APPENDIX OF CODE

JAVA PROTOTYPE FOR ALGORITHM

```
import java.text.DecimalFormat;
import java.text.NumberFormat;
import java.util.Random;


public class sound {
	public static void main (String args[]){
		Random generator = new Random();
		Random generator2 = new Random();
		int note=generator2.nextInt(6)+1;
		String output="";
		int total=1000;
		double[][] probs = new double[7][7];
		for(int i=1; i<=total; i++){
			output=output+String.valueOf(note);
			if (i%50==0) output+="\n";
			int rand=generator.nextInt(99)+1;
			//System.out.println(rand);
			switch(note){
				case 1:
					note=generator2.nextInt(6)+1;
					if (rand>=1&rand<14) note=1;
					if (rand>=14&rand<28) note=2;
					if (rand>=28&rand<42) note=3;
					if (rand>=42&rand<56) note=4;
					if (rand>=56&rand<70) note=5;
					if (rand>=70&rand<84) note=6;
					if (rand>=84&rand<98) note=7;
					probs[0][note-1]+=1;
					break;

				case 2:
					note=generator2.nextInt(6)+1;
					if (rand>=1&rand<8) note=1;
					if (rand>=8&rand<16) note=2;
					if (rand>=16&rand<24) note=3;
					if (rand>=24&rand<32) note=4;
					if (rand>=32&rand<82) note=5;
					if (rand>=82&rand<88) note=6;
					if (rand>=88&rand<96) note=7;
					probs[1][note-1]+=1;
					break;
```

```
case 3:
        note=generator2.nextInt(6)+1;
        if (rand>=1&rand<4) note=1;
        if (rand>=4&rand<8) note=2;
        if (rand>=8&rand<12) note=3;
        if (rand>=12&rand<42) note=4;
        if (rand>=42&rand<46) note=5;
        if (rand>=46&rand<96) note=6;
        if (rand>=96&rand<100) note=7;
        probs[2][note-1]+=1;
        break;

case 4:
        note=generator2.nextInt(6)+1;
        if (rand>=1&rand<40) note=1;
        if (rand>=40&rand<46) note=2;
        if (rand>=46&rand<52) note=3;
        if (rand>=52&rand<58) note=4;
        if (rand>=58&rand<88) note=5;
        if (rand>=88&rand<94) note=6;
        if (rand>=94&rand<100) note=7;
        probs[3][note-1]+=1;
        break;

case 5:
        note=generator2.nextInt(6)+1;
        if (rand>=1&rand<50) note=1;
        if (rand>=50&rand<52) note=2;
        if (rand>=52&rand<82) note=3;
        if (rand>=82&rand<92) note=4;
        if (rand>=92&rand<94) note=5;
        if (rand>=94&rand<96) note=6;
        if (rand>=96&rand<98) note=7;
        probs[4][note-1]+=1;
        break;

case 6:
        note=generator2.nextInt(6)+1;
        if (rand>=1&rand<7) note=1;
        if (rand>=7&rand<14) note=2;
        if (rand>=14&rand<39) note=3;
        if (rand>=39&rand<46) note=4;
        if (rand>=46&rand<86) note=5;
        if (rand>=86&rand<93) note=6;
        if (rand>=93&rand<100) note=7;
```

```
                    probs[5][note-1]+=1;
                    break;

                case 7:
                    note=generator2.nextInt(6)+1;
                    if (rand>=1&rand<50) note=1;
                    if (rand>=50&rand<52) note=2;
                    if (rand>=52&rand<54) note=3;
                    if (rand>=54&rand<94) note=4;
                    if (rand>=94&rand<96) note=5;
                    if (rand>=96&rand<98) note=6;
                    if (rand>=98&rand<100) note=7;
                    probs[6][note-1]+=1;
                    break;

                default:
            }

        }
        System.out.println(output);

        System.out.println();
        System.out.println("-------------------------------------------");
        for(int k=0;k<=6;k++){
            int sum=0;
            for (int j=0;j<=6;j++){
                sum+=probs[k][j];
            }
            for (int j=0;j<=6;j++){
                probs[k][j]=probs[k][j]/sum;
                NumberFormat df= new DecimalFormat();
                if (j<6) {System.out.print(df.format(probs[k][j])+" ");}
                else {System.out.println(df.format(probs[k][j]));}
            }
        }
    }
}
```

MATLAB code to generate samples

GUSVOICE.M

```
fid = fopen('gus1.coe', 'w'); % code to produce ROM with gus voice
%% ROM will have 16384 locations, with 18 bits per location

fprintf(fid, '%s', 'memory_initialization_radix=2;');
fprintf(fid, '\n');
fprintf(fid, '%s', 'memory_initialization_vector=');
fprintf(fid, '\n');
fprintf(fid, '\n');
for i=1:16384
      fprintf(fid, dec2bin(mod(round(a(i)) + 218, 218), 18));
%a contains 16384 samples of gus voice singing "aah"; it was created by %using
wavread on the 16384-sample wav file, and scaling its magnitude %to 217.   here we
convert to 18 bit 2's complement
      fprintf(fid, '%s', ',');
      fprintf(fid, '\n');
end

fclose(fid);
```

SINEWAVE.M

```
fid = fopen('sin1.coe', 'w'); % code to produce ROM with sine wave
%% ROM will have 16384 locations, with 18 bits per location

fprintf(fid, '%s', 'memory_initialization_radix=2;');
fprintf(fid, '\n');
fprintf(fid, '%s', 'memory_initialization_vector=');
fprintf(fid, '\n');
fprintf(fid, '\n');
for i=0:16383
    fprintf(fid, dec2bin(...
                                        mod(...
                                         round((131071.5*sin((2*pi*i)/16383))-.5)...
      % scale sin to magnitude of 217-1 to -217, make 214 samples
                                             + 218, 218)...
      % convert to 2's complement
```

```
                                   , 18)); % convert to 18 bit binary number
     fprintf(fid, '%s', ',');
     fprintf(fid, '\n');
end

fclose(fid);
```

NOTES.M

```
fid = fopen('notes.coe', 'w'); % code to produce note lookup table ROM
%% ROM will have 128 locations, with 14 bits per location

fprintf(fid, '%s', 'memory_initialization_radix=2;');
fprintf(fid, '\n');
fprintf(fid, '%s', 'memory_initialization_vector=');
fprintf(fid, '\n');
fprintf(fid, '\n');
for i=0:127
     fprintf(fid, dec2bin(round((16384/48000)*(440*2^((i-57)/12))), 14));      %
"frequency", i.e. number of samples to skip in 16384 sample
     %sine wave to produce desired freq
     fprintf(fid, '%s', ',');
     fprintf(fid, '\n');
end

fclose(fid);
```

Top Level Module For Algorithmic Code

```
///////////////////////////////////////////////////////////////////////////////
//
// 6.111 Final Project
// Audio Kalaedescope
//
// May 15, 2007
// Tony Hwang, Agustya Mehta, Dennis Ramdass
//
///////////////////////////////////////////////////////////////////////////////

/////////////////////////////////////////////////////////////////////////////
// :: Top level instantiation for labkit from template by Nathan Ickes :: //
/////////////////////////////////////////////////////////////////////////////
module synthesizer(beep, audio_reset_b, ac97_sdata_out, ac97_sdata_in,
        ac97_synch,     ac97_bit_clock, vga_out_red, vga_out_green, vga_out_blue,
        vga_out_sync_b, vga_out_blank_b, vga_out_pixel_clock, vga_out_hsync,
        vga_out_vsync, tv_out_ycrcb, tv_out_reset_b, tv_out_clock, tv_out_i2c_clock,
        tv_out_i2c_data, tv_out_pal_ntsc, tv_out_hsync_b, tv_out_vsync_b,
        tv_out_blank_b, tv_out_subcar_reset, tv_in_ycrcb, tv_in_data_valid,
        tv_in_line_clock1, tv_in_line_clock2, tv_in_aef, tv_in_hff, tv_in_aff,
        tv_in_i2c_clock, tv_in_i2c_data, tv_in_fifo_read, tv_in_fifo_clock,
        tv_in_iso, tv_in_reset_b, tv_in_clock, ram0_data, ram0_address, ram0_adv_ld,
        ram0_clk, ram0_cen_b, ram0_ce_b, ram0_oe_b, ram0_we_b, ram0_bwe_b,
        ram1_data, ram1_address, ram1_adv_ld, ram1_clk, ram1_cen_b, ram1_ce_b,
        ram1_oe_b, ram1_we_b, ram1_bwe_b, clock_feedback_out, clock_feedback_in,
        flash_data, flash_address, flash_ce_b, flash_oe_b, flash_we_b,
        flash_reset_b, flash_sts, flash_byte_b, rs232_txd, rs232_rxd, rs232_rts,
        rs232_cts, mouse_clock, mouse_data, keyboard_clock, keyboard_data,
        clock_27mhz, clock1, clock2, disp_blank, disp_data_out, disp_clock, disp_rs,
        disp_ce_b, disp_reset_b, disp_data_in, button0, button1, button2, button3,
        button_enter, button_right, button_left, button_down, button_up, switch,
        led, user1, user2, user3, user4, daughtercard, systemace_data,
        systemace_address, systemace_ce_b, systemace_we_b, systemace_oe_b,
        systemace_irq, systemace_mpbrdy, analyzer1_data, analyzer1_clock,
        analyzer2_data, analyzer2_clock, analyzer3_data, analyzer3_clock,
        analyzer4_data, analyzer4_clock);

        output beep, audio_reset_b, ac97_synch, ac97_sdata_out;
        input   ac97_bit_clock, ac97_sdata_in;
        output [7:0] vga_out_red, vga_out_green, vga_out_blue;
        output vga_out_sync_b, vga_out_blank_b, vga_out_pixel_clock, vga_out_hsync,
                        vga_out_vsync;
        output [9:0] tv_out_ycrcb;
        output tv_out_reset_b, tv_out_clock, tv_out_i2c_clock, tv_out_i2c_data,
                  tv_out_pal_ntsc, tv_out_hsync_b, tv_out_vsync_b, tv_out_blank_b,
                  tv_out_subcar_reset;
        input   [19:0] tv_in_ycrcb;
        input   tv_in_data_valid, tv_in_line_clock1, tv_in_line_clock2, tv_in_aef,
                  tv_in_hff, tv_in_aff;
        output tv_in_i2c_clock, tv_in_fifo_read, tv_in_fifo_clock, tv_in_iso,
                  tv_in_reset_b, tv_in_clock;
        inout   tv_in_i2c_data;
        inout   [35:0] ram0_data;
        output [18:0] ram0_address;
        output ram0_adv_ld, ram0_clk, ram0_cen_b, ram0_ce_b, ram0_oe_b,
ram0_we_b;
        output [3:0] ram0_bwe_b;
        inout   [35:0] ram1_data;
        output [18:0] ram1_address;
        output ram1_adv_ld, ram1_clk, ram1_cen_b, ram1_ce_b, ram1_oe_b,
ram1_we_b;
        output [3:0] ram1_bwe_b;
        input   clock_feedback_in;
        output clock_feedback_out;
        inout   [15:0] flash_data;
        output [23:0] flash_address;
        output flash_ce_b, flash_oe_b, flash_we_b, flash_reset_b, flash_byte_b;
        input   flash_sts;
        output rs232_txd, rs232_rts;
        input   rs232_rxd, rs232_cts;
        input   mouse_clock, mouse_data, keyboard_clock, keyboard_data;
        input   clock_27mhz, clock1, clock2;
        output disp_blank, disp_clock, disp_rs, disp_ce_b, disp_reset_b;
        input   disp_data_in;
        output   disp_data_out;
        input   button0, button1, button2, button3, button_enter, button_right,
                  button_left, button_down, button_up;
        input   [7:0] switch;
        output [7:0] led;
        inout [31:0] user1, user2, user3, user4;
        inout [43:0] daughtercard;
        inout   [15:0] systemace_data;
        output [6:0]   systemace_address;
        output systemace_ce_b, systemace_we_b, systemace_oe_b;
        input   systemace_irq, systemace_mpbrdy;
        output [15:0] analyzer1_data, analyzer2_data, analyzer3_data,
                  analyzer4_data;
        output analyzer1_clock, analyzer2_clock, analyzer3_clock, analyzer4_clock;

        //////////////////////////////////////////////////////////////////
```

```
// :: Assignments for all the stuff not used in this project :: //
//////////////////////////////////////////////////////////////////
assign vga_out_red = 10'h0;
assign vga_out_green = 10'h0;
assign vga_out_blue = 10'h0;
assign vga_out_sync_b = 1'b1;
assign vga_out_blank_b = 1'b1;
assign vga_out_pixel_clock = 1'b0;
assign vga_out_hsync = 1'b0;
assign vga_out_vsync = 1'b0;
assign tv_out_ycrcb = 10'h0;
assign tv_out_reset_b = 1'b0;
assign tv_out_clock = 1'b0;
assign tv_out_i2c_clock = 1'b0;
assign tv_out_i2c_data = 1'b0;
assign tv_out_pal_ntsc = 1'b0;
assign tv_out_hsync_b = 1'b1;
assign tv_out_vsync_b = 1'b1;
assign tv_out_blank_b = 1'b1;
assign tv_out_subcar_reset = 1'b0;
assign tv_in_i2c_clock = 1'b0;
assign tv_in_fifo_read = 1'b0;
assign tv_in_fifo_clock = 1'b0;
assign tv_in_iso = 1'b0;
assign tv_in_reset_b = 1'b0;
assign tv_in_clock = 1'b0;
assign tv_in_i2c_data = 1'bZ;
assign ram0_data = 36'hZ;
assign ram0_address = 19'h0;
assign ram0_adv_ld = 1'b0;
assign ram0_clk = 1'b0;
assign ram0_cen_b = 1'b1;
assign ram0_ce_b = 1'b1;
assign ram0_oe_b = 1'b1;
assign ram0_we_b = 1'b1;
assign ram0_bwe_b = 4'hF;
assign ram1_data = 36'hZ;
assign ram1_address = 19'h0;
assign ram1_adv_ld = 1'b0;
assign ram1_clk = 1'b0;
assign ram1_cen_b = 1'b1;
assign ram1_ce_b = 1'b1;
assign ram1_oe_b = 1'b1;
assign ram1_we_b = 1'b1;
assign ram1_bwe_b = 4'hF;
assign clock_feedback_out = 1'b0;
```

```
    assign flash_data = 16'hZ;
    assign flash_address = 24'h0;
    assign flash_ce_b = 1'b1;
    assign flash_oe_b = 1'b1;
    assign flash_we_b = 1'b1;
    assign flash_reset_b = 1'b0;
    assign flash_byte_b = 1'b1;
    assign rs232_txd = 1'b1;
    assign rs232_rts = 1'b1;
    assign disp_blank = 1'b1;
    assign disp_clock = 1'b0;
    assign disp_rs = 1'b0;
    assign disp_ce_b = 1'b1;
    assign disp_reset_b = 1'b0;
    assign disp_data_out = 1'b0;
    assign user1 = 32'hZ;
    assign user2 = 32'hZ;
    assign user3[31:8] = 24'b0000_0000_0000_0000_0000_0000;
    assign user4[30:16] = 15'b0000_0000_0000_000;
    assign daughtercard = 44'hZ;
    assign systemace_data = 16'hZ;
    assign systemace_address = 7'h0;
    assign systemace_ce_b = 1'b1;
    assign systemace_we_b = 1'b1;
    assign systemace_oe_b = 1'b1;
    assign beep = 1'b0;                 // we won't be using the AC97's beep signal


    //////////////////////////////////////////////////////////////////////
    // :: Begin assignment of signals actually used for this project :: //
    //////////////////////////////////////////////////////////////////////

    ////////////////////////////////////////////////////////////////////////////
//
// System Reset Generation (Adapted from 6.111 Lab 4, Fall 2006)
//
// A shift register primitive is used to generate an active-high reset
// signal that remains high for 16 clock cycles after configuration finishes
// and the FPGA's internal clocks begin toggling.
    //
    // This will be used to start up the AC97 codec and to calculate the seed
    // for random number generation (seed will be time from sysreset to reset).
//
////////////////////////////////////////////////////////////////////////////

wire sysreset;
```

```
SRL16 reset_sr (.D(1'b0), .CLK(clock_27mhz), .Q(sysreset),
          .A0(1'b1), .A1(1'b1), .A2(1'b1), .A3(1'b1));
defparam reset_sr.INIT = 16'hFFFF;

  // random number seed will be the number of clock cycles since the FPGA was
  // configured, modulo 2^16
  wire [15:0] seed;
  wire reset;
  wire slowclock;
  debounce resetsync(0, clock_27mhz, ~button_down, reset);

  randseed seed1(sys_reset, clock_27mhz, seed);

  divider d1(clock_27mhz, reset, slowclock);

  // reset controlled by down button


  // "ready" is an enable signal used to signify new AC97 frames
  wire ready;

  // buttons left, up, right, enter, 0, 1, 2, and 3 correspond to
  // do, re, mi, fa, so, la, ti, do when in demo mode    :)
  // used to adjust volume / sfx / key
  wire left, up, right, enter, three, two, one, zero;
  debounce debounce1(reset, clock_27mhz, ~button_left, left);
  debounce debounce2(reset, clock_27mhz, ~button_up, up);
  debounce debounce3(reset, clock_27mhz, ~button_right, right);
  debounce debounce4(reset, clock_27mhz, ~button_enter, enter);
  debounce debounce5(reset, clock_27mhz, ~button3, three);
  debounce debounce6(reset, clock_27mhz, ~button2, two);
  debounce debounce7(reset, clock_27mhz, ~button1, one);
  debounce debounce8(reset, clock_27mhz, ~button0, zero);

  // allow user to adjust volume
  wire vup,vdown;
  reg old_vup,old_vdown;

  assign vup = left;      // use these buttons to change volume
  assign vdown = right;

  reg [4:0] volume;

  always @ (posedge clock_27mhz) begin
       if (reset) volume <= 5'd16;
       else begin
```

```
            if (vup & ~old_vup & volume != 5'd31) volume <= volume+1;
            if (vdown & ~old_vdown & volume != 5'd0) volume <= volume-1;
        end
        old_vup <= vup;
        old_vdown <= vdown;
    end

    // 7 bit value for notes, and wires for input from algorithm block
    reg [6:0] note1, note2, note3, note4;
    wire [6:0] note1_in, note2_in, note3_in, note4_in, root;

    // Wires for algorithm: for # notes played at once, inversion state, and chord quality
    wire [1:0] notesperchord, inversion;
    wire [2:0] chordtype;

    // Use switch 7 to switch between demo mode and kalaedescope mode
    wire isgus;
    assign isgus = switch[7];

    // 14 bit "frequency" value -> number of samples to skip in 16384 sample
    // sine wave to produce the desired frequency for a given note, as given by
    // notes ROM
    wire [13:0] freq1, freq2, freq3, freq4;

    // 14 bit sample address computed by address module
    wire [13:0] addr1, addr2, addr3, addr4;

    // 18-bit audio signal for 4 waveforms (1 for each channel), their results after being
    // processed by the sound effects module, and their mixed reults sent to left and
right speaker
    wire [17:0] wave1, wave2, wave3, wave4, wave1fx, wave2fx, wave3fx, wave4fx,
                    wave_left, wave_right, wave1gus, wave2gus, wave3gus,
wave4gus, wave1sin, wave2sin,
                    wave3sin, wave4sin;

    // "audio" drives submodules ac97 and ac97commands to drive sound
    audio a(clock_27mhz, sysreset, volume, wave_left, wave_right, ready,
audio_reset_b,
              ac97_sdata_out, ac97_sdata_in, ac97_synch, ac97_bit_clock);

    // LED's 3 through 0 will be active when channels 1 through 4 (respectively) are
    // outputting sound (ie, their note value is not 0, as computed by reduction or-ing
    // the 7-bit note value for each channel.
    //
    // LED 7 will signify whether the system is using sin wave of gus voice by being
mapped to isgus
```

```
        wire isnote1, isnote2, isnote3, isnote4;
        assign isnote1 = (|note1);
        assign isnote2 = (|note2);
        assign isnote3 = (|note3);
        assign isnote4 = (|note4);

        assign led = ~{isgus, 3'b000, isnote4, isnote3, isnote2, isnote1};

        // "notes" is a ROM that has 128 14-bit "frequency" values to correspond to 127
        // notes on an equal tempred scale (starting with 0 = C0, 1 = C#0, ... 48 = C4, ...
etc)
        // An exception is that note 0 was changed from C0 to a frequency value of 0 to
signify
        // silence when no note is playing.   The address will be forced to zero, and the
sample ROM
        // will output a constant value.
        // The "frequency" output is equivalent to the number of samples to skip when
sampling from
        // the stored 16384 sample sine wave.
        notes notemem1(clock_27mhz, freq1, note1);
        notes notemem2(clock_27mhz, freq2, note2);
        notes notemem3(clock_27mhz, freq3, note3);
        notes notemem4(clock_27mhz, freq4, note4);

        // The address module uses the "frequency" value from noterom to compute new
sample addresses
        // every "ready" enable tick.   Address is set to 0 when note is 0 to signify silence;
otherwise
        // the address progresses by step of freq every ready pulse.   (Address will not
necessarily loop
        // back to 0 upon exceeding 16383 since the sampled sine wave loops around).
        address addy1(reset, clock_27mhz, ready, freq1, addr1);
        address addy2(reset, clock_27mhz, ready, freq2, addr2);
        address addy3(reset, clock_27mhz, ready, freq3, addr3);
        address addy4(reset, clock_27mhz, ready, freq4, addr4);

        // sine is a ROM that has 16384 18-bit samples of 1 period of a sine wave
        // The samples were calculated in MATLAB; the first was changed from -1 to 0 to
eliminate
        // DC offset when no note is playing (ie, address 0 is requested)
        // To sythesize different timbres, we could either sum together sine waves from this
ROM
        // that correspond to the harmonics of the desired timbre, or we could create a
16384-sample
        // ROM for 1 period of each timbre's waveform that we want to use.
        // gus is a rom that stores 16384 18-bit samples of 1 period of Agustya's voice
```

```
singing "Ah".
        // It is setup the same way as sine ROM.   A mux chooses which one to use.

        gusvoice gus1(clock_27mhz, wave1gus, addr1);
        gusvoice gus2(clock_27mhz, wave2gus, addr2);
        gusvoice gus3(clock_27mhz, wave3gus, addr3);
        gusvoice gus4(clock_27mhz, wave4gus, addr4);

        sine sin1(clock_27mhz, wave1sin, addr1);
        sine sin2(clock_27mhz, wave2sin, addr2);
        sine sin3(clock_27mhz, wave3sin, addr3);
        sine sin4(clock_27mhz, wave4sin, addr4);

        assign wave1 = isgus ? wave1sin : wave1gus;
        assign wave2 = isgus ? wave2sin : wave2gus;
        assign wave3 = isgus ? wave3sin : wave3gus;
        assign wave4 = isgus ? wave4sin : wave4gus;

        // sfx takes in the four waveforms and modifies them based on user input
        wire [16:0] topclip, bottomclip;
        // Due to the limit of switches and buttons, controls for sfx are a bit strange
        // When in keyboard mode, (playing sine wave) we have free switches.   We will
use
        // six switches to control the top and bottom clip values (three bits for each clip
limit).
        // When in chord mode, we have free buttons; we will use the six free buttons (top,
right,
        // enter, 0, 1 and 2) to control the top and bottom clip values.
        // We are limited in user inputs, so all channels will be affected identically with sfx.

        assign topclip = {~switch[6:4], 14'b11_1111_1111_1111};
        assign bottomclip = {switch[3:1], 14'd0};
        // when switches are all low or buttons are all off, no clipping should occur

        sfx fx1(reset, clock_27mhz, wave1, topclip, bottomclip, wave1fx);
        sfx fx2(reset, clock_27mhz, wave2, topclip, bottomclip, wave2fx);
        sfx fx3(reset, clock_27mhz, wave3, topclip, bottomclip, wave3fx);
        sfx fx4(reset, clock_27mhz, wave4, topclip, bottomclip, wave4fx);

        // mixer scales down its two inputs by 50% before summing them to avoid the
complications of
        // distortion from a signal that goes past the +/- limits of the 18-bit signal (clips)
        mixer2 mixleft(clock_27mhz, reset, wave1fx, wave3fx, wave_left);
        mixer2 mixright(clock_27mhz, reset, wave2fx, wave4fx, wave_right);

        // Code to control which notes go into the four channels;
        // in demo mode, the eight buttons on the labkit can be used as a mini-keyboard
        always @ (posedge clock_27mhz) begin   // switch to set "demo mode"; ie the 8
buttons
/*              if (isgus) begin                                // notes rather than the algorithm
block
                        if (left) note1 <= 7'd48;
                        else if (up) note1 <= 7'd50;      // Channels 1 through 4 are all used so
that
                        else note1 <= 0;                                        // multiple notes can be
played at once.
                        if (right) note2 <= 7'd52;                  // The way this is coded, pairs C/D,
E/F, G/A,
                        else if (enter) note2 <= 7'd53;   // and B/highC cannot be played
simultaneously
                        else note2 <= 0;                                        // A more robust code
would require either more
                        if (three) note3 <= 7'd55;                 // channels or significantly more
code; for
                        else if (two) note3 <= 7'd57;      // the purposes of demonstrating sound
synthesis,
                        else note3 <= 0;                                        // this is sufficient.
                        if (one) note4 <= 7'd59;
                        else if (zero) note4 <= 7'd60;
                        else note4 <= 0;
                end
                else */begin
                        note1 <= note1_in;
                        note2 <= note2_in;
                        note3 <= note3_in;
                        note4 <= note4_in;
                end
        end


        wire adc_clk;
        wire user_change;
        wire [2:0] chord_qual;
        wire [1:0] inv, npc;
        wire [3:0] tempo, delta;

        // allow user to change key
        wire [3:0] keypot;      // potentiometer value of key, not used
        reg [3:0] key;
        wire keyup, keydown;
        reg old_kup, old_kdown;
        assign rootup = zero;               // when in chord building mode, we'll use
```

```
    assign rootdown = enter;  // these buttons to shift the root up / down a half step

    always @ (posedge clock_27mhz) begin
        if (reset) key <= 4'd0;        // at reset, start in key of C
        else begin
            if (keyup & ~old_kup & key != 4'd11) key <= key + 1;                    //
button 0 - up half step
            if (keydown & ~old_kdown & key != 4'd0) key <= key - 1;    // button
enter - down half step
        end
        old_kup <= keyup;
        old_kdown <= keydown;
    end

    //assign root = 7'd48;
    divider2 d2(clock_27mhz, reset, adc_clk);

    assign user4[31] = adc_clk;

  input_interface i_i(adc_clk, reset, user4[7:0], user3[7:0], user4[15:8], delta, tempo,
keypot, user_change);

    wire [9:0] random;

    read_write rw1(slowclock, clock_27mhz, reset, user_change, tempo, delta, seed,
root, note_enable, random);

    //random_number2 random_chord(slowclock,reset,chord_qual,seed[7:0]);
    //random_number3 random_inversion(slowclock,reset,inv,seed[8:1]);
    //random_number3 random_npc(slowclock,reset,npc,seed[15:8]); //also notes per
chord

  //NoteQualityValues nqv(clock_27mhz, 3'd3, 2'd2, 2'd1, notesperchord, inversion,
chordtype, note_enable);

    assign notesperchord = switch[1:0];
    assign chordtype = 2;
    assign inversion = 0;

    // Arpeggiator takes in root note value from progression block and creates multiple
notes / chords
    // based upon desired input
    wire [6:0] rootshifted; // root shifted by key change
    assign rootshifted = root + key;

    arpeggiator chords(clock_27mhz, reset, notesperchord, chordtype, inversion,
rootshifted,
                                                    note1_in, note2_in, note3_in, note4_in);
    /*assign note1_in = root;
    assign note2_in = 0;
    assign note3_in = 0;
    assign note4_in = 0;*/

    // Logic Analyzer
    assign analyzer1_clock = clock_27mhz;
    assign analyzer1_data = wave_left[17:2];
    assign analyzer2_clock = 1'b1;
    assign analyzer2_data = 16'b0;
    assign analyzer3_data = wave_right[17:2];
    assign analyzer3_clock = ready;
    assign analyzer4_data = 16'h0;
    assign analyzer4_clock = 1'b1;

endmodule
```

READ_WRITE MODULE:

This module wires up the note generator, the rhythm generator and the octave generator. The output from these generators are written into FIFOs. The rhythm values are used to determine how often a note is read off the FIFO. The note read off the note FIFO is rescaled and output to the synthesizer

read_write.v

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:      22:16:44 05/10/2007
// Design Name:
// Module Name:      read_write
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////

