), .B0(yy[3]), .B1(double[6]),
.Y(aaoiRes_r4bs_240_632));
XNOR2X1TF xor_r4bs_240_672(.A(neg[6]), .B(aaoiRes_r4bs_240_632), .Y(pp_6_16));
wire aaoiRes_r4bs_60_820;
AOI22X1TF      aaoi_r4bs_60_820(.A0(yy[1]), .A1(single[8]), .B0(yy[0]), .B1(double[8]),
.Y(aaoiRes_r4bs_60_820));
XNOR2X1TF xor_r4bs_60_860(.A(neg[8]), .B(aaoiRes_r4bs_60_820), .Y(pp_8_17));
wire aaoiRes_r4bs_180_726;
AOI22X1TF      aaoi_r4bs_180_726(.A0(yy[3]), .A1(single[7]), .B0(yy[2]), .B1(double[7]),
.Y(aaoiRes_r4bs_180_726));
XNOR2X1TF xor_r4bs_180_766(.A(neg[7]), .B(aaoiRes_r4bs_180_726), .Y(pp_7_17));
wire aaoiRes_r4bs_300_632;
AOI22X1TF      aaoi_r4bs_300_632(.A0(yy[5]), .A1(single[6]), .B0(yy[4]), .B1(double[6]),
.Y(aaoiRes_r4bs_300_632));
XNOR2X1TF xor_r4bs_300_672(.A(neg[6]), .B(aaoiRes_r4bs_300_632), .Y(pp_6_17));
wire aaoiRes_r4bs_480_538;
AOI22X1TF      aaoi_r4bs_480_538(.A0(yy[8]), .A1(single[5]), .B0(yy[7]), .B1(double[5]),
.Y(aaoiRes_r4bs_480_538));
XNOR2X1TF xor_r4bs_480_578(.A(neg[5]), .B(aaoiRes_r4bs_480_538), .Y(pp_5_18));
wire aaoiRes_r4bs_600_444;
AOI22X1TF      aaoi_r4bs_600_444(.A0(yy[10]), .A1(single[4]), .B0(yy[9]), .B1(double[4]),
.Y(aaoiRes_r4bs_600_444));
XNOR2X1TF xor_r4bs_600_484(.A(neg[4]), .B(aaoiRes_r4bs_600_444), .Y(pp_4_18));
wire aaoiRes_r4bs_720_350;
AOI22X1TF      aaoi_r4bs_720_350(.A0(yy[12]), .A1(single[3]), .B0(yy[11]),
.B1(double[3]), .Y(aaoiRes_r4bs_720_350));
XNOR2X1TF xor_r4bs_720_390(.A(neg[3]), .B(aaoiRes_r4bs_720_350), .Y(pp_3_18));
wire aaoiRes_r4bs_540_538;
AOI22X1TF      aaoi_r4bs_540_538(.A0(yy[9]), .A1(single[5]), .B0(yy[8]), .B1(double[5]),
.Y(aaoiRes_r4bs_540_538));
XNOR2X1TF xor_r4bs_540_578(.A(neg[5]), .B(aaoiRes_r4bs_540_538), .Y(pp_5_19));
wire aaoiRes_r4bs_660_444;

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AOI22X1TF      aaoi_r4bs_660_444(.AO(yy[11]), .A1(single[4]), .B0(yy[10]),
.B1(double[4]), .Y(aaoiRes_r4bs_660_444));
XNOR2X1TF xor_r4bs_660_484(.A(neg[4]), .B(aaoiRes_r4bs_660_444), .Y(pp_4_19));
wire aaoiRes_r4bs_780_350;
AOI22X1TF      aaoi_r4bs_780_350(.AO(yy[13]), .A1(single[3]), .B0(yy[12]),
.B1(double[3]), .Y(aaoiRes_r4bs_780_350));
XNOR2X1TF xor_r4bs_780_390(.A(neg[3]), .B(aaoiRes_r4bs_780_350), .Y(pp_3_19));
wire aaoiRes_r4bs_960_256;
AOI22X1TF      aaoi_r4bs_960_256(.AO(gnd), .A1(single[2]), .B0(yy[15]), .B1(double[2]),
.Y(aaoiRes_r4bs_960_256));
XNOR2X1TF xor_r4bs_960_296(.A(neg[2]), .B(aaoiRes_r4bs_960_256), .Y(pp_2_20));
wire aaoiRes_r4bs_780_444;
AOI22X1TF      aaoi_r4bs_780_444(.AO(yy[13]), .A1(single[4]), .B0(yy[12]),
.B1(double[4]), .Y(aaoiRes_r4bs_780_444));
XNOR2X1TF xor_r4bs_780_484(.A(neg[4]), .B(aaoiRes_r4bs_780_444), .Y(pp_4_21));
wire aaoiRes_r4bs_900_350;
AOI22X1TF      aaoi_r4bs_900_350(.AO(yy[15]), .A1(single[3]), .B0(yy[14]),
.B1(double[3]), .Y(aaoiRes_r4bs_900_350));
XNOR2X1TF xor_r4bs_900_390(.A(neg[3]), .B(aaoiRes_r4bs_900_350), .Y(pp_3_21));
wire aaoiRes_r4bs_120_820;
AOI22X1TF      aaoi_r4bs_120_820(.AO(yy[2]), .A1(single[8]), .B0(yy[1]), .B1(double[8]),
.Y(aaoiRes_r4bs_120_820));
XNOR2X1TF xor_r4bs_120_860(.A(neg[8]), .B(aaoiRes_r4bs_120_820), .Y(pp_8_18));
wire aaoiRes_r4bs_240_726;
AOI22X1TF      aaoi_r4bs_240_726(.AO(yy[4]), .A1(single[7]), .B0(yy[3]), .B1(double[7]),
.Y(aaoiRes_r4bs_240_726));
XNOR2X1TF xor_r4bs_240_766(.A(neg[7]), .B(aaoiRes_r4bs_240_726), .Y(pp_7_18));
wire aaoiRes_r4bs_360_632;
AOI22X1TF      aaoi_r4bs_360_632(.AO(yy[6]), .A1(single[6]), .B0(yy[5]), .B1(double[6]),
.Y(aaoiRes_r4bs_360_632));
XNOR2X1TF xor_r4bs_360_672(.A(neg[6]), .B(aaoiRes_r4bs_360_632), .Y(pp_6_18));
wire aaoiRes_r4bs_180_820;
AOI22X1TF      aaoi_r4bs_180_820(.AO(yy[3]), .A1(single[8]), .B0(yy[2]), .B1(double[8]),
.Y(aaoiRes_r4bs_180_820));
XNOR2X1TF xor_r4bs_180_860(.A(neg[8]), .B(aaoiRes_r4bs_180_820), .Y(pp_8_19));
wire aaoiRes_r4bs_300_726;
AOI22X1TF      aaoi_r4bs_300_726(.AO(yy[5]), .A1(single[7]), .B0(yy[4]), .B1(double[7]),
.Y(aaoiRes_r4bs_300_726));
XNOR2X1TF xor_r4bs_300_766(.A(neg[7]), .B(aaoiRes_r4bs_300_726), .Y(pp_7_19));
wire aaoiRes_r4bs_420_632;
AOI22X1TF      aaoi_r4bs_420_632(.AO(yy[7]), .A1(single[6]), .B0(yy[6]), .B1(double[6]),
.Y(aaoiRes_r4bs_420_632));
XNOR2X1TF xor_r4bs_420_672(.A(neg[6]), .B(aaoiRes_r4bs_420_632), .Y(pp_6_19));
wire aaoiRes_r4bs_600_538;
AOI22X1TF      aaoi_r4bs_600_538(.AO(yy[10]), .A1(single[5]), .B0(yy[9]), .B1(double[5]),
.Y(aaoiRes_r4bs_600_538));
XNOR2X1TF xor_r4bs_600_578(.A(neg[5]), .B(aaoiRes_r4bs_600_538), .Y(pp_5_20));
wire aaoiRes_r4bs_720_444;
AOI22X1TF      aaoi_r4bs_720_444(.AO(yy[12]), .A1(single[4]), .B0(yy[11]),
.B1(double[4]), .Y(aaoiRes_r4bs_720_444));
XNOR2X1TF xor_r4bs_720_484(.A(neg[4]), .B(aaoiRes_r4bs_720_444), .Y(pp_4_20));
wire aaoiRes_r4bs_840_350;
AOI22X1TF      aaoi_r4bs_840_350(.AO(yy[14]), .A1(single[3]), .B0(yy[13]),
.B1(double[3]), .Y(aaoiRes_r4bs_840_350));
XNOR2X1TF xor_r4bs_840_390(.A(neg[3]), .B(aaoiRes_r4bs_840_350), .Y(pp_3_20));
wire aaoiRes_r4bs_420_726;
AOI22X1TF      aaoi_r4bs_420_726(.AO(yy[7]), .A1(single[7]), .B0(yy[6]), .B1(double[7]),
.Y(aaoiRes_r4bs_420_726));
XNOR2X1TF xor_r4bs_420_766(.A(neg[7]), .B(aaoiRes_r4bs_420_726), .Y(pp_7_21));
wire aaoiRes_r4bs_540_632;
AOI22X1TF      aaoi_r4bs_540_632(.AO(yy[9]), .A1(single[6]), .B0(yy[8]), .B1(double[6]),
.Y(aaoiRes_r4bs_540_632));
XNOR2X1TF xor_r4bs_540_672(.A(neg[6]), .B(aaoiRes_r4bs_540_632), .Y(pp_6_21));
wire aaoiRes_r4bs_660_538;
AOI22X1TF      aaoi_r4bs_660_538(.AO(yy[11]), .A1(single[5]), .B0(yy[10]),
.B1(double[5]), .Y(aaoiRes_r4bs_660_538));
XNOR2X1TF xor_r4bs_660_578(.A(neg[5]), .B(aaoiRes_r4bs_660_538), .Y(pp_5_21));
wire aaoiRes_r4bs_960_350;
AOI22X1TF      aaoi_r4bs_960_350(.AO(gnd), .A1(single[3]), .B0(yy[15]), .B1(double[3]),
.Y(aaoiRes_r4bs_960_350));
XNOR2X1TF xor_r4bs_960_390(.A(neg[3]), .B(aaoiRes_r4bs_960_350), .Y(pp_3_22));
wire aaoiRes_r4bs_780_538;
AOI22X1TF      aaoi_r4bs_780_538(.AO(yy[13]), .A1(single[5]), .B0(yy[12]),
.B1(double[5]), .Y(aaoiRes_r4bs_780_538));
XNOR2X1TF xor_r4bs_780_578(.A(neg[5]), .B(aaoiRes_r4bs_780_538), .Y(pp_5_23));
wire aaoiRes_r4bs_900_444;
AOI22X1TF      aaoi_r4bs_900_444(.AO(yy[15]), .A1(single[4]), .B0(yy[14]),
.B1(double[4]), .Y(aaoiRes_r4bs_900_444));
XNOR2X1TF xor_r4bs_900_484(.A(neg[4]), .B(aaoiRes_r4bs_900_444), .Y(pp_4_23));
wire aaoiRes_r4bs_240_820;

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AOI22X1TF      aaoi_r4bs_240_820(.A0(yy[4]), .A1(single[8]), .B0(yy[3]), .B1(double[8]),
.Y(aaoiRes_r4bs_240_820));
XNOR2X1TF xor_r4bs_240_860(.A(neg[8]), .B(aaoiRes_r4bs_240_820), .Y(pp_8_20));
wire aaoiRes_r4bs_360_726;
AOI22X1TF      aaoi_r4bs_360_726(.A0(yy[6]), .A1(single[7]), .B0(yy[5]), .B1(double[7]),
.Y(aaoiRes_r4bs_360_726));
XNOR2X1TF xor_r4bs_360_766(.A(neg[7]), .B(aaoiRes_r4bs_360_726), .Y(pp_7_20));
wire aaoiRes_r4bs_480_632;
AOI22X1TF      aaoi_r4bs_480_632(.A0(yy[8]), .A1(single[6]), .B0(yy[7]), .B1(double[6]),
.Y(aaoiRes_r4bs_480_632));
XNOR2X1TF xor_r4bs_480_672(.A(neg[6]), .B(aaoiRes_r4bs_480_632), .Y(pp_6_20));
wire aaoiRes_r4bs_300_820;
AOI22X1TF      aaoi_r4bs_300_820(.A0(yy[5]), .A1(single[8]), .B0(yy[4]), .B1(double[8]),
.Y(aaoiRes_r4bs_300_820));
XNOR2X1TF xor_r4bs_300_860(.A(neg[8]), .B(aaoiRes_r4bs_300_820), .Y(pp_8_21));
wire aaoiRes_r4bs_600_632;
AOI22X1TF      aaoi_r4bs_600_632(.A0(yy[10]), .A1(single[6]), .B0(yy[9]), .B1(double[6]),
.Y(aaoiRes_r4bs_600_632));
XNOR2X1TF xor_r4bs_600_672(.A(neg[6]), .B(aaoiRes_r4bs_600_632), .Y(pp_6_22));
wire aaoiRes_r4bs_720_538;
AOI22X1TF      aaoi_r4bs_720_538(.A0(yy[12]), .A1(single[5]), .B0(yy[11]),
.B1(double[5]), .Y(aaoiRes_r4bs_720_538));
XNOR2X1TF xor_r4bs_720_578(.A(neg[5]), .B(aaoiRes_r4bs_720_538), .Y(pp_5_22));
wire aaoiRes_r4bs_840_444;
AOI22X1TF      aaoi_r4bs_840_444(.A0(yy[14]), .A1(single[4]), .B0(yy[13]),
.B1(double[4]), .Y(aaoiRes_r4bs_840_444));
XNOR2X1TF xor_r4bs_840_484(.A(neg[4]), .B(aaoiRes_r4bs_840_444), .Y(pp_4_22));
wire aaoiRes_r4bs_420_820;
AOI22X1TF      aaoi_r4bs_420_820(.A0(yy[7]), .A1(single[8]), .B0(yy[6]), .B1(double[8]),
.Y(aaoiRes_r4bs_420_820));
XNOR2X1TF xor_r4bs_420_860(.A(neg[8]), .B(aaoiRes_r4bs_420_820), .Y(pp_8_23));
wire aaoiRes_r4bs_540_726;
AOI22X1TF      aaoi_r4bs_540_726(.A0(yy[9]), .A1(single[7]), .B0(yy[8]), .B1(double[7]),
.Y(aaoiRes_r4bs_540_726));
XNOR2X1TF xor_r4bs_540_766(.A(neg[7]), .B(aaoiRes_r4bs_540_726), .Y(pp_7_23));
wire aaoiRes_r4bs_660_632;
AOI22X1TF      aaoi_r4bs_660_632(.A0(yy[11]), .A1(single[6]), .B0(yy[10]),
.B1(double[6]), .Y(aaoiRes_r4bs_660_632));
XNOR2X1TF xor_r4bs_660_672(.A(neg[6]), .B(aaoiRes_r4bs_660_632), .Y(pp_6_23));
wire aaoiRes_r4bs_960_444;
AOI22X1TF      aaoi_r4bs_960_444(.A0(gnd), .A1(single[4]), .B0(yy[15]), .B1(double[4]),
.Y(aaoiRes_r4bs_960_444));
XNOR2X1TF xor_r4bs_960_484(.A(neg[4]), .B(aaoiRes_r4bs_960_444), .Y(pp_4_24));
wire aaoiRes_r4bs_780_632;
AOI22X1TF      aaoi_r4bs_780_632(.A0(yy[13]), .A1(single[6]), .B0(yy[12]),
.B1(double[6]), .Y(aaoiRes_r4bs_780_632));
XNOR2X1TF xor_r4bs_780_672(.A(neg[6]), .B(aaoiRes_r4bs_780_632), .Y(pp_6_25));
wire aaoiRes_r4bs_900_538;
AOI22X1TF      aaoi_r4bs_900_538(.A0(yy[15]), .A1(single[5]), .B0(yy[14]),
.B1(double[5]), .Y(aaoiRes_r4bs_900_538));
XNOR2X1TF xor_r4bs_900_578(.A(neg[5]), .B(aaoiRes_r4bs_900_538), .Y(pp_5_25));
wire aaoiRes_r4bs_360_820;
AOI22X1TF      aaoi_r4bs_360_820(.A0(yy[6]), .A1(single[8]), .B0(yy[5]), .B1(double[8]),
.Y(aaoiRes_r4bs_360_820));
XNOR2X1TF xor_r4bs_360_860(.A(neg[8]), .B(aaoiRes_r4bs_360_820), .Y(pp_8_22));
wire aaoiRes_r4bs_480_726;
AOI22X1TF      aaoi_r4bs_480_726(.A0(yy[8]), .A1(single[7]), .B0(yy[7]), .B1(double[7]),
.Y(aaoiRes_r4bs_480_726));
XNOR2X1TF xor_r4bs_480_766(.A(neg[7]), .B(aaoiRes_r4bs_480_726), .Y(pp_7_22));
wire aaoiRes_r4bs_600_726;
AOI22X1TF      aaoi_r4bs_600_726(.A0(yy[10]), .A1(single[7]), .B0(yy[9]), .B1(double[7]),
.Y(aaoiRes_r4bs_600_726));
XNOR2X1TF xor_r4bs_600_766(.A(neg[7]), .B(aaoiRes_r4bs_600_726), .Y(pp_7_24));
wire aaoiRes_r4bs_720_632;
AOI22X1TF      aaoi_r4bs_720_632(.A0(yy[12]), .A1(single[6]), .B0(yy[11]),
.B1(double[6]), .Y(aaoiRes_r4bs_720_632));
XNOR2X1TF xor_r4bs_720_672(.A(neg[6]), .B(aaoiRes_r4bs_720_632), .Y(pp_6_24));
wire aaoiRes_r4bs_840_538;
AOI22X1TF      aaoi_r4bs_840_538(.A0(yy[14]), .A1(single[5]), .B0(yy[13]),
.B1(double[5]), .Y(aaoiRes_r4bs_840_538));
XNOR2X1TF xor_r4bs_840_578(.A(neg[5]), .B(aaoiRes_r4bs_840_538), .Y(pp_5_24));
wire aaoiRes_r4bs_540_820;
AOI22X1TF      aaoi_r4bs_540_820(.A0(yy[9]), .A1(single[8]), .B0(yy[8]), .B1(double[8]),
.Y(aaoiRes_r4bs_540_820));
XNOR2X1TF xor_r4bs_540_860(.A(neg[8]), .B(aaoiRes_r4bs_540_820), .Y(pp_8_25));
wire aaoiRes_r4bs_660_726;
AOI22X1TF      aaoi_r4bs_660_726(.A0(yy[11]), .A1(single[7]), .B0(yy[10]),
.B1(double[7]), .Y(aaoiRes_r4bs_660_726));
XNOR2X1TF xor_r4bs_660_766(.A(neg[7]), .B(aaoiRes_r4bs_660_726), .Y(pp_7_25));
wire aaoiRes_r4bs_960_538;