//This module wires up the note generator, the rhythm generator and the octave
generator. The output from these
//generators are written into FIFOs. The rhythm values are used to determine how often
a note is read off the FIFO
//The note read off the note FIFO is rescaled and output to the synthesizer

module read_write(clock, clock_27mhz, reset, user_change, tempo, delta, seed,
scaled_note, note_enable, random);
input clock,reset,user_change,clock_27mhz;
input [3:0] tempo, delta;//, key;
input [15:0] seed;

output note_enable;
output [6:0] scaled_note;
output [9:0] random;
```

```
wire [2:0] input_note, next_note, output_note, output_rhythm;
wire [2:0] real_note;

wire [6:0] scaled_note;

wire generated_notes_stack_full, generated_notes_stack_almost_full,
generated_notes_stack_empty;
wire generated_octaves_stack_full, generated_octaves_stack_almost_full,
generated_octaves_stack_empty;
wire generated_rhythms_stack_full, generated_rhythms_stack_almost_full,
generated_rhythms_stack_empty;
wire octave_write,rhythm_write,note_write;

wire [5:0] generated_notes_read_ptr, generated_notes_write_ptr;

wire [5:0] generated_rhythms_read_ptr, generated_rhythms_write_ptr;

wire [5:0] generated_octaves_read_ptr, generated_octaves_write_ptr;

wire [4:0] input_octave, output_octave;
wire [2:0] note_data_out,dr_data_out;
wire [4:0] octave_data_out;
wire [5:0] note_data_ptr,octave_data_ptr,dr_data_ptr;
wire [2:0] input_rhythm,next_rhythm;
wire [5:0] note_history;

wire [9:0] d_r_prob1, d_r_prob2, d_r_prob3, d_r_prob4, d_r_prob5, d_r_prob6,
d_r_prob7,d_r_prob8;
wire [9:0] prob1, prob2, prob3, prob4, prob5, prob6, prob7;
//=333;

wire stack_clear;

wire rhythm_enable,rest_enable; //note_enable

assign stack_clear=user_change|reset;

number random_number(clock_27mhz,reset,random,seed);

randomsound r_s(reset,input_note,clock,prob1,prob2,prob3,prob4,prob5,prob6,prob7,

next_note,note_history,generated_notes_stack_full,note_write,random);

reweight
r_n(clock,reset,prob1,prob2,prob3,prob4,prob5,prob6,prob7,next_note,note_history,delt
a);


FIFO_Buffer generated_notes(clock, stack_clear, note_write, input_note,
~note_enable,output_note,

        generated_notes_stack_full,generated_notes_stack_almost_full,
                                                                generated_notes_stack_empty,
generated_notes_read_ptr,

        generated_notes_write_ptr,note_data_ptr, note_data_out);

DecideRhythm
d_r(reset,input_rhythm,clock,d_r_prob1,d_r_prob2,d_r_prob3,d_r_prob4,d_r_prob5,d_r
_prob6,d_r_prob7,d_r_prob8,

next_rhythm,generated_rhythms_stack_full,rhythm_write,random);

reweight_rhythms
r_r(clock,reset,d_r_prob1,d_r_prob2,d_r_prob3,d_r_prob4,d_r_prob5,d_r_prob6,d_r_pr
ob7,d_r_prob8,
                                                        next_rhythm,delta);


FIFO_Buffer generated_rhythms(clock, stack_clear, rhythm_write, input_rhythm,
~rhythm_enable,output_rhythm,

        generated_rhythms_stack_full,generated_rhythms_stack_almost_full,

        generated_rhythms_stack_empty,generated_rhythms_read_ptr,

        generated_rhythms_write_ptr,dr_data_ptr,dr_data_out);

Rhythm2Pulse r2p(clock, reset, output_rhythm, tempo, note_enable, rhythm_enable,
rest_enable);

defparam r2p.THIRTY_BPM = 200;
defparam r2p.TEMPO_FACTOR = 12;

DecideOctave d_o(clock, reset,generated_octaves_stack_full,
generated_octaves_stack_almost_full,
                                            generated_notes_read_ptr, generated_notes_write_ptr,
generated_octaves_write_ptr, octave_data_out,

note_data_out,octave_data_ptr,note_data_ptr,input_octave, octave_write);
```

```
FIFO_Buffer generated_octaves(clock, stack_clear, octave_write, input_octave,
~note_enable,output_octave,
        generated_octaves_stack_full,generated_octaves_stack_almost_full,
        generated_octaves_stack_empty,generated_octaves_read_ptr,
        generated_octaves_write_ptr,octave_data_ptr,octave_data_out);
defparam generated_octaves.stack_width=5;
assign real_note=(rest_enable)?0:output_note;
Convert2NoteValue c2nv(real_note, 5'd7, scaled_note);
endmodule
```

FIFO MODULE

This module implements the functionality of a generic FIFO buffer but also outputs its pointers as well as allows "data peeking" i.e. it allows data to be accessed at specified locations (other than the top of the stack) without removing them from the stack

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:    15:24:25 05/10/2007
// Design Name:
// Module Name:    FIFO_Buffer
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////

//This module implements the functionality of a generic FIFO buffer but also outputs its
pointers as well as
//allows "data peeking" i.e. it allows data to be accessed at specified locations (other
than the top of the stack)
//without removing them from the stack
module FIFO_Buffer(clock, stack_clear, write_to_stack, data_in, read_from_stack,
data_out,
                                        stack_full, stack_almost_full, stack_empty, read_ptr,
write_ptr,
                                        peek_data_ptr, peek_data_out);

//Dimensions of the stack made parametrisable
parameter stack_width= 3;
parameter stack_height= 64;
parameter stack_ptr_width= 6;
parameter AF_level= 60;
```

```
input clock;
input stack_clear; //clears stack
input write_to_stack, read_from_stack;//read/write signals for stack
input [stack_width-1:0] data_in;//data to be written
input [stack_ptr_width-1:0] peek_data_ptr;//peek data pointer

output stack_full, stack_almost_full, stack_empty;//signals to signal when the stack is
full, almost full and empty
output [stack_width-1:0] data_out;//data read off from stack
output [stack_width-1:0] peek_data_out;//peek data output
output [stack_ptr_width-1:0] read_ptr,write_ptr;//output stack pointers

reg[stack_ptr_width-1:0] read_ptr, write_ptr;
reg[stack_ptr_width:0] ptr_gap; // Gap between the pointers
reg[stack_width-1:0] data_out,peek_data_out;
reg[stack_width:0] stack [stack_height-1:0];

// stack status signals
assign stack_full = (ptr_gap == stack_height);
assign stack_almost_full = (ptr_gap >= AF_level);
assign stack_empty = (ptr_gap == 0);

always @(posedge clock)
begin
    if (stack_clear)
    begin
        data_out <= 0;
        read_ptr <= 0;
        write_ptr <= 0;
        ptr_gap <= 0;
        peek_data_out <= 0;
    end
    else
    begin
        peek_data_out<= stack [peek_data_ptr];
        if (write_to_stack && (!read_from_stack) && (!stack_full))
        begin
            stack [write_ptr] <= data_in;
            write_ptr<= write_ptr+ 1;
            ptr_gap <=ptr_gap + 1;
        end
        else
        if ((!write_to_stack) && read_from_stack && (!stack_empty))
        begin
            data_out <= stack[read_ptr];
            read_ptr <= read_ptr+ 1;
            ptr_gap <= ptr_gap -1;
        end
        else
        if (write_to_stack && read_from_stack && stack_empty)
        begin
            stack [write_ptr] <= data_in;
            write_ptr<= write_ptr+ 1;
            ptr_gap <= ptr_gap + 1;
        end
        else
        if (write_to_stack && read_from_stack && stack_full)
        begin
            data_out <= stack[read_ptr];
            read_ptr<= read_ptr+ 1;
            ptr_gap <=ptr_gap -1;
        end
        else
        if (write_to_stack && read_from_stack && (!stack_empty) && (!stack_full))
        begin
            stack [write_ptr] <= data_in;
            data_out <= stack[read_ptr];
            write_ptr<= write_ptr+ 1;
            read_ptr <= read_ptr+ 1;
        end
    end
end

endmodule
```

RANDOM NUMBER MODULE

This module generates a 10-bit random number using a Linear Feedback Shift Register (LFSR) of size 16 bits. This random number generation takes 10 clock cycles of the clock_27mhz

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:      19:25:37 05/14/2007
// Design Name:
// Module Name:      number
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////

//This module generates a 10-bit random number using a Linear Feedback Shift
Register (LFSR) of size 16 bits.
//This random number generation takes 10 clock cycles of the clock_27mhz
module number(clock,reset,out,seed);
input clock,reset;
input [15:0] seed;
output [9:0] out;
reg [9:0] out;
reg [4:0] count;

reg [9:0] temp;
reg load,seed_success;
reg [15:0] seed_reg;
wire sd1,new_seed;


always@(posedge clock)
begin
```

```
    if (reset)
    begin
        out<=10'b0100_01000_11;
        count<=0;
        load<=1;
        seed_reg<=seed;
        seed_success<=0;
    end
    else
    begin
        if (new_seed||seed_success)
        begin
            seed_success<=1;
            load<=0;
            if (count==10)
            begin
                out<=temp;
                count<=0;
                temp<=10'b0000_0000_00;
            end
            else
            begin
                temp[9:1]<=temp[8:0];
                temp[0]<=sd1;
                count<=count+1;
            end
        end
    end
end

r2 random1(clock,sd1,load,seed_reg,new_seed);

endmodule
```

Coregen LFSR

```
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*******************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).
// You must compile the wrapper file r1.v when simulating
// the core, r1. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Help".

`timescale 1ns/1ps

module r1(
        clk,
        sd_out,
        load,
        pd_in,
        new_seed);


input clk;
output sd_out;
input load;
input [15 : 0] pd_in;
output new_seed;

// synopsys translate_off

         LFSR_V3_0 #(
                "1111111111111111",     // c_ainit_val
                0,      // c_enable_rlocs
                0,      // c_gate
                0,      // c_has_ainit
                0,      // c_has_ce
                0,      // c_has_data_valid
                1,      // c_has_load
                0,      // c_has_load_taps
                1,      // c_has_new_seed
                1,      // c_has_pd_in
                0,      // c_has_pd_out
                0,      // c_has_sd_in
                1,      // c_has_sd_out
                0,      // c_has_sinit
                0,      // c_has_taps_in
                0,      // c_has_term_cnt
                0,      // c_implementation
                1,      // c_max_len_logic
                0,      // c_max_len_logic_type
                "1111111111111111",     // c_sinit_val
                16,     // c_size
        "0001000000001011",     // c_tap_pos
        0)    // c_type
    inst (
        .CLK(clk),
        .SD_OUT(sd_out),
        .LOAD(load),
        .PD_IN(pd_in),
        .NEW_SEED(new_seed),
        .PD_OUT(),
        .SD_IN(),
        .CE(),
        .DATA_VALID(),
        .LOAD_TAPS(),
        .TAPS_IN(),
        .SINIT(),
        .AINIT(),
        .TERM_CNT());


// synopsys translate_on

// FPGA Express black box declaration
// synopsys attribute fpga_dont_touch "true"
// synthesis attribute fpga_dont_touch of r1 is "true"

// XST black box declaration
// box_type "black_box"
// synthesis attribute box_type of r1 is "black_box"

endmodule
```

RANDOM SOUND MODULE

This module generates a series of notes the system intends to play. It uses an FSM to transition from note to note based on preset probabilities reweighted by the user's "randomness" input (done by reweight module)

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:    22:44:30 05/07/2007
// Design Name:
// Module Name:    randomsound
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////

//This module generates a series of notes the system intends to play. It uses an FSM to
transition from note to note
//based on preset probabilities reweighted by the user's "randomness" input (done by
reweight module)

module
randomsound(reset,note,clock,prob1,prob2,prob3,prob4,prob5,prob6,prob7,next,history,
generated_notes_stack_full,data_ready,random);
input reset,clock,generated_notes_stack_full;
output data_ready;
input [9:0] random;
input [9:0] prob1, prob2, prob3, prob4, prob5, prob6, prob7; //from reweight module
output [2:0] note; //note system intends to play
output [2:0] next; //used in reweight module to generate new probabilities based on
state
output [5:0] history; //used in reweight module to reweight probabilities
```

```
reg [2:0] state, note;
reg [5:0] history;
reg [9:0] random_reg;
reg data_ready;

parameter IDLE =0;
parameter ONE = 1;
parameter TWO = 2;
parameter THREE = 3;
parameter FOUR = 4;
parameter FIVE = 5;
parameter SIX = 6;
parameter SEVEN = 7;

always@(posedge clock)
begin
        if (reset)
        begin
                note<=ONE;
                state<=ONE;
                if (random>1000) random_reg<=random-1000;
                else  random_reg<=random;
                history[2:0]<=ONE;
                history[5:3]<=0;
        end
        else
        begin
                if (!generated_notes_stack_full)
                begin
                        note<=next;
                        history[5:3]<=history[2:0];
                        history[2:0]<=next;
                        data_ready<=1;
                        state<=next;
                        if (random>prob1+prob2+prob3+prob4+prob5+prob6+prob7)
                        begin

        random_reg<=random-(prob1+prob2+prob3+prob4+prob5+prob6+prob7);
                        end
                        else
                        begin
                                random_reg<=random;
                        end
                end
                else
                begin
```

```
            data_ready<=0;
        end
    end
end

assign next=(((random_reg>=1)&&(random_reg<prob1))||reset)?ONE:
                ((random_reg>=prob1)&&(random_reg<prob1+prob2))?TWO:

    ((random_reg>=prob1+prob2)&&(random_reg<prob1+prob2+prob3))?THREE:

    ((random_reg>=prob1+prob2+prob3)&&(random_reg<prob1+prob2+prob3+prob4)
)?FOUR:

    ((random_reg>=prob1+prob2+prob3+prob4)&&(random_reg<prob1+prob2+prob3+
prob4+prob5))?FIVE:

    ((random_reg>=prob1+prob2+prob3+prob4+prob5)&&(random_reg<prob1+prob2+
prob3+prob4+prob5+prob6))?SIX:

    ((random_reg>=prob1+prob2+prob3+prob4+prob5+prob6)&&(random_reg<prob1+
prob2+prob3+prob4+prob5+prob6+prob7))?SEVEN:ONE;

endmodule
```

REWEIGHT MODULE

This module linearly reweights the preset probabilities of note transitions based on the user "randomness" input

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:      14:33:44 05/09/2007
// Design Name:
// Module Name:      reweight
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////

//This module linearly reweights the preset probabilities of note transitions based on the
user "randomness" input
module
reweight(clock,reset,prob1,prob2,prob3,prob4,prob5,prob6,prob7,note,history,delta);
input clock,reset;
input [2:0] note;
input [5:0] history;
input [3:0] delta;
output [9:0] prob1, prob2, prob3, prob4, prob5, prob6, prob7;

reg [9:0] prob1, prob2, prob3, prob4, prob5, prob6, prob7;
reg [2:0] next;

//parameters denoting different notes
parameter IDLE =0;
parameter ONE = 1;
parameter TWO = 2;
parameter THREE = 3;
parameter FOUR = 4;
parameter FIVE = 5;
parameter SIX = 6;
parameter SEVEN = 7;


always@(posedge clock)
begin
        if (reset) next<=ONE;
        else next<=note;
end


always@*
begin
        case(next)

                ONE:
                begin

        prob1=140;prob2=140;prob3=140;prob4=140;prob5=140;prob6=140;prob7=140;
                end

                TWO:
                begin

        prob1=140-(6*delta);prob2=140-(6*delta);prob3=140-(6*delta);prob4=140-(6*delta)
;
                        prob5=140+(36*delta);prob6=140-(6*delta);prob7=140-(6*delta);
                end

                THREE:
                begin

        prob1=140-(10*delta);prob2=140-(10*delta);prob3=140-(10*delta);prob4=140+(16*
delta);
                        prob5=140-(10*delta);prob6=140+(36*delta);prob7=140-(10*delta);
                end

                FOUR:
                begin

        prob1=140+(26*delta);prob2=140-(8*delta);prob3=140-(8*delta);prob4=140-(8*delt
a);
                        prob5=140+(16*delta);prob6=140-(8*delta);prob7=140-(8*delta);
                end
        FIVE:
        begin

    prob1=140+(36*delta);prob2=140-(11*delta);prob3=140+(16*delta);prob4=140-(4*
delta);
            prob5=140-(11*delta);prob6=140-(11*delta);prob7=140-(11*delta);
        end

        SIX:
        begin

    prob1=140-(7*delta);prob2=140-(7*delta);prob3=140+(11*delta);prob4=140-(7*delt
a);
            prob5=140+(26*delta);prob6=140-(7*delta);prob7=140-(7*delta);
        end

        SEVEN:
        begin

    prob1=140+(36*delta);prob2=140-(12*delta);prob3=140-(12*delta);prob4=140+(36
*delta);
            prob5=140-(12*delta);prob6=140-(12*delta);prob7=140-(12*delta);
        end

        default:
        begin

    prob1=140;prob2=140;prob3=140;prob4=140;prob5=140;prob6=140;prob7=140;
        end


    endcase

    if ((history[5:3]==ONE)||(history[2:0]==ONE)) prob1=0;
    if ((history[5:3]==TWO)||(history[2:0]==TWO)) prob2=0;
    if ((history[5:3]==THREE)||(history[2:0]==THREE)) prob3=0;
    if ((history[5:3]==FOUR)||(history[2:0]==FOUR)) prob4=0;
    if ((history[5:3]==FIVE)||(history[2:0]==FIVE)) prob5=0;
    if ((history[5:3]==SIX)||(history[2:0]==SIX)) prob6=0;
    if ((history[5:3]==SEVEN)||(history[2:0]==SEVEN)) prob7=0;
end


endmodule
```

DECIDE RHTHYM MODULE

This module generates a series of rhythms the system intends to use. It uses an FSM to transition between rhythms based on preset probabilities reweighted by the user's "randomness" input (done by reweight_rhythms module)

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:    20:19:54 05/13/2007
// Design Name:
// Module Name:    DecideRhythm
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////


//This module generates a series of rhythms the system intends to use. It uses an FSM to transition between rhythms
//based on preset probabilities reweighted by the user's "randomness" input (done by reweight_rhythms module)
module DecideRhythm(reset,rhythm,clock,prob1,prob2,prob3,prob4,prob5,prob6,prob7,prob8,next_rhythm,generated_rhythms_stack_full,rhythm_write,random);
input reset,clock,generated_rhythms_stack_full;

input [9:0] prob1, prob2, prob3, prob4, prob5, prob6, prob7,prob8,random; //from reweight module
output [2:0] rhythm; //rhythm system intends to play
output [2:0] next_rhythm; //used in reweight module to generate new probabilities based on state
output rhythm_write;//goes high when the rhythm should be written to the FIFO

reg [2:0] state,   rhythm;
reg [9:0] random_reg;
reg rhythm_write;

////parameters denoting different rhythms
parameter Q =0;
parameter E = 1;
parameter DE_S = 2;
parameter S_DE = 3;
parameter S = 4;
parameter QR = 5;
parameter ER_E = 6;
parameter E_ER = 7;

always@(posedge clock)
begin
    if (reset)
    begin
        rhythm<=Q;
        if (random>1000) random_reg<=random-1000; //rescale to a value between 0
and 1000
        else  random_reg<=random;
    end
    else
    begin
        if (!generated_rhythms_stack_full) //only write when FIFO is not full
        begin
            rhythm<=next_rhythm;
            rhythm_write<=1;
            state<=next_rhythm;
            if (random>prob1+prob2+prob3+prob4+prob5+prob6+prob7+prob8)
            begin

    random_reg<=random-(prob1+prob2+prob3+prob4+prob5+prob6+prob7+prob8);
            end
            else
            begin
                random_reg<=random;
            end
        end
        else
            rhythm_write<=0;
    end
end


assign next_rhythm=   (((random_reg>=1)&&(random_reg<prob1))||reset)?Q:
        ((random_reg>=prob1)&&(random_reg<prob1+prob2))?E:

        ((random_reg>=prob1+prob2)&&(random_reg<prob1+prob2+prob3))?DE_S:

        ((random_reg>=prob1+prob2+prob3)&&(random_reg<prob1+prob2+prob3+prob4)
)?S_DE:

        ((random_reg>=prob1+prob2+prob3+prob4)&&(random_reg<prob1+prob2+prob3+
prob4+prob5))?S:

        ((random_reg>=prob1+prob2+prob3+prob4+prob5)&&(random_reg<prob1+prob2+
prob3+prob4+prob5+prob6))?QR:

        ((random_reg>=prob1+prob2+prob3+prob4+prob5+prob6)&&(random_reg<prob1+
prob2+prob3+prob4+prob5+prob6+prob7))?ER_E:

        ((random_reg>=prob1+prob2+prob3+prob4+prob5+prob6+prob7)&&(random_reg<
prob1+prob2+prob3+prob4+prob5+prob6+prob7+prob8))?E_ER:Q;

endmodule
```

REWEIGHT RHTHYMS MODULE

This module linearly reweights the preset probabilities of rhthym transitions based on the user "randomness" input

```
`timescale 1ns / 1ps
//////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:      20:28:40 05/13/2007
// Design Name:
// Module Name:      reweight_rhythms
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
//////////////////////////////////////////////////////////////////////////////////
//This module linearly reweights the preset probabilities of rhthym transitions based on
the user "randomness" input
module
reweight_rhythms(clock,reset,prob1,prob2,prob3,prob4,prob5,prob6,prob7,prob8,rhyth
m,delta);
input clock,reset;
input [2:0] rhythm;

input [3:0] delta;
output [9:0] prob1, prob2, prob3, prob4, prob5, prob6, prob7,prob8;

reg [9:0] prob1, prob2, prob3, prob4, prob5, prob6, prob7, prob8;
reg [2:0] next_rhythm;

//parameters denoting different rhythms
parameter Q =0;
parameter E = 1;
parameter DE_S = 2;
parameter S_DE = 3;
parameter S = 4;
parameter QR = 5;
parameter ER_E = 6;
parameter E_ER = 7;

always@(posedge clock)
begin
        if (reset) next_rhythm<=Q;
        else next_rhythm<=rhythm;
end


always@*
begin
        case(next_rhythm)

                Q:
                begin
                        prob1=125+delta*6
        ;prob2=125+delta*2;prob3=125+delta*2;prob4=125-delta*5;
                        prob5=125+delta*2;prob6=125-delta*5;prob7=125-delta;
prob8=125-delta;
                end

                E:
                begin

        prob1=125+(6*delta);prob2=125+(2*delta);prob3=125+(2*delta);prob4=125-(4*delt
a);
                        prob5=125-delta;prob6=125-(8*delta);prob7=125-(8*delta);
prob8=125-delta;
                end

                DE_S:
                begin

        prob1=125+(8*delta);prob2=125+(5*delta);prob3=125+(5*delta);prob4=125-(4*delt
a);
                        prob5=125-delta;prob6=125-(8*delta);prob7=125-(8*delta);
prob8=125-delta;
                end

                S_DE:
                begin

        prob1=125+(4*delta);prob2=125;prob3=125+(4*delta);prob4=125+(4*delta);
        prob5=125;prob6=125-(4*delta);prob7=125-(4*delta);prob8=125-(4*delta);
                end

                S:
                begin

        prob1=125+(7*delta);prob2=125-(5*delta);prob3=125+(3*delta);prob4=125-(5*delt
a);

        prob5=125+(7*delta);prob6=125-(5*delta);prob7=125-(5*delta);prob8=125;
                end

                QR:
                begin

        prob1=125+(2*delta);prob2=125+(2*delta);prob3=125+(2*delta);prob4=125+(2*delt
a);

        prob5=125-(2*delta);prob6=125-(7*delta);prob7=125-(2*delta);prob8=125-(7*delta)
;
                end

                ER_E:
                begin

        prob1=125+(4*delta);prob2=125;prob3=125+(4*delta);prob4=125-(8*delta);

        prob5=125;prob6=125-(8*delta);prob7=125+(4*delta);prob8=125+(4*delta);
                end

                E_ER:
                begin

        prob1=125+(2*delta);prob2=125+(2*delta);prob3=125+(2*delta);prob4=125-(7*delt
a);

        prob5=125+(2*delta);prob6=125-(9*delta);prob7=125+(2*delta);prob8=125+(2*delt
a);
                end


                default:
                begin

        prob1=125;prob2=125;prob3=125;prob4=125;prob5=125;prob6=125;prob7=125;
                end
```

```
          endcase
      end


endmodule
```

DECIDE OCTAVE MODULE

This module looks at note values generated by the system that have not been played yet to determine which octave they should be played in.

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:    23:07:55 05/10/2007
// Design Name:
// Module Name:    DecideOctave
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////

//This module looks at note values generated by the system that have not been played
yet to determine which octave
//they should be played in
module DecideOctave(clock, reset, stack_full, stack_almost_full,
                                        note_read_pointer, note_write_pointer,
octave_write_pointer, peep_octave_data, peep_note_data,
                                           peep_octave_pointer,peep_note_pointer,
                                           write_data, write_signal);

input clock, reset;

parameter notesperbar=4; // number of notes per bar

input stack_full; // full when octave history is full
input stack_almost_full; //when the stack only has 4 more available spots
input [5:0] note_read_pointer, octave_write_pointer, note_write_pointer; //pointer inputs
from the note and octave stacks

input [2:0] peep_note_data; //data accessed from the note stack not at the top of the
```

```
stack
input [4:0] peep_octave_data;//data accessed from the octave stack not at the top of the
stack
output [5:0] peep_note_pointer,peep_octave_pointer;//pointers to locations in the note
and octave stacks that need
//to be accessed

output [4:0] write_data;//octave to write to the octave stack
output write_signal;//signal to write octave to the octave stack

//characteristics used in formula

reg [5:0] note_variation_sum=0;
reg [5:0] delta_variation_sum =6;
reg [5:0] octave_variation_sum=0;
reg [12:0] unscaled_octave_change=0;
reg [5:0] peep_note_pointer,peep_octave_pointer;

reg [4:0] write_data;
reg write_signal,new;

reg [4:0] count;//a count of how long each state should remain in that state before it
transitions out of the state

reg [2:0] state,next;//system states

//stacks of notes and octaves we need to examine to decide corresponding octaves
reg [2:0] Generated_Notes [8:0];
reg [4:0] Generated_Octaves [8:0];

parameter INITIALISATION=0;
parameter FILL_STACK=1;
parameter SUM_DELTAS_AND_NOTES=2;
parameter GENERATE_OCTAVES=3;
parameter WRITE_STATE=4;

always @ (posedge clock)
begin
        if(reset)
        begin
                state<=INITIALISATION;
                count<=0;
        end
        else
        begin
                if (!new) count<=count+1;
        else count<=0;
        state<=next;
    end
end

always@*
begin

    case(state)

        INITIALISATION://the first 4 octaves in the system after reset get written to a
constant value "5"
        begin
            if (!(count==notesperbar))
            begin
                next=INITIALISATION;
                write_data=5;
                write_signal=1;
                new=0;
            end
            else
            begin //time to leave state
                next=FILL_STACK;
                new=1;//signals we should head to anotehr state
            end
        end

        FILL_STACK: //fill our own copies of a notes stack and octaves stack with
values
        //we need to look at to determine octaves
        begin
            note_variation_sum = 0;
            delta_variation_sum =6;
            octave_variation_sum =0;
            write_signal=0;
            if (!(count==notesperbar+1))
            begin
                next=FILL_STACK;
                peep_note_pointer=octave_write_pointer+count;
                Generated_Notes[count]=peep_note_data;
                peep_octave_pointer=octave_write_pointer+count-notesperbar;
                Generated_Octaves[count]=peep_octave_data;
                new=0;
            end
            else
            begin
```

```
                next=SUM_DELTAS_AND_NOTES;
                new=1;
            end
        end

        SUM_DELTAS_AND_NOTES://calculate some measures of variation
        begin
            write_signal=0;
            if (!(count==notesperbar-1))
            begin
                next=SUM_DELTAS_AND_NOTES;
                if (Generated_Notes[count+1] > Generated_Notes[count])
                            delta_variation_sum = delta_variation_sum
+(Generated_Notes[count+1]-Generated_Notes[count]);
                else if (Generated_Notes[count+1]< Generated_Notes[count])
                            delta_variation_sum = delta_variation_sum
-(Generated_Notes[count]-Generated_Notes[count+1]);
                note_variation_sum =
note_variation_sum+Generated_Notes[count];
                new=0;
            end
            else
            begin
                next=GENERATE_OCTAVES;
                new=1;
            end
        end

        GENERATE_OCTAVES://use formula to determine octaves
        begin
            if (Generated_Octaves[notesperbar] >
Generated_Octaves[notesperbar])

    octave_variation_sum=1+octave_variation_sum+2*(Generated_Octaves[notesper
bar]-Generated_Octaves[notesperbar]);
            else

    octave_variation_sum=1+octave_variation_sum+(Generated_Octaves[notesperbar
]-Generated_Octaves[notesperbar]);
            if (Generated_Octaves[notesperbar] > Generated_Octaves[0])

    octave_variation_sum=1+octave_variation_sum+2*(Generated_Octaves[notesper
bar]- Generated_Octaves[0]);
            else

    octave_variation_sum=1+octave_variation_sum+(Generated_Octaves[0]-Generate
d_Octaves[notesperbar]);

            //scale the sums
            note_variation_sum = (note_variation_sum*4)-12;
            delta_variation_sum = delta_variation_sum*9;
            octave_variation_sum = octave_variation_sum * 25;

            //octave calculation equation (out of approx. 300)
            unscaled_octave_change = 2 * note_variation_sum +
4*delta_variation_sum + 4*octave_variation_sum;

            if((unscaled_octave_change>= 0) && (unscaled_octave_change<250))
            begin
                if ((Generated_Octaves[notesperbar])<=3)
                    write_data=Generated_Octaves[notesperbar];
                else
                    write_data=Generated_Octaves[notesperbar]-1;
            end
            if((unscaled_octave_change>500) &&
(unscaled_octave_change<=1000))
            begin
                if ((Generated_Octaves[notesperbar] +1)>9)
                    write_data=Generated_Octaves[notesperbar];
                else
                    write_data=Generated_Octaves[notesperbar]+1;
            end
            new=1;
            next=WRITE_STATE;
        end

        WRITE_STATE://write the corresponding octaves for the next 4 notes
        begin
            if (!(count==notesperbar))
            begin
                next=WRITE_STATE;
                write_signal=1;
                new=0;
            end
            else
            begin
                next=FILL_STACK;
                write_signal=0;
                new=1;
            end
        end
    endcase
```

```
end

endmodule
```

RHYTHYM TO PULSE

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:    15:07:56 05/14/2007
// Design Name:
// Module Name:    Rhythm2Pulse
// Project Name:
// Target Devices:
// Tool versions:
// Description: Takes a number from DecideRhythm and translates it into a delay
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////
module Rhythm2Pulse(clock, reset, rhythm, tempo, note_enable,
rhythm_enable,rest_enable);

//rhythm from rhythm stack, tempo from user input (0 to 10 corresponding to 30 to 130
bpm)
input [2:0] rhythm;
input [3:0] tempo;
input clock, reset;

output note_enable, rhythm_enable,rest_enable;
reg note_enable, rhythm_enable, rest_enable;
reg [25:0] count, quarter, eighth, sixteenth;

parameter Q = 0;
parameter E = 1;
parameter DE_S =2;
parameter S_DE= 3;
parameter S = 4;
parameter QR=5;
parameter ER_E=6;
parameter E_ER=7;
parameter THIRTY_BPM = 5400000;
parameter TEMPO_FACTOR = 415530;
```

```
always @ (posedge clock)
begin
    //determine a quarter beat duration
    quarter <= THIRTY_BPM - TEMPO_FACTOR*tempo;
    eighth <= quarter/2;
    sixteenth <= eighth/2;

    if(reset)
    begin
        count <= 0;
        note_enable <=0;
        rhythm_enable<=0;
        rest_enable<=0;
    end
    else
        case(rhythm)
            Q:
            begin
                        rest_enable<=0;
                        if(count<quarter)
                        begin
                            count <= count + 1;
                            note_enable<= 1;
                            rhythm_enable <= 1;
                        end
                        else if (count == quarter)
                        begin
                            note_enable <= 0;
                            rhythm_enable <= 0;
                            count<= 0;
                        end
            end

            E:
            begin
                        rest_enable<=0;
                        if(count<quarter)
                        begin
                            if(count<eighth)
                                note_enable<=1;
                            else if (count == eighth)
                                note_enable<=0;
                            else if (count > eighth)
                                note_enable<=1;
                            rhythm_enable<=1;
                            count<=count+1;
                        end
                        else if (count == quarter)
                        begin
                            note_enable<= 0;
                            rhythm_enable <= 0;
                            count <= 0;
                        end
            end

            DE_S:
            begin
                        rest_enable<=0;
                        if(count<quarter)
                        begin
                            if(count<eighth+sixteenth)
                                note_enable<=1;
                            else if (count == eighth + sixteenth)
                                note_enable<=0;
                            else if (count > eighth + sixteenth)
                                note_enable<=1;
                            rhythm_enable<=1;
                            count<=count+1;
                        end
                        else if (count == quarter)
                        begin
                            note_enable <=0;
                            rhythm_enable <=0;
                            count <= 0;
                        end
            end

            S_DE:
            begin
                        rest_enable<=0;
                        if(count<quarter)
                        begin
                            if(count<sixteenth)
                                note_enable<=1;
                            else if(count==sixteenth)
                                note_enable<=0;
                            else if(count>sixteenth)
                                note_enable<=1;
                            rhythm_enable<=1;
                            count<=count+1;
                        end
                        else if (count == quarter)
                        begin
                            note_enable <=0;
                            rhythm_enable <=0;
                            count <= 0;
                        end
            end

            S:
            begin
                        rest_enable<=0;
                        if (count<quarter)
                        begin
                            if(count<sixteenth)
                            note_enable<=1;
                            else if (count==sixteenth)
                            note_enable<=0;
                            else if (count<eighth)
                            note_enable<=1;
                            else if (count==eighth)
                            note_enable<=0;
                            else if (count<eighth+sixteenth)
                            note_enable<=1;
                            else if (count==eighth+sixteenth)
                            note_enable<=0;
                            else if (count< quarter)
                            note_enable<=1;
                        rhythm_enable<=1;
                        count<=count+1;
                        end
                        else if (count == quarter)
                        begin
                            note_enable<=0;
                            rhythm_enable<=0;
                            count<=0;
                        end
            end

            QR:
            begin
                        rest_enable<=0;
                        if(count<quarter)
                        begin
                            note_enable<=1;
                            rhythm_enable<=1;
                            rest_enable <=1;
                            count<=count+1;

                        end
                        else if (count== quarter)
                        begin
                            note_enable<=0;
                            rhythm_enable<=0;
                            rest_enable<=0;
                            count<=0;
                        end
            end

            ER_E:
            begin
                        rest_enable<=0;
                        if(count<quarter)
                        begin
                            if(count<eighth)
                            begin
                                note_enable<=1;
                                rest_enable<=1;
                            end
                            else if(count>=eighth)
                            begin
                                note_enable<=1;
                                rest_enable<=0;
                            end
                            rhythm_enable<=1;
                            count<=count+1;
                        end
                        else if (count== quarter)
                        begin
                            note_enable<=0;
                            rhythm_enable<=0;
                            rest_enable<=0;
                            count<=0;
                        end
            end
            E_ER:
            begin
                        rest_enable<=0;
                        if(count<quarter)
                        begin
                            if(count<eighth)
                                note_enable<=1;
                            else if(count>=eighth)
```

```
                            begin
                                note_enable<=1;
                                rest_enable<=1;
                            end
                            rhythm_enable<=1;
                            count<=count+1;
                        end
                        else if(count==quarter)
                        begin
                            note_enable<=0;
                            rhythm_enable<=0;
                            rest_enable<=0;
                            count<=0;
                        end
            end
            endcase
end

endmodule
```

CONVERT TO NOTE VALUE MODULE

This module calculates a scaled note(on a scale of 0 to 127) based on a note value from 1 to 7 and an octave value 0 to 16

```
`timescale 1ns / 1ps
////////////////////////////////////////////////////////////////////////////////
// Company:
// Engineer:
//
// Create Date:    00:28:27 05/15/2007
// Design Name:
// Module Name:    Convert2NoteValue
// Project Name:
// Target Devices:
// Tool versions:
// Description:
//
// Dependencies:
//
// Revision:
// Revision 0.01 - File Created
// Additional Comments:
//
////////////////////////////////////////////////////////////////////////////////
//This module calculates a scaled note(on a scale of 0 to 127) based on a note value
from 1 to 7 and an octave
//value 0 to 16
module Convert2NoteValue(note, octave, scaled_note);

input [2:0] note;
input [4:0] octave;
//input [3:0] key;

output[6:0] scaled_note;
// notes 1-7 on the note scale actually are whole steps apart, so convert them
wire[6:0] intermediate_note =
(note==1)?1:(note==2)?3:(note==3)?5:(note==4)?6:(note==5)?8:(note==6)?10:(note==7
)?12:0;
assign scaled_note = (note==0)?0:(intermediate_note + 8*octave - 1);


endmodule
```

AC97 MODULE

This module is designed to assemble/disassemble AC97 serial frames
(Adapted from 6.111 Lab 4, Fall 2006)

```
module ac97(
        output reg ready,
        input [7:0] command_address,
        input [15:0] command_data,
        input command_valid,
        input [19:0] left_data,
        input left_valid,
        input [19:0] right_data,
        input right_valid,
        output reg [19:0] left_in_data,
        output reg [19:0] right_in_data,
        output reg ac97_sdata_out,
        input ac97_sdata_in,
        output reg ac97_synch,
        input ac97_bit_clock);

        reg [7:0] bit_count;

        reg [19:0] l_cmd_addr;
        reg [19:0] l_cmd_data;
        reg [19:0] l_left_data, l_right_data;
        reg l_cmd_v, l_left_v, l_right_v;


        initial begin
                ready <= 1'b0;                          // synthesis attribute init of ready is
"0";
                ac97_sdata_out <= 1'b0;             // synthesis attribute init of
ac97_sdata_out is "0";
                ac97_synch <= 1'b0;                 // synthesis attribute init of ac97_synch
is "0";
                bit_count <= 8'h00;                 // synthesis attribute init of bit_count is
"0000";
                l_cmd_v <= 1'b0;                        // synthesis attribute init of l_cmd_v
is "0";
                l_left_v <= 1'b0;                       // synthesis attribute init of l_left_v
is "0";
                l_right_v <= 1'b0;                  // synthesis attribute init of l_right_v is
"0";
                left_in_data <= 20'h00000;          // synthesis attribute init of left_in_data
is "00000";
```

```
        right_in_data <= 20'h00000;     // synthesis attribute init of right_in_data is
"00000";
    end

    always @ (posedge ac97_bit_clock) begin
        if (bit_count == 255) ac97_synch <= 1'b1; // Generate the sync signal
        if (bit_count == 15) ac97_synch <= 1'b0;

        if (bit_count == 128) ready <= 1'b1;          // Generate the ready signal
        if (bit_count == 2) ready <= 1'b0;

        if (bit_count == 255) begin                                  // Latch user data at the
end of each frame.
            l_cmd_addr <= {command_address, 12'h000};  // This ensures that the
            l_cmd_data <= {command_data, 4'h0};                   // first frame after
reset will be empty.
            l_cmd_v <= command_valid;
            l_left_data <= left_data;
            l_left_v <= left_valid;
            l_right_data <= right_data;
            l_right_v <= right_valid;
        end

        if ((bit_count >= 0) && (bit_count <= 15))                  // Slot 0: Tags
            case (bit_count[3:0])
                4'h0: ac97_sdata_out <= 1'b1;          // Frame valid
                4'h1: ac97_sdata_out <= l_cmd_v;           // Command address
valid
                4'h2: ac97_sdata_out <= l_cmd_v;           // Command data valid
                4'h3: ac97_sdata_out <= l_left_v;      // Left data valid
                4'h4: ac97_sdata_out <= l_right_v;   // Right data valid
                default: ac97_sdata_out <= 1'b0;
            endcase

        else if ((bit_count >= 16) && (bit_count <= 35))         // Slot 1: Command
address (8-bits, left justified)
            ac97_sdata_out <= l_cmd_v ? l_cmd_addr[35 - bit_count] : 1'b0;

     else if ((bit_count >= 36) && (bit_count <= 55))// Slot 2: Command data (16-bits,
left justified)
            ac97_sdata_out <= l_cmd_v ? l_cmd_data[55 - bit_count] : 1'b0;

     else if ((bit_count >= 56) && (bit_count <= 75))        // Slot 3: Left channel
            ac97_sdata_out <= l_left_v ? l_left_data[75 - bit_count] : 1'b0;

        else if ((bit_count >= 76) && (bit_count <= 95))  // Slot 4: Right channel
```

```
            ac97_sdata_out <= l_right_v ? l_right_data[95 - bit_count] : 1'b0;

        else ac97_sdata_out <= 1'b0;

        bit_count <= bit_count+1;

    end // always @ (posedge ac97_bit_clock)

    always @ (negedge ac97_bit_clock) begin
        if ((bit_count >= 57) && (bit_count <= 76))          // Slot 3: Left channel
            left_in_data <= { left_in_data[18:0], ac97_sdata_in };
     else if ((bit_count >= 77) && (bit_count <= 96)) // Slot 4: Right channel
            right_in_data <= { right_in_data[18:0], ac97_sdata_in };
    end

endmodule
```

AC97 COMMANDS

This module issues initialization commands to AC97
(Code adapted from 6.111 Lab 4, Fall 2006)

```
module ac97commands(
        input clock,
        input ready,
        output [7:0] command_address,
        output [15:0] command_data,
        output reg command_valid,
        input [4:0] volume);

        reg [23:0] command;
        reg [3:0] state;

        initial begin
                command <= 4'h0;                        // synthesis attribute init of command is
"0";
                command_valid <= 1'b0;          // synthesis attribute init of command_valid is
"0";
                state <= 16'h0000;                  // synthesis attribute init of state is "0000";
        end

        assign command_address = command[23:16];
        assign command_data = command[15:0];

        wire [4:0] vol;
        assign vol = 31 - volume;          // convert to attenuation

        always @ (posedge clock) begin if (ready) state <= state + 1;
                case (state)
                        4'h0: begin
                                command <= 24'h80_0000;
                        // Read ID
                                command_valid <= 1'b1;
                        end
                        4'h1: command <= 24'h80_0000;
                // Read ID
                        4'h3: command <= {8'h04, 3'b000, vol, 3'b000, vol}; // headphone
volume
                        4'h5: command <= 24'h18_0808;
                // PCM volume
                        4'h6: command <= 24'h1A_0000;
                // Record source = mic
                        4'h7: command <= 24'h1C_8000;
```

```
            // Mute record gain
                  4'h9: command <= 24'h0E_8000;
            // Mute mic
                  4'hA: command <= 24'h0A_8000;
            // Mute beep volume
                  4'hB: command <= 24'h20_8000;
            // PCM out bypass mix1
                  default: command <= 24'h80_0000;
      // Read ID
            endcase // case(state)
      end // always @ (posedge clock)
endmodule // ac97commands
```

AUDIO MODULE

```
////////////////////////////////////////////////////////////////////////////////
//
// Audio interface to AC97
//
// (Adapted from 6.111 Lab 4, Fall 2006)
//
////////////////////////////////////////////////////////////////////////////////

module audio(
	input clock,
	input reset,
	input [4:0] volume,
	input [17:0] audio_left_data,
	input [17:0] audio_right_data,
	output ready,
	output reg audio_reset_b,				// ac97 interface
signals
	output ac97_sdata_out,
	input ac97_sdata_in,
	output ac97_synch,
	input ac97_bit_clock);

	wire [7:0] command_address;
	wire [15:0] command_data;
	wire command_valid;
	wire [19:0] left_in_data, right_in_data;
	wire [19:0] left_out_data, right_out_data;

	// We're not doing any recording, so we don't use these left_in_data or
right_in_data

	reg [9:0] reset_count;

	//	Wait 1024 cycles of 27 mhz clock before starting
	always @ (posedge clock) begin
		if (reset) begin
			audio_reset_b = 1'b0;
			reset_count = 0;
		end
		else if (reset_count == 1023) audio_reset_b = 1'b1;
		else reset_count = reset_count+1;
	end

	wire ac97_ready;
```

```
        // ready: one cycle pulse synchronous with clock_27mhz
        reg [2:0] ready_sync;
        always @ (posedge clock) ready_sync <= {ready_sync[1:0], ac97_ready};

        assign ready = ready_sync[1] & ~ready_sync[2];

        reg [17:0] out_right, out_left;

        always @ (posedge clock) if (ready) begin
                out_left <= audio_left_data;
                out_right <= audio_right_data;
        end

        assign left_out_data = {out_left, 2'b00};
        assign right_out_data = {out_right, 2'b00};

        // Instantiate AC97 Codec
        ac97 ac97(ac97_ready, command_address, command_data, command_valid,
                   left_out_data, 1'b1, right_out_data, 1'b1, left_in_data,
                   right_in_data, ac97_sdata_out, ac97_sdata_in, ac97_synch,
                   ac97_bit_clock);

    // generate repeating sequence of read/writes to AC97 registers
    ac97commands cmds(clock, ready, command_address, command_data,
                        command_valid, volume);
endmodule
```

ADDRESS MODULE

```
module address(
        input reset,
        input clock,
        input enable,
        input [13:0] freq,
        output reg [13:0] addr);

        always @ (posedge clock) begin
                if (reset) addr <= 0;
                else if (enable) begin
                        if (freq == 0) addr <= 0;
                        else addr <= addr + freq;
                end else addr <= addr;
        end

endmodule
```

ARPEGGIATOR MODULE

```
                module arpeggiator(      // Given a root note and chord
qualities, we can produce notes to synthesize
    input clock,
    input reset,
    input [1:0] notesperchord,  // We'll do a maximum of 4 notes / chord
    input [2:0] chordtype,              // There are 12 different 2-note intervals,
fewer types of chords
    input [1:0] inversion,              // for 4-note chord, three inversions
(fewer for 3-note chord)
    input [6:0] root,                   // root note
    output reg [6:0] note1,
    output reg [6:0] note2,
    output reg [6:0] note3,
    output reg [6:0] note4);

    reg [6:0] note1_r, note2_r, note3_r, note4_r; // pre-inversion registered values for
notes

    always @ (posedge clock) begin
        if (reset) begin
            note1 <= 0;
            note2 <= 0;
            note3 <= 0;
            note4 <= 0;
            note1_r <= 0;
            note2_r <= 0;
            note3_r <= 0;
            note4_r <= 0;
        end
        else if (root == 0) begin
            note1 <= 0;
            note2 <= 0;
            note3 <= 0;
            note4 <= 0;
        end
        else begin
            note1_r <= root;                                    // Play root
note
            case (inversion)                                    //
pre-inversion notes will be shifted by octave
                2'b00: begin
                        note1 <= note1_r;     // no
inversion -> note outputs are same as note_r's
                        note2 <= note2_r;
```

```
                                note3 <= note3_r;
                                note4 <= note4_r;
                            end
                2'b01: begin                            // If inversion
= 1, first note is shifted up an octave
                                note1 <= note1_r + 12;      // (N/A
to 1-note "chords")
                                note2 <= note2_r;
                                note3 <= note3_r;
                                note4 <= note4_r;
                            end
                2'b10: begin                            // If inversion
= 2, fist two notes are shifted up octave
                                note1 <= note1_r + 12;      // (N/A
to 2-note "chords")
                                note2 <= note2_r + 12;
                                note3 <= note3_r;
                                note4 <= note4_r;
                            end
                2'b11: begin                            // If inversion
= 3, first 3 notes are shifted up octave
                                note1 <= note1_r + 12;      //
(Applicible only to 4-note chords)
                                note2 <= note2_r + 12;
                                note3 <= note3_r + 12;
                                note4 <= note4_r;
                            end
            endcase
            case (notesperchord)
                2'b00:      begin                               // For
1 note "chord"
                                note2_r <= 0;           // don't play
any other notes
                                note3_r <= 0;
                                note4_r <= 0;
                            end
                2'b01: begin                            // For 2 note
"chord"
                                note3_r <= 0;           // don't play
note3 or note4
                                note4_r <= 0;
                                case (chordtype)        // We'll
choose 8 of the 11 possible intervals to play
                                    3'd0:   note2_r <= root + 2;
    // Major second
                                    3'd1: note2_r <= root + 3;
```

```
        // Minor third
                                                    3'd2: note2_r <= root + 4;
        // Major third / Diminished fourth
                                                    3'd3: note2_r <= root + 5;
        // Perfect fourth
                                                    3'd4: note2_r <= root + 6;
        // Diminished fifth / Augmented fourth
                                                    3'd5: note2_r <= root + 7;
        // Perfect fifth
                                                    3'd6: note2_r <= root + 8;
        // Minor sixth / Augmented fifth
                                                    3'd7: note2_r <= root + 9;
        // Major sixth
                                                endcase
                                            end
                        2'b10: begin                                    // For 3 note
chord
                                                note4_r <= 0;           // don't use
fourth note
                                                case (chordtype)        // Attempting
to correspond with 2-note interval types
                                                    3'd0:   begin            //
Suspended second

        note2_r <= root + 2;

        note3_r <= root + 7;
                                                            end
                                                    3'd1:   begin            //
Minor

        note2_r <= root + 3;

        note3_r <= root + 7;
                                                            end
                                                    3'd2:   begin   // Major


        note2_r <= root + 4;

        note3_r <= root + 7;
                                                            end
                                                    3'd3:   begin   // Suspended
fourth

        note2_r <= root + 5;
        note3_r <= root + 7;
                                                                                        end
                                                                        3'd4:   begin   // Diminished

        note2_r <= root + 3;

        note3_r <= root + 6;
                                                                                        end
                                                                        3'd5:   begin   // "Power
Chord" (open fifth w/ octave)

        note2_r <= root + 7;

        note3_r <= root + 12;
                                                                                        end
                                                                        3'd6:   begin   // Augmented

        note2_r <= root + 4;

        note3_r <= root + 8;
                                                                                        end
                                                                        3'd7:   begin   // Suspended
4th / 6th

        note2_r <= root + 5;

        note3_r <= root + 9;
                                                                                        end
                                                                endcase
                                                        end
                                2'b11: case (chordtype)                 // For 4 note chord, try to
correspond with types from before
                                                                3'd0:   begin           // Augmented
Minor Seventh (Major second is inverted minor seventh...)
                                                                                        note2_r <=
root + 4;
                                                                                        note3_r <=
root + 8;
                                                                                        note4_r <=
root + 10;
                                                                                end
                                                                3'd1:   begin           // Minor
Seventh
                                                                                        note2_r <=
root + 3;
                                                                                        note3_r <=
root + 7;
                                                                                note4_r <=
root + 10;
                                                                        end
                                                          3'd2:   begin  // Major Seventh
                                                                                note2_r <=
root + 4;
                                                                                note3_r <=
root + 7;
                                                                                note4_r <=
root + 11;
                                                                        end
                                                          3'd3:   begin  // Diminished
Seventh (Yes, I know this has nothing to do with the fourth...)
                                                                                note2_r <=
root + 3;
                                                                                note3_r <=
root + 6;
                                                                                note4_r <=
root + 9;
                                                                        end
                                                          3'd4:   begin  // Minor Seventh /
Flat Fifth (half-diminished)
                                                                                note2_r <=
root + 3;
                                                                                note3_r <=
root + 6;
                                                                                note4_r <=
root + 10;
                                                                        end
                                                          3'd5:   begin  // Dominant
Seventh
                                                                                note2_r <=
root + 4;
                                                                                note3_r <=
root + 7;
                                                                                note4_r <=
root + 10;
                                                                        end
                                                          3'd6:   begin  // Augmented Major
Seventh
                                                                                note2_r <=
root + 4;
                                                                                note3_r <=
root + 8;
                                                                                note4_r <=
root + 11;
                                        end
                                3'd7:   begin  // Major Sixth
                                            note2_r <=
root + 4;
                                            note3_r <=
root + 7;
                                            note4_r <=
root + 9;
                                        end
                            endcase
                endcase
            end
    end

endmodule
```

SFX MODULE

```
module sfx(                          // Sound effects for waveforms
        input reset,           // In the future, more effects could be added (ie echo using a
large FIFO)
        input clock,           // Here, we will only be gating high and low values
        input signed [17:0] wave,
        input [16:0] upgate_mag,          // magnitude of max value wave is clipped to
        input [16:0] downgate_mag,              // magnitude of min min value below
which wave is zeroed out
        output reg signed [17:0] waveout);

        reg signed [17:0] upgate, downgate, upgate_neg, downgate_neg;

        always @ (posedge clock) if (reset) waveout <= 0;
        else begin
                upgate <= {1'b0, upgate_mag};                    // create 18 bit positive
values from 17 bit magnitude
                downgate <= {1'b0, downgate_mag};     // inputs for top half clipping limits
                upgate_neg <= {1'b1, (0 - upgate_mag)};                  // create 18
bit negative values from 17 bit
                downgate_neg <= {1'b1, (0 - downgate_mag)};        // magnitude inputs
for bottom half clipping limits
                if (wave > upgate) waveout <= upgate;
                else if (wave < upgate_neg) waveout <= upgate_neg;
                else if ((wave < downgate) && (wave > downgate_neg)) waveout <= 0;
                else waveout <= wave;
        end

endmodule
```

MIXER MODULE

```
module mixer2(
        input clock,
        input reset,
        input signed [17:0] sig1,
        input signed [17:0] sig2,
        output reg signed [17:0] mix);

        reg signed [17:0] sig1_r, sig2_r;

        always @ (posedge clock) if (reset) mix <= 0;
        else begin
                if (sig1 < 0) sig1_r <= {1'b1, sig1[17:1]};  // scale input signals
                else sig1_r <= {1'b0, sig1[17:1]};                         // down by 2 so that
                if (sig2 < 0) sig2_r <= {1'b1, sig2[17:1]};  // sum is always within
                else sig2_r <= {1'b0, sig2[17:1]};                         // +/- 18 bit limit
                mix <= sig1_r + sig2_r;
        end

endmodule
```