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AOI22X1TF      aaoi_r4bs_960_538(.A0(gnd), .A1(single[5]), .B0(yy[15]), .B1(double[5]),
.Y(aaoiRes_r4bs_960_538));
XNOR2X1TF xor_r4bs_960_578(.A(neg[5]), .B(aaoiRes_r4bs_960_538), .Y(pp_5_26));
wire aaoiRes_r4bs_780_726;
AOI22X1TF      aaoi_r4bs_780_726(.A0(yy[13]), .A1(single[7]), .B0(yy[12]),
.B1(double[7]), .Y(aaoiRes_r4bs_780_726));
XNOR2X1TF xor_r4bs_780_766(.A(neg[7]), .B(aaoiRes_r4bs_780_726), .Y(pp_7_27));
wire aaoiRes_r4bs_900_632;
AOI22X1TF      aaoi_r4bs_900_632(.A0(yy[15]), .A1(single[6]), .B0(yy[14]),
.B1(double[6]), .Y(aaoiRes_r4bs_900_632));
XNOR2X1TF xor_r4bs_900_672(.A(neg[6]), .B(aaoiRes_r4bs_900_632), .Y(pp_6_27));
wire aaoiRes_r4bs_480_820;
AOI22X1TF      aaoi_r4bs_480_820(.A0(yy[8]), .A1(single[8]), .B0(yy[7]), .B1(double[8]),
.Y(aaoiRes_r4bs_480_820));
XNOR2X1TF xor_r4bs_480_860(.A(neg[8]), .B(aaoiRes_r4bs_480_820), .Y(pp_8_24));
wire aaoiRes_r4bs_600_820;
AOI22X1TF      aaoi_r4bs_600_820(.A0(yy[10]), .A1(single[8]), .B0(yy[9]), .B1(double[8]),
.Y(aaoiRes_r4bs_600_820));
XNOR2X1TF xor_r4bs_600_860(.A(neg[8]), .B(aaoiRes_r4bs_600_820), .Y(pp_8_26));
wire aaoiRes_r4bs_720_726;
AOI22X1TF      aaoi_r4bs_720_726(.A0(yy[12]), .A1(single[7]), .B0(yy[11]),
.B1(double[7]), .Y(aaoiRes_r4bs_720_726));
XNOR2X1TF xor_r4bs_720_766(.A(neg[7]), .B(aaoiRes_r4bs_720_726), .Y(pp_7_26));
wire aaoiRes_r4bs_840_632;
AOI22X1TF      aaoi_r4bs_840_632(.A0(yy[14]), .A1(single[6]), .B0(yy[13]),
.B1(double[6]), .Y(aaoiRes_r4bs_840_632));
XNOR2X1TF xor_r4bs_840_672(.A(neg[6]), .B(aaoiRes_r4bs_840_632), .Y(pp_6_26));
wire aaoiRes_r4bs_660_820;
AOI22X1TF      aaoi_r4bs_660_820(.A0(yy[11]), .A1(single[8]), .B0(yy[10]),
.B1(double[8]), .Y(aaoiRes_r4bs_660_820));
XNOR2X1TF xor_r4bs_660_860(.A(neg[8]), .B(aaoiRes_r4bs_660_820), .Y(pp_8_27));
wire aaoiRes_r4bs_960_632;
AOI22X1TF      aaoi_r4bs_960_632(.A0(gnd), .A1(single[6]), .B0(yy[15]), .B1(double[6]),
.Y(aaoiRes_r4bs_960_632));
XNOR2X1TF xor_r4bs_960_672(.A(neg[6]), .B(aaoiRes_r4bs_960_632), .Y(pp_6_28));
wire aaoiRes_r4bs_780_820;
AOI22X1TF      aaoi_r4bs_780_820(.A0(yy[13]), .A1(single[8]), .B0(yy[12]),
.B1(double[8]), .Y(aaoiRes_r4bs_780_820));
XNOR2X1TF xor_r4bs_780_860(.A(neg[8]), .B(aaoiRes_r4bs_780_820), .Y(pp_8_29));
wire aaoiRes_r4bs_900_726;
AOI22X1TF      aaoi_r4bs_900_726(.A0(yy[15]), .A1(single[7]), .B0(yy[14]),
.B1(double[7]), .Y(aaoiRes_r4bs_900_726));
XNOR2X1TF xor_r4bs_900_766(.A(neg[7]), .B(aaoiRes_r4bs_900_726), .Y(pp_7_29));
wire aaoiRes_r4bs_720_820;
AOI22X1TF      aaoi_r4bs_720_820(.A0(yy[12]), .A1(single[8]), .B0(yy[11]),
.B1(double[8]), .Y(aaoiRes_r4bs_720_820));
XNOR2X1TF xor_r4bs_720_860(.A(neg[8]), .B(aaoiRes_r4bs_720_820), .Y(pp_8_28));
wire aaoiRes_r4bs_840_726;
AOI22X1TF      aaoi_r4bs_840_726(.A0(yy[14]), .A1(single[7]), .B0(yy[13]),
.B1(double[7]), .Y(aaoiRes_r4bs_840_726));
XNOR2X1TF xor_r4bs_840_766(.A(neg[7]), .B(aaoiRes_r4bs_840_726), .Y(pp_7_28));
wire aaoiRes_r4bs_960_726;
AOI22X1TF      aaoi_r4bs_960_726(.A0(gnd), .A1(single[7]), .B0(yy[15]), .B1(double[7]),
.Y(aaoiRes_r4bs_960_726));
XNOR2X1TF xor_r4bs_960_766(.A(neg[7]), .B(aaoiRes_r4bs_960_726), .Y(pp_7_30));
wire aaoiRes_r4bs_900_820;
AOI22X1TF      aaoi_r4bs_900_820(.A0(yy[15]), .A1(single[8]), .B0(yy[14]),
.B1(double[8]), .Y(aaoiRes_r4bs_900_820));
XNOR2X1TF xor_r4bs_900_860(.A(neg[8]), .B(aaoiRes_r4bs_900_820), .Y(pp_8_31));
wire aaoiRes_r4bs_840_820;
AOI22X1TF      aaoi_r4bs_840_820(.A0(yy[14]), .A1(single[8]), .B0(yy[13]),
.B1(double[8]), .Y(aaoiRes_r4bs_840_820));
XNOR2X1TF xor_r4bs_840_860(.A(neg[8]), .B(aaoiRes_r4bs_840_820), .Y(pp_8_30));
BUF2TF buf_0_914(.A(neg[0]), .Y(finalsumA[0]));
BUF3TF buf_0_948(.A(pp_0_0), .Y(finalsumB[0]));
BUF2TF buf_0_1002(.A(pp_1_2), .Y(finalsumA[2]));
BUF3TF buf_0_1036(.A(int_0_2), .Y(finalsumB[2]));
BUF2TF buf_0_1156(.A(int_0_4), .Y(finalsumA[4]));
BUF2TF buf_0_1190(.A(int_2_4), .Y(finalsumB[4]));
BUF2TF buf_0_1310(.A(int_2_6), .Y(finalsumA[6]));
BUF2TF buf_0_1344(.A(int_4_6), .Y(finalsumB[6]));
BUF2TF buf_0_1464(.A(int_5_7), .Y(finalsumA[8]));
BUF2TF buf_0_1498(.A(int_6_8), .Y(finalsumB[8]));
BUF2TF buf_0_1618(.A(int_7_9), .Y(finalsumA[10]));
BUF2TF buf_0_1652(.A(int_8_10), .Y(finalsumB[10]));
BUF2TF buf_0_1772(.A(int_9_11), .Y(finalsumA[12]));
BUF2TF buf_0_1806(.A(int_10_12), .Y(finalsumB[12]));
BUF2TF buf_0_1926(.A(int_11_13), .Y(finalsumA[14]));
BUF2TF buf_0_1960(.A(int_12_14), .Y(finalsumB[14]));
BUF2TF buf_0_2080(.A(int_13_15), .Y(finalsumA[16]));
BUF2TF buf_0_2114(.A(int_12_16), .Y(finalsumB[16]));

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BUF2TF buf_0_2234(.A(int_13_17), .Y(finalsumA[18]));
BUF2TF buf_0_2268(.A(int_12_18), .Y(finalsumB[18]));
BUF2TF buf_0_2388(.A(int_13_19), .Y(finalsumA[20]));
BUF2TF buf_0_2422(.A(int_12_20), .Y(finalsumB[20]));
BUF3TF buf_60_914(.A(pp_0_1), .Y(finalsumA[1]));
BUF2TF buf_60_948(.A(gnd), .Y(finalsumB[1]));
BUF2TF buf_60_1002(.A(int_1_2), .Y(finalsumA[3]));
BUF2TF buf_60_1036(.A(int_0_3), .Y(finalsumB[3]));
BUF2TF buf_60_1156(.A(int_3_4), .Y(finalsumA[5]));
BUF2TF buf_60_1190(.A(int_2_5), .Y(finalsumB[5]));
BUF2TF buf_60_1310(.A(int_5_6), .Y(finalsumA[7]));
BUF2TF buf_60_1344(.A(int_4_7), .Y(finalsumB[7]));
BUF2TF buf_60_1464(.A(int_7_8), .Y(finalsumA[9]));
BUF2TF buf_60_1498(.A(int_6_9), .Y(finalsumB[9]));
BUF2TF buf_60_1618(.A(int_9_10), .Y(finalsumA[11]));
BUF2TF buf_60_1652(.A(int_8_11), .Y(finalsumB[11]));
BUF2TF buf_60_1772(.A(int_11_12), .Y(finalsumA[13]));
BUF2TF buf_60_1806(.A(int_10_13), .Y(finalsumB[13]));
BUF2TF buf_60_1926(.A(int_10_15), .Y(finalsumA[15]));
BUF2TF buf_60_1960(.A(int_12_15), .Y(finalsumB[15]));
BUF2TF buf_60_2080(.A(int_13_16), .Y(finalsumA[17]));
BUF2TF buf_60_2114(.A(int_12_17), .Y(finalsumB[17]));
BUF2TF buf_60_2234(.A(int_13_18), .Y(finalsumA[19]));
BUF2TF buf_60_2268(.A(int_12_19), .Y(finalsumB[19]));
AND2X1TF andHA_120_914(.A(neg[1]), .B(pp_0_2), .Y(int_1_2));
XOR2X1TF xorHA_120_948(.A(neg[1]), .B(pp_0_2), .Y(int_0_2));
ADDFX1TF FA_120_1002(.A(pp_1_4), .B(pp_2_4), .CI(int_1_3), .S(int_2_4), .CO(int_3_4));
ADDFX1TF FA_120_1156(.A(int_1_5), .B(int_0_6), .CI(int_3_5), .S(int_4_6), .CO(int_5_6));
ADDFX1TF FA_120_1310(.A(int_3_7), .B(int_2_8), .CI(int_4_8), .S(int_6_8), .CO(int_7_8));
ADDFX1TF FA_120_1464(.A(int_2_10), .B(int_4_10), .CI(int_6_10), .S(int_8_10),
.CO(int_9_10));
ADDFX1TF FA_120_1618(.A(int_7_11), .B(int_6_12), .CI(int_8_12), .S(int_10_12),
.CO(int_11_12));
ADDFX1TF FA_120_1772(.A(int_9_13), .B(int_8_14), .CI(int_10_14), .S(int_12_14),
.CO(int_13_14));
ADDFX1TF FA_120_1926(.A(int_11_15), .B(int_8_16), .CI(int_10_16), .S(int_12_16),
.CO(int_13_16));
ADDFX1TF FA_120_2080(.A(int_11_17), .B(int_8_18), .CI(int_10_18), .S(int_12_18),
.CO(int_13_18));
ADDFX1TF FA_120_2234(.A(int_11_19), .B(int_8_20), .CI(int_10_20), .S(int_12_20),
.CO(int_13_20));
BUF2TF buf_120_2388(.A(int_11_21), .Y(finalsumA[22]));
BUF2TF buf_120_2422(.A(int_10_22), .Y(finalsumB[22]));
AND2X1TF andHA_180_914(.A(pp_0_3), .B(pp_1_3), .Y(int_1_3));
XOR2X1TF xorHA_180_948(.A(pp_0_3), .B(pp_1_3), .Y(int_0_3));
ADDFX2TF FA_180_1002(.A(pp_2_5), .B(int_1_4), .CI(int_0_5), .S(int_2_5), .CO(int_3_5));
ADDFX1TF FA_180_1156(.A(int_3_6), .B(int_0_7), .CI(int_2_7), .S(int_4_7), .CO(int_5_7));
ADDFX1TF FA_180_1310(.A(int_5_8), .B(int_2_9), .CI(int_4_9), .S(int_6_9), .CO(int_7_9));
ADDFX1TF FA_180_1464(.A(int_4_11), .B(int_7_10), .CI(int_6_11), .S(int_8_11),
.CO(int_9_11));
ADDFX1TF FA_180_1618(.A(int_9_12), .B(int_6_13), .CI(int_8_13), .S(int_10_13),
.CO(int_11_13));
ADDFX1TF FA_180_1772(.A(int_11_14), .B(int_8_15), .CI(int_13_14), .S(int_12_15),
.CO(int_13_15));
ADDFX1TF FA_180_1926(.A(int_11_16), .B(int_8_17), .CI(int_10_17), .S(int_12_17),
.CO(int_13_17));
ADDFX1TF FA_180_2080(.A(int_11_18), .B(int_8_19), .CI(int_10_19), .S(int_12_19),
.CO(int_13_19));
BUF2TF buf_180_2234(.A(int_13_20), .Y(finalsumA[21]));
BUF2TF buf_180_2268(.A(int_10_21), .Y(finalsumB[21]));
AND2X2TF andHA_240_914(.A(neg[2]), .B(pp_0_4), .Y(int_1_4));
XOR2X1TF xorHA_240_948(.A(neg[2]), .B(pp_0_4), .Y(int_0_4));
ADDFX1TF FA_240_1002(.A(pp_1_6), .B(pp_2_6), .CI(pp_3_6), .S(int_2_6), .CO(int_3_6));
ADDFX1TF FA_240_1156(.A(pp_4_8), .B(int_1_7), .CI(int_0_8), .S(int_4_8), .CO(int_5_8));
ADDFX1TF FA_240_1310(.A(int_3_9), .B(int_0_10), .CI(int_5_9), .S(int_6_10),
.CO(int_7_10));
ADDFX1TF FA_240_1464(.A(int_5_11), .B(int_2_12), .CI(int_4_12), .S(int_8_12),
.CO(int_9_12));
ADDFX1TF FA_240_1618(.A(int_2_14), .B(int_4_14), .CI(int_6_14), .S(int_10_14),
.CO(int_11_14));
ADDFX1TF FA_240_1772(.A(int_4_16), .B(int_9_15), .CI(int_6_16), .S(int_10_16),
.CO(int_11_16));
ADDFX1TF FA_240_1926(.A(int_4_18), .B(int_9_17), .CI(int_6_18), .S(int_10_18),
.CO(int_11_18));
ADDFX1TF FA_240_2080(.A(int_4_20), .B(int_9_19), .CI(int_6_20), .S(int_10_20),
.CO(int_11_20));
ADDFX1TF FA_240_2234(.A(int_6_22), .B(int_9_21), .CI(int_8_22), .S(int_10_22),
.CO(int_11_22));
BUF2TF buf_240_2388(.A(int_9_23), .Y(finalsumA[24]));
BUF2TF buf_240_2422(.A(int_8_24), .Y(finalsumB[24]));
AND2X1TF andHA_300_914(.A(pp_0_5), .B(pp_1_5), .Y(int_1_5));

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XOR2X1TF xorHA 300_948(.A(pp_0_5), .B(pp_1_5), .Y(int_0_5));
ADDFX1TF FA 300_1002(.A(pp_2_7), .B(pp_3_7), .CI(int_1_6), .S(int_2_7), .CO(int_3_7));
ADDFX1TF FA 300_1156(.A(int_1_8), .B(int_3_8), .CI(int_0_9), .S(int_4_9), .CO(int_5_9));
ADDFX1TF FA 300_1310(.A(int_0_11), .B(int_5_10), .CI(int_2_11), .S(int_6_11),
.CO(int_7_11));
ADDFX1TF FA 300_1464(.A(int_7_12), .B(int_2_13), .CI(int_4_13), .S(int_8_13),
.CO(int_9_13));
ADDFX1TF FA 300_1618(.A(int_4_15), .B(int_9_14), .CI(int_6_15), .S(int_10_15),
.CO(int_11_15));
ADDFX1TF FA 300_1772(.A(int_4_17), .B(int_9_16), .CI(int_6_17), .S(int_10_17),
.CO(int_11_17));
ADDFX1TF FA 300_1926(.A(int_4_19), .B(int_9_18), .CI(int_6_19), .S(int_10_19),
.CO(int_11_19));
ADDFX1TF FA 300_2080(.A(int_11_20), .B(int_6_21), .CI(int_8_21), .S(int_10_21),
.CO(int_11_21));
BUF2TF buf 300_2234(.A(int_11_22), .Y(finalsumA[23]));
BUF2TF buf 300_2268(.A(int_8_23), .Y(finalsumB[23]));
AND2X1TF andHA 360_914(.A(neg[3]), .B(pp_0_6), .Y(int_1_6));
XOR2X1TF xorHA 360_948(.A(neg[3]), .B(pp_0_6), .Y(int_0_6));
ADDFX2TF FA 360_1002(.A(pp_1_8), .B(pp_2_8), .CI(pp_3_8), .S(int_2_8), .CO(int_3_8));
ADDFX1TF FA 360_1156(.A(pp_4_10), .B(pp_5_10), .CI(int_1_9), .S(int_4_10),
.CO(int_5_10));
ADDFX1TF FA 360_1310(.A(int_1_11), .B(int_3_11), .CI(int_0_12), .S(int_6_12),
.CO(int_7_12));
ADDFX1TF FA 360_1464(.A(int_0_14), .B(int_5_13), .CI(int_7_13), .S(int_8_14),
.CO(int_9_14));
ADDFX1TF FA 360_1618(.A(int_7_15), .B(int_0_16), .CI(int_2_16), .S(int_8_16),
.CO(int_9_16));
ADDFX1TF FA 360_1772(.A(int_7_17), .B(int_0_18), .CI(int_2_18), .S(int_8_18),
.CO(int_9_18));
ADDFX1TF FA 360_1926(.A(int_0_20), .B(int_7_19), .CI(int_2_20), .S(int_8_20),
.CO(int_9_20));
ADDFX1TF FA 360_2080(.A(int_2_22), .B(int_4_22), .CI(int_7_21), .S(int_8_22),
.CO(int_9_22));
ADDFX1TF FA 360_2234(.A(int_4_24), .B(int_7_23), .CI(int_6_24), .S(int_8_24),
.CO(int_9_24));
BUF2TF buf 360_2388(.A(int_7_25), .Y(finalsumA[26]));
BUF2TF buf 360_2422(.A(int_6_26), .Y(finalsumB[26]));
AND2X1TF andHA 420_914(.A(pp_0_7), .B(pp_1_7), .Y(int_1_7));
XOR2X1TF xorHA 420_948(.A(pp_0_7), .B(pp_1_7), .Y(int_0_7));
ADDFX1TF FA 420_1002(.A(pp_2_9), .B(pp_3_9), .CI(pp_4_9), .S(int_2_9), .CO(int_3_9));
ADDFX1TF FA 420_1156(.A(pp_5_11), .B(int_1_10), .CI(int_3_10), .S(int_4_11),
.CO(int_5_11));
ADDFX1TF FA 420_1310(.A(int_3_12), .B(int_5_12), .CI(int_0_13), .S(int_6_13),
.CO(int_7_13));
ADDFX1TF FA 420_1464(.A(int_0_15), .B(int_7_14), .CI(int_2_15), .S(int_8_15),
.CO(int_9_15));
ADDFX1TF FA 420_1618(.A(int_7_16), .B(int_0_17), .CI(int_2_17), .S(int_8_17),
.CO(int_9_17));
ADDFX1TF FA 420_1772(.A(int_0_19), .B(int_7_18), .CI(int_2_19), .S(int_8_19),
.CO(int_9_19));
ADDFX1TF FA 420_1926(.A(int_2_21), .B(int_4_21), .CI(int_9_20), .S(int_8_21),
.CO(int_9_21));
ADDFX1TF FA 420_2080(.A(int_4_23), .B(int_9_22), .CI(int_6_23), .S(int_8_23),
.CO(int_9_23));
BUF2TF buf 420_2234(.A(int_9_24), .Y(finalsumA[25]));
BUF2TF buf 420_2268(.A(int_6_25), .Y(finalsumB[25]));
AND2X1TF andHA 480_914(.A(neg[4]), .B(pp_0_8), .Y(int_1_8));
XOR2X1TF xorHA 480_948(.A(neg[4]), .B(pp_0_8), .Y(int_0_8));
ADDFX1TF FA 480_1002(.A(pp_1_10), .B(pp_2_10), .CI(pp_3_10), .S(int_2_10),
.CO(int_3_10));
ADDFX1TF FA 480_1156(.A(pp_4_12), .B(pp_5_12), .CI(pp_6_12), .S(int_4_12),
.CO(int_5_12));
ADDFX1TF FA 480_1310(.A(pp_7_14), .B(int_1_13), .CI(int_3_13), .S(int_6_14),
.CO(int_7_14));
ADDFX1TF FA 480_1464(.A(int_1_15), .B(int_3_15), .CI(int_5_15), .S(int_6_16),
.CO(int_7_16));
ADDFX1TF FA 480_1618(.A(int_1_17), .B(int_3_17), .CI(int_5_17), .S(int_6_18),
.CO(int_7_18));
ADDFX1TF FA 480_1772(.A(int_1_19), .B(int_3_19), .CI(int_5_19), .S(int_6_20),
.CO(int_7_20));
ADDFX1TF FA 480_1926(.A(int_3_21), .B(int_0_22), .CI(int_5_21), .S(int_6_22),
.CO(int_7_22));
ADDFX1TF FA 480_2080(.A(int_0_24), .B(int_2_24), .CI(int_5_23), .S(int_6_24),
.CO(int_7_24));
ADDFX1TF FA 480_2234(.A(int_2_26), .B(int_5_25), .CI(int_4_26), .S(int_6_26),
.CO(int_7_26));
BUF2TF buf 480_2388(.A(int_5_27), .Y(finalsumA[28]));
BUF2TF buf 480_2422(.A(int_4_28), .Y(finalsumB[28]));
AND2X1TF andHA 540_914(.A(pp_0_9), .B(pp_1_9), .Y(int_1_9));
XOR2X1TF xorHA 540_948(.A(pp_0_9), .B(pp_1_9), .Y(int_0_9));