SINE MODULE

```
//////////////////////////////////////////////////////////////////////////////
// Copyright (c) 1995-2006 Xilinx, Inc.  All rights reserved.
//////////////////////////////////////////////////////////////////////////////
//   ____  ____
//  /   /\/   /
// /___/  \  /    Vendor: Xilinx
// \   \   \/     Version: I.34
//  \   \         Application: netgen
//  /   /         Filename: sine.v
// /___/   /\     Timestamp: Mon May 14 14:28:57 2007
// \   \  /  \
//  \___\/\___\
//
// Command  : -intstyle ise -w -sim -ofmt verilog C:\Synthesizer\_cg\sine.ngc
C:\Synthesizer\_cg\sine.v
// Device       : 2v6000bf957-4
// Input file   : C:/Synthesizer/_cg/sine.ngc
// Output file  : C:/Synthesizer/_cg/sine.v
// # of Modules       : 1
// Design Name        : sine
// Xilinx             : C:\Xilinx
//
// Purpose:
//     This verilog netlist is a verification model and uses simulation
//     primitives which may not represent the true implementation of the
//     device, however the netlist is functionally correct and should not
//     be modified. This file cannot be synthesized and should only be used
//     with supported simulation tools.
//
// Reference:
//     Development System Reference Guide, Chapter 23
//     Synthesis and Simulation Design Guide, Chapter 6
//
//////////////////////////////////////////////////////////////////////////////

`timescale 1 ns/1 ps

module sine (
  clk, dout, addr
);
  input clk;
  output [17 : 0] dout;
  input [13 : 0] addr;
```

```
// The synopsys directives "translate_off/translate_on" specified
// below are supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity
// synthesis tools. Ensure they are correct for your synthesis tool(s)

// synopsys translate_off

wire N0;
wire N1;
wire N341;
wire N342;
wire N343;
wire N344;
wire N345;
wire N346;
wire N347;
wire N348;
wire N349;
wire N350;
wire N351;
wire N352;
wire N353;
wire N354;
wire N355;
wire N356;
wire N357;
wire N358;
wire N359;
wire N360;
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wire N418;
wire N419;
wire N420;
wire N5501;
wire N5502;
wire N5503;
wire N5905;
wire N5907;
wire N5940;
wire N5941;
wire N6012;
wire N6013;
wire N6084;
wire N6086;
wire N6119;
wire N6120;
wire N6191;
wire N6192;
wire N6263;
wire N6265;
wire N6298;
wire N6299;
wire N6370;
wire N6371;
wire N6442;
wire N6444;
wire N6477;
wire N6478;
wire N6549;
wire N6550;
wire N6621;
wire N6623;
wire N6656;
wire N6657;
wire N6728;
wire N6729;
wire N6800;
wire N6802;
wire N6835;
wire N6836;
wire N6907;
wire N6908;
wire N6979;
wire N6981;
wire N7014;
wire N7015;
wire N7086;
wire N7087;
wire N7158;
wire N7160;
wire N7193;
wire N7194;
wire N7265;
wire N7266;
wire N7337;
wire N7339;
wire N7372;
wire N7373;
wire N7444;
wire N7445;
wire N7944;
wire N7945;
wire N7946;
wire N7947;
wire N7948;
wire N7949;
wire N7950;
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wire N8000;
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wire N8009;
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wire N8011;
wire N8012;
wire N8013;
wire N8014;
wire N8015;
wire N8016;
wire N8017;
wire N8018;
wire N8019;
wire N8020;
wire N8021;
wire N8022;
wire N8023;
wire N13104;
wire N13105;
wire N13106;
wire N13508;
wire N13510;
wire N13543;
wire N13544;
wire N13615;
wire N13616;
wire N13687;
wire N13689;
wire N13722;
wire N13723;
wire N13794;
wire N13795;
wire N13866;
wire N13868;
wire N13901;
wire N13902;
wire N13973;
wire N13974;
wire N14045;
wire N14047;
wire N14080;
wire N14081;
wire N14152;
wire N14153;
wire N14224;
wire N14226;
wire N14259;
wire N14260;
wire N14331;
wire N14332;
wire N14403;
wire N14405;
wire N14438;
wire N14439;
wire N14510;
wire N14511;
wire N14582;
wire N14584;
wire N14617;
wire N14618;
wire N14689;
wire N14690;
wire N14761;
wire N14763;
wire N14796;
wire N14797;
wire N14868;
wire N14869;
wire N14940;
wire N14942;
wire N14975;
wire N14976;
wire N15047;
wire N15048;
wire [13 : 0] addr_2;
wire [17 : 0] dout_3;
assign
   dout[17] = dout_3[17],
   dout[16] = dout_3[16],
   dout[15] = dout_3[15],
   dout[14] = dout_3[14],
   dout[13] = dout_3[13],
   dout[12] = dout_3[12],
   dout[11] = dout_3[11],
   dout[10] = dout_3[10],
   dout[9] = dout_3[9],
   dout[8] = dout_3[8],
   dout[7] = dout_3[7],
   dout[6] = dout_3[6],
   dout[5] = dout_3[5],
   dout[4] = dout_3[4],
   dout[3] = dout_3[3],
   dout[2] = dout_3[2],
   dout[1] = dout_3[1],
   dout[0] = dout_3[0],
   addr_2[13] = addr[13],
   addr_2[12] = addr[12],
   addr_2[11] = addr[11],
   addr_2[10] = addr[10],
   addr_2[9] = addr[9],
   addr_2[8] = addr[8],
   addr_2[7] = addr[7],
   addr_2[6] = addr[6],
   addr_2[5] = addr[5],
   addr_2[4] = addr[4],
   addr_2[3] = addr[3],
   addr_2[2] = addr[2],
   addr_2[1] = addr[1],
   addr_2[0] = addr[0];
VCC VCC_0 (
   .P(N1)
);
GND GND_1 (
   .G(N0)
```

```
  );
  defparam B6.INIT_00 =
256'h16e4b17f4d1ae8b684511fedbb885624f2bf8d5b28f6c4925f2dfbc9966432ff;
  defparam B6.INIT_01 =
256'h5e2cfac7956331fecc9a683503d19f6c3a08d5a3713f0cdaa8764311dfad7a48;
  defparam B6.INIT_02 =
256'ha674410fddab794614e2b07d4b19e7b482501eebb9875522f0be8c5927f5c390;
  defparam B6.INIT_03 =
256'hedbb895624f2c08e5b29f7c592602efcca97653301ce9c6a3806d3a16f3d0ad8;
  defparam B6.INIT_04 =
256'h3301cf9d6b3806d4a2703d0bd9a7754210deac7a4715e3b17f4c1ae8b684511f;
  defparam B6.INIT_05 =
256'h784614e2b07d4b19e7b583511eecba885624f2bf8d5b29f7c592602efcca9865;
  defparam B6.INIT_06 =
256'hbc8a5825f3c18f5d2bf9c7956330fecc9a683604d2a06d3b09d7a573410fdcaa;
  defparam B6.INIT_07 =
256'hfecb99673503d19f6d3b09d7a573410fddab794715e3b07e4c1ae8b6845220ee;
  defparam B6.INIT_08 =
256'h3d0bd9a8764412e0ae7c4a18e6b482501eecba885624f2c08e5c2af8c6946230;
  defparam B6.INIT_09 =
256'h7b4917e5b482501eecba885624f2c08e5d2bf9c7956331ffcd9b693705d3a16f;
  defparam B6.INIT_0A =
256'hb6855321efbd8c5a28f6c492612ffdcb99673504d2a06e3c0ad8a6754311dfad;
  defparam B6.INIT_0B =
256'hefbd8c5a28f6c593612ffecc9a683705d3a1703e0cdaa8774513e1af7e4c1ae8;
  defparam B6.INIT_0C =
256'h25f3c2905e2dfbc998663403d19f6e3c0ad9a7754412e0af7d4b19e8b6845321;
  defparam B6.INIT_0D =
256'h5826f4c391602efdcb9a683705d3a2703f0ddbaa784715e3b2804f1debba8857;
  defparam B6.INIT_0E =
256'h875524f3c1905e2dfbca98673604d3a1703e0ddbaa784715e4b2814f1eecbb89;
  defparam B6.INIT_0F =
256'hb381501fedbc8b5928f7c594633100cf9d6c3a09d8a6754312e1af7e4d1beab8;
  defparam B6.INIT_10 =
256'hdaa9784716e4b3825120eebd8c5b29f8c796643302d19f6e3d0cdaa9784615e4;
  defparam B6.INIT_11 =
256'hfecd9c6b3a09d8a7764413e2b1804f1eedbc8b5928f7c695643301d09f6e3d0c;
  defparam B6.INIT_12 =
256'h1eedbc8b5a29f8c796653403d2a1703f0eddac7b4a19e8b7865524f3c291602f;
  defparam B6.INIT_13 =
256'h3808d7a6754514e3b2815120efbe8d5c2cfbca99683706d6a5744312e1b07f4e;
  defparam B6.INIT_14 =
256'h4f1eedbd8c5b2bfac999683707d6a5754413e3b2815120efbe8e5d2cfbcb9a69;
  defparam B6.INIT_15 =
256'h602fffce9e6d3d0cdcab7b4a1ae9b9885827f7c696653404d3a3724211e0b07f;
  defparam B6.INIT_16 =
256'h6b3b0bdbaa7a4a19e9b9885828f7c797663605d5a5744413e3b3825221f1c090;
   defparam B6.INIT_17 =
256'h724211e1b1815121f1c090603000d09f6f3f0fdfae7e4e1eedbd8d5d2cfccc9c;
   defparam B6.INIT_18 =
256'h724212e2b3835323f3c393633303d3a3734313e3b3835322f2c292623202d2a2;
   defparam B6.INIT_19 =
256'h6d3d0ddeae7e4e1fefbf8f5f3000d0a0704111e1b1815121f2c292623202d2a2;
   defparam B6.INIT_1A =
256'h613202d3a3744414e5b5865626f7c798683809d9a97a4a1aebbb8b5c2cfccc9d;
   defparam B6.INIT_1B =
256'h4f20f1c192633304d5a5764617e8b889592afacb9b6c3c0dddae7f4f1ff0c091;
   defparam B6.INIT_1C =
256'h3708d9a97a4b1cedbe8e5f3001d2a2734415e5b6875828f9ca9b6b3c0dddae7f;
   defparam B6.INIT_1D =
256'h17e8ba8b5c2dfecfa0714213e4b5865728f9ca9b6c3d0edfb0815122f3c49566;
   defparam B6.INIT_1E =
256'hf1c293653607d9aa7b4c1eefc091633405d6a7794a1becbd8e603102d3a47546;
   defparam B6.INIT_1F =
256'hc394663709dbac7e4f21f2c395663809dbac7e4f20f2c395663709daab7d4e1f;
   defparam B6.INIT_20 =
256'h8d5f3103d5a6784a1bedbf91623406d7a97b4c1ef0c193653608d9ab7d4e20f1;
   defparam B6.INIT_21 =
256'h5022f4c6986a3c0ee0b2845628facc9e704214e5b7895b2dffd1a3744618eabc;
   defparam B6.INIT_22 =
256'h0bddb0825426f9cb9d6f4114e6b88a5c2f01d3a577491beec092643608daac7e;
   defparam B6.INIT_23 =
256'hbe90633508daad7f5224f7c99c6e4013e5b88a5d2f01d4a6784b1defc2946639;
   defparam B6.INIT_24 =
256'h683a0de0b386582bfed1a376491ceec19466390cdeb1845629fbcea1734618eb;
   defparam B6.INIT_25 =
256'h09dcaf825529fccfa275481beec194673a0cdfb285582bfed1a477491cefc295;
   defparam B6.INIT_26 =
256'ha275481cefc396693c10e3b68a5d3003d7aa7d5023f7ca9d704316eabd906336;
   defparam B6.INIT_27 =
256'h3105d9ac805327fbcea275491df0c4976b3e12e5b98c603307daad815428fbce;
   defparam B6.INIT_28 =
256'hb88b5f3307dbaf83572bffd2a67a4e22f6c99d714519ecc094673b0fe3b68a5e;
   defparam B6.INIT_29 =
256'h3409ddb185592e02d6aa7e5227fbcfa3774b1ff3c79b704418ecc094683c10e4;
   defparam B6.INIT_2A =
256'ha77c5025f9cea2774b20f4c99d72461befc3986c4115e9be92663b0fe3b78c60;
   defparam B6.INIT_2B =
256'h10e5ba8f64390de2b78c61350adfb4885d3206dbb084592e02d7ac80552afed3;
   defparam B6.INIT_2C =
256'h6f441aefc4996e4318eec3986d4217ecc1966b4015eabf94693e13e8bd92673b;
   defparam B6.INIT_2D =
256'hc4996f441aefc59a70451af0c59b70451bf0c69b70451bf0c59b70451af0c59a;
   defparam B6.INIT_2E =
256'h0ee4b98f653b11e7bc92683e13e9bf946a4015ebc1966c4217edc2986e4319ee;
   defparam B6.INIT_2F =
256'h4d23f9d0a67c5228fed4aa81572d03d9af855b3107ddb3895f350ae0b68c6238;
   defparam B6.INIT_30 =
256'h81582e05dbb2885f350ce2b98f653c12e9bf956c4218efc59b71481ef4caa177;
   defparam B6.INIT_31 =
256'haa81582f06ddb48a61380fe6bc936a4117eec59b72491ff6cda37a5027fed4ab;
   defparam B6.INIT_32 =
256'hc89f774e25fcd4ab82593007deb68d643b12e9c0976e451cf3caa1784f26fdd4;
   defparam B6.INIT_33 =
256'hdab28a613910e8bf976e461df5cca47b532a02d9b0885f370ee5bd946b421af1;
   defparam B6.INIT_34 =
256'he1b991694119f1c8a078502800d8b0875f370fe6be966e451df5cda47c542b03;
   defparam B6.INIT_35 =
256'hdbb48c643d15edc69e764e27ffd7af87603810e8c098704921f9d1a981593109;
   defparam B6.INIT_36 =
256'hcaa27b542d05deb78f684119f2caa37c542d05deb68f674018f1c9a17a522b03;
   defparam B6.INIT_37 =
256'hac855e3710e9c29b744d26ffd8b18a633c15eec7a079522b03dcb58e673f18f1;
   defparam B6.INIT_38 =
256'h815b340ee7c19a744d2700d9b38c653f18f1cba47d573009e2bc956e4720f9d3;
   defparam B6.INIT_39 =
256'h4a24fed8b28c653f19f3cda7805a340ee7c19b744e2801dbb58e68411bf5cea8;
   defparam B6.INIT_3A =
256'h06e0bb956f4a24fed8b28d67411bf5d0aa845e3812ecc6a07a542e08e2bc9670;
   defparam B6.INIT_3B =
256'hb5906a4520fad5b08a65401af5cfaa855f3a14efc9a47e59330de8c29d77512c;
   defparam B6.INIT_3C =
256'h56320de8c39e79542f0ae5c09b76512c07e2bd98734e2904dfb9946f4a25ffda;
   defparam B6.INIT_3D =
256'hebc6a27d593410ebc7a27e593510ebc7a27e593410ebc6a17d58330eeac5a07b;
   defparam B6.INIT_3E =
256'h714d2905e1bd9975512d09e4c09c7854300be7c39f7a56320ee9c5a17c58330f;
   defparam B6.INIT_3F =
256'heac6a37f5c3814f1cda986623e1bf7d3af8c684420fcd8b5916d492501ddb995;
   defparam B6.INITP_00 =
256'hfc1f07c1f07c0f83e0f83e0fc1f07c1f07c1f83e0f83e0f83e07c1f07c1f07c1;
   defparam B6.INITP_01 =
256'hf07e0f83e0fc1f07c1f83e0f83f07c1f07c0f83e0f83f07c1f07c1f83e0f83e0;
   defparam B6.INITP_02 =
256'h1f03e0f81f07e0f83f07c0f83e07c1f03e0f81f07c0f83e0fc1f07e0f83e07c1;
   defparam B6.INITP_03 =
256'hf83f07e0fc1f83f07c0f81f03e07c1f83f07c0f81f07e0f81f03e0fc1f03e0fc;
   defparam B6.INITP_04 =
256'hc1f81f83f03f07e07c0fc1f81f03f07e07c0fc1f83f03e07c0f81f03f07e0fc1;
   defparam B6.INITP_05 =
256'h3f01f81f81f81f81f81f81f81f81f81f81f81f83f03f03f03f07e07e07c0fc0f;
   defparam B6.INITP_06 =
256'h07e03f81fc0fe07f03f01f80fc07e07f03f01f81f80fc0fc07e07e07f03f03f0;
   defparam B6.INITP_07 =
256'hfe03f807f01fc07f01fc07f01fc07f03f80fe03f81fc07f03f80fe07f01f80fc;
   defparam B6.WRITE_MODE = "WRITE_FIRST";
   defparam B6.INIT = 12'h000;
   defparam B6.SRVAL = 12'h000;
   RAMB16_S9 B6 (
      .EN(N348),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N412}),
      .DO({N413, N414, N415, N416, N417, N418, N419, N420}),
      .DIP({N0})
   );
   defparam B9.INIT_00 =
256'h55320eebc8a5825f3b18f5d2ae8b684421fedab794704d2906e3bf9c7855310d;
   defparam B9.INIT_01 =
256'hb18f6c492704e1be9c79563310eecba885623f1cf9d6b3906d4a2704e1be9b78;
   defparam B9.INIT_02 =
256'h00debb9977553210eecba98764421ffddab89673512e0be9c6a4815f3c19f7d4;
   defparam B9.INIT_03 =
256'h401efcdab9977553310fedcbaa8866442200debc9a77553311efcdab89664422;
   defparam B9.INIT_04 =
256'h71502e0deccaa98866452302e0bf9d7c5a3917f6d4b2916f4e2c0ae8c7a58362;
   defparam B9.INIT_05 =
256'h9473523110efcead8c6b4a2908e7c6a58463422100dfbe9c7b5a3917f6d5b492;
   defparam B9.INIT_06 =
256'ha78766462605e5c4a48363422201e1c09f7f5e3d1dfcdbbb9a79583817f6d5b4;
   defparam B9.INIT_07 =
256'hac8c6c4c2c0cecccac8c6c4c2c0cecccab8b6b4b2b0aeacaaa8a69492908e8c8;
   defparam B9.INIT_08 =
256'ha18262432304e4c5a58666462707e8c8a8896949290aeacaaa8b6b4b2b0beccc;
   defparam B9.INIT_09 =
256'h8768492a0beccdae8f70513212f3d4b59677573819fadabb9c7d5d3e1fffe0c0;
   defparam B9.INIT_0A =
256'h5d3f2002e3c5a688694a2c0defd0b19374553618f9dabb9d7e5f402102e4c5a6;
   defparam B9.INIT_0B =
256'h2406e8caac8e70523315f7d9bb9d7f61422406e8c9ab8d6e503213f5d7b89a7b;
```

```
   defparam B9.INIT_0C =
256'hdabd9f826447290ceed1b395785a3c1f01e3c6a88a6c4e3113f5d7b99b7d5f42;
   defparam B9.INIT_0D =
256'h8164472a0df0d3b6997c5f422407eacdb09275583b1d00e3c5a88b6d503315f8;
   defparam B9.INIT_0E =
256'h18fbdfc2a6896d503317fadec1a4886b4e3215f8dbbfa285684b2e12f5d8bb9e;
   defparam B9.INIT_0F =
256'h9e82664a2e12f6dabea2866a4d3115f9ddc1a4886c503317fbdec2a6896d5034;
   defparam B9.INIT_10 =
256'h14f8ddc1a68a6f53381c01e5caae92775b3f2408ecd0b5997d6145290ef2d6ba;
   defparam B9.INIT_11 =
256'h795e43280df2d7bca1866b50351affe4c9ad92775c40250aefd3b89d81664b2f;
   defparam B9.INIT_12 =
256'hceb3997f644a2f15fae0c5ab90755b40260bf0d6bba0856b50351affe5caaf94;
   defparam B9.INIT_13 =
256'h12f8dec4aa90765c42280ef4dac0a68c72583e2309efd5bba0866c52371d03e8;
   defparam B9.INIT_14 =
256'h452b12f9dfc6ac937960472d13fae0c7ad947a60472d13fae0c6ad93795f452c;
   defparam B9.INIT_15 =
256'h664e351c03ead1b9a0876e553c230af1d8bfa68c735a41280ff5dcc3aa91775e;
   defparam B9.INIT_16 =
256'h775f472e16fee5cdb59c846b533a220af1d8c0a78f765e452c14fbe2cab1987f;
   defparam B9.INIT_17 =
256'h775f472f1800e8d0b8a189715941291 1f9e1c9b199816951392108f0d8c0a88f;
   defparam B9.INIT_18 =
256'h654d361f08f1d9c2ab937c654d361f07f0d8c1a9927a634b341c05edd5bea68e;
   defparam B9.INIT_19 =
256'h412a14fde7d0b9a28c755e47301a03ecd5bea79079624b341d06efd8c1aa937c;
   defparam B9.INIT_1A =
256'h0cf6e0cab49d87715b452e1802ecd5bfa9927c664f39220cf5dfc8b29b856e58;
   defparam B9.INIT_1B =
256'hc5b09a846f59442e1803edd7c2ac96816b553f2913fee8d2bca6907a644e3822;
   defparam B9.INIT_1C =
256'h6c57422d1803eed9c4af9a85705b45301b06f0dbc6b19b86715b46301b06f0db;
   defparam B9.INIT_1D =
256'h02edd9c4b09c87735e4a35200cf7e3ceb9a5907b66523d2813ffead5c0ab9681;
   defparam B9.INIT_1E =
256'h85715d4936220efae6d2beaa96826e5a46321d09f5e1cdb8a4907c67533f2a16;
   defparam B9.INIT_1F =
256'hf6e3d0bca996826f5c4835210efae7d3c0ac9985725e4a37230ffce8d4c0ad99;
   defparam B9.INIT_20 =
256'h5542301d0af7e5d2bfac998674614e3b281502efdcc9b6a3907c695643301d09;
   defparam B9.INIT_21 =
256'ha2907d6b5947352210feecd9c7b5a2907e6b594634210ffcead7c5b2a08d7a68;
   defparam B9.INIT_22 =
256'hdccab9a7968472614f3d2c1a08f6e5d3c1af9d8b7a68564432200efcead8c6b4;
```

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   defparam B9.INIT_23 =
256'h03f3e2d1c0ae9d8c7b6a594837261403f2e1cfbead9c8a79675645332210ffed;
   defparam B9.INIT_24 =
256'h1908f8e7d7c6b6a69584746353423221100 0efdecebdac9b8a7a695847362514;
   defparam B9.INIT_25 =
256'h1b0bfbecdcccbcac9c8c7c6c5c4c3c2c1c0cfcecdccbbbab9b8b7a6a5a4a3929;
   defparam B9.INIT_26 =
256'h0bfbecddcebeafa0908172625344342515 06f6e7d7c7b8a89989796a5a4a3a2b;
   defparam B9.INIT_27 =
256'he7d9cabcad9e8f817263544637281 90afbecdecfc0b1a29384756556473 8291a;
   defparam B9.INIT_28 =
256'hb1a39587796b5d4f4133241608faebddcfc0b2a49587796a5c4d3f30221305f6;
   defparam B9.INIT_29 =
256'h685b4e403325180afcefe1d4c6b8ab9d8f827466584a3d2f211305f7e9dbcdbf;
   defparam B9.INIT_2A =
256'h0c00f3e6d9ccbfb2a5988b7e7164574a3d30231508fbeee0d3c6b9ab9e918376;
   defparam B9.INIT_2B =
256'h9d9185796c6054473b2e221609fdf0e4d7cbbeb2a5988c7f7266594c40332619;
   defparam B9.INIT_2C =
256'h1b0f04f8ece1d5c9bdb2a69a8e82766a5f53473b2f23170bfff2e6dacec2b6aa;
   defparam B9.INIT_2D =
256'h867b6f64594e43382d22160b00f5e9ded3c7bcb1a59a8e83776c6055493e3227;
   defparam B9.INIT_2E =
256'hddd2c8beb3a99e93897e74695e54493e34291e1309fef3e8ddd2c7bcb2a79c91;
   defparam B9.INIT_2F =
256'h21170d03f9efe6dcd2c8beb4aaa0958b81776d63594e443a30251b1106fcf2e7;
   defparam B9.INIT_30 =
256'h51483f362c231a1007fef4ebe1d8cfc5bcb2a89f958c82786f655b52483e342b;
   defparam B9.INIT_31 =
256'h6f665d554c433b322920180f06fdf4ebe2dad1c8bfb6ada49b91887f766d645b;
   defparam B9.INIT_32 =
256'h787068605850484038302 71f170f07fef6eee5ddd5ccc4bbb3aaa29991888077;
   defparam B9.INIT_33 =
256'h6f6760585149423a332b241c150d05fef6eee7dfd7cfc7c0b8b0a8a098908880;
   defparam B9.INIT_34 =
256'h514b443d362f28211b140d06fff8f1eae2dbd4cdc6bfb8b0a9a29b938c857d76;
   defparam B9.INIT_35 =
256'h211a140e0801fbf5efe8e2dcd5cfc8c2bbb5aea8a19b948e87807a736c665f58;
   defparam B9.INIT_36 =
256'hdcd7d1cbc6c0bab5afa9a49e98928c87817b756f69635d57514b453f39332d27;
   defparam B9.INIT_37 =
256'h847f7a75706b66615c57524d47423d38332d28231d18130d0803fdf8f2ede7e2;
   defparam B9.INIT_38 =
256'h1814100b0703fefaf5f1ece8e3dfdad5d1ccc7c3beb9b5b0aba6a19d98938e89;
   defparam B9.INIT_39 =
256'h9995928e8a86827f7b77736f6b67635f5b57534f4b47433f3a36322e2a25211d;
```

```
   defparam B9.INIT_3A =
256'h060300fdf9f6f3f0ede9e6e3dfdcd9d5d2cfcbc8c4c1bdbab6b3afaba8a4a09d;
   defparam B9.INIT_3B =
256'h5f5d5a585553504d4b484543403d3b3835322f2d2a2724211e1b1815120f0c09;
   defparam B9.INIT_3C =
256'ha5a3a19f9d9b99979593918f8d8b89878482807e7c79777572706e6b69676462;
   defparam B9.INIT_3D =
256'hd7d5d4d3d1d0cfcdcccbc9c8c6c5c3c2c0bfbdbbbab8b6b5b3b1b0aeacaaa8a7;
   defparam B9.INIT_3E =
256'hf5f4f3f3f2f1f1f0efeeededecebeae9e8e7e6e5e4e3e2e1e0dfdedddbdad9d8;
   defparam B9.INIT_3F = 256'hfffffffffffffffefefefefefdfdfdfdfcfcfcfbfbfafafaf9f9f8f8f7f6f6f5;
   defparam B9.INITP_00 =
256'hfc03fc03fc03f807f807f80ff00fe01fc03fc07f80fe01fc03f80ff01fc07f80;
   defparam B9.INITP_01 =
256'hfc01ff007fc01ff007fc01fe00ff807fc03fe01ff00ff007f807f807fc03fc03;
   defparam B9.INITP_02 =
256'hfc00ffe007ff003ff801ff801ff801ff801ff801ff003fe007fc00ff801ff007;
   defparam B9.INITP_03 =
256'h0007ffc001fff0007ff8007ffc003ffc003ff8007ff800ffe001ffc007ff001f;
   defparam B9.INITP_04 =
256'hffff00007fffc0003fffc0003fffc0007fff0003fff8001fff8001fff8001fff;
   defparam B9.INITP_05 =
256'h0ffffff8000007fffff800001fffff000007ffffc00007ffff00001ffff80001;
   defparam B9.INITP_06 =
256'hffffffc00000000003ffffffff000000001fffffffe00000007ffffff800000;
   defparam B9.INITP_07 = 256'hfffffffffffffffffffffffffffffffffffffffe00000000000000003ffffff;
   defparam B9.WRITE_MODE = "WRITE_FIRST";
   defparam B9.INIT = 12'h000;
   defparam B9.SRVAL = 12'h000;
   RAMB16_S9 B9 (
      .EN(N347),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N403}),
      .DO({N404, N405, N406, N407, N408, N409, N410, N411}),
      .DIP({N0})
   );
   defparam B12.INIT_00 =
256'hf6f6f7f7f8f8f9f9fafafbfbfbfcfcfcfdfdfdfefefefefefeffffffffffffff;
   defparam B12.INIT_01 =
256'hd8dadbdcdddedfe1e2e3e4e5e6e7e8e9e9eaebecedeeefeff0f1f2f2f3f4f4f5;
   defparam B12.INIT_02 =
256'ha8a9abadafb0b2b4b6b7b9bbbcbebfc1c2c4c5c7c8cacbcdcecfd1d2d3d5d6d7;
   defparam B12.INIT_03 =
256'h6365686a6d6f717476787b7d7f818386888a8c8e90929496989a9c9ea0a2a4a6;
   defparam B12.INIT_04 =
256'h0b0e1114171a1d202325282b2e313436393c3f414447494c4f515456595c5e60;
   defparam B12.INIT_05 =
256'h9fa2a6aaadb1b4b8bbbfc2c6c9cdd0d4d7dadee1e4e8ebeef1f5f8fbfe010408;
   defparam B12.INIT_06 =
256'h1f23272c3034383c4145494d5155595d6165696d7175797d8084888c9093979b;
   defparam B12.INIT_07 =
256'h8b90959a9fa4a9adb2b7bcc0c5caced3d8dce1e5eaeef3f7fc0005090e12161b;
   defparam B12.INIT_08 =
256'he4eaeff5fa00050b10151b20252b30353a40454a4f54595e64696e73787d8287;
   defparam B12.INIT_09 =
256'h2a30363c42484e545a60666c72787e848a8f959ba1a6acb2b8bdc3c9ced4d9df;
   defparam B12.INIT_0A =
256'h5c626970767d848a91989ea5abb2b8bfc5ccd2d8dfe5ebf2f8fe050b11171d24;
   defparam B12.INIT_0B =
256'h7a818890979ea6adb4bbc2cad1d8dfe6edf4fb020910171e252c333a40474e55;
   defparam B12.INIT_0C =
256'h848c949ca4acb4bcc4cbd3dbe3eaf2fa0109111820282f373e464d555c646b72;
   defparam B12.INIT_0D =
256'h7c848d959ea6afb7c0c8d0d9e1e9f2fa020b131b232c343c444c545c646c747c;
   defparam B12.INIT_0E =
256'h5f68727b848d969fa8b1bac3ccd5dee7f0f9020a131c252e363f485059626a73;
   defparam B12.INIT_0F =
256'h3039434d57606a747d87919aa4adb7c0cad3dde6f0f9020c151e28313a444d56;
   defparam B12.INIT_10 =
256'hecf7010c16202b353f49545e68727c86909ba5afb9c3cdd7e1ebf4fe08121c26;
   defparam B12.INIT_11 =
256'h96a1acb7c2cdd8e3eef8030e19242e39444e59646e79848e99a3aeb8c3cdd8e2;
   defparam B12.INIT_12 =
256'h2c38444f5b66727d8994a0abb6c2cdd8e4effa06111c27323e49545f6a75808b;
   defparam B12.INIT_13 =
256'hb0bcc8d4e0ecf805111d2935414d5965707c8894a0acb8c3cfdbe7f2fe0a1521;
   defparam B12.INIT_14 =
256'h202c3946535f6c7985929fabb8c4d1deeaf7030f1c2835414d5a66727f8b97a3;
   defparam B12.INIT_15 =
256'h7d8a97a5b2bfcddae7f4020f1c293643505e6b7885929facb9c6d3dfecf90613;
   defparam B12.INIT_16 =
256'hc6d4e2f0fe0c1a283644515f6d7b8896a4b2bfcddae8f603111e2c394754626f;
   defparam B12.INIT_17 =
256'hfd0c1a293846556371808e9dabb9c8d6e4f3010f1d2b3a48566472808e9caab8;
   defparam B12.INIT_18 =
256'h2131404f5e6d7c8b9aa9b8c7d6e5f40312212f3e4d5c6b798897a6b4c3d2e0ef;
   defparam B12.INIT_19 =
256'h33425262718191a0b0c0cfdfeefe0d1d2c3c4b5b6a798998a7b7c6d5e5f40312;
   defparam B12.INIT_1A =
256'h31415262728393a3b3c3d4e4f404142434445464748494a4b4c4d4e4f3031323;
   defparam B12.INIT_1B =
256'h1d2e3f5060718293a4b4c5d6e7f70819293a4b5b6c7c8d9daebecfdff0001021;
   defparam B12.INIT_1C =
256'hf608192a3c4d5f708293a4b5c7d8e9fb0c1d2e3f5062738495a6b7c8d9eafb0c;
   defparam B12.INIT_1D =
256'hbdcfe1f30517293b4d5f718394a6b8cadceeff1123344658697b8d9eb0c1d3e5;
   defparam B12.INIT_1E =
256'h718496a9bccee1f306182b3d5062748799acbed0e3f507192c3e5062748699ab;
   defparam B12.INIT_1F =
256'h1326394d60738699acbfd2e5f80b1e3144576a7d90a3b6c8dbee011426394c5e;
   defparam B12.INIT_20 =
256'ha3b6cadef205192d4054687b8fa3b6caddf104182b3e5265798c9fb3c6d9ed00;
   defparam B12.INIT_21 =
256'h2035495d72869aaec3d7ebff13273c5064788ca0b4c8dcf004182c4053677b8f;
   defparam B12.INIT_22 =
256'h8ca1b6cadff4091e33475c71869aafc4d8ed02162b3f54687d91a6bacfe3f80c;
   defparam B12.INIT_23 =
256'he5fb10263b51667b91a6bbd1e6fb10263b50657a8fa5bacfe4f90e23384d6277;
   defparam B12.INIT_24 =
256'h2d43596f859bb1c7ddf3091e344a60768ba1b7cde2f80e23394f647a8fa5bad0;
   defparam B12.INIT_25 =
256'h637a90a7bdd4ea01172e445a71879eb4cae1f70d233a50667c92a9bfd5eb0117;
   defparam B12.INIT_26 =
256'h879eb6cde4fb122940576e859cb3cae1f70e253c53698097aec4dbf2091f364c;
   defparam B12.INIT_27 =
256'h9ab2c9e1f9102840576f869eb5cde4fc132a425970889fb6cee5fc132b425970;
   defparam B12.INIT_28 =
256'h9cb4cce4fc142d455d758da5bdd5ed051d354d657d95acc4dcf40c243b536b82;
   defparam B12.INIT_29 =
256'h8ca4bdd6ef072039516a829bb4cce5fd162e475f7890a8c1d9f20a223b536b83;
   defparam B12.INIT_2A =
256'h6b849db6d0e9021b344e678099b2cbe4fd162f48617a93acc5def71028415a73;
   defparam B12.INIT_2B =
256'h38526c86a0b9d3ed07203a546d87a0bad4ed07203a536d86a0b9d2ec051f3851;
   defparam B12.INIT_2C =
256'hf5102a445f7993adc8e2fc16304b657f99b3cde7011b354f69839db7d1eb051f;
   defparam B12.INIT_2D =
256'ha1bcd7f20d28425d7893adc8e3fe18334e68839db8d2ed07223c57718ca6c1db;
   defparam B12.INIT_2E =
256'h3d58748faac6e1fc18334e6985a0bbd6f10c28435e7994afcae5001b36516c87;
   defparam B12.INIT_2F =
256'hc8e4001b37536f8ba7c2defa16314d6984a0bcd7f30f2a46617d98b4cfeb0621;
   defparam B12.INIT_30 =
256'h425f7b97b4d0ed0925415e7a96b2cfeb07233f5c7894b0cce804203c587490ac;
   defparam B12.INIT_31 =
256'hacc9e603203d5a7793b0cdea0723405d7996b3cfec0925425e7b97b4d0ed0926;
   defparam B12.INIT_32 =
256'h0624415f7c99b7d4f10f2c496784a1bedbf91633506d8aa7c4e2ff1c39567390;
   defparam B12.INIT_33 =
256'h516e8caac8e60422405d7b99b7d4f2102e4b6986a4c2dffd1a38567391aecce9;
   defparam B12.INIT_34 =
256'h8ba9c8e60423415f7e9cbad8f7153351708eaccae8062442617f9dbbd9f71533;
   defparam B12.INIT_35 =
256'hb5d4f31231506e8daccbea0827466583a2c1dffe1c3b5a7897b5d4f2112f4e6c;
   defparam B12.INIT_36 =
256'hd0ef0f2e4e6d8caccbea0929486786a5c5e4032241607f9ebddcfb1a39587796;
   defparam B12.INIT_37 =
256'hdcfb1b3b5b7b9bbadafa1a39597998b8d8f71737567695b5d4f41333527291b1;
   defparam B12.INIT_38 =
256'hd8f8183959799abadafa1b3b5b7b9bbbdcfc1c3c5c7c9cbcdcfc1c3c5c7c9cbc;
   defparam B12.INIT_39 =
256'hc5e6072748698aaacbec0c2d4e6e8fb0d0f11132527394b4d4f51536567797b7;
   defparam B12.INIT_3A =
256'ha3c4e60728496b8cadceef1031537495b6d7f8193a5b7c9dbedf0021416283a4;
   defparam B12.INIT_3B =
256'h7294b6d8f91b3d5e80a2c3e506284a6b8daed0f11334557798badbfc1e3f6082;
   defparam B12.INIT_3C =
256'h3355789abcde0022446689abcdef1133557799badcfe20426486a8caeb0d2f51;
   defparam B12.INIT_3D =
256'he5082b4d7093b5d8fa1d3f6284a7c9ec0e31537598badcff21436688aacdef11;
   defparam B12.INIT_3E =
256'h89add0f316395c7fa2c5e80b2e517396b9dcff2245678aadd0f315385b7da0c3;
   defparam B12.INIT_3F =
256'h1f43668aadd1f4183b5f82a5c9ec0f3356799dc0e3072a4d7093b7dafd204366;
   defparam B12.INITP_00 = 256'hffffff80000000000000007ffffffffffffffffffffffffffffffffffffffff;
   defparam B12.INITP_01 =
256'h000003ffffffc0000000ffffffff000000001fffffffffc00000000007ffffff;
   defparam B12.INITP_02 =
256'h80003ffff80001ffffc00003ffffc00001fffff800001fffffc000003ffffff0;
   defparam B12.INITP_03 =
256'hfff8003fff0003fff0001fff8000fffe0003fff80007fff80003fffc0001ffff;
   defparam B12.INITP_04 =
256'hf800ffe003ff800ffe001ffc003ffc003ffc003ffc003ffe000fff0007ffc001;
   defparam B12.INITP_05 =
256'hc00ff803ff007fc00ffc01ff801ff003ff003ff003ff801ff800ffc007fe003f;
   defparam B12.INITP_06 =
256'hc03fc03fc03fc01fe01ff00ff007f803fc01ff00ff803fe01ff007fc01ff007f;
   defparam B12.INITP_07 =
256'h01fc07f80fe01fc07f80ff01fc03fc07f80ff00fe01fe03fc03fc03fc03fc03f;
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  defparam B12.WRITE_MODE = "WRITE_FIRST";
  defparam B12.INIT = 12'h000;
  defparam B12.SRVAL = 12'h000;
  RAMB16_S9 B12 (
    .EN(N346),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N394}),
    .DO({N395, N396, N397, N398, N399, N400, N401, N402}),
    .DIP({N0})
  );
  defparam B15.INIT_00 =
256'ha7cbef13375b7fa3c6ea0e32567a9dc1e5092c507498bbdf03264a6d91b5d8fc;
  defparam B15.INIT_01 =
256'h21466a8eb3d7fb2044688db1d5f91d42668aaed2f71b3f6387abcff3173b5f83;
  defparam B15.INIT_02 =
256'h8eb3d7fc21466a8fb4d9fd22476b90b5d9fe22476b90b5d9fe22476b90b4d8fd;
  defparam B15.INIT_03 =
256'hed12375c82a7ccf1163b6086abd0f51a3f6489aed3f81d42678cb1d5fa1f4469;
  defparam B15.INIT_04 =
256'h3e648aafd5fb20466b91b6dc01274c7297bde2082d52789dc2e80d32587da2c7;
  defparam B15.INIT_05 =
256'h83a9cff51b41678db3d9ff254b7197bde2082e547aa0c5eb11375c82a8cdf319;
  defparam B15.INIT_06 =
256'hbbe1082e557ba1c8ee153b6188aed4fa21476d93bae0062c52789fc5eb11375d;
  defparam B15.INIT_07 =
256'he60d345b81a8cff61c436a91b7de052b52799fc6ed133a6087add4fb21486e95;
  defparam B15.INIT_08 =
256'h052c537aa1c9f0173e658cb4db022950779ec5ec133a6188afd6fd244b7198bf;
  defparam B15.INIT_09 =
256'h173e668eb5dd042c537ba2caf11940688fb7de052d547ca3caf21940688fb6dd;
  defparam B15.INIT_0A =
256'h1d456d95bde50d355c84acd4fc244c749bc3eb133b628ab2d901295178a0c8ef;
  defparam B15.INIT_0B =
256'h173f6890b8e109315a82aad2fb234b739bc4ec143c648cb4dd052d557da5cdf5;
  defparam B15.INIT_0C =
256'h052e577fa8d1fa224b739cc5ed163e6790b8e109325a83abd4fc254d759ec6ef;
  defparam B15.INIT_0D =
256'he8113a638cb5de07305982abd4fd264f78a1caf31c456d96bfe8113a628bb4dd;
  defparam B15.INIT_0E =
256'hc0e9123c658fb8e10b345d87b0d9032c557ea8d1fa234d769fc8f11b446d96bf;
  defparam B15.INIT_0F =
256'h8cb6df09335d86b0da032d5780aad4fd27517aa4cdf7214a749dc7f01a436d96;
   defparam B15.INIT_10 =
256'h4d77a1cbf5204a749ec8f21c46709ac4ee18426c95bfe9133d6791bbe40e3862;
   defparam B15.INIT_11 =
256'h032e5883add8022c5781acd6002b557faad4fe28537da7d1fc26507aa4cff923;
   defparam B15.INIT_12 =
256'hafda05305a85b0db05305b85b0db05305b85b0db05305a85afda052f5a84afd9;
   defparam B15.INIT_13 =
256'h517ca7d2fd28537faad5002b5681acd7012c5782add8032e5984aed9042f5a85;
   defparam B15.INIT_14 =
256'he8143f6b96c1ed18436f9ac5f11c47739ec9f4204b76a1cdf8234e79a4d0fb26;
   defparam B15.INIT_15 =
256'h76a2cdf925507ca8d3ff2b5682aed905305c87b3df0a36618db8e40f3b6692bd;
   defparam B15.INIT_16 =
256'hfa26527eaad6022e5a86b1dd0935618db9e5113d6894c0ec18446f9bc7f31e4a;
   defparam B15.INIT_17 =
256'h74a0ccf925517eaad6022f5b87b3df0c386490bce915416d99c5f11d4975a2ce;
   defparam B15.INIT_18 =
256'he5113e6b97c4f01d4976a2cffb285481adda06335f8cb8e4113d6a96c2ef1b47;
   defparam B15.INIT_19 =
256'h4d79a6d3002d5a87b3e00d3a6793c0ed1a4673a0cdf9265380acd906325f8bb8;
   defparam B15.INIT_1A =
256'habd90633608dbae715426f9cc9f623507daad704315e8bb8e5123f6c99c6f320;
   defparam B15.INIT_1B =
256'h022f5d8ab7e512406d9ac8f522507daad80532608dbae715426f9cc9f724517e;
   defparam B15.INIT_1C =
256'h507dabd90634628fbdea184673a1cffc2a5785b2e00d3b6896c3f11e4c79a7d4;
   defparam B15.INIT_1D =
256'h95c3f11f4d7ba9d70432608ebcea184673a1cffd2b5886b4e20f3d6b99c6f422;
   defparam B15.INIT_1E =
256'hd3012f5d8bbae8164472a0cefd2b5987b5e3113f6d9bc9f7255381afdd0b3967;
   defparam B15.INIT_1F =
256'h09376594c2f11f4d7caad907356492c0ef1d4b79a8d60433618fbdec1a4876a5;
   defparam B15.INIT_20 =
256'h376594c3f1204f7dacdb09386695c3f2214f7eacdb09386695c3f2204f7dacda;
   defparam B15.INIT_21 =
256'h5e8dbbea194877a6d503326190bfee1c4b7aa9d706356492c1f01f4d7cabd908;
   defparam B15.INIT_22 =
256'h7daddc0b3a6998c7f6255483b2e1103f6e9dccfb2a5988b7e6154473a2d1002f;
   defparam B15.INIT_23 =
256'h96c6f5245483b2e211406f9fcefd2c5c8bbae9184877a6d504346392c1f01f4e;
   defparam B15.INIT_24 =
256'ha9d808376796c6f5255484b3e3124171a0d0ff2f5e8dbdec1c4b7aaad9083867;
   defparam B15.INIT_25 =
256'hb5e4144473a3d302326291c1f1205080afdf0f3e6e9dcdfd2c5c8bbbeb1a4a79;
   defparam B15.INIT_26 =
256'hbaea1a4a7aaada09396999c9f9295888b8e8184877a7d707376696c6f6255585;
  defparam B15.INIT_27 =
256'hbaea1a4a7aaada0a3a6b9bcbfb2b5b8bbbeb1b4b7babdb0b3b6b9bcbfa2a5a8a;
  defparam B15.INIT_28 =
256'hb4e4144575a5d506366696c7f7275787b8e8184878a8d909396999c9f92a5a8a;
  defparam B15.INIT_29 =
256'ha8d9093a6a9acbfb2c5c8cbded1e4e7eafdf0f4070a0d101316292c2f3235384;
  defparam B15.INIT_2A =
256'h97c8f9295a8abbec1c4d7daede0f3f70a0d102326393c4f4255585b6e6174778;
  defparam B15.INIT_2B =
256'h82b2e3144575a6d70738699acafb2c5c8dbeee1f5080b1e2124374a4d5063667;
  defparam B15.INIT_2C =
256'h6798c9fa2a5b8cbdee1f5081b1e2134475a6d60738699acbfb2c5d8ebeef2051;
  defparam B15.INIT_2D =
256'h4879aadb0c3d6e9fd001326394c5f6275889baeb1c4d7eafe0104172a3d40536;
  defparam B15.INIT_2E =
256'h245586b8e91a4b7caddf104172a3d405366899cafb2c5d8ebff0215283b5e617;
  defparam B15.INIT_2F =
256'hfc2e5f90c2f3245587b8e91b4c7daee0114273a4d60738699bccfd2e5f91c2f3;
  defparam B15.INIT_30 =
256'hd102346597c8f92b5c8ebff0225384b6e7194a7badde0f4172a3d50637699acb;
  defparam B15.INIT_31 =
256'ha2d305366899cbfc2e5f91c2f4255788baeb1d4e80b1e3144677a8da0b3d6ea0;
  defparam B15.INIT_32 =
256'h6fa1d304366799cbfc2e5f91c3f4265789bbec1e4f81b2e4164779aadc0d3f70;
  defparam B15.INIT_33 =
256'h3a6b9dcf01326496c7f92b5c8ec0f2235587b8ea1c4d7fb1e2144677a9da0c3e;
  defparam B15.INIT_34 =
256'h01336597c8fa2c5e90c1f3255788baec1e5081b3e517487aacde0f4173a5d608;
  defparam B15.INIT_35 =
256'hc6f82a5c8ebff1235587b9eb1c4e80b2e4164879abdd0f4173a4d6083a6c9ecf;
  defparam B15.INIT_36 =
256'h88baec1e5082b4e6184a7caee0124476a7d90b3d6fa1d30537699bccfe306294;
  defparam B15.INIT_37 =
256'h497baddf114375a7d90b3d6fa1d30537699bcdff316395c7f92b5d8fc0f22456;
  defparam B15.INIT_38 =
256'h07396b9dcf01336597c9fc2e6092c4f6285a8cbef0225486b8ea1c4e80b2e417;
  defparam B15.INIT_39 =
256'hc3f6285a8cbef0225486b9eb1d4f81b3e517497caee0124476a8da0c3e71a3d5;
  defparam B15.INIT_3A =
256'h7eb1e3154779abde104274a6d80b3d6fa1d305386a9cce00326497c9fb2d5f91;
  defparam B15.INIT_3B =
256'h386b9dcf01336698cafc2e6193c5f7295c8ec0f2245789bbed1f5184b6e81a4c;
  defparam B15.INIT_3C =
256'hf1245688baec1f5183b5e81a4c7eb0e3154779acde104274a7d90b3d70a2d406;
  defparam B15.INIT_3D =
256'ha9dc0e4072a5d7093b6ea0d20437699bcd00326496c9fb2d5f92c4f6285b8dbf;
  defparam B15.INIT_3E =
256'h6193c6f82a5c8fc1f326588abcef215385b8ea1c4e81b3e5174a7caee0134577;
  defparam B15.INIT_3F =
256'h194b7dafe2144679abdd0f4274a6d80b3d6fa1d406386b9dcf01346698cafd2f;
  defparam B15.INITP_00 =
256'h7f03f80fc07f03f80fe07f01fc0fe03f80fe03f80fe03f80fe03f80fe03f80ff;
  defparam B15.INITP_01 =
256'h1f80fc0fc0fc07e07e03f03f01f81fc0fc07e07f03f81f80fc07e03f01f80fe0;
  defparam B15.INITP_02 =
256'hf07e07e07c0fc0fc0fc1f81f81f81f81f83f03f03f03f03f03f01f81f81f81f8;
  defparam B15.INITP_03 =
256'h03e07c0f81f83f07e0fc0f81f03f07e0fc0f81f83f03e07e0fc0fc1f81f83f03;
  defparam B15.INITP_04 =
256'h3e07c1f83e07c1f83e07c0f83f07e0f81f03e0fc1f83f07c0f81f03e07c0f81f;
  defparam B15.INITP_05 =
256'h83e0f81f07c1f83e0f81f07c0f83e07c1f03e0f81f07c0f83f07c1f83e07c1f8;
  defparam B15.INITP_06 =
256'h0f83f07c1f07c1f83e0f83e0fc1f07c1f03e0f83e07c1f07c0f83e0f81f07c1f;
  defparam B15.INITP_07 =
256'h07c1f07e0f83e0f83e0f81f07c1f07c1f03e0f83e0f83e07c1f07c1f07e0f83e;
  defparam B15.WRITE_MODE = "WRITE_FIRST";
  defparam B15.INIT = 12'h000;
  defparam B15.SRVAL = 12'h000;
  RAMB16_S9 B15 (
    .EN(N345),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N385}),
    .DO({N386, N387, N388, N389, N390, N391, N392, N393}),
    .DIP({N0})
  );
  defparam B18.INIT_00 =
256'hd002356799cbfe306294c7f92b5e90c2f427598bbdf0225486b9eb1d5082b4e6;
  defparam B18.INIT_01 =
256'h88baec1f5183b5e81a4c7eb1e315477aacde104375a7d90c3e70a3d507396c9e;
  defparam B18.INIT_02 =
256'h4072a4d7093b6da0d20436699bcdff326496c8fb2d5f91c4f6285a8dbff12356;
  defparam B18.INIT_03 =
256'hf92b5d8fc2f426588bbdef215386b8ea1c4f81b3e5174a7caee0134577a9db0e;
  defparam B18.INIT_04 =
256'hb3e517497baee0124476a8db0d3f71a3d6083a6c9ed103356799ccfe306294c7;
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  defparam B18.INIT_05 =
256'h6ea0d20436689bcdff316395c7fa2c5e90c2f427598bbdef215486b8ea1c4e81;
  defparam B18.INIT_06 =
256'h2a5c8ec1f3255789bbed1f5183b6e81a4c7eb0e2144679abdd0f4173a5d7093c;
  defparam B18.INIT_07 =
256'he81b4d7fb1e3154779abdd0f4173a5d7093b6d9fd10336689accfe306294c6f8;
  defparam B18.INIT_08 =
256'ha9db0d3f70a2d406386a9cce00326496c8fa2c5e90c2f426588abcee205284b6;
  defparam B18.INIT_09 =
256'h6b9dcf01336496c8fa2c5e90c2f4265889bbed1f5183b5e7194b7dafe1134577;
  defparam B18.INIT_0A =
256'h306193c5f7295b8cbef0225486b7e91b4d7fb1e3144678aadc0e4071a3d50739;
  defparam B18.INIT_0B =
256'hf7295a8cbef0215385b7e81a4c7eafe1134577a8da0c3e6fa1d30537689accfe;
  defparam B18.INIT_0C =
256'hc1f3255688b9eb1d4e80b2e3154778aadc0d3f71a3d40638699bcdfe306294c5;
  defparam B18.INIT_0D =
256'h8fc0f2235586b8e91b4d7eb0e1134476a8d90b3c6ea0d103346698c9fb2c5e90;
  defparam B18.INIT_0E =
256'h5f91c2f4255788b9eb1c4e7fb1e2144577a8da0b3d6ea0d103346697c9fa2c5d;
  defparam B18.INIT_0F =
256'h346596c8f92a5c8dbef0215284b5e618497bacdd0f4071a3d40637689acbfd2e;
  defparam B18.INIT_10 =
256'h0c3d6ea0d102336496c7f8295b8cbdee1f5182b3e4164778aadb0c3d6fa0d103;
  defparam B18.INIT_11 =
256'he8194a7cadde0f4071a2d304356697c9fa2b5c8dbeef205283b4e5164779aadb;
  defparam B18.INIT_12 =
256'hc9fa2b5c8dbeef1f5081b2e3144576a7d8093a6b9ccdfe2f6091c2f3245586b7;
  defparam B18.INIT_13 =
256'haedf104171a2d304346596c7f829598abbec1d4e7eafe0114273a4d505366798;
  defparam B18.INIT_14 =
256'h98c9f92a5b8bbced1d4e7fafe0114172a3d304356596c7f828598abaeb1c4d7d;
  defparam B18.INIT_15 =
256'h87b8e819497aaada0b3b6c9ccdfd2e5f8fc0f0215182b2e3134475a5d6063768;
  defparam B18.INIT_16 =
256'h7bacdc0c3d6d9dcefe2e5f8fbff0205081b1e1124273a3d304346595c5f62657;
  defparam B18.INIT_17 =
256'h75a5d506366696c6f6265787b7e7174778a8d808386999c9f92a5a8abaeb1b4b;
  defparam B18.INIT_18 =
256'h75a5d505346494c4f4245484b4e4144474a4d404346494c5f5255585b5e51545;
  defparam B18.INIT_19 =
256'h7aaada09396999c8f8285888b7e7174777a7d606366696c6f6255585b5e51545;
  defparam B18.INIT_1A =
256'h86b5e5144474a3d302326291c1f020507fafdf0e3e6e9dcdfd2c5c8cbbeb1b4a;
  defparam B18.INIT_1B =
256'h98c7f7265585b4e3134272a1d0002f5f8ebeed1c4c7babda0a396998c8f72756;
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   defparam B18.INIT_1C =
256'hb1e00f3e6d9ccbfb2a5988b7e7164574a3d302316090bfee1d4d7cabdb0a3969;
   defparam B18.INIT_1D =
256'hd0ff2e5d8cbbea194877a6d504336291c0ef1e4d7cabda09386796c5f4235282;
   defparam B18.INIT_1E =
256'hf7265483b2e00f3e6d9bcaf9285685b4e311406f9ecdfc2a5988b7e6154472a1;
   defparam B18.INIT_1F =
256'h255382b0df0d3c6a99c7f6245381b0de0d3c6a99c7f6245382b0df0e3c6b9ac8;
   defparam B18.INIT_20 =
256'h5a89b7e51342709eccfb295786b4e2103f6d9bcaf8265583b2e00e3d6b9ac8f6;
   defparam B18.INIT_21 =
256'h98c6f422507eacda08366492c0ee1c4a78a6d402315f8dbbe9174574a2d0fe2c;
   defparam B18.INIT_22 =
256'hdd0b396694c2f01d4b79a7d402305e8cb9e71543719fcdfb285684b2e00e3c6a;
   defparam B18.INIT_23 =
256'h2b5886b3e10e3c6997c4f21f4d7aa8d503305e8cb9e71542709dcbf9265482af;
   defparam B18.INIT_24 =
256'h81aedb08366390bdea1845729fcdfa275582afdd0a376592bfed1a4875a2d0fd;
   defparam B18.INIT_25 =
256'hdf0c396693c0ed1a4774a1cefb285582afdc09366390bdea1845729fccf92654;
   defparam B18.INIT_26 =
256'h4774a0cdf926537facd906325f8cb9e5123f6c98c5f21f4c78a5d2ff2c5986b2;
   defparam B18.INIT_27 =
256'hb8e4103d6995c2ee1b4773a0ccf925527eabd704305d89b6e20f3b6894c1ee1a;
   defparam B18.INIT_28 =
256'h315d8ab6e20e3a6692beea16436f9bc7f3204c78a4d0fd295581aeda06335f8b;
   defparam B18.INIT_29 =
256'hb5e10c386490bbe7133f6b97c2ee1a46729ecaf6224e79a5d1fd295581add905;
   defparam B18.INIT_2A =
256'h426d99c4f01b47729ec9f5204c78a3cffa26517da9d4002c5783afda06325d89;
   defparam B18.INIT_2B =
256'hd9042f5b86b1dc07325e89b4df0b36618cb8e30e3a6590bce7123e6994c0eb17;
   defparam B18.INIT_2C =
256'h7aa5d0fb26517ba6d1fc27527da8d3fe28537ea9d4ff2a5580acd7022d5883ae;
   defparam B18.INIT_2D =
256'h26507ba5d0fa25507aa5cffa244f7aa4cffa244f7aa4cffa244f7aa5cffa2550;
   defparam B18.INIT_2E =
256'hdc06305b85afd9032e5882acd7012b5580aad4ff29537ea8d3fd27527ca7d1fc;
   defparam B18.INIT_2F =
256'h9dc7f11b446e98c2ec16406a93bde7113b658fb9e30d37618bb5df0a345e88b2;
   defparam B18.INIT_30 =
256'h6992bce50f38628bb5de08325b85aed8022b557fa8d2fc254f79a2ccf6204973;
   defparam B18.INIT_31 =
256'h406992bbe40e376089b2dc052e5781aad3fc264f78a2cbf41e47709ac3ed163f;
   defparam B18.INIT_32 =
256'h224b749dc5ee17406992bae30c355e87b0d9022b547da6cff8214a739cc5ee17;
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  defparam B18.INIT_33 =
256'h1039618ab2da032b547ca5cdf61e476f98c1e9123a638cb4dd052e5780a8d1fa;
  defparam B18.INIT_34 =
256'h0a325a82aad2fa224b739bc3eb133b648cb4dc042d557da5cef61e476f97c0e8;
  defparam B18.INIT_35 =
256'h10375f87aed6fe264d759dc4ec143c648bb3db032b537ba3caf21a426a92bae2;
  defparam B18.INIT_36 =
256'h22497097bfe60d355c83abd2fa21487097bfe60e355d84acd3fb224a7199c1e8;
  defparam B18.INIT_37 =
256'h40678eb4db022950779ec5ec133a6188afd6fd244b739ac1e80f365e85acd3fa;
  defparam B18.INIT_38 =
256'h6a91b7de042b52789fc5ec12396086add4fa21486e95bce30930577ea4cbf219;
  defparam B18.INIT_39 =
256'ha2c8ee143a6087add3f91f456c92b8de052b51779ec4ea11375e84aad1f71e44;
  defparam B18.INIT_3A =
256'he60c32577da3c8ee143a5f85abd1f71d42688eb4da00264c7298bee40a30567c;
  defparam B18.INIT_3B =
256'h385d82a7cdf2173d6287add2f71d42688db3d8fe23496e94b9df042a50759bc1;
  defparam B18.INIT_3C =
256'h96bbe0052a4e7398bde2072c51769bc0e50a2f54799fc4e90e33587da3c8ed12;
  defparam B18.INIT_3D =
256'h02274b6f94b8dd01264a6f94b8dd01264a6f94b8dd02264b7095b9de03284c71;
  defparam B18.INIT_3E =
256'h7ca0c4e80c3054789cc0e4082d517599bde2062a4e7297bbdf04284c7195b9de;
  defparam B18.INIT_3F =
256'h03274a6e92b5d9fc2044678bafd3f61a3e6285a9cdf115395c80a4c8ec103458;
  defparam B18.INITP_00 =
256'h83e0f81f07c1f07c1f83e0f83e0f83f07c1f07c1f07e0f83e0f83e0f81f07c1f;
  defparam B18.INITP_01 =
256'h07c1f07e0f83e0fc1f07c1f83e0f83f07c1f07c0f83e0f83e07c1f07c1f03e0f;
  defparam B18.INITP_02 =
256'he07c1f83e07c1f03e0fc1f07e0f83f07c1f83e0fc1f07e0f83e07c1f07e0f83e;
  defparam B18.INITP_03 =
256'h07e0fc1f83f07e0fc1f03e07c0f83f07e0f81f03e0fc1f83e07c1f83e07c1f83;
  defparam B18.INITP_04 =
256'h3f03e07e07c0fc0f81f83f03e07e0fc0f81f03f07e0fc0f81f03e07e0fc1f83f;
  defparam B18.INITP_05 =
256'he07e07e07e07f03f03f03f03f03f03e07e07e07e07e07c0fc0fc0fc1f81f81f0;
  defparam B18.INITP_06 =
256'hf80fe07f03f81fc0fe07e03f01f81fc0fc07e07f03f03f81f81fc0fc0fc0fe07;
  defparam B18.INITP_07 =
256'h00fe03f80fe03f80fe03f80fe03f80fe03f80fc07f01f80fe03f01fc0fe03f01;
  defparam B18.WRITE_MODE = "WRITE_FIRST";
  defparam B18.INIT = 12'h000;
  defparam B18.SRVAL = 12'h000;
  RAMB16_S9 B18 (
    .EN(N344),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N376}),
    .DO({N377, N378, N379, N380, N381, N382, N383, N384}),
    .DIP({N0})
  );
  defparam B21.INIT_00 =
256'h99bcdf0225486c8fb2d5f81c3f6286a9ccf013365a7da0c4e70b2e527599bce0;
  defparam B21.INIT_01 =
256'h3c5f82a4c7ea0c2f527598badd002346698caed1f4173a5d80a3c6e90c2f5276;
  defparam B21.INIT_02 =
256'hee1032557799bcde002345678aaccef11336587b9dc0e205274a6c8fb2d4f71a;
  defparam B21.INIT_03 =
256'haed0f2143557799bbddf0123456688aaccee1032547699bbddff21436587aacc;
  defparam B21.INIT_04 =
256'h7d9fc0e10324456788aacbec0e2f517294b5d7f91a3c5d7fa1c2e40627496b8d;
  defparam B21.INIT_05 =
256'h5b7c9dbedeff20416283a4c5e60728496a8bacceef1031527394b6d7f8193b5c;
  defparam B21.INIT_06 =
256'h486888a9c9ea0a2b4b6b8cadcdee0e2f4f7091b1d2f31334557596b7d8f8193a;
  defparam B21.INIT_07 =
256'h436383a3c3e30323436383a3c3e30323446484a4c4e40525456586a6c6e70727;
  defparam B21.INIT_08 =
256'h4e6e8dadccec0b2b4a6a89a9c8e80827476786a6c6e50525456484a4c4e40423;
  defparam B21.INIT_09 =
256'h6988a7c6e504234261809fbeddfc1b3a5a7998b7d6f61534537392b1d1f0102f;
  defparam B21.INIT_0A =
256'h93b1d0ee0d2b4a6887a5c4e301203e5d7c9ab9d8f71534537291afceed0c2b4a;
  defparam B21.INIT_0B =
256'hccea08264462809ebddbf9173553718faeccea0827456381a0bedcfb19375674;
  defparam B21.INIT_0C =
256'h1633516e8ca9c7e502203d5b7996b4d1ef0d2b486684a2bfddfb1937557391ae;
  defparam B21.INIT_0D =
256'h6f8ca9c6e3001d3b587592afcce90624415e7b98b6d3f00e2b486683a0bedbf9;
  defparam B21.INIT_0E =
256'hd9f6122f4b6884a1bddaf613304c6986a2bfdcf815324f6c88a5c2dffc193653;
  defparam B21.INIT_0F =
256'h536f8ba7c3dffb17334f6b87a3c0dcf814304d6985a1bedaf6122f4b6884a0bd;
  defparam B21.INIT_10 =
256'hdef914304b67829eb9d5f00c28435f7b96b2cee905213d587490acc8e4ff1b37;
  defparam B21.INIT_11 =
256'h7893aec9e4ff1a35506b86a1bcd7f30e29445f7a96b1cce7031e3955708ba7c2;
  defparam B21.INIT_12 =
256'h243e59738ea8c3ddf8122d47627c97b1cce7011c37526c87a2bdd7f20d28435e;
  defparam B21.INIT_13 =
256'he0fa142e48627c96b0cae4fe18324c66809ab4cfe9031d37526c86a0bbd5ef0a;
  defparam B21.INIT_14 =
256'haec7e0fa132d465f7992acc5dff8122b455f7892abc5dff8122c465f7993adc7;
  defparam B21.INIT_15 =
256'h8ca5bed7ef08213a536c859eb7d0e9021b344d667f98b1cbe4fd162f49627b94;
  defparam B21.INIT_16 =
256'h7c94acc4ddf50d263e576f87a0b8d1e9021a334b647d95aec6dff81029425b73;
  defparam B21.INIT_17 =
256'h7d94acc4dbf30b233b536a829ab2cae2fa122a425a728aa2bad2eb031b334b63;
  defparam B21.INIT_18 =
256'h8fa6bdd4ec031a314960778fa6bdd5ec031b324a617990a8bfd7ef061e364d65;
  defparam B21.INIT_19 =
256'hb3c9e0f60d243b51687f96acc3daf1081e354c637a91a8bfd6ed041b32496178;
  defparam B21.INIT_1A =
256'he8fe142a40566d8399afc5dcf2081e354b61788ea5bbd1e8fe152b42586f859c;
  defparam B21.INIT_1B =
256'h2f455a70859bb0c6dcf1071d32485e74899fb5cbe1f60c22384e647a90a6bcd2;
  defparam B21.INIT_1C =
256'h889db2c7dcf1061b30455a70859aafc4d9ef04192e44596e8499aec4d9ef041a;
  defparam B21.INIT_1D =
256'hf3071c3045596e8297abc0d4e9fd12273b5065798ea3b8cce1f60b2035495e73;
  defparam B21.INIT_1E =
256'h708498acbfd3e7fb0f23374b5f73879bafc3d8ec0014283c5165798da2b6cadf;
  defparam B21.INIT_1F =
256'hff1226394c6073869aadc1d4e7fb0e2235495c708497abbfd2e6fa0d2135495c;
  defparam B21.INIT_20 =
256'ha1b3c6d9ebfe112437495c6f8295a8bbcee1f4071a2d405366798c9fb2c6d9ec;
  defparam B21.INIT_21 =
256'h5466798b9dafc1d3e6f80a1c2f415366788b9dafc2d4e7f90c1e314356697b8e;
  defparam B21.INIT_22 =
256'h1a2c3e4f61728496a7b9cbdcee0011233547596b7c8ea0b2c4d6e8fa0c1e3042;
  defparam B21.INIT_23 =
256'hf30415263748596a7b8c9dafc0d1e2f3041627384a5b6c7d8fa0b2c3d5e6f709;
  defparam B21.INIT_24 =
256'hdeefff0f2030415162728393a4b4c5d6e6f70818293a4b5b6c7d8e9fafc0d1e2;
  defparam B21.INIT_25 =
256'hdcecfc0c1b2b3b4b5b6b7b8b9babbbcbdbebfb0b1b2b3c4c5c6c7c8d9dadbece;
  defparam B21.INIT_26 =
256'hedfc0b1a2a39485867768695a4b4c3d3e2f2011120303f4f5f6e7e8e9dadbdcc;
  defparam B21.INIT_27 =
256'h101f2d3c4b5968778694a3b2c1d0deedfc0b1a2938475665748392a1b0bfcede;
  defparam B21.INIT_28 =
256'h475563717f8d9ba9b7c5d4e2f0fe0c1b2937465462717f8e9caab9c7d6e5f302;
  defparam B21.INIT_29 =
256'h909dabb8c6d3e1eefc09172532404d5b69778492a0aebbc9d7e5f3010f1d2b39;
  defparam B21.INIT_2A =
256'hecf90613202c394653606d7a8794a1afbcc9d6e3f0fd0b182532404d5a687582;
  defparam B21.INIT_2B =
256'h5c6874808d99a5b2becad7e3f0fc0815212e3b4754606d7a8693a0acb9c6d3df;
  defparam B21.INIT_2C =
256'hdeeaf5010d1824303c47535f6b77838f9aa6b2becad6e2eefa07131f2b37434f;
  defparam B21.INIT_2D =
256'h747f8a95a0abb6c1cdd8e3eef905101b27323d49545f6b76828d99a4b0bbc7d3;
  defparam B21.INIT_2E =
256'h1d27323c47515c66717b86919ba6b1bbc6d1dbe6f1fc07111c27323d48535e69;
  defparam B21.INIT_2F =
256'hd9e3edf7010b141e28323c46505a646f79838d97a1abb6c0cad4dfe9f3fe0813;
  defparam B21.INIT_30 =
256'ha9b2bbc5ced7e1eaf3fd060f19222c353f48525b656e78828b959fa8b2bcc6cf;
  defparam B21.INIT_31 =
256'h8c959da6afb7c0c9d1dae3ecf5fd060f18212a333c454e576069727b848d97a0;
  defparam B21.INIT_32 =
256'h838b939ba3abb3bbc3cbd3dce4ecf4fd050d161e262f373f485059616a727b83;
  defparam B21.INIT_33 =
256'h8d949ba3aab2b9c1c8d0d7dfe7eef6fe050d151c242c343b434b535b636b737b;
  defparam B21.INIT_34 =
256'haab1b8bfc5ccd3dae1e8eff6fd040b121920272e353d444b525961686f777e85;
  defparam B21.INIT_35 =
256'hdbe2e8eef4fa01070d141a20272d333a40474d545a61676e757b82898f969da3;
  defparam B21.INIT_36 =
256'h20262b31363c42474d53595e646a70757b81878d93999fa5abb1b7bdc3c9cfd5;
  defparam B21.INIT_37 =
256'h787d82878c91969ba1a6abb0b5babfc5cacfd4dadfe4eaeff4faff050a10151b;
  defparam B21.INIT_38 =
256'he4e9edf1f6faff03080c11151a1e23272c31353a3f43484d52565b60656a6f74;
  defparam B21.INIT_39 =
256'h64686c6f73777b7f82868a8e92969a9ea2a6aaaeb2b6babec3c7cbcfd3d8dce0;
  defparam B21.INIT_3A =
256'hf7fbfe0104070a0e1114171b1e2125282b2f3236393d4044474b4e5255595d60;
  defparam B21.INIT_3B =
256'h9fa1a3a6a9abaeb0b3b6b8bbbec0c3c6c9cbced1d4d7dadcdfe2e5e8ebeef1f4;
  defparam B21.INIT_3C =
256'h595b5d5f61636567696b6d6f71737577797c7e80828487898b8e909295979a9c;
  defparam B21.INIT_3D =
256'h28292a2c2d2e303132343537383a3b3d3e404143444648494b4d4f5052545657;
  defparam B21.INIT_3E =
256'h0a0b0b0c0d0d0e0f101011121314151616171818191a1b1c1d1e20212223242527;
  defparam B21.INIT_3F =
256'h0000000000000000010101010102020203030304040405050606070708080909;
   defparam B21.INITP_00 =
256'h03fc03fc03fc03fc03f807f80ff00fe01fc03fc07f00fe01fc07f80fe01fc07f;
   defparam B21.INITP_01 =
256'h01ff007fc01ff007f803fe00ff007fc03fe01ff00ff007f807fc03fc03fc03fc;
   defparam B21.INITP_02 =
256'h03ff801ffc00ffe007fe003ff003ff003ff007fe007fc00ffc01ff003fe00ffc;
   defparam B21.INITP_03 =
256'h7ffc001fff000fff8003ffc003ffc003ffc003ffc007ff800ffe003ff800ffe0;
   defparam B21.INITP_04 =
256'h00007fffc0003fffe0001fffe0003fff8000fffe0007fff0003fff0003ffe000;
   defparam B21.INITP_05 =
256'hf0000003fffffc000007ffffe000007ffffc00003ffffc00007fffe00003fffe;
   defparam B21.INITP_06 =
256'h0000001ffffffffffc0000000007ffffffff00000000fffffffc0000003fffff;
   defparam B21.INITP_07 =
256'h000000000000000000000000000000000000000001fffffffffffffffe000000;
   defparam B21.WRITE_MODE = "WRITE_FIRST";
   defparam B21.INIT = 12'h000;
   defparam B21.SRVAL = 12'h000;
   RAMB16_S9 B21 (
      .EN(N343),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N367}),
      .DO({N368, N369, N370, N371, N372, N373, N374, N375}),
      .DIP({N0})
   );
   defparam B24.INIT_00 =
256'h0a09090807070606050505040403030302020202010101010100000000000000;
   defparam B24.INIT_01 =
256'h272625242221201f1e1d1c1b1a191817161514131212111100f0e0e0d0c0c0b0a;
   defparam B24.INIT_02 =
256'h58575553514f4e4c4a4947454442403f3d3c3a393736343332302f2e2c2b2a28;
   defparam B24.INIT_03 =
256'h9d9b989694918f8d8a888683817f7d7b78767472706e6c6a68666462605e5c5a;
   defparam B24.INIT_04 =
256'hf6f3f0edeae7e4e1dedbd8d5d2d0cdcac7c4c2bfbcbab7b4b2afacaaa7a5a2a0;
   defparam B24.INIT_05 =
256'h625f5b5754504c4945423e3b3734302d2a2623201c1916120f0c090602fffcf9;
   defparam B24.INIT_06 =
256'he2dedad5d1cdc9c5c0bcb8b4b0aca8a4a09c9894908c8884807d7975716d6a66;
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   defparam B24.INIT_07 =
256'h76716c67625e59544f4a46413c38332e2a25201c17130e0a0501fcf8f4efebe7;
   defparam B24.INIT_08 =
256'h1d18120d0702fcf7f2ece7e2dcd7d2ccc7c2bdb8b2ada8a39e99948f8a85807b;
   defparam B24.INIT_09 =
256'hd8d2ccc6c0bab4aea8a29c96908a847e78736d67615b56504a453f39342e2823;
   defparam B24.INIT_0A =
256'ha7a099938c857f78716b645e57514a443d37302a231d17100a04fef7f1ebe5de;
   defparam B24.INIT_0B =
256'h89827a736c645d564f474039322b241d150e0700f9f2ebe4ded7d0c9c2bbb4ae;
   defparam B24.INIT_0C =
256'h7f776f675f574f473f3830282018110901faf2eae3dbd4ccc5bdb6aea79f9890;
   defparam B24.INIT_0D =
256'h887f776e665d554c443b332a221a110901f8f0e8e0d8cfc7bfb7afa79f978f87;
   defparam B24.INIT_0E =
256'ha49b928980776e645b524940372e251d140b02f9f0e7dfd6cdc4bcb3aaa29990;
   defparam B24.INIT_0F =
256'hd4cbc1b7ada49a90877d736a60574d433a30271e140b01f8efe5dcd3c9c0b7ae;
   defparam B24.INIT_10 =
256'h180d03f9eee4dacfc5bbb1a69c92887e746a5f554b41372d23191006fcf2e8de;
   defparam B24.INIT_11 =
256'h6e63584d43382d22170c01f6ece1d6cbc1b6aba1968b81766c61564c41372d22;
   defparam B24.INIT_12 =
256'hd8cdc1b6aa9f93887c71655a4e43382c21160afff4e9ddd2c7bcb1a69b908479;
   defparam B24.INIT_13 =
256'h55493d3125190d00f4e8dcd0c4b8aca095897d7165594d42362a1e1307fbf0e4;
   defparam B24.INIT_14 =
256'he6d9ccbfb3a6998d8073675a4d4134281b0f02f6e9ddd1c4b8ab9f93867a6e62;
   defparam B24.INIT_15 =
256'h897c6e615446392c1f1104f7eadccfc2b5a89b8e8174675a4d403326190cfff3;
   defparam B24.INIT_16 =
256'h4032241608faecded0c2b5a7998b7d70625447392b1e1003f5e7daccbfb1a497;
   defparam B24.INIT_17 =
256'h09faecddcfc0b2a39586786a5b4d3f30221405f7e9dbccbeb0a29486786a5c4e;
   defparam B24.INIT_18 =
256'he5d6c7b8a99a8a7b6c5d4e3f30211304f5e6d7c8b9ab9c8d7e70615243352618;
   defparam B24.INIT_19 =
256'hd4c5b5a5958676665747382818 09f9eadacbbbac9d8d7e6f5f504131221304f4;
   defparam B24.INIT_1A =
256'hd6c6b5a5958574645444342313 03f3e3d3c3b3a393837363534333231304f4e4;
   defparam B24.INIT_1B =
256'hebdac9b8a7968575645342312110ffefdecdbdac9c8b7b6a594939281807f7e6;
   defparam B24.INIT_1C =
256'h1200efddccbaa99886756352413 01e0dfcebd9c8b7a695847362513f2e1d0cfc;
   defparam B24.INIT_1D =
256'h4b39271503f1dfcdbba997857462503e2c1a09f7e5d3c2b09e8d7b6958463523;
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  defparam B24.INIT_1E =
256'h9785725f4d3a281503f0decbb9a694816f5d4a38261301efddcab8a694826f5d;
  defparam B24.INIT_1F =
256'hf6e2cfbca996836f5c49362310fdead7c4b19e8b796653402d1a08f5e2cfbdaa;
  defparam B24.INIT_20 =
256'h66523f2b1703f0dcc8b5a18d7a66533f2c1805f1decab7a3907d6956432f1c09;
  defparam B24.INIT_21 =
256'he9d5c0ac98836f5b47321e0af6e2cdb9a5917d6955412d1905f1ddc9b6a28e7a;
  defparam B24.INIT_22 =
256'h7e69543f2a1500ecd7c2ad99846f5a46311c08f3dfcab5a18c78634f3b2612fd;
  defparam B24.INIT_23 =
256'h240ff9e4cfb9a48e79644e39240ff9e4cfbaa48f7a65503b2611fce7d2bda893;
  defparam B24.INIT_24 =
256'hddc7b19b856f59432d1701ecd6c0aa947e69533d2812fce7d1bba6907b654f3a;
  defparam B24.INIT_25 =
256'ha7917a644d37200af3ddc6b099836d56402a13fde7d1baa48e78624b351f09f3;
  defparam B24.INIT_26 =
256'h836c553e2710f9e2cbb49d866f58412a13fce5cfb8a18a735d462f1802ebd5be;
  defparam B24.INIT_27 =
256'h7159412a12fae3cbb49c856d563e270ff8e0c9b29a836c543d260ef7e0c9b29a;
  defparam B24.INIT_28 =
256'h70573f270ff7dec6ae967e664e361e06eed6bea68e765e472f17ffe7d0b8a088;
  defparam B24.INIT_29 =
256'h80674e351d04ebd3baa18970583f270ef5ddc5ac947b634a321a01e9d1b8a088;
  defparam B24.INIT_2A =
256'ha1886e553c230af0d7bea58c735940270ef5dcc3aa91785f462e15fce3cab199;
  defparam B24.INIT_2B =
256'hd3baa0866c52391f05ecd2b89f856b52381f05ecd2b89f866c53392006edd4ba;
  defparam B24.INIT_2C =
256'h17fce2c8ad93795f442a10f6dcc1a78d73593f250bf1d7bda3896f553b2107ed;
  defparam B24.INIT_2D =
256'h6b50351a00e5caaf947a5f44290ff4d9bfa48a6f543a1f05ead0b59b80664c31;
  defparam B24.INIT_2E =
256'hd0b4997e62472c10f5dabfa3886d52361b00e5caaf94795e43280df2d7bca186;
  defparam B24.INIT_2F =
256'h45290df1d6ba9e82664a2f13f7dbc0a4886d51351afee3c7ac9075593e2207eb;
  defparam B24.INIT_30 =
256'hcbaf9276593d2104e8ccaf93775b3e2206eaceb295795d412509edd1b5997d61;
  defparam B24.INIT_31 =
256'h6144270aedd1b4977a5d402407eacdb194775b3e2105e8ccaf9276593d2004e7;
  defparam B24.INIT_32 =
256'h07eaccaf9274573a1cffe2c4a78a6d4f3215f8dbbda08366492c0ff2d5b89b7e;
  defparam B24.INIT_33 =
256'hbda0826446280aecceb1937557391cfee0c3a5876a4c2e11f3d6b89b7d604225;
  defparam B24.INIT_34 =
256'h846547280aeccdaf9172543617f9dbbd9e8062442608eaccad8f71533517f9db;
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   defparam B24.INIT_35 =
256'h593a1bfddebfa08162442506e7c9aa8b6c4e2f10f2d3b59677593a1cfddfc0a2;
   defparam B24.INIT_36 =
256'h3f1f00e0c1a28263442505e6c7a888694a2b0cedcdae8f70513213f4d5b69778;
   defparam B24.INIT_37 =
256'h3313f4d4b4947455353515f5d6b69676573717f8d8b999795a3a1bfbdcbc9d7d5e;
   defparam B24.INIT_38 =
256'h3717f7d6b69675553515f5d4b49474543313f3d3b39373533313f3d3b3937353;
   defparam B24.INIT_39 =
256'h4b2a09e8c7a78665442403e2c2a180603f1efeddbd9c7c5b3b1afad9b9997858;
   defparam B24.INIT_3A =
256'h6d4b2a09e8c6a584634120ffdebd9c7b5a3918f7d6b59473523110efcead8c6b;
   defparam B24.INIT_3B =
256'h9d7c5a3817f5d3b1906e4d2b09e8c6a58362401ffddcba9977563513f2d1af8e;
   defparam B24.INIT_3C =
256'hddbb9976543210eeccaa88654321ffddbb9977553412f0ceac8a68462503e1bf;
   defparam B24.INIT_3D =
256'h2b08e6c3a07e5b3916f4d1ae8c69472502e0bd9b78563411efcdaa88664421ff;
   defparam B24.INIT_3E =
256'h8764411efbd8b5926f4c2906e3c09d7a573411efcca98663411efbd8b693704e;
   defparam B24.INIT_3F =
256'hf2ceaa8763401cf9d6b28f6b482501debb9774512d0ae7c4a07d5a3714f1cdaa;
   defparam B24.INITP_00 =
256'h0000003ffffffffffffffff80000000000000000000000000000000000000000;
   defparam B24.INITP_01 =
256'hfffffe0000001fffffff800000007ffffffff0000000003ffffffffffc000000;
   defparam B24.INITP_02 =
256'h7fffe00007ffff00001ffffc00001fffff000007ffffe000001fffffe000000f;
   defparam B24.INITP_03 =
256'h0007ffe0007ffe0007ffe0003fff0001fffc0003fffc0003fffc0001ffff0000;
   defparam B24.INITP_04 =
256'h07ff001ffc007ff800ffe001ffe003ffc003ffc001ffe001fff0007ffc001fff;
   defparam B24.INITP_05 =
256'h1ff007fe00ffc01ff803ff007fe007fe007fe007fe007fe003ff001ff800ffc0;
   defparam B24.INITP_06 =
256'h3fc03fc01fe01fe01ff00ff007f803fc01fe00ff807fc01ff007fc01ff007fc0;
   defparam B24.INITP_07 =
256'hfe01fc07f00fe03fc07f80fe01fc03fc07f80ff00fe01fe01fe03fc03fc03fc0;
   defparam B24.WRITE_MODE = "WRITE_FIRST";
   defparam B24.INIT = 12'h000;
   defparam B24.SRVAL = 12'h000;
   RAMB16_S9 B24 (
      .EN(N342),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N358}),
    .DO({N359, N360, N361, N362, N363, N364, N365, N366}),
    .DIP({N0})
  );
  defparam B27.INIT_00 =
256'h6a4622fedab6926e4a2703dfbb9773502c08e4c19d7956320eebc7a3805c3915;
  defparam B27.INIT_01 =
256'hf0cca7835e3a16f1cda985603c18f4cfab87633f1bf6d2ae8a66421efad6b28e;
  defparam B27.INIT_02 =
256'h845f3a15f1cca7825e3914efcba6815d3814efcaa6815d3814efcba6825d3914;
  defparam B27.INIT_03 =
256'h2500dab5906b4620fbd6b18c67421df8d3ae89643f1af5d0ab86613c17f2cda9;
  defparam B27.INIT_04 =
256'hd3ae88623d17f2cca6815b3610ebc5a07a55300ae5bf9a754f2a05dfba956f4a;
  defparam B27.INIT_05 =
256'h8f69431df7d1ab855f3913edc7a17b552f0ae4be98724d2701dbb5906a441ff9;
  defparam B27.INIT_06 =
256'h57310ae4be97714a24fed7b18b643e18f1cba57f58320ce6c09a734d2701dbb5;
  defparam B27.INIT_07 =
256'h2c06dfb8916a431df6cfa8825b340ee7c09a734c26ffd8b28b653e18f1cba47e;
  defparam B27.INIT_08 =
256'h0ee7c098714a23fcd4ad865f3811eac39c754e2700d9b28b643d16efc8a17a53;
  defparam B27.INIT_09 =
256'hfcd4ad855e360ee7bf98704921fad2ab835c350de6be97704821fad2ab845d35;
  defparam B27.INIT_0A =
256'hf6cea67e562e06deb68f673f17efc79f78502800d8b189613912eac29b734b24;
  defparam B27.INIT_0B =
256'hfcd4ab835b320ae2ba91694119f0c8a0784f27ffd7af875f370ee6be966e461e;
  defparam B27.INIT_0C =
256'h0ee5bd946b421af1c8a0774f26fdd5ac845b330ae2b991684017efc69e754d25;
  defparam B27.INIT_0D =
256'h2b02d9b0875e350ce3ba91683f16edc49b724921f8cfa67d542b03dab1886037;
  defparam B27.INIT_0E =
256'h542b01d8af855c3209e0b68d643a11e8be956c4319f0c79e754b22f9d0a77e55;
  defparam B27.INIT_0F =
256'h885e350be1b78e643a10e7bd936a4016edc39a70461df3caa0774d24fad1a77e;
  defparam B27.INIT_10 =
256'hc79d73491ff5caa0764c22f8cea47a5026fcd2a87e552b01d7ad83592f06dcb2;
  defparam B27.INIT_11 =
256'h11e6bc91673d12e8bd93693e14eabf956b4016ecc1976d4318eec49a70461bf1;
  defparam B27.INIT_12 =
256'h653a0fe5ba8f643a0fe4ba8f64390fe4ba8f643a0fe5ba8f653a10e5bb90663b;
  defparam B27.INIT_13 =
256'hc4986d4217ecc1966b4015eabf94693e13e8bd92673c11e7bc91663b10e5bb90;
   defparam B27.INIT_14 =
256'h2c01d5aa7f5328fdd1a67b4f24f9cda2774b20f5ca9e73481df2c69b70451aef;
   defparam B27.INIT_15 =
256'h9f73481cf0c4996d4116eabe93673c10e4b98d62360bdfb4885d3106daaf8358;
   defparam B27.INIT_16 =
256'h1befc3976b3f13e7bb8f64380ce0b4885c3004d8ad815529fdd1a67a4e22f6cb;
   defparam B27.INIT_17 =
256'ha175491cf0c4986b3f13e6ba8e623609ddb185592d00d4a87c5024f8cca07447;
   defparam B27.INIT_18 =
256'h3104d7ab7e5225f8cc9f73461aedc194683b0fe2b68a5d3104d8ac7f5326face;
   defparam B27.INIT_19 =
256'hc99c6f4215e9bc8f623508dcaf825528fccfa275491cefc396693c10e3b78a5d;
   defparam B27.INIT_1A =
256'h6a3d10e3b6885b2e01d4a77a4d20f3c5986b3e11e4b78a5d3003d6aa7d5023f6;
   defparam B27.INIT_1B =
256'h14e7b98c5e3104d6a97b4e21f3c6996b3e11e3b6895c2e01d4a7794c1ff2c597;
   defparam B27.INIT_1C =
256'hc6996b3d10e2b487592bfed0a275471aecbf91633608dbad805225f7ca9c6f41;
   defparam B27.INIT_1D =
256'h815325f7c99b6d3f11e4b6885a2cfed0a3754719ebbe90623406d9ab7d4f22f4;
   defparam B27.INIT_1E =
256'h4315e7b98b5c2e00d2a476481aebbd8f613305d7a97b4d1ff1c39567390bddaf;
   defparam B27.INIT_1F =
256'h0edfb1825426f7c99a6c3e0fe1b3845628f9cb9d6e4012e4b587592afccea072;
   defparam B27.INIT_20 =
256'he0b1825425f6c8996a3c0ddfb0815324f6c7996a3c0ddeb0815324f6c8996b3c;
   defparam B27.INIT_21 =
256'hb98a5b2cfdce9f714213e4b5865829facb9c6e3f10e1b3845526f8c99a6c3d0e;
   defparam B27.INIT_22 =
256'h996a3b0cddae7e4f20f1c293643506d7a8794a1becbd8e5f3001d2a3744517e8;
   defparam B27.INIT_23 =
256'h805122f2c394643506d7a778491aeabb8c5d2dfecfa0714112e3b4855626f7c8;
   defparam B27.INIT_24 =
256'h6e3f0fe0b0805122f2c393643405d5a6764717e8b9895a2afbcc9c6d3e0edfb0;
   defparam B27.INIT_25 =
256'h623303d3a3744414e5b5855626f6c797673808d9a9794a1aebbb8b5c2cfdcd9e;
   defparam B27.INIT_26 =
256'h5d2dfdcd9d6d3d0ddeae7e4e1eeebe8f5f2fffcfa0704010e0b1815121f2c292;
   defparam B27.INIT_27 =
256'h5d2dfdcd9d6d3d0dddac7c4c1cecbc8c5c2cfccc9c6c3c0cdcac7c4c1dedbd8d;
   defparam B27.INIT_28 =
256'h633303d3a2724212e1b1815120f0c090602fffcf9f6f3f0edeae7e4e1eeebd8d;
   defparam B27.INIT_29 =
256'h6f3f0edead7d4c1cecbb8b5a2afac999683808d7a7774616e6b5855524f4c494;
   defparam B27.INIT_2A =
256'h804f1feebd8d5c2cfbcb9a693908d8a7774616e5b5845423f3c292613100d09f;
  defparam B27.INIT_2B =
256'h96653404d3a2714110dfae7e4d1cecbb8a5a29f8c897663605d4a4734212e1b0;
  defparam B27.INIT_2C =
256'hb1804f1eedbc8b5a29f9c897663504d3a3724110dfae7e4d1cebba8a5928f7c7;
  defparam B27.INIT_2D =
256'hd09f6e3d0cdbaa794817e6b5845322f1c08f5e2dfccb9a693807d6a5744312e1;
  defparam B27.INIT_2E =
256'hf3c291602ffecc9b6a3908d7a6744312e1b07f4e1decbb895827f6c594633201;
  defparam B27.INIT_2F =
256'h1beab9875625f3c291602efdcc9b693807d6a4734211dfae7d4c1be9b8875625;
  defparam B27.INIT_30 =
256'h4715e4b281501eedbc8a5927f6c5936230ffce9c6b3a08d7a6744312e0af7e4c;
  defparam B27.INIT_31 =
256'h764413e1b07e4d1beab8875524f2c18f5e2cfbc998673504d2a16f3e0cdbaa78;
  defparam B27.INIT_32 =
256'ha8774514e2b07f4d1ceab8875524f2c08f5d2cfac897653402d19f6e3c0bd9a7;
  defparam B27.INIT_33 =
256'hdeac7b4917e6b482501fedbb8a5826f5c391602efccb99673604d2a16f3d0cda;
  defparam B27.INIT_34 =
256'h17e5b381501eecba885725f3c18f5e2cfac897653301d09e6c3a09d7a5734210;
  defparam B27.INIT_35 =
256'h5220eebc8a5927f5c3915f2dfbca98663402d09e6d3b09d7a5734210deac7a49;
  defparam B27.INIT_36 =
256'h905e2cfac896643200ce9c6a3806d4a2713f0ddba9774513e1af7d4b1ae8b684;
  defparam B27.INIT_37 =
256'hcf9d6b3907d5a3713f0ddba9774513e1af7d4b19e7b583511fedbb895726f4c2;
  defparam B27.INIT_38 =
256'h11dfad7b4917e5b3814f1ceab8865422f0be8c5a28f6c492602efcca98663401;
  defparam B27.INIT_39 =
256'h5523f0be8c5a28f6c4925f2dfbc997653301cf9c6a3806d4a2703e0cdaa77543;
  defparam B27.INIT_3A =
256'h9a673503d19f6d3a08d6a472400ddba9774513e1ae7c4a18e6b4824f1debb987;
  defparam B27.INIT_3B =
256'he0ae7b4917e5b3804e1ceab8855321efbd8a5826f4c28f5d2bf9c7946230fecc;
  defparam B27.INIT_3C =
256'h27f5c2905e2cf9c7956331fecc9a683503d19f6d3a08d6a4713f0ddba9764412;
  defparam B27.INIT_3D =
256'h6f3c0ad8a673410fddaa784614e1af7d4b18e6b4824f1debb9865422f0be8b59;
  defparam B27.INIT_3E =
256'hb7855220eebc895725f3c08e5c2af7c593602efcca97653301ce9c6a3805d3a1;
  defparam B27.INIT_3F =
256'hffcd9b693604d2a06d3b09d7a472400ddba9774412e0ae7b4917e5b2804e1be9;
  defparam B27.INITP_00 =
256'hc0fe07f01f80fe03f01fc07e03f80fe03f01fc07f01fc07f01fc07f01fe03f80;
  defparam B27.INITP_01 =
256'hf03f03f01f81f81fc0fc0fe07e07f03f01f81fc0fe07f03f01f80fc07e03f81f;
  defparam B27.INITP_02 =
256'h0fc0fc1f81f81f03f03f03f03e07e07e07e07e07e07e07e07e07e07e07e07f03;
  defparam B27.INITP_03 =
256'h7c0f81f03f07e0fc1f83f03e07c0fc1f81f03f07e07c0fc1f81f03f03e07e07c;
  defparam B27.INITP_04 =
256'hc0f83f07c0f83f07e0f81f07e0fc1f03e07c1f83f07e0fc1f03e07c0f81f03e0;
  defparam B27.INITP_05 =
256'h7c1f83e0f81f07c0f83e0fc1f07e0f83f07c1f83e0fc1f03e0f81f07e0f83f07;
  defparam B27.INITP_06 =
256'hf83e0f83e07c1f07c1f03e0f83e0fc1f07c1f03e0f83e07c1f07c0f83e0f81f0;
  defparam B27.INITP_07 =
256'hfc1f07c1f07c1f83e0f83e0f83e07c1f07c1f07c0f83e0f83e0fc1f07c1f07c0;
  defparam B27.WRITE_MODE = "WRITE_FIRST";
  defparam B27.INIT = 12'h000;
  defparam B27.SRVAL = 12'h000;
  RAMB16_S9 B27 (
    .EN(N341),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N349}),
    .DO({N350, N351, N352, N353, N354, N355, N356, N357}),
    .DIP({N0})
  );
  FDE BU31 (
    .CE(N1),
    .C(clk),
    .D(addr_2[11]),
    .Q(N5503)
  );
  FDE BU34 (
    .CE(N1),
    .C(clk),
    .D(addr_2[12]),
    .Q(N5502)
  );
  FDE BU37 (
    .CE(N1),
    .C(clk),
    .D(addr_2[13]),
    .Q(N5501)
  );
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defparam BU43.INIT = 16'hcaca;
LUT4 BU43 (
   .I0(N420),
   .I1(N411),
   .I2(N5503),
   .I3(N0),
   .O(N5940)
);
defparam BU47.INIT = 16'hcaca;
LUT4 BU47 (
   .I0(N402),
   .I1(N393),
   .I2(N5503),
   .I3(N0),
   .O(N5941)
);
MUXF5 BU49 (
   .I0(N5940),
   .I1(N5941),
   .O(N5905),
   .S(N5502)
);
defparam BU54.INIT = 16'hcaca;
LUT4 BU54 (
   .I0(N384),
   .I1(N375),
   .I2(N5503),
   .I3(N0),
   .O(N6012)
);
defparam BU58.INIT = 16'hcaca;
LUT4 BU58 (
   .I0(N366),
   .I1(N357),
   .I2(N5503),
   .I3(N0),
   .O(N6013)
);
MUXF5 BU60 (
   .I0(N6012),
   .I1(N6013),
   .O(N5907),
   .S(N5502)
);
MUXF6 BU62 (
   .I0(N5905),
   .I1(N5907),
   .O(dout_3[0]),
   .S(N5501)
);
defparam BU68.INIT = 16'hcaca;
LUT4 BU68 (
   .I0(N419),
   .I1(N410),
   .I2(N5503),
   .I3(N0),
   .O(N6119)
);
defparam BU72.INIT = 16'hcaca;
LUT4 BU72 (
   .I0(N401),
   .I1(N392),
   .I2(N5503),
   .I3(N0),
   .O(N6120)
);
MUXF5 BU74 (
   .I0(N6119),
   .I1(N6120),
   .O(N6084),
   .S(N5502)
);
defparam BU79.INIT = 16'hcaca;
LUT4 BU79 (
   .I0(N383),
   .I1(N374),
   .I2(N5503),
   .I3(N0),
   .O(N6191)
);
defparam BU83.INIT = 16'hcaca;
LUT4 BU83 (
   .I0(N365),
   .I1(N356),
   .I2(N5503),
   .I3(N0),
   .O(N6192)
);
MUXF5 BU85 (
   .I0(N6191),
   .I1(N6192),
   .O(N6086),
   .S(N5502)
);
MUXF6 BU87 (
   .I0(N6084),
   .I1(N6086),
   .O(dout_3[1]),
   .S(N5501)
);
defparam BU93.INIT = 16'hcaca;
LUT4 BU93 (
   .I0(N418),
   .I1(N409),
   .I2(N5503),
   .I3(N0),
   .O(N6298)
);
defparam BU97.INIT = 16'hcaca;
LUT4 BU97 (
   .I0(N400),
   .I1(N391),
   .I2(N5503),
   .I3(N0),
   .O(N6299)
);
MUXF5 BU99 (
   .I0(N6298),
   .I1(N6299),
   .O(N6263),
   .S(N5502)
);
defparam BU104.INIT = 16'hcaca;
LUT4 BU104 (
   .I0(N382),
   .I1(N373),
   .I2(N5503),
   .I3(N0),
   .O(N6370)
);
defparam BU108.INIT = 16'hcaca;
LUT4 BU108 (
   .I0(N364),
   .I1(N355),
   .I2(N5503),
   .I3(N0),
   .O(N6371)
);
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MUXF5 BU110 (
  .I0(N6370),
  .I1(N6371),
  .O(N6265),
  .S(N5502)
);
MUXF6 BU112 (
  .I0(N6263),
  .I1(N6265),
  .O(dout_3[2]),
  .S(N5501)
);
defparam BU118.INIT = 16'hcaca;
LUT4 BU118 (
  .I0(N417),
  .I1(N408),
  .I2(N5503),
  .I3(N0),
  .O(N6477)
);
defparam BU122.INIT = 16'hcaca;
LUT4 BU122 (
  .I0(N399),
  .I1(N390),
  .I2(N5503),
  .I3(N0),
  .O(N6478)
);
MUXF5 BU124 (
  .I0(N6477),
  .I1(N6478),
  .O(N6442),
  .S(N5502)
);
defparam BU129.INIT = 16'hcaca;
LUT4 BU129 (
  .I0(N381),
  .I1(N372),
  .I2(N5503),
  .I3(N0),
  .O(N6549)
);
defparam BU133.INIT = 16'hcaca;
LUT4 BU133 (
  .I0(N363),
  .I1(N354),
  .I2(N5503),
  .I3(N0),
  .O(N6550)
);
MUXF5 BU135 (
  .I0(N6549),
  .I1(N6550),
  .O(N6444),
  .S(N5502)
);
MUXF6 BU137 (
  .I0(N6442),
  .I1(N6444),
  .O(dout_3[3]),
  .S(N5501)
);
defparam BU143.INIT = 16'hcaca;
LUT4 BU143 (
  .I0(N416),
  .I1(N407),
  .I2(N5503),
  .I3(N0),
  .O(N6656)
);
defparam BU147.INIT = 16'hcaca;
LUT4 BU147 (
  .I0(N398),
  .I1(N389),
  .I2(N5503),
  .I3(N0),
  .O(N6657)
);
MUXF5 BU149 (
  .I0(N6656),
  .I1(N6657),
  .O(N6621),
  .S(N5502)
);
defparam BU154.INIT = 16'hcaca;
LUT4 BU154 (
  .I0(N380),
  .I1(N371),
  .I2(N5503),
  .I3(N0),
  .O(N6728)
);
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defparam BU158.INIT = 16'hcaca;
LUT4 BU158 (
   .I0(N362),
   .I1(N353),
   .I2(N5503),
   .I3(N0),
   .O(N6729)
);
MUXF5 BU160 (
   .I0(N6728),
   .I1(N6729),
   .O(N6623),
   .S(N5502)
);
MUXF6 BU162 (
   .I0(N6621),
   .I1(N6623),
   .O(dout_3[4]),
   .S(N5501)
);
defparam BU168.INIT = 16'hcaca;
LUT4 BU168 (
   .I0(N415),
   .I1(N406),
   .I2(N5503),
   .I3(N0),
   .O(N6835)
);
defparam BU172.INIT = 16'hcaca;
LUT4 BU172 (
   .I0(N397),
   .I1(N388),
   .I2(N5503),
   .I3(N0),
   .O(N6836)
);
MUXF5 BU174 (
   .I0(N6835),
   .I1(N6836),
   .O(N6800),
   .S(N5502)
);
defparam BU179.INIT = 16'hcaca;
LUT4 BU179 (
   .I0(N379),
   .I1(N370),
   .I2(N5503),
   .I3(N0),
   .O(N6907)
);
defparam BU183.INIT = 16'hcaca;
LUT4 BU183 (
   .I0(N361),
   .I1(N352),
   .I2(N5503),
   .I3(N0),
   .O(N6908)
);
MUXF5 BU185 (
   .I0(N6907),
   .I1(N6908),
   .O(N6802),
   .S(N5502)
);
MUXF6 BU187 (
   .I0(N6800),
   .I1(N6802),
   .O(dout_3[5]),
   .S(N5501)
);
defparam BU193.INIT = 16'hcaca;
LUT4 BU193 (
   .I0(N414),
   .I1(N405),
   .I2(N5503),
   .I3(N0),
   .O(N7014)
);
defparam BU197.INIT = 16'hcaca;
LUT4 BU197 (
   .I0(N396),
   .I1(N387),
   .I2(N5503),
   .I3(N0),
   .O(N7015)
);
MUXF5 BU199 (
   .I0(N7014),
   .I1(N7015),
   .O(N6979),
   .S(N5502)
);
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defparam BU204.INIT = 16'hcaca;
LUT4 BU204 (
   .I0(N378),
   .I1(N369),
   .I2(N5503),
   .I3(N0),
   .O(N7086)
);
defparam BU208.INIT = 16'hcaca;
LUT4 BU208 (
   .I0(N360),
   .I1(N351),
   .I2(N5503),
   .I3(N0),
   .O(N7087)
);
MUXF5 BU210 (
   .I0(N7086),
   .I1(N7087),
   .O(N6981),
   .S(N5502)
);
MUXF6 BU212 (
   .I0(N6979),
   .I1(N6981),
   .O(dout_3[6]),
   .S(N5501)
);
defparam BU218.INIT = 16'hcaca;
LUT4 BU218 (
   .I0(N413),
   .I1(N404),
   .I2(N5503),
   .I3(N0),
   .O(N7193)
);
defparam BU222.INIT = 16'hcaca;
LUT4 BU222 (
   .I0(N395),
   .I1(N386),
   .I2(N5503),
   .I3(N0),
   .O(N7194)
);
MUXF5 BU224 (
   .I0(N7193),
   .I1(N7194),
   .O(N7158),
   .S(N5502)
);
defparam BU229.INIT = 16'hcaca;
LUT4 BU229 (
   .I0(N377),
   .I1(N368),
   .I2(N5503),
   .I3(N0),
   .O(N7265)
);
defparam BU233.INIT = 16'hcaca;
LUT4 BU233 (
   .I0(N359),
   .I1(N350),
   .I2(N5503),
   .I3(N0),
   .O(N7266)
);
MUXF5 BU235 (
   .I0(N7265),
   .I1(N7266),
   .O(N7160),
   .S(N5502)
);
MUXF6 BU237 (
   .I0(N7158),
   .I1(N7160),
   .O(dout_3[7]),
   .S(N5501)
);
defparam BU243.INIT = 16'hcaca;
LUT4 BU243 (
   .I0(N412),
   .I1(N403),
   .I2(N5503),
   .I3(N0),
   .O(N7372)
);
defparam BU247.INIT = 16'hcaca;
LUT4 BU247 (
   .I0(N394),
   .I1(N385),
   .I2(N5503),
   .I3(N0),
   .O(N7373)
);
MUXF5 BU249 (
   .I0(N7372),
   .I1(N7373),
   .O(N7337),
   .S(N5502)
);
defparam BU254.INIT = 16'hcaca;
LUT4 BU254 (
   .I0(N376),
   .I1(N367),
   .I2(N5503),
   .I3(N0),
   .O(N7444)
);
defparam BU258.INIT = 16'hcaca;
LUT4 BU258 (
   .I0(N358),
   .I1(N349),
   .I2(N5503),
   .I3(N0),
   .O(N7445)
);
MUXF5 BU260 (
   .I0(N7444),
   .I1(N7445),
   .O(N7339),
   .S(N5502)
);
MUXF6 BU262 (
   .I0(N7337),
   .I1(N7339),
   .O(dout_3[8]),
   .S(N5501)
);
defparam BU278.INIT = 16'h0100;
LUT4 BU278 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N348)
);
defparam BU283.INIT = 16'h1000;
LUT4 BU283 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N347)
);
defparam BU288.INIT = 16'h0400;
LUT4 BU288 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N346)
);
defparam BU293.INIT = 16'h4000;
LUT4 BU293 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N345)
);
defparam BU298.INIT = 16'h0200;
LUT4 BU298 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N344)
);
defparam BU303.INIT = 16'h2000;
LUT4 BU303 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N343)
);
defparam BU308.INIT = 16'h0800;
LUT4 BU308 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N342)
);
```