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ADDFX1TF FA 540_1002(.A(pp_2_11), .B(pp_3_11), .CI(pp_4_11), .S(int_2_11),
.CO(int_3_11));
ADDFX1TF FA 540_1156(.A(pp_5_13), .B(pp_6_13), .CI(int_1_12), .S(int_4_13),
.CO(int_5_13));
ADDFX1TF FA 540_1310(.A(int_1_14), .B(int_3_14), .CI(int_5_14), .S(int_6_15),
.CO(int_7_15));
ADDFX1TF FA 540_1464(.A(int_1_16), .B(int_3_16), .CI(int_5_16), .S(int_6_17),
.CO(int_7_17));
ADDFX1TF FA 540_1618(.A(int_1_18), .B(int_3_18), .CI(int_5_18), .S(int_6_19),
.CO(int_7_19));
ADDFX1TF FA 540_1772(.A(int_5_20), .B(int_7_20), .CI(int_0_21), .S(int_6_21),
.CO(int_7_21));
ADDFX1TF FA 540_1926(.A(int_0_23), .B(int_2_23), .CI(int_7_22), .S(int_6_23),
.CO(int_7_23));
ADDFX1TF FA 540_2080(.A(int_2_25), .B(int_7_24), .CI(int_4_25), .S(int_6_25),
.CO(int_7_25));
BUF2TF buf 540_2234(.A(int_7_26), .Y(finalsumA[27]));
BUF2TF buf 540_2268(.A(int_4_27), .Y(finalsumB[27]));
AND2X1TF andHA_600_914(.A(neg[5]), .B(pp_0_10), .Y(int_1_10));
XOR2X1TF xorHA_600_948(.A(neg[5]), .B(pp_0_10), .Y(int_0_10));
ADDFX1TF FA 600_1002(.A(pp_1_12), .B(pp_2_12), .CI(pp_3_12), .S(int_2_12),
.CO(int_3_12));
ADDFX1TF FA 600_1156(.A(pp_4_14), .B(pp_5_14), .CI(pp_6_14), .S(int_4_14),
.CO(int_5_14));
ADDFX1TF FA 600_1310(.A(pp_6_16), .B(pp_7_16), .CI(pp_8_16), .S(int_4_16),
.CO(int_5_16));
ADDFX1TF FA 600_1464(.A(pp_6_18), .B(pp_7_18), .CI(pp_8_18), .S(int_4_18),
.CO(int_5_18));
ADDFX1TF FA 600_1618(.A(pp_6_20), .B(pp_7_20), .CI(pp_8_20), .S(int_4_20),
.CO(int_5_20));
ADDFX1TF FA 600_1772(.A(pp_7_22), .B(pp_8_22), .CI(int_1_21), .S(int_4_22),
.CO(int_5_22));
ADDFX1TF FA 600_1926(.A(pp_8_24), .B(int_1_23), .CI(int_3_23), .S(int_4_24),
.CO(int_5_24));
ADDFX1TF FA 600_2080(.A(int_1_25), .B(int_0_26), .CI(int_3_25), .S(int_4_26),
.CO(int_5_26));
ADDFX1TF FA 600_2234(.A(int_0_28), .B(int_3_27), .CI(int_2_28), .S(int_4_28),
.CO(int_5_28));
BUF2TF buf 600_2388(.A(int_3_29), .Y(finalsumA[30]));
BUF2TF buf 600_2422(.A(int_2_30), .Y(finalsumB[30]));
AND2X1TF andHA_660_914(.A(pp_0_11), .B(pp_1_11), .Y(int_1_11));
XOR2X1TF xorHA_660_948(.A(pp_0_11), .B(pp_1_11), .Y(int_0_11));
ADDFX1TF FA 660_1002(.A(pp_2_13), .B(pp_3_13), .CI(pp_4_13), .S(int_2_13),
.CO(int_3_13));
ADDFX1TF FA 660_1156(.A(pp_5_15), .B(pp_6_15), .CI(pp_7_15), .S(int_4_15),
.CO(int_5_15));
ADDFX1TF FA 660_1310(.A(pp_6_17), .B(pp_7_17), .CI(pp_8_17), .S(int_4_17),
.CO(int_5_17));
ADDFX1TF FA 660_1464(.A(pp_6_19), .B(pp_7_19), .CI(pp_8_19), .S(int_4_19),
.CO(int_5_19));
ADDFX1TF FA 660_1618(.A(pp_8_21), .B(int_1_20), .CI(int_3_20), .S(int_4_21),
.CO(int_5_21));
ADDFX1TF FA 660_1772(.A(int_1_22), .B(int_3_22), .CI(int_5_22), .S(int_4_23),
.CO(int_5_23));
ADDFX1TF FA 660_1926(.A(int_3_24), .B(int_5_24), .CI(int_0_25), .S(int_4_25),
.CO(int_5_25));
ADDFX1TF FA 660_2080(.A(int_0_27), .B(int_5_26), .CI(int_2_27), .S(int_4_27),
.CO(int_5_27));
BUF2TF buf 660_2234(.A(int_5_28), .Y(finalsumA[29]));
BUF2TF buf 660_2268(.A(int_2_29), .Y(finalsumB[29]));
AND2X1TF andHA_720_914(.A(neg[6]), .B(pp_0_12), .Y(int_1_12));
XOR2X1TF xorHA_720_948(.A(neg[6]), .B(pp_0_12), .Y(int_0_12));
ADDFX1TF FA 720_1002(.A(pp_1_14), .B(pp_2_14), .CI(pp_3_14), .S(int_2_14),
.CO(int_3_14));
ADDFX1TF FA 720_1156(.A(pp_3_16), .B(pp_4_16), .CI(pp_5_16), .S(int_2_16),
.CO(int_3_16));
ADDFX1TF FA 720_1310(.A(pp_3_18), .B(pp_4_18), .CI(pp_5_18), .S(int_2_18),
.CO(int_3_18));
ADDFX1TF FA 720_1464(.A(pp_3_20), .B(pp_4_20), .CI(pp_5_20), .S(int_2_20),
.CO(int_3_20));
ADDFX1TF FA 720_1618(.A(pp_4_22), .B(pp_5_22), .CI(pp_6_22), .S(int_2_22),
.CO(int_3_22));
ADDFX1TF FA 720_1772(.A(pp_5_24), .B(pp_6_24), .CI(pp_7_24), .S(int_2_24),
.CO(int_3_24));
ADDFX1TF FA 720_1926(.A(pp_6_26), .B(pp_7_26), .CI(pp_8_26), .S(int_2_26),
.CO(int_3_26));
ADDFX1TF FA 720_2080(.A(pp_7_28), .B(pp_8_28), .CI(int_1_27), .S(int_2_28),
.CO(int_3_28));
ADDFX1TF FA 720_2234(.A(pp_8_30), .B(int_1_29), .CI(int_0_30), .S(int_2_30),
.CO(int_3_30));
AND2X1TF andHA_780_914(.A(pp_0_13), .B(pp_1_13), .Y(int_1_13));

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XOR2X1TF xorHA 780_948(.A(pp_0_13), .B(pp_1_13), .Y(int_0_13));
ADDFX1TF FA 780_1002(.A(pp_2_15), .B(pp_3_15), .CI(pp_4_15), .S(int_2_15),
.CO(int_3_15));
ADDFX1TF FA 780_1156(.A(pp_3_17), .B(pp_4_17), .CI(pp_5_17), .S(int_2_17),
.CO(int_3_17));
ADDFX1TF FA 780_1310(.A(pp_3_19), .B(pp_4_19), .CI(pp_5_19), .S(int_2_19),
.CO(int_3_19));
ADDFX1TF FA 780_1464(.A(pp_5_21), .B(pp_6_21), .CI(pp_7_21), .S(int_2_21),
.CO(int_3_21));
ADDFX1TF FA 780_1618(.A(pp_6_23), .B(pp_7_23), .CI(pp_8_23), .S(int_2_23),
.CO(int_3_23));
ADDFX1TF FA 780_1772(.A(pp_7_25), .B(pp_8_25), .CI(int_1_24), .S(int_2_25),
.CO(int_3_25));
ADDFX1TF FA 780_1926(.A(pp_8_27), .B(int_1_26), .CI(int_3_26), .S(int_2_27),
.CO(int_3_27));
ADDFX1TF FA 780_2080(.A(int_1_28), .B(int_3_28), .CI(int_0_29), .S(int_2_29),
.CO(int_3_29));
BUF2TF buf 780_2234(.A(int_3_30), .Y(finalsumA[31]));
BUF2TF buf 780_2268(.A(int_0_31), .Y(finalsumB[31]));
AND2X1TF andHA 840_914(.A(neg[7]), .B(pp_0_14), .Y(int_1_14));
XOR2X1TF xorHA 840_948(.A(neg[7]), .B(pp_0_14), .Y(int_0_14));
ADDFX1TF FA 840_1002(.A(pp_0_16), .B(pp_1_16), .CI(pp_2_16), .S(int_0_16),
.CO(int_1_16));
ADDFX1TF FA 840_1156(.A(neg[0]), .B(pp_1_18), .CI(pp_2_18), .S(int_0_18), .CO(int_1_18));
AND2X1TF andHA 840_1310(.A(1'b1), .B(pp_2_20), .Y(int_1_20));
XOR2X1TF xorHA 840_1344(.A(1'b1), .B(pp_2_20), .Y(int_0_20));
AND2X1TF andHA 840_1464(.A(1'b1), .B(pp_3_22), .Y(int_1_22));
XOR2X1TF xorHA 840_1498(.A(1'b1), .B(pp_3_22), .Y(int_0_22));
AND2X1TF andHA 840_1618(.A(1'b1), .B(pp_4_24), .Y(int_1_24));
XOR2X1TF xorHA 840_1652(.A(1'b1), .B(pp_4_24), .Y(int_0_24));
AND2X1TF andHA 840_1772(.A(1'b1), .B(pp_5_26), .Y(int_1_26));
XOR2X1TF xorHA 840_1806(.A(1'b1), .B(pp_5_26), .Y(int_0_26));
AND2X1TF andHA 840_1926(.A(1'b1), .B(pp_6_28), .Y(int_1_28));
XOR2X1TF xorHA 840_1960(.A(1'b1), .B(pp_6_28), .Y(int_0_28));
AND2X1TF andHA 840_2080(.A(1'b1), .B(pp_7_30), .Y(int_1_30));
XOR2X1TF xorHA 840_2114(.A(1'b1), .B(pp_7_30), .Y(int_0_30));
AND2X1TF andHA 900_914(.A(pp_0_15), .B(pp_1_15), .Y(int_1_15));
XOR2X1TF xorHA 900_948(.A(pp_0_15), .B(pp_1_15), .Y(int_0_15));
ADDFX1TF FA 900_1002(.A(neg[0]), .B(pp_1_17), .CI(pp_2_17), .S(int_0_17), .CO(int_1_17));
ADDFX1TF FA 900_1156(.A(negbar[0]), .B(negbar[1]), .CI(pp_2_19), .S(int_0_19),
.CO(int_1_19));
ADDFX1TF FA 900_1310(.A(negbar[2]), .B(pp_3_21), .CI(pp_4_21), .S(int_0_21),
.CO(int_1_21));
ADDFX1TF FA 900_1464(.A(negbar[3]), .B(pp_4_23), .CI(pp_5_23), .S(int_0_23),
.CO(int_1_23));
ADDFX1TF FA 900_1618(.A(negbar[4]), .B(pp_5_25), .CI(pp_6_25), .S(int_0_25),
.CO(int_1_25));
ADDFX1TF FA 900_1772(.A(negbar[5]), .B(pp_6_27), .CI(pp_7_27), .S(int_0_27),
.CO(int_1_27));
ADDFX1TF FA 900_1926(.A(negbar[6]), .B(pp_7_29), .CI(pp_8_29), .S(int_0_29),
.CO(int_1_29));
XOR3X1TF xor xor 900_2080(.A(negbar[7]), .B(pp_8_31), .C(int_1_30), .Y(int_0_31));
wire wire_g_1_1_nb;
wire wire_p_1_1_nb;
wire wire_g_1_0_b;
wire wire_g_2_2_nb;
wire wire_p_2_2_nb;
wire wire_g_2_2_b;
wire wire_p_2_2_b;
wire wire_g_3_3_nb;
wire wire_p_3_3_nb;
wire wire_g_3_3_b;
wire wire_p_3_3_b;
wire wire_g_4_4_nb;
wire wire_p_4_4_nb;
wire wire_g_4_4_b;
wire wire_p_4_4_b;
wire wire_g_5_5_nb;
wire wire_p_5_5_nb;
wire wire_g_5_5_b;
wire wire_p_5_5_b;
wire wire_g_6_6_nb;
wire wire_p_6_6_nb;
wire wire_g_6_6_b;
wire wire_p_6_6_b;
wire wire_g_7_7_nb;
wire wire_p_7_7_nb;
wire wire_g_7_7_b;
wire wire_p_7_7_b;
wire wire_g_8_8_nb;
wire wire_p_8_8_nb;