```
   defparam BU313.INIT = 16'h8000;
   LUT4 BU313 (
      .I0(addr_2[13]),
      .I1(addr_2[12]),
      .I2(addr_2[11]),
      .I3(N1),
      .O(N341)
   );
   defparam B317.INIT_00 =
256'h03020202020202020202020101010101010101010101000000000000000000ff;
   defparam B317.INIT_01 =
256'h0606050505050505050505050404040404040404040404030303030303030303;
   defparam B317.INIT_02 =
256'h0909090908080808080808080808070707070707070707070706060606060606;
   defparam B317.INIT_03 =
256'h0c0c0c0c0c0b0b0b0b0b0b0b0b0b0b0a0a0a0a0a0a0a0a0a0a0a090909090909;
   defparam B317.INIT_04 =
256'h0f0f0f0f0f0f0e0e0e0e0e0e0e0e0e0e0e0d0d0d0d0d0d0d0d0d0d0d0c0c0c0c;
   defparam B317.INIT_05 =
256'h121212121212121212111111111111111111111010101010101010101000f0f0f;
   defparam B317.INIT_06 =
256'h1515151515151515151414141414141414141414131313131313131313131212;
   defparam B317.INIT_07 =
256'h1818181818181818181818171717171717171717171616161616161616161615;
   defparam B317.INIT_08 =
256'h1c1c1b1b1b1b1b1b1b1b1b1b1a1a1a1a1a1a1a1a1a1a1a191919191919191919;
   defparam B317.INIT_09 =
256'h1f1f1f1e1e1e1e1e1e1e1e1e1e1d1d1d1d1d1d1d1d1d1d1d1c1c1c1c1c1c1c1c;
   defparam B317.INIT_0A =
256'h2222222221212121212121212121212020202020202020202020201f1f1f1f1f1f;
   defparam B317.INIT_0B =
256'h2525252525242424242424242424242423232323232323232323232222222222;
   defparam B317.INIT_0C =
256'h2828282828282727272727272727272727262626262626262626262625252525;
   defparam B317.INIT_0D =
256'h2b2b2b2b2b2b2b2a2a2a2a2a2a2a2a2a2a2a2929292929292929292929282828;
   defparam B317.INIT_0E =
256'h2e2e2e2e2e2e2e2e2d2d2d2d2d2d2d2d2d2d2d2c2c2c2c2c2c2c2c2c2c2b2b2b;
   defparam B317.INIT_0F =
256'h31313131313131313131303030303030303030303030302f2f2f2f2f2f2f2f2f2e2e;
   defparam B317.INIT_10 =
256'h3434343434343434343434333333333333333333333332323232323232323231;
   defparam B317.INIT_11 =
256'h3737373737373737373737363636363636363636363635353535353535353535;
   defparam B317.INIT_12 =
256'h3b3a3a3a3a3a3a3a3a3a3a3a393939393939393939393938383838383838383838;
```

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   defparam B317.INIT_13 =
256'h3e3e3d3d3d3d3d3d3d3d3d3d3d3c3c3c3c3c3c3c3c3c3c3c3b3b3b3b3b3b3b3b;
   defparam B317.INIT_14 =
256'h41414040404040404040404040403f3f3f3f3f3f3f3f3f3f3f3e3e3e3e3e3e3e3e;
   defparam B317.INIT_15 =
256'h4444434343434343434343434343424242424242424242424242414141414141414141;
   defparam B317.INIT_16 =
256'h4747474646464646464646464645454545454545454545454544444444444444444444;
   defparam B317.INIT_17 =
256'h4a4a4a494949494949494949494948484848484848484848484747474747474747;
   defparam B317.INIT_18 =
256'h4d4d4d4c4c4c4c4c4c4c4c4c4c4b4b4b4b4b4b4b4b4b4b4b4a4a4a4a4a4a4a4a;
   defparam B317.INIT_19 =
256'h5050504f4f4f4f4f4f4f4f4f4f4e4e4e4e4e4e4e4e4e4e4e4d4d4d4d4d4d4d4d;
   defparam B317.INIT_1A =
256'h5353535252525252525252525252515151515151515151515050505050505050;
   defparam B317.INIT_1B =
256'h5656555555555555555555555555545454545454545454545453535353535353535353;
   defparam B317.INIT_1C =
256'h5959585858585858585858585858575757575757575757575756565656565656565656;
   defparam B317.INIT_1D =
256'h5c5b5b5b5b5b5b5b5b5b5b5b5a5a5a5a5a5a5a5a5a5a5a595959595959595959;
   defparam B317.INIT_1E =
256'h5e5e5e5e5e5e5e5e5e5e5e5d5d5d5d5d5d5d5d5d5d5d5c5c5c5c5c5c5c5c5c5c;
   defparam B317.INIT_1F =
256'h616161616161616161616160606060606060606060605f5f5f5f5f5f5f5f5f5f;
   defparam B317.INIT_20 =
256'h6464646464646464646463636363636363636363636262626262626262626261;
   defparam B317.INIT_21 =
256'h6767676767676767666666666666666666666665656565656565656565656464;
   defparam B317.INIT_22 =
256'h6a6a6a6a6a696969696969696969696969686868686868686868686868676767;
   defparam B317.INIT_23 =
256'h6d6d6d6d6d6c6c6c6c6c6c6c6c6c6c6c6b6b6b6b6b6b6b6b6b6b6b6a6a6a6a6a;
   defparam B317.INIT_24 =
256'h7070706f6f6f6f6f6f6f6f6f6f6e6e6e6e6e6e6e6e6e6e6e6e6e6d6d6d6d6d6d;
   defparam B317.INIT_25 =
256'h737272727272727272727272717171717171717171717170707070707070707070;
   defparam B317.INIT_26 =
256'h757575757575757575757574747474747474747474747473737373737373737373;
   defparam B317.INIT_27 =
256'h787878787878787777777777777777777777777776767676767676767676767575;
   defparam B317.INIT_28 =
256'h7b7b7b7b7b7a7a7a7a7a7a7a7a7a7a7a7a797979797979797979797978787878;
   defparam B317.INIT_29 =
256'h7e7e7d7d7d7d7d7d7d7d7d7d7d7d7c7c7c7c7c7c7c7c7c7c7c7c7b7b7b7b7b7b;
```