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wire wire_g_8_8_b;
wire wire_p_8_8_b;
wire wire_g_9_9_nb;
wire wire_p_9_9_nb;
wire wire_g_9_9_b;
wire wire_p_9_9_b;
wire wire_g_10_10_nb;
wire wire_p_10_10_nb;
wire wire_g_10_10_b;
wire wire_p_10_10_b;
wire wire_g_11_11_nb;
wire wire_p_11_11_nb;
wire wire_g_11_11_b;
wire wire_p_11_11_b;
wire wire_g_12_12_nb;
wire wire_p_12_12_nb;
wire wire_g_12_12_b;
wire wire_p_12_12_b;
wire wire_g_13_13_nb;
wire wire_p_13_13_nb;
wire wire_g_13_13_b;
wire wire_p_13_13_b;
wire wire_g_14_14_nb;
wire wire_p_14_14_nb;
wire wire_g_14_14_b;
wire wire_p_14_14_b;
wire wire_g_15_15_nb;
wire wire_p_15_15_nb;
wire wire_g_15_15_b;
wire wire_p_15_15_b;
wire wire_g_16_16_nb;
wire wire_p_16_16_nb;
wire wire_g_16_16_b;
wire wire_p_16_16_b;
wire wire_g_17_17_nb;
wire wire_p_17_17_nb;
wire wire_g_17_17_b;
wire wire_p_17_17_b;
wire wire_g_18_18_nb;
wire wire_p_18_18_nb;
wire wire_g_18_18_b;
wire wire_p_18_18_b;
wire wire_g_19_19_nb;
wire wire_p_19_19_nb;
wire wire_g_19_19_b;
wire wire_p_19_19_b;
wire wire_g_20_20_nb;
wire wire_p_20_20_nb;
wire wire_g_20_20_b;
wire wire_p_20_20_b;
wire wire_g_21_21_nb;
wire wire_p_21_21_nb;
wire wire_g_21_21_b;
wire wire_p_21_21_b;
wire wire_g_22_22_nb;
wire wire_p_22_22_nb;
wire wire_g_22_22_b;
wire wire_p_22_22_b;
wire wire_g_23_23_nb;
wire wire_p_23_23_nb;
wire wire_g_23_23_b;
wire wire_p_23_23_b;
wire wire_g_24_24_nb;
wire wire_p_24_24_nb;
wire wire_g_24_24_b;
wire wire_p_24_24_b;
wire wire_g_25_25_nb;
wire wire_p_25_25_nb;
wire wire_g_25_25_b;
wire wire_p_25_25_b;
wire wire_g_26_26_nb;
wire wire_p_26_26_nb;
wire wire_g_26_26_b;
wire wire_p_26_26_b;
wire wire_g_27_27_nb;
wire wire_p_27_27_nb;
wire wire_g_27_27_b;
wire wire_p_27_27_b;
wire wire_g_28_28_nb;
wire wire_p_28_28_nb;
wire wire_g_28_28_b;
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wire wire_p_28_28_b;
wire wire_g_29_29_nb;
wire wire_p_29_29_nb;
wire wire_g_29_29_b;
wire wire_p_29_29_b;
wire wire_g_30_30_nb;
wire wire_p_30_30_nb;
wire wire_g_30_30_b;
wire wire_p_30_30_b;
wire wire_g_31_31_nb;
wire wire_p_31_31_nb;
wire wire_g_31_31_b;
wire wire_p_31_31_b;
AND2X1TF andhalfAdd_0_2456(.A(finalsumA[0]), .B(finalsumB[0]), .Y(wire_g_1_1_nb));
XOR2X1TF xorhalfAdd_0_2490(.A(finalsumA[0]), .B(finalsumB[0]), .Y(wire_p_1_1_nb));
BUF2X2TF buffer_0_2544(.A(wire_g_1_1_nb), .Y(wire_g_1_0_b));
BUF2X2TF buffer_0_2578(.A(wire_p_1_1_nb), .Y(p[0]));
AND2X1TF andhalfAdd_60_2456(.A(finalsumA[1]), .B(finalsumB[1]), .Y(wire_g_2_2_nb));
XOR2X1TF xorhalfAdd_60_2490(.A(finalsumA[1]), .B(finalsumB[1]), .Y(wire_p_2_2_nb));
BUF2X3TF buffer_60_2544(.A(wire_g_2_2_nb), .Y(wire_g_2_2_b));
BUF2X2TF buffer_60_2578(.A(wire_p_2_2_nb), .Y(wire_p_2_2_b));
AND2X1TF andhalfAdd_120_2456(.A(finalsumA[2]), .B(finalsumB[2]), .Y(wire_g_3_3_nb));
XOR2X1TF xorhalfAdd_120_2490(.A(finalsumA[2]), .B(finalsumB[2]), .Y(wire_p_3_3_nb));
BUF2X2TF buffer_120_2544(.A(wire_g_3_3_nb), .Y(wire_g_3_3_b));
BUF2X2TF buffer_120_2578(.A(wire_p_3_3_nb), .Y(wire_p_3_3_b));
AND2X1TF andhalfAdd_180_2456(.A(finalsumA[3]), .B(finalsumB[3]), .Y(wire_g_4_4_nb));
XOR2X1TF xorhalfAdd_180_2490(.A(finalsumA[3]), .B(finalsumB[3]), .Y(wire_p_4_4_nb));
BUF2X2TF buffer_180_2544(.A(wire_g_4_4_nb), .Y(wire_g_4_4_b));
BUF2X2TF buffer_180_2578(.A(wire_p_4_4_nb), .Y(wire_p_4_4_b));
AND2X1TF andhalfAdd_240_2456(.A(finalsumA[4]), .B(finalsumB[4]), .Y(wire_g_5_5_nb));
XOR2X1TF xorhalfAdd_240_2490(.A(finalsumA[4]), .B(finalsumB[4]), .Y(wire_p_5_5_nb));
BUF2X2TF buffer_240_2544(.A(wire_g_5_5_nb), .Y(wire_g_5_5_b));
BUF2X2TF buffer_240_2578(.A(wire_p_5_5_nb), .Y(wire_p_5_5_b));
AND2X1TF andhalfAdd_300_2456(.A(finalsumA[5]), .B(finalsumB[5]), .Y(wire_g_6_6_nb));
XOR2X1TF xorhalfAdd_300_2490(.A(finalsumA[5]), .B(finalsumB[5]), .Y(wire_p_6_6_nb));
BUF2X2TF buffer_300_2544(.A(wire_g_6_6_nb), .Y(wire_g_6_6_b));
BUF2X2TF buffer_300_2578(.A(wire_p_6_6_nb), .Y(wire_p_6_6_b));
AND2X1TF andhalfAdd_360_2456(.A(finalsumA[6]), .B(finalsumB[6]), .Y(wire_g_7_7_nb));
XOR2X1TF xorhalfAdd_360_2490(.A(finalsumA[6]), .B(finalsumB[6]), .Y(wire_p_7_7_nb));
BUF2X2TF buffer_360_2544(.A(wire_g_7_7_nb), .Y(wire_g_7_7_b));
BUF2X2TF buffer_360_2578(.A(wire_p_7_7_nb), .Y(wire_p_7_7_b));
AND2X1TF andhalfAdd_420_2456(.A(finalsumA[7]), .B(finalsumB[7]), .Y(wire_g_8_8_nb));
XOR2X1TF xorhalfAdd_420_2490(.A(finalsumA[7]), .B(finalsumB[7]), .Y(wire_p_8_8_nb));
BUF2X2TF buffer_420_2544(.A(wire_g_8_8_nb), .Y(wire_g_8_8_b));
BUF2X2TF buffer_420_2578(.A(wire_p_8_8_nb), .Y(wire_p_8_8_b));
AND2X1TF andhalfAdd_480_2456(.A(finalsumA[8]), .B(finalsumB[8]), .Y(wire_g_9_9_nb));
XOR2X1TF xorhalfAdd_480_2490(.A(finalsumA[8]), .B(finalsumB[8]), .Y(wire_p_9_9_nb));
BUF2X2TF buffer_480_2544(.A(wire_g_9_9_nb), .Y(wire_g_9_9_b));
BUF2X2TF buffer_480_2578(.A(wire_p_9_9_nb), .Y(wire_p_9_9_b));
AND2X1TF andhalfAdd_540_2456(.A(finalsumA[9]), .B(finalsumB[9]), .Y(wire_g_10_10_nb));
XOR2X1TF xorhalfAdd_540_2490(.A(finalsumA[9]), .B(finalsumB[9]), .Y(wire_p_10_10_nb));
BUF2X2TF buffer_540_2544(.A(wire_g_10_10_nb), .Y(wire_g_10_10_b));
BUF2X2TF buffer_540_2578(.A(wire_p_10_10_nb), .Y(wire_p_10_10_b));
AND2X1TF andhalfAdd_600_2456(.A(finalsumA[10]), .B(finalsumB[10]), .Y(wire_g_11_11_nb));
XOR2X1TF xorhalfAdd_600_2490(.A(finalsumA[10]), .B(finalsumB[10]), .Y(wire_p_11_11_nb));
BUF2X2TF buffer_600_2544(.A(wire_g_11_11_nb), .Y(wire_g_11_11_b));
BUF2X2TF buffer_600_2578(.A(wire_p_11_11_nb), .Y(wire_p_11_11_b));
AND2X1TF andhalfAdd_660_2456(.A(finalsumA[11]), .B(finalsumB[11]), .Y(wire_g_12_12_nb));
XOR2X1TF xorhalfAdd_660_2490(.A(finalsumA[11]), .B(finalsumB[11]), .Y(wire_p_12_12_nb));
BUF2X2TF buffer_660_2544(.A(wire_g_12_12_nb), .Y(wire_g_12_12_b));
BUF2X2TF buffer_660_2578(.A(wire_p_12_12_nb), .Y(wire_p_12_12_b));
AND2X1TF andhalfAdd_720_2456(.A(finalsumA[12]), .B(finalsumB[12]), .Y(wire_g_13_13_nb));
XOR2X1TF xorhalfAdd_720_2490(.A(finalsumA[12]), .B(finalsumB[12]), .Y(wire_p_13_13_nb));
BUF2X2TF buffer_720_2544(.A(wire_g_13_13_nb), .Y(wire_g_13_13_b));
BUF2X2TF buffer_720_2578(.A(wire_p_13_13_nb), .Y(wire_p_13_13_b));
AND2X1TF andhalfAdd_780_2456(.A(finalsumA[13]), .B(finalsumB[13]), .Y(wire_g_14_14_nb));
XOR2X1TF xorhalfAdd_780_2490(.A(finalsumA[13]), .B(finalsumB[13]), .Y(wire_p_14_14_nb));
BUF2X2TF buffer_780_2544(.A(wire_g_14_14_nb), .Y(wire_g_14_14_b));
BUF2X2TF buffer_780_2578(.A(wire_p_14_14_nb), .Y(wire_p_14_14_b));
AND2X1TF andhalfAdd_840_2456(.A(finalsumA[14]), .B(finalsumB[14]), .Y(wire_g_15_15_nb));
XOR2X1TF xorhalfAdd_840_2490(.A(finalsumA[14]), .B(finalsumB[14]), .Y(wire_p_15_15_nb));
BUF2X2TF buffer_840_2544(.A(wire_g_15_15_nb), .Y(wire_g_15_15_b));
BUF2X2TF buffer_840_2578(.A(wire_p_15_15_nb), .Y(wire_p_15_15_b));
wire wire_p_32_32_nb;
wire wire_p_32_32_b;
XOR2X1TF xor_xor2_900_2456(.A(finalsumA[31]), .B(finalsumB[31]), .Y(wire_p_32_32_nb));
BUF2X2TF buffer_900_2510(.A(wire_p_32_32_nb), .Y(wire_p_32_32_b));
AND2X1TF andhalfAdd_0_2612(.A(finalsumA[15]), .B(finalsumB[15]), .Y(wire_g_16_16_nb));
XOR2X1TF xorhalfAdd_0_2646(.A(finalsumA[15]), .B(finalsumB[15]), .Y(wire_p_16_16_nb));
BUF2X2TF buffer_0_2700(.A(wire_g_16_16_nb), .Y(wire_g_16_16_b));
BUF2X2TF buffer_0_2734(.A(wire_p_16_16_nb), .Y(wire_p_16_16_b));

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AND2X1TF andhalfAdd 60 2612(.A(finalsumA[16]), .B(finalsumB[16]), .Y(wire_g_17_17_nb));
XOR2X1TF xorhalfAdd_60_2646(.A(finalsumA[16]), .B(finalsumB[16]), .Y(wire_p_17_17_nb));
BUF2X2TF buffer_60_2700(.A(wire_g_17_17_nb), .Y(wire_g_17_17_b));
BUF2X2TF buffer_60_2734(.A(wire_p_17_17_nb), .Y(wire_p_17_17_b));
AND2X1TF andhalfAdd_120_2612(.A(finalsumA[17]), .B(finalsumB[17]), .Y(wire_g_18_18_nb));
XOR2X1TF xorhalfAdd_120_2646(.A(finalsumA[17]), .B(finalsumB[17]), .Y(wire_p_18_18_nb));
BUF2X2TF buffer_120_2700(.A(wire_g_18_18_nb), .Y(wire_g_18_18_b));
BUF2X2TF buffer_120_2734(.A(wire_p_18_18_nb), .Y(wire_p_18_18_b));
AND2X1TF andhalfAdd_180_2612(.A(finalsumA[18]), .B(finalsumB[18]), .Y(wire_g_19_19_nb));
XOR2X1TF xorhalfAdd_180_2646(.A(finalsumA[18]), .B(finalsumB[18]), .Y(wire_p_19_19_nb));
BUF2X2TF buffer_180_2700(.A(wire_g_19_19_nb), .Y(wire_g_19_19_b));
BUF2X2TF buffer_180_2734(.A(wire_p_19_19_nb), .Y(wire_p_19_19_b));
AND2X1TF andhalfAdd_240_2612(.A(finalsumA[19]), .B(finalsumB[19]), .Y(wire_g_20_20_nb));
XOR2X1TF xorhalfAdd_240_2646(.A(finalsumA[19]), .B(finalsumB[19]), .Y(wire_p_20_20_nb));
BUF2X2TF buffer_240_2700(.A(wire_g_20_20_nb), .Y(wire_g_20_20_b));
BUF2X2TF buffer_240_2734(.A(wire_p_20_20_nb), .Y(wire_p_20_20_b));
AND2X1TF andhalfAdd_300_2612(.A(finalsumA[20]), .B(finalsumB[20]), .Y(wire_g_21_21_nb));
XOR2X1TF xorhalfAdd_300_2646(.A(finalsumA[20]), .B(finalsumB[20]), .Y(wire_p_21_21_nb));
BUF2X2TF buffer_300_2700(.A(wire_g_21_21_nb), .Y(wire_g_21_21_b));
BUF2X2TF buffer_300_2734(.A(wire_p_21_21_nb), .Y(wire_p_21_21_b));
AND2X1TF andhalfAdd_360_2612(.A(finalsumA[21]), .B(finalsumB[21]), .Y(wire_g_22_22_nb));
XOR2X1TF xorhalfAdd_360_2646(.A(finalsumA[21]), .B(finalsumB[21]), .Y(wire_p_22_22_nb));
BUF2X2TF buffer_360_2700(.A(wire_g_22_22_nb), .Y(wire_g_22_22_b));
BUF2X2TF buffer_360_2734(.A(wire_p_22_22_nb), .Y(wire_p_22_22_b));
AND2X1TF andhalfAdd_420_2612(.A(finalsumA[22]), .B(finalsumB[22]), .Y(wire_g_23_23_nb));
XOR2X1TF xorhalfAdd_420_2646(.A(finalsumA[22]), .B(finalsumB[22]), .Y(wire_p_23_23_nb));
BUF2X2TF buffer_420_2700(.A(wire_g_23_23_nb), .Y(wire_g_23_23_b));
BUF2X2TF buffer_420_2734(.A(wire_p_23_23_nb), .Y(wire_p_23_23_b));
AND2X1TF andhalfAdd_480_2612(.A(finalsumA[23]), .B(finalsumB[23]), .Y(wire_g_24_24_nb));
XOR2X1TF xorhalfAdd_480_2646(.A(finalsumA[23]), .B(finalsumB[23]), .Y(wire_p_24_24_nb));
BUF2X2TF buffer_480_2700(.A(wire_g_24_24_nb), .Y(wire_g_24_24_b));
BUF2X2TF buffer_480_2734(.A(wire_p_24_24_nb), .Y(wire_p_24_24_b));
AND2X1TF andhalfAdd_540_2612(.A(finalsumA[24]), .B(finalsumB[24]), .Y(wire_g_25_25_nb));
XOR2X1TF xorhalfAdd_540_2646(.A(finalsumA[24]), .B(finalsumB[24]), .Y(wire_p_25_25_nb));
BUF2X2TF buffer_540_2700(.A(wire_g_25_25_nb), .Y(wire_g_25_25_b));
BUF2X2TF buffer_540_2734(.A(wire_p_25_25_nb), .Y(wire_p_25_25_b));
AND2X1TF andhalfAdd_600_2612(.A(finalsumA[25]), .B(finalsumB[25]), .Y(wire_g_26_26_nb));
XOR2X1TF xorhalfAdd_600_2646(.A(finalsumA[25]), .B(finalsumB[25]), .Y(wire_p_26_26_nb));
BUF2X2TF buffer_600_2700(.A(wire_g_26_26_nb), .Y(wire_g_26_26_b));
BUF2X2TF buffer_600_2734(.A(wire_p_26_26_nb), .Y(wire_p_26_26_b));
AND2X1TF andhalfAdd_660_2612(.A(finalsumA[26]), .B(finalsumB[26]), .Y(wire_g_27_27_nb));
XOR2X1TF xorhalfAdd_660_2646(.A(finalsumA[26]), .B(finalsumB[26]), .Y(wire_p_27_27_nb));
BUF2X2TF buffer_660_2700(.A(wire_g_27_27_nb), .Y(wire_g_27_27_b));
BUF2X2TF buffer_660_2734(.A(wire_p_27_27_nb), .Y(wire_p_27_27_b));
AND2X1TF andhalfAdd_720_2612(.A(finalsumA[27]), .B(finalsumB[27]), .Y(wire_g_28_28_nb));
XOR2X1TF xorhalfAdd_720_2646(.A(finalsumA[27]), .B(finalsumB[27]), .Y(wire_p_28_28_nb));
BUF2X2TF buffer_720_2700(.A(wire_g_28_28_nb), .Y(wire_g_28_28_b));
BUF2X2TF buffer_720_2734(.A(wire_p_28_28_nb), .Y(wire_p_28_28_b));
AND2X1TF andhalfAdd_780_2612(.A(finalsumA[28]), .B(finalsumB[28]), .Y(wire_g_29_29_nb));
XOR2X1TF xorhalfAdd_780_2646(.A(finalsumA[28]), .B(finalsumB[28]), .Y(wire_p_29_29_nb));
BUF2X2TF buffer_780_2700(.A(wire_g_29_29_nb), .Y(wire_g_29_29_b));
BUF2X2TF buffer_780_2734(.A(wire_p_29_29_nb), .Y(wire_p_29_29_b));
AND2X1TF andhalfAdd_840_2612(.A(finalsumA[29]), .B(finalsumB[29]), .Y(wire_g_30_30_nb));
XOR2X1TF xorhalfAdd_840_2646(.A(finalsumA[29]), .B(finalsumB[29]), .Y(wire_p_30_30_nb));
BUF2X2TF buffer_840_2700(.A(wire_g_30_30_nb), .Y(wire_g_30_30_b));
BUF2X2TF buffer_840_2734(.A(wire_p_30_30_nb), .Y(wire_p_30_30_b));
AND2X1TF andhalfAdd_900_2612(.A(finalsumA[30]), .B(finalsumB[30]), .Y(wire_g_31_31_nb));
XOR2X1TF xorhalfAdd_900_2646(.A(finalsumA[30]), .B(finalsumB[30]), .Y(wire_p_31_31_nb));
BUF2X2TF buffer_900_2700(.A(wire_g_31_31_nb), .Y(wire_g_31_31_b));
BUF2X2TF buffer_900_2734(.A(wire_p_31_31_nb), .Y(wire_p_31_31_b));
wire wire_g_16_0_nb;
wire wire_g_16_15_nb;
wire wire_p_16_15_nb;
wire wire_g_17_0_nb;
wire wire_g_18_0_nb;
wire wire_g_18_15_nb;
wire wire_p_18_15_nb;
wire wire_g_18_17_nb;
wire wire_p_18_17_nb;
wire wire_g_2_0_nb;
wire wire_g_19_0_nb;
wire wire_g_3_0_nb;
wire wire_g_20_0_nb;
wire wire_g_20_19_nb;
wire wire_p_20_19_nb;
wire wire_g_4_0_nb;
wire wire_g_21_0_nb;
wire wire_g_5_0_nb;
wire wire_g_22_0_nb;
wire wire_g_22_19_nb;
wire wire_p_22_19_nb;

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wire wire_g_22_21_nb;
wire wire_p_22_21_nb;
wire wire_g_6_0_nb;
wire wire_g_6_5_nb;
wire wire_p_6_5_nb;
wire wire_g_23_0_nb;
wire wire_g_7_0_nb;
wire wire_g_24_0_nb;
wire wire_g_24_23_nb;
wire wire_p_24_23_nb;
wire wire_g_8_0_nb;
wire wire_g_8_7_nb;
wire wire_p_8_7_nb;
wire wire_g_25_0_nb;
wire wire_g_25_19_nb;
wire wire_p_25_19_nb;
wire wire_g_25_23_nb;
wire wire_p_25_23_nb;
wire wire_g_9_0_nb;
wire wire_g_26_0_nb;
wire wire_g_10_0_nb;
wire wire_g_10_9_nb;
wire wire_p_10_9_nb;
wire wire_g_27_0_nb;
wire wire_g_27_19_nb;
wire wire_p_27_19_nb;
wire wire_g_27_23_nb;
wire wire_p_27_23_nb;
wire wire_g_27_25_nb;
wire wire_p_27_25_nb;
wire wire_g_27_26_nb;
wire wire_p_27_26_nb;
wire wire_g_11_0_nb;
wire wire_g_11_9_nb;
wire wire_p_11_9_nb;
wire wire_g_28_0_nb;
wire wire_g_12_0_nb;
wire wire_g_29_0_nb;
wire wire_g_29_28_nb;
wire wire_p_29_28_nb;
wire wire_g_13_0_nb;
wire wire_g_13_12_nb;
wire wire_p_13_12_nb;
wire wire_g_30_0_nb;
wire wire_g_30_28_nb;
wire wire_p_30_28_nb;
wire wire_g_14_0_nb;
wire wire_g_14_12_nb;
wire wire_p_14_12_nb;
wire wire_g_31_0_nb;
wire wire_g_31_28_nb;
wire wire_p_31_28_nb;
wire wire_g_15_0_nb;
wire aoires_gc_0_3262;
AOI21X1TF aoires_gc_0_3262(.A0(wire_p_16_15_nb), .A1(wire_g_14_0_nb),
.BO(wire_g_16_15_nb), .Y(aoires_gc_0_3262));
INVX1TF inv_gc_0_3296(.A(aoires_gc_0_3262), .Y(wire_g_16_0_nb));
wire aoires_bc_0_3174;
AOI21X1TF aoires_bc_0_3174(.A0(wire_p_16_16_b), .A1(wire_g_15_15_b), .B0(wire_g_16_16_b),
.Y(aoires_bc_0_3174));
INVX1TF inv_bc_0_3208(.A(aoires_bc_0_3174), .Y(wire_g_16_15_nb));
AND2X1TF and2_bc_0_3228(.A(wire_p_16_16_b), .B(wire_p_15_15_b), .Y(wire_p_16_15_nb));
wire aoires_gc_60_3262;
AOI21X1TF aoires_gc_60_3262(.A0(wire_p_17_17_b), .A1(wire_g_16_0_nb),
.BO(wire_g_17_17_b), .Y(aoires_gc_60_3262));
INVX1TF inv_gc_60_3296(.A(aoires_gc_60_3262), .Y(wire_g_17_0_nb));
wire aoires_gc_120_3262;
AOI21X1TF aoires_gc_120_3262(.A0(wire_p_18_15_nb), .A1(wire_g_14_0_nb),
.BO(wire_g_18_15_nb), .Y(aoires_gc_120_3262));
INVX1TF inv_gc_120_3296(.A(aoires_gc_120_3262), .Y(wire_g_18_0_nb));
wire aoires_bc_120_3174;
AOI21X1TF aoires_bc_120_3174(.A0(wire_p_18_17_nb), .A1(wire_g_16_15_nb),
.BO(wire_g_18_17_nb), .Y(aoires_bc_120_3174));
INVX1TF inv_bc_120_3208(.A(aoires_bc_120_3174), .Y(wire_g_18_15_nb));
AND2X1TF and2_bc_120_3228(.A(wire_p_18_17_nb), .B(wire_p_16_15_nb), .Y(wire_p_18_15_nb));
wire aoires_bc_120_3086;
AOI21X1TF aoires_bc_120_3086(.A0(wire_p_18_18_b), .A1(wire_g_17_17_b), .B0(wire_g_18_18_b),
.Y(aoires_bc_120_3086));
INVX1TF inv_bc_120_3120(.A(aoires_bc_120_3086), .Y(wire_g_18_17_nb));
AND2X1TF and2_bc_120_3140(.A(wire_p_18_18_b), .B(wire_p_17_17_b), .Y(wire_p_18_17_nb));
wire aoires_gc_120_3032;

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AOI21X1TF      aoi_gc 120_3032(.A0(wire_p_2_2_b), .A1( wire_g_1_0_b), .B0(wire_g_2_2_b),
.Y(aoiRes_gc_120_3032));
INVX1TF inv_gc 120_3066(.A(aoiRes_gc_120_3032), .Y(wire_g_2_0_nb));
wire aoiRes_gc_180_3262;
AOI21X1TF      aoi_gc 180_3262(.A0(wire_p_19_19_b), .A1( wire_g_18_0_nb),
.B0(wire_g_19_19_b), .Y(aoiRes_gc_180_3262));
INVX1TF inv_gc 180_3296(.A(aoiRes_gc_180_3262), .Y(wire_g_19_0_nb));
wire aoiRes_gc_180_3208;
AOI21X1TF      aoi_gc 180_3208(.A0(wire_p_3_3_b), .A1( wire_g_2_0_nb), .B0(wire_g_3_3_b),
.Y(aoiRes_gc_180_3208));
INVX2TF inv_gc 180_3242(.A(aoiRes_gc_180_3208), .Y(wire_g_3_0_nb));
wire aoiRes_gc_240_3262;
AOI21X1TF      aoi_gc 240_3262(.A0(wire_p_20_19_nb), .A1( wire_g_18_0_nb),
.B0(wire_g_20_19_nb), .Y(aoiRes_gc_240_3262));
INVX1TF inv_gc 240_3296(.A(aoiRes_gc_240_3262), .Y(wire_g_20_0_nb));
wire aoiRes_bc_240_3174;
AOI21X1TF aoi_bc 240_3174(.A0(wire_p_20_20_b), .A1(wire_g_19_19_b), .B0(wire_g_20_20_b),
.Y(aoiRes_bc_240_3174));
INVX1TF inv_bc 240_3208(.A(aoiRes_bc_240_3174), .Y(wire_g_20_19_nb));
AND2X1TF and2_bc 240_3228(.A(wire_p_20_20_b), .B(wire_p_19_19_b), .Y(wire_p_20_19_nb));
wire aoiRes_gc_240_3120;
AOI21X1TF      aoi_gc 240_3120(.A0(wire_p_4_4_b), .A1( wire_g_3_0_nb), .B0(wire_g_4_4_b),
.Y(aoiRes_gc_240_3120));
INVX1TF inv_gc 240_3154(.A(aoiRes_gc_240_3120), .Y(wire_g_4_0_nb));
wire aoiRes_gc_300_3262;
AOI21X1TF      aoi_gc 300_3262(.A0(wire_p_21_21_b), .A1( wire_g_20_0_nb),
.B0(wire_g_21_21_b), .Y(aoiRes_gc_300_3262));
INVX1TF inv_gc 300_3296(.A(aoiRes_gc_300_3262), .Y(wire_g_21_0_nb));
wire aoiRes_gc_300_3208;
AOI21X1TF      aoi_gc 300_3208(.A0(wire_p_5_5_b), .A1( wire_g_4_0_nb), .B0(wire_g_5_5_b),
.Y(aoiRes_gc_300_3208));
INVX1TF inv_gc 300_3242(.A(aoiRes_gc_300_3208), .Y(wire_g_5_0_nb));
wire aoiRes_gc_360_3262;
AOI21X1TF      aoi_gc 360_3262(.A0(wire_p_22_19_nb), .A1( wire_g_18_0_nb),
.B0(wire_g_22_19_nb), .Y(aoiRes_gc_360_3262));
INVX1TF inv_gc 360_3296(.A(aoiRes_gc_360_3262), .Y(wire_g_22_0_nb));
wire aoiRes_bc_360_3174;
AOI21X1TF aoi_bc 360_3174(.A0(wire_p_22_21_nb), .A1(wire_g_20_19_nb),
.B0(wire_g_22_21_nb), .Y(aoiRes_bc_360_3174));
INVX1TF inv_bc 360_3208(.A(aoiRes_bc_360_3174), .Y(wire_g_22_19_nb));
AND2X1TF and2_bc 360_3228(.A(wire_p_22_21_nb), .B(wire_p_20_19_nb), .Y(wire_p_22_19_nb));
wire aoiRes_bc_360_3086;
AOI21X1TF aoi_bc 360_3086(.A0(wire_p_22_22_b), .A1(wire_g_21_21_b), .B0(wire_g_22_22_b),
.Y(aoiRes_bc_360_3086));
INVX1TF inv_bc 360_3120(.A(aoiRes_bc_360_3086), .Y(wire_g_22_21_nb));
AND2X1TF and2_bc 360_3140(.A(wire_p_22_22_b), .B(wire_p_21_21_b), .Y(wire_p_22_21_nb));
wire aoiRes_gc_360_3032;
AOI21X1TF      aoi_gc 360_3032(.A0(wire_p_6_5_nb), .A1( wire_g_4_0_nb),
.B0(wire_g_6_5_nb), .Y(aoiRes_gc_360_3032));
INVX2TF inv_gc 360_3066(.A(aoiRes_gc_360_3032), .Y(wire_g_6_0_nb));
wire aoiRes_bc_360_2944;
AOI21X1TF aoi_bc 360_2944(.A0(wire_p_6_6_b), .A1(wire_g_5_5_b), .B0(wire_g_6_6_b),
.Y(aoiRes_bc_360_2944));
INVX1TF inv_bc 360_2978(.A(aoiRes_bc_360_2944), .Y(wire_g_6_5_nb));
AND2X1TF and2_bc 360_2998(.A(wire_p_6_6_b), .B(wire_p_5_5_b), .Y(wire_p_6_5_nb));
wire aoiRes_gc_420_3262;
AOI21X1TF      aoi_gc 420_3262(.A0(wire_p_23_23_b), .A1( wire_g_22_0_nb),
.B0(wire_g_23_23_b), .Y(aoiRes_gc_420_3262));
INVX1TF inv_gc 420_3296(.A(aoiRes_gc_420_3262), .Y(wire_g_23_0_nb));
wire aoiRes_gc_420_3208;
AOI21X1TF      aoi_gc 420_3208(.A0(wire_p_7_7_b), .A1( wire_g_6_0_nb), .B0(wire_g_7_7_b),
.Y(aoiRes_gc_420_3208));
INVX1TF inv_gc 420_3242(.A(aoiRes_gc_420_3208), .Y(wire_g_7_0_nb));
wire aoiRes_gc_480_3262;
AOI21X1TF      aoi_gc 480_3262(.A0(wire_p_24_23_nb), .A1( wire_g_22_0_nb),
.B0(wire_g_24_23_nb), .Y(aoiRes_gc_480_3262));
INVX1TF inv_gc 480_3296(.A(aoiRes_gc_480_3262), .Y(wire_g_24_0_nb));
wire aoiRes_bc_480_3174;
AOI21X1TF aoi_bc 480_3174(.A0(wire_p_24_24_b), .A1(wire_g_23_23_b), .B0(wire_g_24_24_b),
.Y(aoiRes_bc_480_3174));
INVX1TF inv_bc 480_3208(.A(aoiRes_bc_480_3174), .Y(wire_g_24_23_nb));
AND2X1TF and2_bc 480_3228(.A(wire_p_24_24_b), .B(wire_p_23_23_b), .Y(wire_p_24_23_nb));
wire aoiRes_gc_480_3120;
AOI21X1TF      aoi_gc 480_3120(.A0(wire_p_8_7_nb), .A1( wire_g_6_0_nb),
.B0(wire_g_8_7_nb), .Y(aoiRes_gc_480_3120));
INVX1TF inv_gc 480_3154(.A(aoiRes_gc_480_3120), .Y(wire_g_8_0_nb));
wire aoiRes_bc_480_3032;
AOI21X1TF aoi_bc 480_3032(.A0(wire_p_8_8_b), .A1(wire_g_7_7_b), .B0(wire_g_8_8_b),
.Y(aoiRes_bc_480_3032));
INVX1TF inv_bc 480_3066(.A(aoiRes_bc_480_3032), .Y(wire_g_8_7_nb));
AND2X1TF and2_bc 480_3086(.A(wire_p_8_8_b), .B(wire_p_7_7_b), .Y(wire_p_8_7_nb));

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wire aoiRes_gc_540_3262;
AOI21X1TF aoi_gc_540_3262(.A0(wire_p_25_19_nb), .A1(wire_g_18_0_nb),
.B0(wire_g_25_19_nb), .Y(aoiRes_gc_540_3262));
INVX1TF inv_gc_540_3296(.A(aoiRes_gc_540_3262), .Y(wire_g_25_0_nb));
wire aoiRes_bc_540_3174;
AOI21X1TF aoi_bc_540_3174(.A0(wire_p_25_23_nb), .A1(wire_g_22_19_nb),
.B0(wire_g_25_23_nb), .Y(aoiRes_bc_540_3174));
INVX1TF inv_bc_540_3208(.A(aoiRes_bc_540_3174), .Y(wire_g_25_19_nb));
AND2X1TF and2_bc_540_3228(.A(wire_p_25_23_nb), .B(wire_p_22_19_nb), .Y(wire_p_25_19_nb));
wire aoiRes_bc_540_3086;
AOI21X1TF aoi_bc_540_3086(.A0(wire_p_25_25_b), .A1(wire_g_24_23_nb), .B0(wire_g_25_25_b),
.Y(aoiRes_bc_540_3086));
INVX1TF inv_bc_540_3120(.A(aoiRes_bc_540_3086), .Y(wire_g_25_23_nb));
AND2X1TF and2_bc_540_3140(.A(wire_p_25_25_b), .B(wire_p_24_23_nb), .Y(wire_p_25_23_nb));
wire aoiRes_gc_540_3032;
AOI21X1TF aoi_gc_540_3032(.A0(wire_p_9_9_b), .A1(wire_g_8_0_nb), .B0(wire_g_9_9_b),
.Y(aoiRes_gc_540_3032));
INVX1TF inv_gc_540_3066(.A(aoiRes_gc_540_3032), .Y(wire_g_9_0_nb));
wire aoiRes_gc_600_3262;
AOI21X1TF aoi_gc_600_3262(.A0(wire_p_26_26_b), .A1(wire_g_25_0_nb),
.B0(wire_g_26_26_b), .Y(aoiRes_gc_600_3262));
INVX1TF inv_gc_600_3296(.A(aoiRes_gc_600_3262), .Y(wire_g_26_0_nb));
wire aoiRes_gc_600_3208;
AOI21X1TF aoi_gc_600_3208(.A0(wire_p_10_9_nb), .A1(wire_g_8_0_nb),
.B0(wire_g_10_9_nb), .Y(aoiRes_gc_600_3208));
INVX1TF inv_gc_600_3242(.A(aoiRes_gc_600_3208), .Y(wire_g_10_0_nb));
wire aoiRes_bc_600_3120;
AOI21X1TF aoi_bc_600_3120(.A0(wire_p_10_10_b), .A1(wire_g_9_9_b), .B0(wire_g_10_10_b),
.Y(aoiRes_bc_600_3120));
INVX1TF inv_bc_600_3154(.A(aoiRes_bc_600_3120), .Y(wire_g_10_9_nb));
AND2X1TF and2_bc_600_3174(.A(wire_p_10_10_b), .B(wire_p_9_9_b), .Y(wire_p_10_9_nb));
wire aoiRes_gc_660_3262;
AOI21X1TF aoi_gc_660_3262(.A0(wire_p_27_19_nb), .A1(wire_g_18_0_nb),
.B0(wire_g_27_19_nb), .Y(aoiRes_gc_660_3262));
INVX1TF inv_gc_660_3296(.A(aoiRes_gc_660_3262), .Y(wire_g_27_0_nb));
wire aoiRes_bc_660_3174;
AOI21X1TF aoi_bc_660_3174(.A0(wire_p_27_23_nb), .A1(wire_g_22_19_nb),
.B0(wire_g_27_23_nb), .Y(aoiRes_bc_660_3174));
INVX1TF inv_bc_660_3208(.A(aoiRes_bc_660_3174), .Y(wire_g_27_19_nb));
AND2X1TF and2_bc_660_3228(.A(wire_p_27_23_nb), .B(wire_p_22_19_nb), .Y(wire_p_27_19_nb));
wire aoiRes_bc_660_3086;
AOI21X1TF aoi_bc_660_3086(.A0(wire_p_27_25_nb), .A1(wire_g_24_23_nb),
.B0(wire_g_27_25_nb), .Y(aoiRes_bc_660_3086));
INVX1TF inv_bc_660_3120(.A(aoiRes_bc_660_3086), .Y(wire_g_27_23_nb));
AND2X1TF and2_bc_660_3140(.A(wire_p_27_25_nb), .B(wire_p_24_23_nb), .Y(wire_p_27_23_nb));
wire aoiRes_bc_660_2998;
AOI21X1TF aoi_bc_660_2998(.A0(wire_p_27_26_nb), .A1(wire_g_25_25_b),
.B0(wire_g_27_26_nb), .Y(aoiRes_bc_660_2998));
INVX1TF inv_bc_660_3032(.A(aoiRes_bc_660_2998), .Y(wire_g_27_25_nb));
AND2X1TF and2_bc_660_3052(.A(wire_p_27_26_nb), .B(wire_p_25_25_b), .Y(wire_p_27_25_nb));
wire aoiRes_bc_660_2910;
AOI21X1TF aoi_bc_660_2910(.A0(wire_p_27_27_b), .A1(wire_g_26_26_b), .B0(wire_g_27_27_b),
.Y(aoiRes_bc_660_2910));
INVX1TF inv_bc_660_2944(.A(aoiRes_bc_660_2910), .Y(wire_g_27_26_nb));
AND2X1TF and2_bc_660_2964(.A(wire_p_27_27_b), .B(wire_p_26_26_b), .Y(wire_p_27_26_nb));
wire aoiRes_gc_660_2856;
AOI21X1TF aoi_gc_660_2856(.A0(wire_p_11_9_nb), .A1(wire_g_8_0_nb),
.B0(wire_g_11_9_nb), .Y(aoiRes_gc_660_2856));
INVX1TF inv_gc_660_2890(.A(aoiRes_gc_660_2856), .Y(wire_g_11_0_nb));
wire aoiRes_bc_660_2768;
AOI21X1TF aoi_bc_660_2768(.A0(wire_p_11_11_b), .A1(wire_g_10_9_nb), .B0(wire_g_11_11_b),
.Y(aoiRes_bc_660_2768));
INVX1TF inv_bc_660_2802(.A(aoiRes_bc_660_2768), .Y(wire_g_11_9_nb));
AND2X1TF and2_bc_660_2822(.A(wire_p_11_11_b), .B(wire_p_10_9_nb), .Y(wire_p_11_9_nb));
wire aoiRes_gc_720_3262;
AOI21X1TF aoi_gc_720_3262(.A0(wire_p_28_28_b), .A1(wire_g_27_0_nb),
.B0(wire_g_28_28_b), .Y(aoiRes_gc_720_3262));
INVX1TF inv_gc_720_3296(.A(aoiRes_gc_720_3262), .Y(wire_g_28_0_nb));
wire aoiRes_gc_720_3208;
AOI21X1TF aoi_gc_720_3208(.A0(wire_p_12_12_b), .A1(wire_g_11_0_nb),
.B0(wire_g_12_12_b), .Y(aoiRes_gc_720_3208));
INVX1TF inv_gc_720_3242(.A(aoiRes_gc_720_3208), .Y(wire_g_12_0_nb));
wire aoiRes_gc_780_3262;
AOI21X1TF aoi_gc_780_3262(.A0(wire_p_29_28_nb), .A1(wire_g_27_0_nb),
.B0(wire_g_29_28_nb), .Y(aoiRes_gc_780_3262));
INVX1TF inv_gc_780_3296(.A(aoiRes_gc_780_3262), .Y(wire_g_29_0_nb));
wire aoiRes_bc_780_3174;
AOI21X1TF aoi_bc_780_3174(.A0(wire_p_29_29_b), .A1(wire_g_28_28_b), .B0(wire_g_29_29_b),
.Y(aoiRes_bc_780_3174));
INVX1TF inv_bc_780_3208(.A(aoiRes_bc_780_3174), .Y(wire_g_29_28_nb));
AND2X1TF and2_bc_780_3228(.A(wire_p_29_29_b), .B(wire_p_28_28_b), .Y(wire_p_29_28_nb));

```