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   defparam B317.INIT_2A =
256'h8080808080808080807f7f7f7f7f7f7f7f7f7f7f7f7f7e7e7e7e7e7e7e7e7e7e;
   defparam B317.INIT_2B =
256'h8383838383838382828282828282828282828282818181818181818181818080;
   defparam B317.INIT_2C =
256'h8686868585858585858585858585858584848484848484848484848483838383;
   defparam B317.INIT_2D =
256'h8888888888888888888888878787878787878787878787868686868686868686;
   defparam B317.INIT_2E =
256'h8b8b8b8b8b8b8b8a8a8a8a8a8a8a8a8a8a8a8a89898989898989898989898988;
   defparam B317.INIT_2F =
256'h8e8e8d8d8d8d8d8d8d8d8d8d8d8d8d8d8c8c8c8c8c8c8c8c8c8c8c8c8b8b8b8b;
   defparam B317.INIT_30 =
256'h909090909090909090908f8f8f8f8f8f8f8f8f8f8f8f8e8e8e8e8e8e8e8e8e8e;
   defparam B317.INIT_31 =
256'h9393939393929292929292929292929292919191919191919191919191919090;
   defparam B317.INIT_32 =
256'h9595959595959595959595959494949494949494949494949393939393939393;
   defparam B317.INIT_33 =
256'h9898989898989797979797979797979797979797969696969696969696969695;
   defparam B317.INIT_34 =
256'h9a9a9a9a9a9a9a9a9a9a9a9a9a99999999999999999999999999999898989898;
   defparam B317.INIT_35 =
256'h9d9d9d9d9d9c9c9c9c9c9c9c9c9c9c9c9c9c9b9b9b9b9b9b9b9b9b9b9b9b9b9b;
   defparam B317.INIT_36 =
256'h9f9f9f9f9f9f9f9f9f9f9f9f9e9e9e9e9e9e9e9e9e9e9e9e9e9e9d9d9d9d9d9d;
   defparam B317.INIT_37 =
256'ha2a2a2a2a1a1a1a1a1a1a1a1a1a1a1a1a1a1a0a0a0a0a0a0a0a0a0a0a0a0a09f;
   defparam B317.INIT_38 =
256'ha4a4a4a4a4a4a4a4a4a4a4a3a3a3a3a3a3a3a3a3a3a3a3a3a3a2a2a2a2a2a2a2;
   defparam B317.INIT_39 =
256'ha7a7a6a6a6a6a6a6a6a6a6a6a6a6a6a6a6a5a5a5a5a5a5a5a5a5a5a5a5a4a4a4;
   defparam B317.INIT_3A =
256'ha9a9a9a9a9a9a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a7a7a7a7a7a7a7a7a7a7;
   defparam B317.INIT_3B =
256'hababababababababababababaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa9a9a9a9a9;
   defparam B317.INIT_3C =
256'haeaeaeadadadadadadadadadadadadadadadacacacacacacacacacacacacabab;
   defparam B317.INIT_3D =
256'hb0b0b0b0b0b0afafafafafafafafafafafafafafafaeaeaeaeaeaeaeaeaeaeae;
   defparam B317.INIT_3E =
256'hb2b2b2b2b2b2b2b2b2b2b2b1b1b1b1b1b1b1b1b1b1b1b1b1b1b0b0b0b0b0b0b0;
   defparam B317.INIT_3F =
256'hb4b4b4b4b4b4b4b4b4b4b4b4b4b4b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b2b2b2;
   defparam B317.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000001;
```