```

wire aoiRes_gc_780_3120;
AOI21X1TF aoi_gc_780_3120(.A0(wire_p_13_12_nb), .A1(wire_g_11_0_nb),
.B0(wire_g_13_12_nb), .Y(aoiRes_gc_780_3120));
INVX1TF inv_gc_780_3154(.A(aoiRes_gc_780_3120), .Y(wire_g_13_0_nb));
wire aoiRes_bc_780_3032;
AOI21X1TF aoi_bc_780_3032(.A0(wire_p_13_13_b), .A1(wire_g_12_12_b), .B0(wire_g_13_13_b),
.Y(aoiRes_bc_780_3032));
INVX1TF inv_bc_780_3066(.A(aoiRes_bc_780_3032), .Y(wire_g_13_12_nb));
AND2X1TF and2_bc_780_3086(.A(wire_p_13_13_b), .B(wire_p_12_12_b), .Y(wire_p_13_12_nb));
wire aoiRes_gc_840_3262;
AOI21X1TF aoi_gc_840_3262(.A0(wire_p_30_28_nb), .A1(wire_g_27_0_nb),
.B0(wire_g_30_28_nb), .Y(aoiRes_gc_840_3262));
INVX1TF inv_gc_840_3296(.A(aoiRes_gc_840_3262), .Y(wire_g_30_0_nb));
wire aoiRes_bc_840_3174;
AOI21X1TF aoi_bc_840_3174(.A0(wire_p_30_30_b), .A1(wire_g_29_28_nb), .B0(wire_g_30_30_b),
.Y(aoiRes_bc_840_3174));
INVX1TF inv_bc_840_3208(.A(aoiRes_bc_840_3174), .Y(wire_g_30_28_nb));
AND2X1TF and2_bc_840_3228(.A(wire_p_30_30_b), .B(wire_p_29_28_nb), .Y(wire_p_30_28_nb));
wire aoiRes_gc_840_3120;
AOI21X1TF aoi_gc_840_3120(.A0(wire_p_14_12_nb), .A1(wire_g_11_0_nb),
.B0(wire_g_14_12_nb), .Y(aoiRes_gc_840_3120));
INVX1TF inv_gc_840_3154(.A(aoiRes_gc_840_3120), .Y(wire_g_14_0_nb));
wire aoiRes_bc_840_3032;
AOI21X1TF aoi_bc_840_3032(.A0(wire_p_14_14_b), .A1(wire_g_13_12_nb), .B0(wire_g_14_14_b),
.Y(aoiRes_bc_840_3032));
INVX1TF inv_bc_840_3066(.A(aoiRes_bc_840_3032), .Y(wire_g_14_12_nb));
AND2X1TF and2_bc_840_3086(.A(wire_p_14_14_b), .B(wire_p_13_12_nb), .Y(wire_p_14_12_nb));
wire aoiRes_gc_900_3262;
AOI21X1TF aoi_gc_900_3262(.A0(wire_p_31_28_nb), .A1(wire_g_27_0_nb),
.B0(wire_g_31_28_nb), .Y(aoiRes_gc_900_3262));
INVX1TF inv_gc_900_3296(.A(aoiRes_gc_900_3262), .Y(wire_g_31_0_nb));
wire aoiRes_bc_900_3174;
AOI21X1TF aoi_bc_900_3174(.A0(wire_p_31_31_b), .A1(wire_g_30_28_nb), .B0(wire_g_31_31_b),
.Y(aoiRes_bc_900_3174));
INVX1TF inv_bc_900_3208(.A(aoiRes_bc_900_3174), .Y(wire_g_31_28_nb));
AND2X1TF and2_bc_900_3228(.A(wire_p_31_31_b), .B(wire_p_30_28_nb), .Y(wire_p_31_28_nb));
wire aoiRes_gc_900_3120;
AOI21X1TF aoi_gc_900_3120(.A0(wire_p_15_15_b), .A1(wire_g_14_0_nb),
.B0(wire_g_15_15_b), .Y(aoiRes_gc_900_3120));
INVX1TF inv_gc_900_3154(.A(aoiRes_gc_900_3120), .Y(wire_g_15_0_nb));
XOR2X1TF xor_xor2_60_3316(.A(wire_p_2_2_b), .B(wire_g_1_0_b), .Y(p[1]));
XOR2X1TF xor_xor2_120_3316(.A(wire_p_3_3_b), .B(wire_g_2_0_nb), .Y(p[2]));
XOR2X1TF xor_xor2_180_3316(.A(wire_p_4_4_b), .B(wire_g_3_0_nb), .Y(p[3]));
XOR2X1TF xor_xor2_240_3316(.A(wire_p_5_5_b), .B(wire_g_4_0_nb), .Y(p[4]));
XOR2X1TF xor_xor2_300_3316(.A(wire_p_6_6_b), .B(wire_g_5_0_nb), .Y(p[5]));
XOR2X1TF xor_xor2_360_3316(.A(wire_p_7_7_b), .B(wire_g_6_0_nb), .Y(p[6]));
XOR2X1TF xor_xor2_420_3316(.A(wire_p_8_8_b), .B(wire_g_7_0_nb), .Y(p[7]));
XOR2X1TF xor_xor2_480_3316(.A(wire_p_9_9_b), .B(wire_g_8_0_nb), .Y(p[8]));
XOR2X1TF xor_xor2_540_3316(.A(wire_p_10_10_b), .B(wire_g_9_0_nb), .Y(p[9]));
XOR2X1TF xor_xor2_600_3316(.A(wire_p_11_11_b), .B(wire_g_10_0_nb), .Y(p[10]));
XOR2X1TF xor_xor2_660_3316(.A(wire_p_12_12_b), .B(wire_g_11_0_nb), .Y(p[11]));
XOR2X1TF xor_xor2_720_3316(.A(wire_p_13_13_b), .B(wire_g_12_0_nb), .Y(p[12]));
XOR2X1TF xor_xor2_780_3316(.A(wire_p_14_14_b), .B(wire_g_13_0_nb), .Y(p[13]));
XOR2X1TF xor_xor2_840_3316(.A(wire_p_15_15_b), .B(wire_g_14_0_nb), .Y(p[14]));
XOR2X1TF xor_xor2_900_3316(.A(wire_p_16_16_b), .B(wire_g_15_0_nb), .Y(p[15]));
XOR2X1TF xor_xor2_0_3370(.A(wire_p_17_17_b), .B(wire_g_16_0_nb), .Y(p[16]));
XOR2X1TF xor_xor2_60_3370(.A(wire_p_18_18_b), .B(wire_g_17_0_nb), .Y(p[17]));
XOR2X1TF xor_xor2_120_3370(.A(wire_p_19_19_b), .B(wire_g_18_0_nb), .Y(p[18]));
XOR2X1TF xor_xor2_180_3370(.A(wire_p_20_20_b), .B(wire_g_19_0_nb), .Y(p[19]));
XOR2X1TF xor_xor2_240_3370(.A(wire_p_21_21_b), .B(wire_g_20_0_nb), .Y(p[20]));
XOR2X1TF xor_xor2_300_3370(.A(wire_p_22_22_b), .B(wire_g_21_0_nb), .Y(p[21]));
XOR2X1TF xor_xor2_360_3370(.A(wire_p_23_23_b), .B(wire_g_22_0_nb), .Y(p[22]));
XOR2X1TF xor_xor2_420_3370(.A(wire_p_24_24_b), .B(wire_g_23_0_nb), .Y(p[23]));
XOR2X1TF xor_xor2_480_3370(.A(wire_p_25_25_b), .B(wire_g_24_0_nb), .Y(p[24]));
XOR2X1TF xor_xor2_540_3370(.A(wire_p_26_26_b), .B(wire_g_25_0_nb), .Y(p[25]));
XOR2X1TF xor_xor2_600_3370(.A(wire_p_27_27_b), .B(wire_g_26_0_nb), .Y(p[26]));
XOR2X1TF xor_xor2_660_3370(.A(wire_p_28_28_b), .B(wire_g_27_0_nb), .Y(p[27]));
XOR2X1TF xor_xor2_720_3370(.A(wire_p_29_29_b), .B(wire_g_28_0_nb), .Y(p[28]));
XOR2X1TF xor_xor2_780_3370(.A(wire_p_30_30_b), .B(wire_g_29_0_nb), .Y(p[29]));
XOR2X1TF xor_xor2_840_3370(.A(wire_p_31_31_b), .B(wire_g_30_0_nb), .Y(p[30]));
XOR2X1TF xor_xor2_900_3370(.A(wire_p_32_32_b), .B(wire_g_31_0_nb), .Y(p[31]));
endmodule

```

Appendix B: SKILL Script Generation Code

```
#!/usr/bin/perl

# Convert a verilog file with _x_y annotations to a skill script for layout in cadence.
# Mostly hard coded for Austin/Ben's VLSI project. Won't work in other cases with
modification

print "\nyo dawg here we go\n";

if ($#ARGV ne 1) {
    print STDERR "Usage: v2skill.pl verilog.v skill.il\n";
    exit;
}

my $vfile = $ARGV[0];
my $ilfile = $ARGV[1];

my %nudgedb = (
    "INVX3TF" => 0.4,
    "INVX4TF" => 0.4,
    "INVX6TF" => 1.2,
    "INVX8TF" => 1.6,
    "INVX12TF" => 2.4,
    "INVX16TF" => 3.6,
    "INVX20TF" => 4.4,
    "BUF4TF" => 0.4,
    "BUF6TF" => 1.2,
    "BUF8TF" => 1.6,
    "BUF12TF" => 2.4,
    "BUF16TF" => 4.0,
    "BUF20TF" => 5.6,
    "NAND3X2TF" => 0.8,
    "NAND3X4TF" => 2.4,
    "NAND3X6TF" => 4.0,
    "NAND3X8TF" => 6.8,
    "NAND2X2TF" => 0.4,
    "NAND2X4TF" => 1.6,
    "NAND2X6TF" => 2.4,
    "NAND2X8TF" => 3.6,
    "AOI22X2TF" => 2.0,
    "AOI22X4TF" => 4.0,
    "XNOR2X2TF" => 2.0,
    "XNOR2X4TF" => 4.4,
    "XOR2X2TF" => 2.0,
    "XOR2X4TF" => 4.8,
    "AND2X4TF" => 0.8,
    "AND2X6TF" => 2.0,
    "AND2X8TF" => 2.4,
    "AOI21X2TF" => 1.6,
    "AOI21X4TF" => 2.8,
    "ADDFX4TF" => 1.2 );
my %nudgetally = ();

my @submod = (); #list of submodules we use
open (V, "<$vfile") or die("DDEADDDD\n");
while(<V>) {
    s/\s*//g;
    if (/endmodule/) {last;}
    if (/^s*(\w+).+(\.+)/) {
        # print $_;
        # print $1.\n";
        # print $2.\n";
        my $modname = $1;
        if ($modname eq "module") {next;}
        if (!(grep(/^$modname/, @submod))) {push(@submod, $modname);}
    }
}
print "this is the shit you got:\n";
print join(" ", @submod).\n";
close (V);

open (V, "<$vfile") or die("DEJIALDMDLEKMSE:CKLAW:DLKASESJLH\n");
open (IL, ">$ilfile") or die("NOOOOOO\n");
print IL "procedure( placeMult( )\n";
print IL " targetview = dbOpenCellViewByType(\"mult\" \"multiplier\" \"layout\" \"\" \"w\")\n";
foreach (@submod) {
    print IL " $_ = dbOpenCellViewByType(\"ibml3rfrvrtabs\" \"$_\" \"abstract\")\n";
}
```

```

}
print "doin it...\n\n";
while (<V>) {
  s/\//.*//g;
  if (/endmodule/) {last;}
  if (/^s*(\w+)\s+(\w+)\(.\+\/) {
    my $modname = $1;
    my $instname = $2;
    if ($modname eq "module") {next;}
    if (!(grep(/$modname/, @submod))) {print "Warning: module $1 not instantiated\n";
next;}
    my ($x, $y) = ($instname =~ /_(\d+)_(\d+)\s*/);
    $x *= 0.06;
    $y *= 0.06;
    if (exists $nudgehash{$x}) {$y += $nudgehash{$x};}
    if (exists $nugedb{$modname}) {
      if (exists $nudgehash{$x}) {
        $nudgehash{$x} += $nugedb{$modname};
      }
      else {$nudgehash{$x} = $nugedb{$modname};}
    }
    $y += 33;
    $x += 18;
    print IL " dbCreateInst(targetview $modname \"$instname\" list($y $x) \"R0\")\n";
  }
}
print IL " ) ; procedure";
close(V);
close(IL);
print "hey man, I made you somethin. it's called $ilfile and it's mad sweet. run it in
cad and you'll be happy\n";
print "go to the cad command line and type:\n";
print "load(\"$ilfile\")\n";
print "placeMult()\n\n";
print "so fly\n\n";
print "Thank you...\n";

```

Appendix C: SKILL Script

```
procedure( placeMult( )
targetview = dbOpenCellViewByType("mult" "multiplier" "layout" "" "w")
BUF8TF = dbOpenCellViewByType("ibm13rfrvtabs" "BUF8TF" "abstract")
BUF3TF = dbOpenCellViewByType("ibm13rfrvtabs" "BUF3TF" "abstract")
BUF6TF = dbOpenCellViewByType("ibm13rfrvtabs" "BUF6TF" "abstract")
BUF4TF = dbOpenCellViewByType("ibm13rfrvtabs" "BUF4TF" "abstract")
BUF2TF = dbOpenCellViewByType("ibm13rfrvtabs" "BUF2TF" "abstract")
AOI22X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "AOI22X1TF" "abstract")
INVX1TF = dbOpenCellViewByType("ibm13rfrvtabs" "INVX1TF" "abstract")
INV4TF = dbOpenCellViewByType("ibm13rfrvtabs" "INV4TF" "abstract")
INVX2TF = dbOpenCellViewByType("ibm13rfrvtabs" "INVX2TF" "abstract")
NAND3X2TF = dbOpenCellViewByType("ibm13rfrvtabs" "NAND3X2TF" "abstract")
NAND2X2TF = dbOpenCellViewByType("ibm13rfrvtabs" "NAND2X2TF" "abstract")
NAND3X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "NAND3X1TF" "abstract")
BUF12TF = dbOpenCellViewByType("ibm13rfrvtabs" "BUF12TF" "abstract")
NAND2X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "NAND2X1TF" "abstract")
XNOR2X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "XNOR2X1TF" "abstract")
XNOR2X2TF = dbOpenCellViewByType("ibm13rfrvtabs" "XNOR2X2TF" "abstract")
AND2X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "AND2X1TF" "abstract")
XOR2X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "XOR2X1TF" "abstract")
ADDFX1TF = dbOpenCellViewByType("ibm13rfrvtabs" "ADDFX1TF" "abstract")
ADDFX2TF = dbOpenCellViewByType("ibm13rfrvtabs" "ADDFX2TF" "abstract")
AND2X2TF = dbOpenCellViewByType("ibm13rfrvtabs" "AND2X2TF" "abstract")
XOR3X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "XOR3X1TF" "abstract")
AOI21X1TF = dbOpenCellViewByType("ibm13rfrvtabs" "AOI21X1TF" "abstract")
dbCreateInst(targetview BUF8TF "buffer_0_0" list(33 18) "R0")
dbCreateInst(targetview BUF3TF "buffer_0_34" list(36.64 18) "R0")
dbCreateInst(targetview BUF8TF "buffer_60_0" list(33 21.6) "R0")
dbCreateInst(targetview BUF3TF "buffer_60_34" list(36.64 21.6) "R0")
dbCreateInst(targetview BUF6TF "buffer_120_0" list(33 25.2) "R0")
dbCreateInst(targetview BUF3TF "buffer_120_34" list(36.24 25.2) "R0")
dbCreateInst(targetview BUF6TF "buffer_180_0" list(33 28.8) "R0")
dbCreateInst(targetview BUF3TF "buffer_180_34" list(36.24 28.8) "R0")
dbCreateInst(targetview BUF4TF "buffer_240_0" list(33 32.4) "R0")
dbCreateInst(targetview BUF3TF "buffer_240_34" list(35.44 32.4) "R0")
dbCreateInst(targetview BUF6TF "buffer_300_0" list(33 36) "R0")
dbCreateInst(targetview BUF3TF "buffer_300_34" list(36.24 36) "R0")
dbCreateInst(targetview BUF4TF "buffer_360_0" list(33 39.6) "R0")
dbCreateInst(targetview BUF3TF "buffer_360_34" list(35.44 39.6) "R0")
dbCreateInst(targetview BUF6TF "buffer_420_0" list(33 43.2) "R0")
dbCreateInst(targetview BUF3TF "buffer_420_34" list(36.24 43.2) "R0")
dbCreateInst(targetview BUF4TF "buffer_480_0" list(33 46.8) "R0")
dbCreateInst(targetview BUF3TF "buffer_480_34" list(35.44 46.8) "R0")
dbCreateInst(targetview BUF6TF "buffer_540_0" list(33 50.4) "R0")
dbCreateInst(targetview BUF3TF "buffer_540_34" list(36.24 50.4) "R0")
dbCreateInst(targetview BUF3TF "buffer_600_0" list(33 54) "R0")
dbCreateInst(targetview BUF2TF "buffer_600_34" list(35.04 54) "R0")
dbCreateInst(targetview BUF6TF "buffer_660_0" list(33 57.6) "R0")
dbCreateInst(targetview BUF2TF "buffer_660_34" list(36.24 57.6) "R0")
dbCreateInst(targetview BUF3TF "buffer_720_0" list(33 61.2) "R0")
dbCreateInst(targetview BUF2TF "buffer_720_34" list(35.04 61.2) "R0")
dbCreateInst(targetview BUF4TF "buffer_780_0" list(33 64.8) "R0")
dbCreateInst(targetview BUF2TF "buffer_780_34" list(35.44 64.8) "R0")
dbCreateInst(targetview BUF3TF "buffer_840_0" list(33 68.4) "R0")
dbCreateInst(targetview BUF2TF "buffer_840_34" list(35.04 68.4) "R0")
dbCreateInst(targetview BUF4TF "buffer_900_0" list(33 72) "R0")
dbCreateInst(targetview BUF2TF "buffer_900_34" list(35.44 72) "R0")
dbCreateInst(targetview BUF3TF "buff_r4be_1020_0" list(33 79.2) "R0")
dbCreateInst(targetview BUF6TF "singbuff_r4be_1020_34" list(35.04 79.2) "R0")
dbCreateInst(targetview BUF8TF "doubbuff_r4be_1020_68" list(38.28 79.2) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1020_102" list(41.92 79.2) "R0")
dbCreateInst(targetview INVX1TF "x0inv_r4be_1020_142" list(44.32 79.2) "R0")
dbCreateInst(targetview INVX4TF "x1inv_r4be_1020_162" list(45.52 79.2) "R0")
dbCreateInst(targetview INVX2TF "x2inv_r4be_1020_182" list(47.12 79.2) "R0")
dbCreateInst(targetview NAND3X2TF "nandA_r4be_1020_202" list(48.32 79.2) "R0")
dbCreateInst(targetview NAND3X2TF "nandB_r4be_1020_236" list(51.16 79.2) "R0")
dbCreateInst(targetview NAND2X2TF "nandc_r4be_1020_270" list(54 79.2) "R0")
dbCreateInst(targetview INVX1TF "inverter_1020_297" list(56.02 79.2) "R0")
dbCreateInst(targetview BUF3TF "buff_r4be_1080_0" list(33 82.8) "R0")
dbCreateInst(targetview BUF6TF "singbuff_r4be_1080_34" list(35.04 82.8) "R0")
dbCreateInst(targetview BUF8TF "doubbuff_r4be_1080_68" list(38.28 82.8) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1080_102" list(41.92 82.8) "R0")
dbCreateInst(targetview INVX2TF "x0inv_r4be_1080_142" list(44.32 82.8) "R0")
dbCreateInst(targetview INVX2TF "x1inv_r4be_1080_162" list(45.52 82.8) "R0")
dbCreateInst(targetview INVX1TF "x2inv_r4be_1080_182" list(46.72 82.8) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1080_202" list(47.92 82.8) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1080_236" list(49.96 82.8) "R0")
```

```

dbCreateInst(targetview NAND2X2TF "nandc_r4be_1080_270" list(52 82.8) "R0")
dbCreateInst(targetview INVX1TF "inverter_1080_297" list(54.02 82.8) "R0")
dbCreateInst(targetview BUF3TF "buff_r4be_1140_0" list(33 86.4) "R0")
dbCreateInst(targetview BUF6TF "singbuff_r4be_1140_34" list(35.04 86.4) "R0")
dbCreateInst(targetview BUF12TF "doubbuff_r4be_1140_68" list(38.28 86.4) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1140_102" list(42.72 86.4) "R0")
dbCreateInst(targetview INV2TF "x0inv_r4be_1140_142" list(45.12 86.4) "R0")
dbCreateInst(targetview INV2TF "x1inv_r4be_1140_162" list(46.32 86.4) "R0")
dbCreateInst(targetview INV1TF "x2inv_r4be_1140_182" list(47.52 86.4) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1140_202" list(48.72 86.4) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1140_236" list(50.76 86.4) "R0")
dbCreateInst(targetview NAND2X2TF "nandc_r4be_1140_270" list(52.8 86.4) "R0")
dbCreateInst(targetview INV1TF "inverter_1140_297" list(54.82 86.4) "R0")
dbCreateInst(targetview BUF3TF "buff_r4be_1200_53" list(36.18 90) "R0")
dbCreateInst(targetview BUF6TF "singbuff_r4be_1200_87" list(38.22 90) "R0")
dbCreateInst(targetview BUF8TF "doubbuff_r4be_1200_121" list(41.46 90) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1200_155" list(45.1 90) "R0")
dbCreateInst(targetview INV2TF "x0inv_r4be_1200_195" list(47.5 90) "R0")
dbCreateInst(targetview INV2TF "x1inv_r4be_1200_215" list(48.7 90) "R0")
dbCreateInst(targetview INV1TF "x2inv_r4be_1200_235" list(49.9 90) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1200_255" list(51.1 90) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1200_289" list(53.14 90) "R0")
dbCreateInst(targetview NAND2X2TF "nandc_r4be_1200_323" list(55.18 90) "R0")
dbCreateInst(targetview INV1TF "inverter_1200_350" list(57.2 90) "R0")
dbCreateInst(targetview BUF3TF "buff_r4be_1020_317" list(57.22 79.2) "R0")
dbCreateInst(targetview BUF6TF "singbuff_r4be_1020_351" list(59.26 79.2) "R0")
dbCreateInst(targetview BUF8TF "doubbuff_r4be_1020_385" list(62.5 79.2) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1020_419" list(66.14 79.2) "R0")
dbCreateInst(targetview INV2TF "x0inv_r4be_1020_459" list(68.54 79.2) "R0")
dbCreateInst(targetview INV2TF "x1inv_r4be_1020_479" list(69.74 79.2) "R0")
dbCreateInst(targetview INV1TF "x2inv_r4be_1020_499" list(70.94 79.2) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1020_519" list(72.14 79.2) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1020_553" list(74.18 79.2) "R0")
dbCreateInst(targetview NAND2X2TF "nandc_r4be_1020_587" list(76.22 79.2) "R0")
dbCreateInst(targetview INV1TF "inverter_1020_614" list(78.24 79.2) "R0")
dbCreateInst(targetview BUF2TF "buff_r4be_1080_317" list(55.22 82.8) "R0")
dbCreateInst(targetview BUF4TF "singbuff_r4be_1080_351" list(57.26 82.8) "R0")
dbCreateInst(targetview BUF6TF "doubbuff_r4be_1080_385" list(59.7 82.8) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1080_419" list(62.94 82.8) "R0")
dbCreateInst(targetview INV1TF "x0inv_r4be_1080_459" list(65.34 82.8) "R0")
dbCreateInst(targetview INV2TF "x1inv_r4be_1080_479" list(66.54 82.8) "R0")
dbCreateInst(targetview INV1TF "x2inv_r4be_1080_499" list(67.74 82.8) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1080_519" list(68.94 82.8) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1080_553" list(70.98 82.8) "R0")
dbCreateInst(targetview NAND2X1TF "nandc_r4be_1080_587" list(73.02 82.8) "R0")
dbCreateInst(targetview INV1TF "inverter_1080_614" list(74.64 82.8) "R0")
dbCreateInst(targetview BUF2TF "buff_r4be_1140_335" list(57.1 86.4) "R0")
dbCreateInst(targetview BUF4TF "singbuff_r4be_1140_369" list(59.14 86.4) "R0")
dbCreateInst(targetview BUF4TF "doubbuff_r4be_1140_403" list(61.58 86.4) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1140_437" list(64.02 86.4) "R0")
dbCreateInst(targetview INV1TF "x0inv_r4be_1140_477" list(66.42 86.4) "R0")
dbCreateInst(targetview INV2TF "x1inv_r4be_1140_497" list(67.62 86.4) "R0")
dbCreateInst(targetview INV1TF "x2inv_r4be_1140_517" list(68.82 86.4) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1140_537" list(70.02 86.4) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1140_571" list(72.06 86.4) "R0")
dbCreateInst(targetview NAND2X2TF "nandc_r4be_1140_605" list(74.1 86.4) "R0")
dbCreateInst(targetview INV1TF "inverter_1140_632" list(76.12 86.4) "R0")
dbCreateInst(targetview BUF2TF "buff_r4be_1200_429" list(61.94 90) "R0")
dbCreateInst(targetview BUF3TF "singbuff_r4be_1200_463" list(63.98 90) "R0")
dbCreateInst(targetview BUF3TF "doubbuff_r4be_1200_497" list(66.02 90) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1200_531" list(68.06 90) "R0")
dbCreateInst(targetview INV2TF "x0inv_r4be_1200_571" list(70.46 90) "R0")
dbCreateInst(targetview INV2TF "x1inv_r4be_1200_591" list(71.66 90) "R0")
dbCreateInst(targetview INV1TF "x2inv_r4be_1200_611" list(72.86 90) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1200_631" list(74.06 90) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1200_665" list(76.1 90) "R0")
dbCreateInst(targetview NAND2X1TF "nandc_r4be_1200_699" list(78.14 90) "R0")
dbCreateInst(targetview INV1TF "inverter_1200_726" list(79.76 90) "R0")
dbCreateInst(targetview BUF2TF "buff_r4be_1020_634" list(79.44 79.2) "R0")
dbCreateInst(targetview BUF3TF "singbuff_r4be_1020_668" list(81.48 79.2) "R0")
dbCreateInst(targetview BUF3TF "doubbuff_r4be_1020_702" list(83.52 79.2) "R0")
dbCreateInst(targetview AOI22X1TF "pseudoxor_r4be_1020_736" list(85.56 79.2) "R0")
dbCreateInst(targetview INV1TF "x0inv_r4be_1020_776" list(87.96 79.2) "R0")
dbCreateInst(targetview INV1TF "x1inv_r4be_1020_796" list(89.16 79.2) "R0")
dbCreateInst(targetview INV1TF "x2inv_r4be_1020_816" list(90.36 79.2) "R0")
dbCreateInst(targetview NAND3X1TF "nandA_r4be_1020_836" list(91.56 79.2) "R0")
dbCreateInst(targetview NAND3X1TF "nandB_r4be_1020_870" list(93.6 79.2) "R0")
dbCreateInst(targetview NAND2X1TF "nandc_r4be_1020_904" list(95.64 79.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_68" list(38.68 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_108" list(41.08 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_68" list(38.68 21.6) "R0")

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dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_108" list(41.08 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_68" list(38.28 25.2) "R0")
dbCreateInst(targetview XNOR2X2TF "xor_r4bs_120_108" list(40.68 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_162" list(44.32 21.6) "R0")
dbCreateInst(targetview XNOR2X2TF "xor_r4bs_60_202" list(46.72 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_68" list(38.28 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_108" list(40.68 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_68" list(37.48 32.4) "R0")
dbCreateInst(targetview XNOR2X2TF "xor_r4bs_240_108" list(39.88 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_162" list(43.92 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_202" list(46.32 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_68" list(38.28 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_108" list(40.68 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_68" list(37.48 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_108" list(39.88 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_162" list(43.92 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_202" list(46.32 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_68" list(38.28 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_108" list(40.68 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_68" list(37.48 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_108" list(39.88 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_162" list(43.92 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_202" list(46.32 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_68" list(38.28 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_108" list(40.68 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_68" list(37.08 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_108" list(39.48 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_162" list(43.92 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_202" list(46.32 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_68" list(38.28 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_108" list(40.68 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_68" list(37.08 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_108" list(39.48 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_162" list(43.92 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_202" list(46.32 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_68" list(37.48 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_108" list(39.88 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_68" list(37.08 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_108" list(39.48 68.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_162" list(43.12 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_202" list(45.52 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_68" list(37.48 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_108" list(39.88 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_162" list(44.32 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_202" list(46.72 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_256" list(49.96 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_296" list(52.36 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_162" list(45.92 25.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_120_202" list(48.32 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_256" list(51.96 21.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_296" list(54.36 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_350" list(55.6 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_390" list(58 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_256" list(51.56 25.2) "R0")
dbCreateInst(targetview XNOR2X2TF "xor_r4bs_120_296" list(53.96 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_162" list(45.12 32.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_240_202" list(47.52 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_350" list(57.6 21.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_390" list(60 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_256" list(49.56 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_296" list(51.96 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_350" list(59.2 25.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_120_390" list(61.6 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_256" list(50.76 32.4) "R0")
dbCreateInst(targetview XNOR2X2TF "xor_r4bs_240_296" list(53.16 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_162" list(43.12 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_202" list(45.52 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_444" list(63.24 21.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_484" list(65.64 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_350" list(55.2 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_390" list(57.6 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_256" list(49.56 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_296" list(51.96 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_350" list(58.4 32.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_240_390" list(60.8 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_256" list(48.76 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_296" list(51.16 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_162" list(43.12 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_202" list(45.52 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_444" list(60.84 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_484" list(63.24 28.8) "R0")

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dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_350" list(55.2 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_390" list(57.6 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_256" list(49.56 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_296" list(51.96 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_350" list(54.4 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_390" list(56.8 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_256" list(48.76 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_296" list(51.16 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_162" list(42.72 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_202" list(45.12 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_444" list(60.84 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_484" list(63.24 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_350" list(55.2 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_390" list(57.6 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_256" list(49.56 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_296" list(51.96 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_350" list(54.4 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_390" list(56.8 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_256" list(48.36 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_296" list(50.76 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_162" list(42.72 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_202" list(45.12 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_444" list(60.84 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_484" list(63.24 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_350" list(55.2 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_390" list(57.6 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_256" list(49.56 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_296" list(51.96 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_256" list(48.36 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_296" list(50.76 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_162" list(42.72 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_202" list(45.12 68.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_68" list(37.08 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_108" list(39.48 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_256" list(48.76 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_296" list(51.16 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_162" list(43.12 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_202" list(45.52 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_444" list(61.24 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_484" list(63.64 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_538" list(66.88 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_578" list(69.28 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_444" list(64.84 25.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_120_484" list(67.24 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_538" list(68.88 21.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_578" list(71.28 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_632" list(72.52 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_672" list(74.92 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_538" list(70.48 25.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_120_578" list(72.88 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_444" list(64.04 32.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_240_484" list(66.44 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_632" list(74.52 21.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_672" list(76.92 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_538" list(66.48 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_578" list(68.88 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_632" list(76.12 25.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_120_672" list(78.52 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_538" list(69.68 32.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_240_578" list(72.08 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_444" list(60.04 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_484" list(62.44 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_726" list(80.16 21.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_766" list(82.56 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_632" list(72.12 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_672" list(74.52 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_538" list(66.48 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_578" list(68.88 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_538" list(65.68 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_578" list(68.08 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_444" list(60.04 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_484" list(62.44 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_350" list(54 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_390" list(56.4 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_538" list(66.48 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_578" list(68.88 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_444" list(60.84 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_484" list(63.24 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_350" list(55.2 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_390" list(57.6 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_256" list(48.36 68.4) "R0")

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dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_296" list(50.76 68.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_162" list(42.72 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_202" list(45.12 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_256" list(48.76 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_296" list(51.16 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_726" list(78.16 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_766" list(80.56 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_0_820" list(83.8 18) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_0_860" list(86.2 18) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_726" list(81.76 25.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_120_766" list(84.16 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_632" list(75.32 32.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_240_672" list(77.72 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_60_820" list(85.8 21.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_60_860" list(88.2 21.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_726" list(77.76 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_766" list(80.16 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_632" list(72.12 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_672" list(74.52 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_538" list(65.68 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_578" list(68.08 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_444" list(59.64 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_484" list(62.04 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_350" list(54 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_390" list(56.4 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_538" list(66.48 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_578" list(68.88 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_444" list(60.84 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_484" list(63.24 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_350" list(54.4 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_390" list(56.8 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_256" list(48.36 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_296" list(50.76 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_444" list(60.04 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_484" list(62.44 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_350" list(54.4 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_390" list(56.8 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_120_820" list(87.4 25.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_120_860" list(89.8 25.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_726" list(80.96 32.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_240_766" list(83.36 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_632" list(71.32 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_672" list(73.72 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_180_820" list(83.4 28.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_180_860" list(85.8 28.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_726" list(77.76 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_766" list(80.16 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_632" list(72.12 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_672" list(74.52 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_538" list(65.28 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_578" list(67.68 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_444" list(59.64 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_484" list(62.04 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_350" list(54 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_390" list(56.4 68.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_726" list(77.76 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_766" list(80.16 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_632" list(72.12 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_672" list(74.52 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_538" list(66.48 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_578" list(68.88 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_350" list(54 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_390" list(56.4 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_538" list(65.68 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_578" list(68.08 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_444" list(60.04 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_484" list(62.44 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_240_820" list(86.6 32.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_240_860" list(89 32.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_726" list(76.96 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_766" list(79.36 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_632" list(71.32 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_672" list(73.72 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_300_820" list(83.4 36) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_300_860" list(85.8 36) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_632" list(70.92 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_672" list(73.32 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_538" list(65.28 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_578" list(67.68 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_444" list(59.64 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_484" list(62.04 68.4) "R0")

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dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_420_820" list(83.4 43.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_420_860" list(85.8 43.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_726" list(77.76 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_766" list(80.16 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_632" list(72.12 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_672" list(74.52 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_444" list(59.64 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_484" list(62.04 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_632" list(71.32 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_672" list(73.72 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_538" list(65.68 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_578" list(68.08 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_360_820" list(82.6 39.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_360_860" list(85 39.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_726" list(76.96 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_766" list(79.36 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_726" list(76.56 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_766" list(78.96 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_632" list(70.92 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_672" list(73.32 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_538" list(65.28 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_578" list(67.68 68.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_540_820" list(83.4 50.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_540_860" list(85.8 50.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_726" list(77.76 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_766" list(80.16 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_538" list(65.28 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_578" list(67.68 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_726" list(76.96 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_766" list(79.36 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_632" list(71.32 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_672" list(73.72 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_480_820" list(82.6 46.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_480_860" list(85 46.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_600_820" list(82.2 54) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_600_860" list(84.6 54) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_726" list(76.56 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_766" list(78.96 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_632" list(70.92 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_672" list(73.32 68.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_660_820" list(83.4 57.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_660_860" list(85.8 57.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_632" list(70.92 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_672" list(73.32 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_780_820" list(82.6 64.8) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_780_860" list(85 64.8) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_726" list(76.96 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_766" list(79.36 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_720_820" list(82.2 61.2) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_720_860" list(84.6 61.2) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_726" list(76.56 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_766" list(78.96 68.4) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_960_726" list(76.56 75.6) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_960_766" list(78.96 75.6) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_900_820" list(82.6 72) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_900_860" list(85 72) "R0")
dbCreateInst(targetview AOI22X1TF "aaoi_r4bs_840_820" list(82.2 68.4) "R0")
dbCreateInst(targetview XNOR2X1TF "xor_r4bs_840_860" list(84.6 68.4) "R0")
dbCreateInst(targetview BUF2TF "buf_0_914" list(89.44 18) "R0")
dbCreateInst(targetview BUF3TF "buf_0_948" list(91.48 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1002" list(94.72 18) "R0")
dbCreateInst(targetview BUF3TF "buf_0_1036" list(96.76 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1156" list(103.96 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1190" list(106 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1310" list(113.2 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1344" list(115.24 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1464" list(122.44 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1498" list(124.48 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1618" list(131.68 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1652" list(133.72 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1772" list(140.92 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1806" list(142.96 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1926" list(150.16 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_1960" list(152.2 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_2080" list(159.4 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_2114" list(161.44 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_2234" list(168.64 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_2268" list(170.68 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_2388" list(177.88 18) "R0")
dbCreateInst(targetview BUF2TF "buf_0_2422" list(179.92 18) "R0")
dbCreateInst(targetview BUF3TF "buf_60_914" list(91.44 21.6) "R0")

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dbCreateInst (targetview BUFX2TF "buf_60_948" list(93.48 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1002" list(96.72 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1036" list(98.76 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1156" list(105.96 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1190" list(108 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1310" list(115.2 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1344" list(117.24 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1464" list(124.44 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1498" list(126.48 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1618" list(133.68 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1652" list(135.72 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1772" list(142.92 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1806" list(144.96 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1926" list(152.16 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_1960" list(154.2 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_2080" list(161.4 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_2114" list(163.44 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_2234" list(170.64 21.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_60_2268" list(172.68 21.6) "R0")
dbCreateInst (targetview AND2X1TF "andHA_120_914" list(93.04 25.2) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_120_948" list(95.08 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_1002" list(98.32 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_1156" list(107.56 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_1310" list(116.8 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_1464" list(126.04 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_1618" list(135.28 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_1772" list(144.52 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_1926" list(153.76 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_2080" list(163 25.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_120_2234" list(172.24 25.2) "R0")
dbCreateInst (targetview BUFX2TF "buf_120_2388" list(181.48 25.2) "R0")
dbCreateInst (targetview BUFX2TF "buf_120_2422" list(183.52 25.2) "R0")
dbCreateInst (targetview AND2X1TF "andHA_180_914" list(89.04 28.8) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_180_948" list(91.08 28.8) "R0")
dbCreateInst (targetview ADDFX2TF "FA_180_1002" list(94.32 28.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_180_1156" list(103.56 28.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_180_1310" list(112.8 28.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_180_1464" list(122.04 28.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_180_1618" list(131.28 28.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_180_1772" list(140.52 28.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_180_1926" list(149.76 28.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_180_2080" list(159 28.8) "R0")
dbCreateInst (targetview BUFX2TF "buf_180_2234" list(168.24 28.8) "R0")
dbCreateInst (targetview BUFX2TF "buf_180_2268" list(170.28 28.8) "R0")
dbCreateInst (targetview AND2X2TF "andHA_240_914" list(92.24 32.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_240_948" list(94.28 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_1002" list(97.52 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_1156" list(106.76 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_1310" list(116 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_1464" list(125.24 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_1618" list(134.48 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_1772" list(143.72 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_1926" list(152.96 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_2080" list(162.2 32.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_240_2234" list(171.44 32.4) "R0")
dbCreateInst (targetview BUFX2TF "buf_240_2388" list(180.68 32.4) "R0")
dbCreateInst (targetview BUFX2TF "buf_240_2422" list(182.72 32.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_300_914" list(89.04 36) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_300_948" list(91.08 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_1002" list(94.32 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_1156" list(103.56 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_1310" list(112.8 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_1464" list(122.04 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_1618" list(131.28 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_1772" list(140.52 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_1926" list(149.76 36) "R0")
dbCreateInst (targetview ADDFX1TF "FA_300_2080" list(159 36) "R0")
dbCreateInst (targetview BUFX2TF "buf_300_2234" list(168.24 36) "R0")
dbCreateInst (targetview BUFX2TF "buf_300_2268" list(170.28 36) "R0")
dbCreateInst (targetview AND2X1TF "andHA_360_914" list(88.24 39.6) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_360_948" list(90.28 39.6) "R0")
dbCreateInst (targetview ADDFX2TF "FA_360_1002" list(93.52 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_1156" list(102.76 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_1310" list(112 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_1464" list(121.24 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_1618" list(130.48 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_1772" list(139.72 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_1926" list(148.96 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_2080" list(158.2 39.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_360_2234" list(167.44 39.6) "R0")
dbCreateInst (targetview BUFX2TF "buf_360_2388" list(176.68 39.6) "R0")

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dbCreateInst (targetview BUF2TF "buf_360_2422" list(178.72 39.6) "R0")
dbCreateInst (targetview AND2X1TF "andHA_420_914" list(89.04 43.2) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_420_948" list(91.08 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_1002" list(94.32 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_1156" list(103.56 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_1310" list(112.8 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_1464" list(122.04 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_1618" list(131.28 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_1772" list(140.52 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_1926" list(149.76 43.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_420_2080" list(159 43.2) "R0")
dbCreateInst (targetview BUF2TF "buf_420_2234" list(168.24 43.2) "R0")
dbCreateInst (targetview BUF2TF "buf_420_2268" list(170.28 43.2) "R0")
dbCreateInst (targetview AND2X1TF "andHA_480_914" list(88.24 46.8) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_480_948" list(90.28 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_1002" list(93.52 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_1156" list(102.76 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_1310" list(112 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_1464" list(121.24 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_1618" list(130.48 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_1772" list(139.72 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_1926" list(148.96 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_2080" list(158.2 46.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_480_2234" list(167.44 46.8) "R0")
dbCreateInst (targetview BUF2TF "buf_480_2388" list(176.68 46.8) "R0")
dbCreateInst (targetview BUF2TF "buf_480_2422" list(178.72 46.8) "R0")
dbCreateInst (targetview AND2X1TF "andHA_540_914" list(89.04 50.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_540_948" list(91.08 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_1002" list(94.32 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_1156" list(103.56 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_1310" list(112.8 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_1464" list(122.04 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_1618" list(131.28 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_1772" list(140.52 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_1926" list(149.76 50.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_540_2080" list(159 50.4) "R0")
dbCreateInst (targetview BUF2TF "buf_540_2234" list(168.24 50.4) "R0")
dbCreateInst (targetview BUF2TF "buf_540_2268" list(170.28 50.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_600_914" list(87.84 54) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_600_948" list(89.88 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_1002" list(93.12 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_1156" list(102.36 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_1310" list(111.6 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_1464" list(120.84 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_1618" list(130.08 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_1772" list(139.32 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_1926" list(148.56 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_2080" list(157.8 54) "R0")
dbCreateInst (targetview ADDFX1TF "FA_600_2234" list(167.04 54) "R0")
dbCreateInst (targetview BUF2TF "buf_600_2388" list(176.28 54) "R0")
dbCreateInst (targetview BUF2TF "buf_600_2422" list(178.32 54) "R0")
dbCreateInst (targetview AND2X1TF "andHA_660_914" list(89.04 57.6) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_660_948" list(91.08 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_1002" list(94.32 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_1156" list(103.56 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_1310" list(112.8 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_1464" list(122.04 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_1618" list(131.28 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_1772" list(140.52 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_1926" list(149.76 57.6) "R0")
dbCreateInst (targetview ADDFX1TF "FA_660_2080" list(159 57.6) "R0")
dbCreateInst (targetview BUF2TF "buf_660_2234" list(168.24 57.6) "R0")
dbCreateInst (targetview BUF2TF "buf_660_2268" list(170.28 57.6) "R0")
dbCreateInst (targetview AND2X1TF "andHA_720_914" list(87.84 61.2) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_720_948" list(89.88 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_1002" list(93.12 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_1156" list(102.36 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_1310" list(111.6 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_1464" list(120.84 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_1618" list(130.08 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_1772" list(139.32 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_1926" list(148.56 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_2080" list(157.8 61.2) "R0")
dbCreateInst (targetview ADDFX1TF "FA_720_2234" list(167.04 61.2) "R0")
dbCreateInst (targetview AND2X1TF "andHA_780_914" list(88.24 64.8) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_780_948" list(90.28 64.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_780_1002" list(93.52 64.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_780_1156" list(102.76 64.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_780_1310" list(112 64.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_780_1464" list(121.24 64.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_780_1618" list(130.48 64.8) "R0")

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dbCreateInst (targetview ADDFX1TF "FA_780_1772" list(139.72 64.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_780_1926" list(148.96 64.8) "R0")
dbCreateInst (targetview ADDFX1TF "FA_780_2080" list(158.2 64.8) "R0")
dbCreateInst (targetview BUF2TF "buf_780_2234" list(167.44 64.8) "R0")
dbCreateInst (targetview BUF2TF "buf_780_2268" list(169.48 64.8) "R0")
dbCreateInst (targetview AND2X1TF "andHA_840_914" list(87.84 68.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_840_948" list(89.88 68.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_840_1002" list(93.12 68.4) "R0")
dbCreateInst (targetview ADDFX1TF "FA_840_1156" list(102.36 68.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_840_1310" list(111.6 68.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_840_1344" list(113.64 68.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_840_1464" list(120.84 68.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_840_1498" list(122.88 68.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_840_1618" list(130.08 68.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_840_1652" list(132.12 68.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_840_1772" list(139.32 68.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_840_1806" list(141.36 68.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_840_1926" list(148.56 68.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_840_1960" list(150.6 68.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_840_2080" list(157.8 68.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_840_2114" list(159.84 68.4) "R0")
dbCreateInst (targetview AND2X1TF "andHA_900_914" list(88.24 72) "R0")
dbCreateInst (targetview XOR2X1TF "xorHA_900_948" list(90.28 72) "R0")
dbCreateInst (targetview ADDFX1TF "FA_900_1002" list(93.52 72) "R0")
dbCreateInst (targetview ADDFX1TF "FA_900_1156" list(102.76 72) "R0")
dbCreateInst (targetview ADDFX1TF "FA_900_1310" list(112 72) "R0")
dbCreateInst (targetview ADDFX1TF "FA_900_1464" list(121.24 72) "R0")
dbCreateInst (targetview ADDFX1TF "FA_900_1618" list(130.48 72) "R0")
dbCreateInst (targetview ADDFX1TF "FA_900_1772" list(139.72 72) "R0")
dbCreateInst (targetview ADDFX1TF "FA_900_1926" list(148.96 72) "R0")
dbCreateInst (targetview XOR3X1TF "xor_xor_900_2080" list(158.2 72) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_0_2456" list(181.96 18) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_0_2490" list(184 18) "R0")
dbCreateInst (targetview BUF2TF "buffer_0_2544" list(187.24 18) "R0")
dbCreateInst (targetview BUF2TF "buffer_0_2578" list(189.28 18) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_60_2456" list(183.96 21.6) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_60_2490" list(186 21.6) "R0")
dbCreateInst (targetview BUF3TF "buffer_60_2544" list(189.24 21.6) "R0")
dbCreateInst (targetview BUF2TF "buffer_60_2578" list(191.28 21.6) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_120_2456" list(185.56 25.2) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_120_2490" list(187.6 25.2) "R0")
dbCreateInst (targetview BUF2TF "buffer_120_2544" list(190.84 25.2) "R0")
dbCreateInst (targetview BUF2TF "buffer_120_2578" list(192.88 25.2) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_180_2456" list(181.56 28.8) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_180_2490" list(183.6 28.8) "R0")
dbCreateInst (targetview BUF2TF "buffer_180_2544" list(186.84 28.8) "R0")
dbCreateInst (targetview BUF2TF "buffer_180_2578" list(188.88 28.8) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_240_2456" list(184.76 32.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_240_2490" list(186.8 32.4) "R0")
dbCreateInst (targetview BUF2TF "buffer_240_2544" list(190.04 32.4) "R0")
dbCreateInst (targetview BUF2TF "buffer_240_2578" list(192.08 32.4) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_300_2456" list(181.56 36) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_300_2490" list(183.6 36) "R0")
dbCreateInst (targetview BUF2TF "buffer_300_2544" list(186.84 36) "R0")
dbCreateInst (targetview BUF2TF "buffer_300_2578" list(188.88 36) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_360_2456" list(180.76 39.6) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_360_2490" list(182.8 39.6) "R0")
dbCreateInst (targetview BUF2TF "buffer_360_2544" list(186.04 39.6) "R0")
dbCreateInst (targetview BUF2TF "buffer_360_2578" list(188.08 39.6) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_420_2456" list(181.56 43.2) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_420_2490" list(183.6 43.2) "R0")
dbCreateInst (targetview BUF2TF "buffer_420_2544" list(186.84 43.2) "R0")
dbCreateInst (targetview BUF2TF "buffer_420_2578" list(188.88 43.2) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_480_2456" list(180.76 46.8) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_480_2490" list(182.8 46.8) "R0")
dbCreateInst (targetview BUF2TF "buffer_480_2544" list(186.04 46.8) "R0")
dbCreateInst (targetview BUF2TF "buffer_480_2578" list(188.08 46.8) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_540_2456" list(181.56 50.4) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_540_2490" list(183.6 50.4) "R0")
dbCreateInst (targetview BUF2TF "buffer_540_2544" list(186.84 50.4) "R0")
dbCreateInst (targetview BUF2TF "buffer_540_2578" list(188.88 50.4) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_600_2456" list(180.36 54) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_600_2490" list(182.4 54) "R0")
dbCreateInst (targetview BUF2TF "buffer_600_2544" list(185.64 54) "R0")
dbCreateInst (targetview BUF2TF "buffer_600_2578" list(187.68 54) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_660_2456" list(181.56 57.6) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_660_2490" list(183.6 57.6) "R0")
dbCreateInst (targetview BUF2TF "buffer_660_2544" list(186.84 57.6) "R0")
dbCreateInst (targetview BUF2TF "buffer_660_2578" list(188.88 57.6) "R0")
dbCreateInst (targetview AND2X1TF "andhalfAdd_720_2456" list(180.36 61.2) "R0")
dbCreateInst (targetview XOR2X1TF "xorhalfAdd_720_2490" list(182.4 61.2) "R0")

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dbCreateInst(targetview BUF2X1TF "buffer_720_2544" list(185.64 61.2) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_720_2578" list(187.68 61.2) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_780_2456" list(180.76 64.8) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_780_2490" list(182.8 64.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_780_2544" list(186.04 64.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_780_2578" list(188.08 64.8) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_840_2456" list(180.36 68.4) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_840_2490" list(182.4 68.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_840_2544" list(185.64 68.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_840_2578" list(187.68 68.4) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_900_2456" list(180.76 72) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_900_2510" list(184 72) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_0_2612" list(191.32 18) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_0_2646" list(193.36 18) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_0_2700" list(196.6 18) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_0_2734" list(198.64 18) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_60_2612" list(193.32 21.6) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_60_2646" list(195.36 21.6) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_60_2700" list(198.6 21.6) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_60_2734" list(200.64 21.6) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_120_2612" list(194.92 25.2) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_120_2646" list(196.96 25.2) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_120_2700" list(200.2 25.2) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_120_2734" list(202.24 25.2) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_180_2612" list(190.92 28.8) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_180_2646" list(192.96 28.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_180_2700" list(196.2 28.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_180_2734" list(198.24 28.8) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_240_2612" list(194.12 32.4) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_240_2646" list(196.16 32.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_240_2700" list(199.4 32.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_240_2734" list(201.44 32.4) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_300_2612" list(190.92 36) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_300_2646" list(192.96 36) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_300_2700" list(196.2 36) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_300_2734" list(198.24 36) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_360_2612" list(190.12 39.6) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_360_2646" list(192.16 39.6) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_360_2700" list(195.4 39.6) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_360_2734" list(197.44 39.6) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_420_2612" list(190.92 43.2) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_420_2646" list(192.96 43.2) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_420_2700" list(196.2 43.2) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_420_2734" list(198.24 43.2) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_480_2612" list(190.12 46.8) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_480_2646" list(192.16 46.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_480_2700" list(195.4 46.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_480_2734" list(197.44 46.8) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_540_2612" list(190.92 50.4) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_540_2646" list(192.96 50.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_540_2700" list(196.2 50.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_540_2734" list(198.24 50.4) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_600_2612" list(189.72 54) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_600_2646" list(191.76 54) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_600_2700" list(195 54) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_600_2734" list(197.04 54) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_660_2612" list(190.92 57.6) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_660_2646" list(192.96 57.6) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_660_2700" list(196.2 57.6) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_660_2734" list(198.24 57.6) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_720_2612" list(189.72 61.2) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_720_2646" list(191.76 61.2) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_720_2700" list(195 61.2) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_720_2734" list(197.04 61.2) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_780_2612" list(190.12 64.8) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_780_2646" list(192.16 64.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_780_2700" list(195.4 64.8) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_780_2734" list(197.44 64.8) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_840_2612" list(189.72 68.4) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_840_2646" list(191.76 68.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_840_2700" list(195 68.4) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_840_2734" list(197.04 68.4) "R0")
dbCreateInst(targetview AND2X1TF "andhalfAdd_900_2612" list(190.12 72) "R0")
dbCreateInst(targetview XOR2X1TF "xorhalfAdd_900_2646" list(192.16 72) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_900_2700" list(195.4 72) "R0")
dbCreateInst(targetview BUF2X1TF "buffer_900_2734" list(197.44 72) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_0_3262" list(230.32 18) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_0_3296" list(232.36 18) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_0_3174" list(225.04 18) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_0_3208" list(227.08 18) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_0_3228" list(228.28 18) "R0")

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dbCreateInst(targetview AOI21X1TF "aoi_gc 60 3262" list(232.32 21.6) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 60 3296" list(234.36 21.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 120 3262" list(233.92 25.2) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 120 3296" list(235.96 25.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 120 3174" list(228.64 25.2) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 120 3208" list(230.68 25.2) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 120 3228" list(231.88 25.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 120 3086" list(223.36 25.2) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 120 3120" list(225.4 25.2) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 120 3140" list(226.6 25.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 120 3032" list(220.12 25.2) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 120 3066" list(222.16 25.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 180 3262" list(229.92 28.8) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 180 3296" list(231.96 28.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 180 3208" list(226.68 28.8) "R0")
dbCreateInst(targetview INVX2TF "inv_gc 180 3242" list(228.72 28.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 240 3262" list(233.12 32.4) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 240 3296" list(235.16 32.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 240 3174" list(227.84 32.4) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 240 3208" list(229.88 32.4) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 240 3228" list(231.08 32.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 240 3120" list(224.6 32.4) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 240 3154" list(226.64 32.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 300 3262" list(229.92 36) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 300 3296" list(231.96 36) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 300 3208" list(226.68 36) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 300 3242" list(228.72 36) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 360 3262" list(229.12 39.6) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 360 3296" list(231.16 39.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 360 3174" list(223.84 39.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 360 3208" list(225.88 39.6) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 360 3228" list(227.08 39.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 360 3086" list(218.56 39.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 360 3120" list(220.6 39.6) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 360 3140" list(221.8 39.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 360 3032" list(215.32 39.6) "R0")
dbCreateInst(targetview INVX2TF "inv_gc 360 3066" list(217.36 39.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 360 2944" list(210.04 39.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 360 2978" list(212.08 39.6) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 360 2998" list(213.28 39.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 420 3262" list(229.92 43.2) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 420 3296" list(231.96 43.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 420 3208" list(226.68 43.2) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 420 3242" list(228.72 43.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 480 3262" list(229.12 46.8) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 480 3296" list(231.16 46.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 480 3174" list(223.84 46.8) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 480 3208" list(225.88 46.8) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 480 3228" list(227.08 46.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 480 3120" list(220.6 46.8) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 480 3154" list(222.64 46.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 480 3032" list(215.32 46.8) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 480 3066" list(217.36 46.8) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 480 3086" list(218.56 46.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 540 3262" list(229.92 50.4) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 540 3296" list(231.96 50.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 540 3174" list(224.64 50.4) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 540 3208" list(226.68 50.4) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 540 3228" list(227.88 50.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 540 3086" list(219.36 50.4) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 540 3120" list(221.4 50.4) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 540 3140" list(222.6 50.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 540 3032" list(216.12 50.4) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 540 3066" list(218.16 50.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 600 3262" list(228.72 54) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 600 3296" list(230.76 54) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 600 3208" list(225.48 54) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 600 3242" list(227.52 54) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 600 3120" list(220.2 54) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 600 3154" list(222.24 54) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 600 3174" list(223.44 54) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc 660 3262" list(229.92 57.6) "R0")
dbCreateInst(targetview INVX1TF "inv_gc 660 3296" list(231.96 57.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 660 3174" list(224.64 57.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 660 3208" list(226.68 57.6) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 660 3228" list(227.88 57.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 660 3086" list(219.36 57.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 660 3120" list(221.4 57.6) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc 660 3140" list(222.6 57.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc 660 2998" list(214.08 57.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc 660 3032" list(216.12 57.6) "R0")

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dbCreateInst(targetview AND2X1TF "and2_bc_660_3052" list(217.32 57.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_660_2910" list(208.8 57.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_660_2944" list(210.84 57.6) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_660_2964" list(212.04 57.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_660_2856" list(205.56 57.6) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_660_2890" list(207.6 57.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_660_2768" list(200.28 57.6) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_660_2802" list(202.32 57.6) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_660_2822" list(203.52 57.6) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_720_3262" list(228.72 61.2) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_720_3296" list(230.76 61.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_720_3208" list(225.48 61.2) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_720_3242" list(227.52 61.2) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_780_3262" list(229.12 64.8) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_780_3296" list(231.16 64.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_780_3174" list(223.84 64.8) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_780_3208" list(225.88 64.8) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_780_3228" list(227.08 64.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_780_3120" list(220.6 64.8) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_780_3154" list(222.64 64.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_780_3032" list(215.32 64.8) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_780_3066" list(217.36 64.8) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_780_3086" list(218.56 64.8) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_840_3262" list(228.72 68.4) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_840_3296" list(230.76 68.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_840_3174" list(223.44 68.4) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_840_3208" list(225.48 68.4) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_840_3228" list(226.68 68.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_840_3120" list(220.2 68.4) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_840_3154" list(222.24 68.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_840_3032" list(214.92 68.4) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_840_3066" list(216.96 68.4) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_840_3086" list(218.16 68.4) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_900_3262" list(229.12 72) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_900_3296" list(231.16 72) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_bc_900_3174" list(223.84 72) "R0")
dbCreateInst(targetview INVX1TF "inv_bc_900_3208" list(225.88 72) "R0")
dbCreateInst(targetview AND2X1TF "and2_bc_900_3228" list(227.08 72) "R0")
dbCreateInst(targetview AOI21X1TF "aoi_gc_900_3120" list(220.6 72) "R0")
dbCreateInst(targetview INVX1TF "inv_gc_900_3154" list(222.64 72) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_60_3316" list(235.56 21.6) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_120_3316" list(237.16 25.2) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_180_3316" list(233.16 28.8) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_240_3316" list(236.36 32.4) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_300_3316" list(233.16 36) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_360_3316" list(232.36 39.6) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_420_3316" list(233.16 43.2) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_480_3316" list(232.36 46.8) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_540_3316" list(233.16 50.4) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_600_3316" list(231.96 54) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_660_3316" list(233.16 57.6) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_720_3316" list(231.96 61.2) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_780_3316" list(232.36 64.8) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_840_3316" list(231.96 68.4) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_900_3316" list(232.36 72) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_0_3370" list(236.8 18) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_60_3370" list(238.8 21.6) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_120_3370" list(240.4 25.2) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_180_3370" list(236.4 28.8) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_240_3370" list(239.6 32.4) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_300_3370" list(236.4 36) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_360_3370" list(235.6 39.6) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_420_3370" list(236.4 43.2) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_480_3370" list(235.6 46.8) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_540_3370" list(236.4 50.4) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_600_3370" list(235.2 54) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_660_3370" list(236.4 57.6) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_720_3370" list(235.2 61.2) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_780_3370" list(235.6 64.8) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_840_3370" list(235.2 68.4) "R0")
dbCreateInst(targetview XOR2X1TF "xor_xor2_900_3370" list(235.6 72) "R0")
) ; procedure

```

Appendix D: File Locations

The table below details the locations of files relevant to the project. Most project files are located in the Subversion repository of the multipliers group, a copy of which is mirrored on Chips at /proj/mult. Unless another path is given, files reside at /proj/mult/vlsi.

File	Purpose
/proj/mult/verilog/tdm_us_BAL_R4_custom/mult_16_16.v	The original, unflattened Verilog file containing the multiplier.
gatesize/GSIBM_mult_16_16_7.v	The flattened and Gatesized Verilog file used as a demonstration for the project.
gatesize/GSIBM_mult_16_16_7.spef	The extracted capacitances from SoC Encounter's routing. These can be used for a revised Primetime simulation.
gatesize/mult.il	The SKILL script of Appendix C that allows the multiplier to be placed in Cadence.
gatesize/pt_RESULTS	The results of the Primetime run with the extracted capacitances.
bem_flow.pl	A script to run Primetime in the same way that it was run in the Gatesizer flow. It expects a Verilog file as an argument, and that a SPEF file with the same name will be in the same folder as the Verilog file. It will output a pt_RESULTS file in the same directory.
Ibm13rfrvt.pdf	The list of standard cells for the ARM library. The widths of each gate size are listed in this document.
v2skill.pl	The script to generate a SKILL script from a Verilog file.
vlsigen.sh	A shell script to run several stages of the flow, including checking the multiplier with the testbench from the research group.
/proj/mult/tools/singleTest.sh	A handy way to generate and test top-level Verilog for multipliers.