```
   defparam B317.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.WRITE_MODE = "WRITE_FIRST";
   defparam B317.INIT = 12'h000;
   defparam B317.SRVAL = 12'h000;
   RAMB16_S9 B317 (
      .EN(N7951),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N8015}),
      .DO({N8016, N8017, N8018, N8019, N8020, N8021, N8022, N8023}),
      .DIP({N0})
   );
   defparam B320.INIT_00 =
256'hb7b7b7b6b6b6b6b6b6b6b6b6b6b6b6b6b6b5b5b5b5b5b5b5b5b5b5b5b5b5b5b5;
   defparam B320.INIT_01 =
256'hb9b9b9b9b9b9b8b8b8b8b8b8b8b8b8b8b8b8b8b8b7b7b7b7b7b7b7b7b7b7b7b7;
   defparam B320.INIT_02 =
256'hbbbbbbbbbbbbbbbbbababababababababababababababab9b9b9b9b9b9b9b9b9;
   defparam B320.INIT_03 =
256'hbdbdbdbdbdbdbdbdbdbdbcbcbcbcbcbcbcbcbcbcbcbcbcbcbcbbbbbbbbbbbbbb;
   defparam B320.INIT_04 =
256'hbfbfbfbfbfbfbfbfbfbfbfbfbebebebebebebebebebebebebebebebdbdbdbdbd;
   defparam B320.INIT_05 =
256'hc1c1c1c1c1c1c1c1c1c1c1c1c1c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0bfbfbfbf;
   defparam B320.INIT_06 =
256'hc3c3c3c3c3c3c3c3c3c3c3c3c3c3c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c1c1c1;
   defparam B320.INIT_07 =
256'hc5c5c5c5c5c5c5c5c5c5c5c5c5c5c5c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c3c3;
   defparam B320.INIT_08 =
256'hc7c7c7c7c7c7c7c7c7c7c7c7c7c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c5c5;
   defparam B320.INIT_09 =
256'hc9c9c9c9c9c9c9c9c9c9c9c9c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c7c7c7;
   defparam B320.INIT_0A =
256'hcbcbcbcbcbcbcbcbcbcbcbcacacacacacacacacacacacacacacacacacac9c9c9;
   defparam B320.INIT_0B =
256'hcdcdcdcdcdcdcdcdcdcdcccccccccccccccccccccccccccccccccccccbcbcbcb;
   defparam B320.INIT_0C =
256'hcfcfcfcfcfcfcfcfcececececececececececececececececececdcdcdcdcdcd;
   defparam B320.INIT_0D =
256'hd1d1d1d1d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0cfcfcfcfcfcfcfcf;
   defparam B320.INIT_0E =
256'hd3d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d1d1d1d1d1d1d1d1d1d1d1d1;
   defparam B320.INIT_0F =
256'hd4d4d4d4d4d4d4d4d4d4d4d4d4d4d4d4d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3;
   defparam B320.INIT_10 =
256'hd6d6d6d6d6d6d6d6d6d6d6d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d4d4d4;
   defparam B320.INIT_11 =
256'hd8d8d8d8d8d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d6d6d6d6d6d6;
   defparam B320.INIT_12 =
256'hd9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d8d8d8d8d8d8d8d8d8d8d8d8d8;
   defparam B320.INIT_13 =
256'hdbdbdbdbdbdbdbdbdbdadadadadadadadadadadadadadadadadadadadadadad9;
   defparam B320.INIT_14 =
256'hdddddddcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdbdbdbdbdbdbdb;
   defparam B320.INIT_15 =
256'hdededededededededededededddddddddddddddddddddddddddddddddddddddd;
   defparam B320.INIT_16 =
256'he0e0e0e0dfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdededededede;
   defparam B320.INIT_17 =
256'he1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0;
   defparam B320.INIT_18 =
256'he3e3e3e3e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e1e1e1e1e1;
   defparam B320.INIT_19 =
256'he4e4e4e4e4e4e4e4e4e4e4e4e4e4e4e3e3e3e3e3e3e3e3e3e3e3e3e3e3e3e3e3;
   defparam B320.INIT_1A =
256'he6e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e4e4e4e4e4e4e4e4e4;
   defparam B320.INIT_1B =
256'he7e7e7e7e7e7e7e7e7e7e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6;
   defparam B320.INIT_1C =
256'he8e8e8e8e8e8e8e8e8e8e8e8e8e8e8e8e8e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7;
   defparam B320.INIT_1D =
256'heae9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e8e8e8e8e8e8e8e8e8;
   defparam B320.INIT_1E =
256'hebebebebebebebebeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaea;
   defparam B320.INIT_1F =
256'hecececececececececececececebebebebebebebebebebebebebebebebebeb;
  defparam B320.INIT_20 =
256'hededededededededededededededededededecececececececececececececec;
  defparam B320.INIT_21 =
256'heeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeededededededededeed;
  defparam B320.INIT_22 =
256'hefefefefefefefefefefefefefefefefefefefefefefefefefefefeeeeeeeeee;
  defparam B320.INIT_23 =
256'hf1f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0efef;
  defparam B320.INIT_24 =
256'hf2f2f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1;
  defparam B320.INIT_25 =
256'hf3f3f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2;
  defparam B320.INIT_26 =
256'hf4f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3;
  defparam B320.INIT_27 =
256'hf4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4;
  defparam B320.INIT_28 =
256'hf5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f4;
  defparam B320.INIT_29 =
256'hf6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f5f5f5f5f5;
  defparam B320.INIT_2A =
256'hf7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f6f6f6f6f6f6f6f6f6f6f6;
  defparam B320.INIT_2B =
256'hf8f8f8f8f8f8f8f8f8f8f8f8f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7;
  defparam B320.INIT_2C =
256'hf9f9f9f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8;
  defparam B320.INIT_2D =
256'hf9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9;
  defparam B320.INIT_2E =
256'hfafafafafafafafafafafafafafafafafafafafafaf9f9f9f9f9f9f9f9f9f9f9;
  defparam B320.INIT_2F =
256'hfbfbfbfafafafafafafafafafafafafafafafafafafafafafafafafafafafafa;
  defparam B320.INIT_30 =
256'hfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfb;
  defparam B320.INIT_31 =
256'hfcfcfcfcfcfcfcfcfcfcfcfcfcfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfb;
  defparam B320.INIT_32 =
256'hfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfc;
  defparam B320.INIT_33 =
256'hfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfc;
  defparam B320.INIT_34 =
256'hfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfd;
  defparam B320.INIT_35 =
256'hfefefefefefefefdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfd;
  defparam B320.INIT_36 =
256'hfefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefe;
  defparam B320.INIT_37 =
256'hfefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefe;
  defparam B320.INIT_38 =
256'hfffffffffffffefefefefefefefefefefefefefefefefefefefefefefefefefefe;
  defparam B320.INIT_39 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INIT_3A = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INIT_3B = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INIT_3C = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INIT_3D = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INIT_3E = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INIT_3F = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.WRITE_MODE = "WRITE_FIRST";
  defparam B320.INIT = 12'h000;
  defparam B320.SRVAL = 12'h000;
  RAMB16_S9 B320 (
    .EN(N7950),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N8006}),
    .DO({N8007, N8008, N8009, N8010, N8011, N8012, N8013, N8014}),
    .DIP({N0})
  );
  defparam B323.INIT_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B323.INIT_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B323.INIT_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
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   defparam B323.INIT_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INIT_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INIT_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INIT_06 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INIT_07 =
256'hfefefefefefefefefefefefefefefefefefefefefefefefefeffffffffffffff;
   defparam B323.INIT_08 =
256'hfefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefe;
   defparam B323.INIT_09 =
256'hfefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefefe;
   defparam B323.INIT_0A =
256'hfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfefefefefefe;
   defparam B323.INIT_0B =
256'hfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfd;
   defparam B323.INIT_0C =
256'hfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfdfdfdfdfdfdfdfdfdfdfdfdfdfdfd;
   defparam B323.INIT_0D =
256'hfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfcfc;
   defparam B323.INIT_0E =
256'hfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfcfcfcfcfcfcfcfcfcfcfcfcfc;
   defparam B323.INIT_0F =
256'hfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfb;
   defparam B323.INIT_10 =
256'hfafafafafafafafafafafafafafafafafafafafafafafafafafafafafbfbfbfb;
   defparam B323.INIT_11 =
256'hf9f9f9f9f9f9f9f9f9f9fafafafafafafafafafafafafafafafafafafafafafa;
   defparam B323.INIT_12 =
256'hf9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9f9;
   defparam B323.INIT_13 =
256'hf8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f8f9f9f9;
   defparam B323.INIT_14 =
256'hf7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f8f8f8f8f8f8f8f8f8f8f8f8f8f8;
   defparam B323.INIT_15 =
256'hf6f6f6f6f6f6f6f6f6f6f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7;
   defparam B323.INIT_16 =
256'hf5f5f5f5f5f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6f6;
   defparam B323.INIT_17 =
256'hf4f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5;
   defparam B323.INIT_18 =
256'hf4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4;
   defparam B323.INIT_19 =
256'hf3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f4f4;
   defparam B323.INIT_1A =
256'hf2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f3f3f3;
   defparam B323.INIT_1B =
256'hf1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f2f2f2;
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  defparam B323.INIT_1C =
256'heff0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f1;
  defparam B323.INIT_1D =
256'heeeeeeeeefefefefefefefefefefefefefefefefefefefefefefefefefefefef;
  defparam B323.INIT_1E =
256'hedededededededededeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee;
  defparam B323.INIT_1F =
256'hececececececececececececececedededededededededededededededededed;
  defparam B323.INIT_20 =
256'hebebebebebebebebebebebebebebebebebebebecececececececececececec;
  defparam B323.INIT_21 =
256'heaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaeaebebebebebebebeb;
  defparam B323.INIT_22 =
256'he8e8e8e8e8e8e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9e9ea;
  defparam B323.INIT_23 =
256'he7e7e7e7e7e7e7e7e7e7e7e7e7e7e8e8e8e8e8e8e8e8e8e8e8e8e8e8e8e8e8e8;
  defparam B323.INIT_24 =
256'he6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e6e7e7e7e7e7e7e7e7e7e7;
  defparam B323.INIT_25 =
256'he4e4e4e4e4e4e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e6e6;
  defparam B323.INIT_26 =
256'he3e3e3e3e3e3e3e3e3e3e3e3e3e3e4e4e4e4e4e4e4e4e4e4e4e4e4e4e4e4e4e4;
  defparam B323.INIT_27 =
256'he1e1e1e1e1e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e2e3e3e3e3e3;
  defparam B323.INIT_28 =
256'he0e0e0e0e0e0e0e0e0e0e0e0e0e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1;
  defparam B323.INIT_29 =
256'hdededededededfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfdfe0e0e0e0e0;
  defparam B323.INIT_2A =
256'hdddddddddddddddddddddddddddddddddededededededededededededededede;
  defparam B323.INIT_2B =
256'hdbdbdbdbdbdbdbdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdddddddd;
  defparam B323.INIT_2C =
256'hd9dadadadadadadadadadadadadadadadadadadadbdbdbdbdbdbdbdbdbdbdbdb;
  defparam B323.INIT_2D =
256'hd8d8d8d8d8d8d8d8d8d8d8d8d8d8d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d9;
  defparam B323.INIT_2E =
256'hd6d6d6d6d6d6d6d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d7d8d8d8d8d8d8;
  defparam B323.INIT_2F =
256'hd4d4d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d5d6d6d6d6d6d6d6d6d6d6;
  defparam B323.INIT_30 =
256'hd3d3d3d3d3d3d3d3d3d3d3d3d3d3d4d4d4d4d4d4d4d4d4d4d4d4d4d4d4d4d4d4;
  defparam B323.INIT_31 =
256'hd1d1d1d1d1d1d1d1d1d1d1d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d3d3;
  defparam B323.INIT_32 =
256'hcfcfcfcfcfcfcfcfcfd0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d1d1d1d1d1;
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   defparam B323.INIT_33 =
256'hcdcdcdcdcdcecececececececececececececececececececececfcfcfcfcfcfcfcf;
   defparam B323.INIT_34 =
256'hcbcbcbcbcccccccccccccccccccccccccccccccccccdcdcdcdcdcdcdcdcdcdcdcd;
   defparam B323.INIT_35 =
256'hc9c9c9cacacacacacacacacacacacacacacacbcbcbcbcbcbcbcbcbcbcbcbcbcb;
   defparam B323.INIT_36 =
256'hc7c7c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c9c9c9c9c9c9c9c9c9c9c9c9c9c9;
   defparam B323.INIT_37 =
256'hc5c5c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c7c7c7c7c7c7c7c7c7c7c7c7c7c7;
   defparam B323.INIT_38 =
256'hc3c3c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c5c5c5c5c5c5c5c5c5c5c5c5c5c5;
   defparam B323.INIT_39 =
256'hc1c1c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c3c3c3c3c3c3c3c3c3c3c3c3c3c3;
   defparam B323.INIT_3A =
256'hbfbfbfc0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c1c1c1c1c1c1c1c1c1c1c1c1c1c1;
   defparam B323.INIT_3B =
256'hbdbdbdbdbdbebebebebebebebebebebebebebebebebfbfbfbfbfbfbfbfbfbfbf;
   defparam B323.INIT_3C =
256'hbbbbbbbbbbbbbbbcbcbcbcbcbcbcbcbcbcbcbcbcbcbcbcbdbdbdbdbdbdbdbdbd;
   defparam B323.INIT_3D =
256'hb9b9b9b9b9b9b9b9b9babababababababababababababababbbbbbbbbbbbbbbb;
   defparam B323.INIT_3E =
256'hb7b7b7b7b7b7b7b7b7b7b7b7b8b8b8b8b8b8b8b8b8b8b8b8b8b8b9b9b9b9b9b9;
   defparam B323.INIT_3F =
256'hb5b5b5b5b5b5b5b5b5b5b5b5b5b5b5b6b6b6b6b6b6b6b6b6b6b6b6b6b6b7b7b7;
   defparam B323.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B323.WRITE_MODE = "WRITE_FIRST";
   defparam B323.INIT = 12'h000;
   defparam B323.SRVAL = 12'h000;
   RAMB16_S9 B323 (
    .EN(N7949),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N7997}),
    .DO({N7998, N7999, N8000, N8001, N8002, N8003, N8004, N8005}),
    .DIP({N0})
  );
  defparam B326.INIT_00 =
256'hb2b2b2b3b3b3b3b3b3b3b3b3b3b3b3b3b3b4b4b4b4b4b4b4b4b4b4b4b4b4b4b4;
  defparam B326.INIT_01 =
256'hb0b0b0b0b0b0b0b1b1b1b1b1b1b1b1b1b1b1b1b1b1b2b2b2b2b2b2b2b2b2b2b2;
  defparam B326.INIT_02 =
256'haeaeaeaeaeaeaeaeaeaeaeafafafafafafafafafafafafafafb0b0b0b0b0b0b0;
  defparam B326.INIT_03 =
256'habacacacacacacacacacacacacacacacadadadadadadadadadadadadadaeaeae;
  defparam B326.INIT_04 =
256'ha9a9a9a9a9a9aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaababababababababababababab;
  defparam B326.INIT_05 =
256'ha7a7a7a7a7a7a7a7a7a7a7a8a8a8a8a8a8a8a8a8a8a8a8a8a9a9a9a9a9a9a9a9;
  defparam B326.INIT_06 =
256'ha4a4a5a5a5a5a5a5a5a5a5a5a5a5a5a5a6a6a6a6a6a6a6a6a6a6a6a6a6a7a7a7;
  defparam B326.INIT_07 =
256'ha2a2a2a2a2a2a2a2a3a3a3a3a3a3a3a3a3a3a3a3a3a4a4a4a4a4a4a4a4a4a4a4;
  defparam B326.INIT_08 =
256'ha0a0a0a0a0a0a0a0a0a0a0a0a0a1a1a1a1a1a1a1a1a1a1a1a1a1a1a2a2a2a2a2;
  defparam B326.INIT_09 =
256'h9d9d9d9d9d9d9e9e9e9e9e9e9e9e9e9e9e9e9e9f9f9f9f9f9f9f9f9f9f9f9f9f;
  defparam B326.INIT_0A =
256'h9b9b9b9b9b9b9b9b9b9b9b9b9b9c9c9c9c9c9c9c9c9c9c9c9c9d9d9d9d9d9d9d;
  defparam B326.INIT_0B =
256'h989898989898999999999999999999999999999999999a9a9a9a9a9a9a9a9a9a9a9a9a;
  defparam B326.INIT_0C =
256'h9696969696969696969696969697979797979797979797979797989898989898;
  defparam B326.INIT_0D =
256'h9393939393939394949494949494949494949494949595959595959595959595;
  defparam B326.INIT_0E =
256'h9090919191919191919191919191929292929292929292929292929393939393;
  defparam B326.INIT_0F =
256'h8e8e8e8e8e8e8e8e8f8f8f8f8f8f8f8f8f8f8f8f8f9090909090909090909090;
  defparam B326.INIT_10 =
256'h8b8b8b8b8b8c8c8c8c8c8c8c8c8c8c8c8c8d8d8d8d8d8d8d8d8d8d8d8d8e8e8e;
  defparam B326.INIT_11 =
256'h89898989898989898989898a8a8a8a8a8a8a8a8a8a8a8a8a8a8b8b8b8b8b8b8b;
   defparam B326.INIT_12 =
256'h8686868686868686878787878787878787878787888888888888888888888888;
   defparam B326.INIT_13 =
256'h8383838383848484848484848484848485858585858585858585858585868686;
   defparam B326.INIT_14 =
256'h8081818181818181818181818182828282828282828282828282838383838383;
   defparam B326.INIT_15 =
256'h7e7e7e7e7e7e7e7e7e7e7f7f7f7f7f7f7f7f7f7f7f7f80808080808080808080;
   defparam B326.INIT_16 =
256'h7b7b7b7b7b7b7c7c7c7c7c7c7c7c7c7c7c7c7d7d7d7d7d7d7d7d7d7d7d7d7e7e;
   defparam B326.INIT_17 =
256'h78787878797979797979797979797a7a7a7a7a7a7a7a7a7a7a7a7b7b7b7b7b;
   defparam B326.INIT_18 =
256'h757676767676767676767676777777777777777777777777778787878787878;
   defparam B326.INIT_19 =
256'h7373737373737373737474747474747474747474757575757575757575757575;
   defparam B326.INIT_1A =
256'h7070707070707070707171717171717171717171727272727272727272727273;
   defparam B326.INIT_1B =
256'h6d6d6d6d6d6d6e6e6e6e6e6e6e6e6e6e6e6f6f6f6f6f6f6f6f6f6f6f6f707070;
   defparam B326.INIT_1C =
256'h6a6a6a6a6b6b6b6b6b6b6b6b6b6b6b6b6b6c6c6c6c6c6c6c6c6c6c6c6d6d6d6d;
   defparam B326.INIT_1D =
256'h6767676868686868686868686868696969696969696969696969696a6a6a6a6a6a;
   defparam B326.INIT_1E =
256'h6465656565656565656565656566666666666666666666666666676767676767;
   defparam B326.INIT_1F =
256'h6262626262626262626262626363636363636363636363636364646464646464;
   defparam B326.INIT_20 =
256'h5f5f5f5f5f5f5f5f5f5f60606060606060606060606161616161616161616161;
   defparam B326.INIT_21 =
256'h5c5c5c5c5c5c5c5c5d5d5d5d5d5d5d5d5d5d5d5d5d5e5e5e5e5e5e5e5e5e5e5f;
   defparam B326.INIT_22 =
256'h5959595959595959595a5a5a5a5a5a5a5a5a5a5a5b5b5b5b5b5b5b5b5b5b5c5c;
   defparam B326.INIT_23 =
256'h5656565656565656575757575757575757575758585858585858585858585959;
   defparam B326.INIT_24 =
256'h5353535353535353545454545454545454545455555555555555555555565656;
   defparam B326.INIT_25 =
256'h5050505050505051515151515151515151515152525252525252525252535353;
   defparam B326.INIT_26 =
256'h4d4d4d4d4d4d4e4e4e4e4e4e4e4e4e4e4e4f4f4f4f4f4f4f4f4f4f4f4f505050;
   defparam B326.INIT_27 =
256'h4a4a4a4a4a4a4a4b4b4b4b4b4b4b4b4b4b4b4c4c4c4c4c4c4c4c4c4c4c4d4d4d;
   defparam B326.INIT_28 =
256'h47474747474747474848484848484848484848484949494949494949494949494a4a4a;
   defparam B326.INIT_29 =
256'h44444444444444444545454545454545454545454646464646464646464646474747;
   defparam B326.INIT_2A =
256'h41414141414141414242424242424242424242424343434343434343434343444444;
   defparam B326.INIT_2B =
256'h3e3e3e3e3e3e3e3e3f3f3f3f3f3f3f3f3f3f4040404040404040404040414141;
   defparam B326.INIT_2C =
256'h3b3b3b3b3b3b3b3b3b3c3c3c3c3c3c3c3c3c3c3d3d3d3d3d3d3d3d3d3d3d3e3e;
   defparam B326.INIT_2D =
256'h383838383838383838383939393939393939393a3a3a3a3a3a3a3a3a3a3b3b;
   defparam B326.INIT_2E =
256'h353535353535353535353536363636363636363636373737373737373737373738;
   defparam B326.INIT_2F =
256'h313232323232323232323232333333333333333333333434343434343434343434;
   defparam B326.INIT_30 =
256'h2e2f2f2f2f2f2f2f2f2f2f2f303030303030303030303131313131313131313131;
   defparam B326.INIT_31 =
256'h2b2b2c2c2c2c2c2c2c2c2c2c2c2d2d2d2d2d2d2d2d2d2d2e2e2e2e2e2e2e2e2e;
   defparam B326.INIT_32 =
256'h2828282929292929292929292929292a2a2a2a2a2a2a2a2a2a2b2b2b2b2b2b2b2b;
   defparam B326.INIT_33 =
256'h252525252626262626262626262626272727272727272727272828282828282828;
   defparam B326.INIT_34 =
256'h2222222222222323232323232323232324242424242424242424252525252525;
   defparam B326.INIT_35 =
256'h1f1f1f1f1f1f202020202020202020202021212121212121212121222222222222;
   defparam B326.INIT_36 =
256'h1c1c1c1c1c1c1c1c1d1d1d1d1d1d1d1d1d1d1e1e1e1e1e1e1e1e1e1e1e1f1f1f;
   defparam B326.INIT_37 =
256'h1919191919191919191a1a1a1a1a1a1a1a1a1a1a1b1b1b1b1b1b1b1b1b1b1c1c;
   defparam B326.INIT_38 =
256'h161616161616161616161617171717171717171717181818181818181818181819;
   defparam B326.INIT_39 =
256'h121213131313131313131313141414141414141414141515151515151515151515;
   defparam B326.INIT_3A =
256'h0f0f0f1010101010101010101011111111111111111111111212121212121212;
   defparam B326.INIT_3B =
256'h0c0c0c0c0d0d0d0d0d0d0d0d0d0d0d0e0e0e0e0e0e0e0e0e0e0e0f0f0f0f0f0f;
   defparam B326.INIT_3C =
256'h0909090909090a0a0a0a0a0a0a0a0a0a0a0b0b0b0b0b0b0b0b0b0b0c0c0c0c0c;
   defparam B326.INIT_3D =
256'h0606060606060606070707070707070707070808080808080808080809090909;
   defparam B326.INIT_3E =
256'h0303030303030303030304040404040404040404050505050505050505050606;
   defparam B326.INIT_3F =
256'h0000000000000000000001010101010101010101020202020202020202020203;
   defparam B326.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B326.WRITE_MODE = "WRITE_FIRST";
   defparam B326.INIT = 12'h000;
   defparam B326.SRVAL = 12'h000;
   RAMB16_S9 B326 (
      .EN(N7948),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N7988}),
      .DO({N7989, N7990, N7991, N7992, N7993, N7994, N7995, N7996}),
      .DIP({N0})
   );
   defparam B329.INIT_00 =
256'hfcfdfdfdfdfdfdfdfdfdfdfefefefefefefefefefefefeffffffffffffffffff;
   defparam B329.INIT_01 =
256'hf9f9f9fafafafafafafafafafafbfbfbfbfbfbfbfbfbfbfcfcfcfcfcfcfcfcfc;
   defparam B329.INIT_02 =
256'hf6f6f6f6f7f7f7f7f7f7f7f7f7f7f7f8f8f8f8f8f8f8f8f8f8f9f9f9f9f9f9f9;
   defparam B329.INIT_03 =
256'hf3f3f3f3f3f3f4f4f4f4f4f4f4f4f4f4f5f5f5f5f5f5f5f5f5f5f6f6f6f6f6f6;
   defparam B329.INIT_04 =
256'hf0f0f0f0f0f0f1f1f1f1f1f1f1f1f1f1f1f2f2f2f2f2f2f2f2f2f2f2f3f3f3f3;
   defparam B329.INIT_05 =
256'hedededededededededeeeeeeeeeeeeeeeeeeeeefefefefefefefefefeff0f0f0;
   defparam B329.INIT_06 =
256'heaeaeaeaeaeaeaeaeaeaebebebebebebebebebebececececececececececeded;
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   defparam B329.INIT_07 =
256'he6e7e7e7e7e7e7e7e7e7e7e8e8e8e8e8e8e8e8e8e8e9e9e9e9e9e9e9e9e9e9e9;
   defparam B329.INIT_08 =
256'he3e3e4e4e4e4e4e4e4e4e4e4e5e5e5e5e5e5e5e5e5e5e5e6e6e6e6e6e6e6e6e6;
   defparam B329.INIT_09 =
256'he0e0e0e1e1e1e1e1e1e1e1e1e1e1e2e2e2e2e2e2e2e2e2e2e3e3e3e3e3e3e3e3;
   defparam B329.INIT_0A =
256'hdddddddddddedededededededededededfdfdfdfdfdfdfdfdfdfe0e0e0e0e0e0e0;
   defparam B329.INIT_0B =
256'hdadadadadadadadbdbdbdbdbdbdbdbdbdbdcdcdcdcdcdcdcdcdcdcdddddddddd;
   defparam B329.INIT_0C =
256'hd7d7d7d7d7d7d8d8d8d8d8d8d8d8d8d8d8d9d9d9d9d9d9d9d9d9d9d9dadadada;
   defparam B329.INIT_0D =
256'hd4d4d4d4d4d4d4d4d5d5d5d5d5d5d5d5d5d5d6d6d6d6d6d6d6d6d6d6d6d7d7d7;
   defparam B329.INIT_0E =
256'hd1d1d1d1d1d1d1d1d1d2d2d2d2d2d2d2d2d2d2d3d3d3d3d3d3d3d3d3d3d3d4d4;
   defparam B329.INIT_0F =
256'hcececececececececececececfcfcfcfcfcfcfcfcfcfd0d0d0d0d0d0d0d0d0d0d1;
   defparam B329.INIT_10 =
256'hcbcbcbcbcbcbcbcbcbcbcbcccccccccccccccccccccdcdcdcdcdcdcdcdcdcdce;
   defparam B329.INIT_11 =
256'hc7c8c8c8c8c8c8c8c8c8c8c9c9c9c9c9c9c9c9c9c9cacacacacacacacacacaca;
   defparam B329.INIT_12 =
256'hc4c4c5c5c5c5c5c5c5c5c5c5c5c6c6c6c6c6c6c6c6c6c6c6c7c7c7c7c7c7c7c7;
   defparam B329.INIT_13 =
256'hc1c1c2c2c2c2c2c2c2c2c2c2c2c3c3c3c3c3c3c3c3c3c3c3c4c4c4c4c4c4c4c4;
   defparam B329.INIT_14 =
256'hbebebebfbfbfbfbfbfbfbfbfbfc0c0c0c0c0c0c0c0c0c0c0c1c1c1c1c1c1c1c1;
   defparam B329.INIT_15 =
256'hbbbbbbbcbcbcbcbcbcbcbcbcbcbdbdbdbdbdbdbdbdbdbdbdbebebebebebebebe;
   defparam B329.INIT_16 =
256'hb8b8b8b9b9b9b9b9b9b9b9b9b9bababababababababababababbbbbbbbbbbbbbbb;
   defparam B329.INIT_17 =
256'hb5b5b5b6b6b6b6b6b6b6b6b6b6b6b7b7b7b7b7b7b7b7b7b7b8b8b8b8b8b8b8b8;
   defparam B329.INIT_18 =
256'hb2b2b2b3b3b3b3b3b3b3b3b3b3b3b4b4b4b4b4b4b4b4b4b4b5b5b5b5b5b5b5b5;
   defparam B329.INIT_19 =
256'hafafafb0b0b0b0b0b0b0b0b0b0b1b1b1b1b1b1b1b1b1b1b1b2b2b2b2b2b2b2b2;
   defparam B329.INIT_1A =
256'hacacacadadadadadadadadadadadaeaeaeaeaeaeaeaeaeaeaeafafafafafafaf;
   defparam B329.INIT_1B =
256'ha9a9a9aaaaaaaaaaaaaaaaaaaaaaaaababababababababababacacacacacacacac;
   defparam B329.INIT_1C =
256'ha6a6a7a7a7a7a7a7a7a7a7a7a7a8a8a8a8a8a8a8a8a8a8a8a9a9a9a9a9a9a9a9;
   defparam B329.INIT_1D =
256'ha3a3a4a4a4a4a4a4a4a4a4a4a4a5a5a5a5a5a5a5a5a5a5a6a6a6a6a6a6a6a6a6;
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   defparam B329.INIT_1E =
256'ha0a1a1a1a1a1a1a1a1a1a1a1a2a2a2a2a2a2a2a2a2a2a2a3a3a3a3a3a3a3a3a3;
   defparam B329.INIT_1F =
256'h9e9e9e9e9e9e9e9e9e9e9e9f9f9f9f9f9f9f9f9f9f9fa0a0a0a0a0a0a0a0a0a0;
   defparam B329.INIT_20 =
256'h9b9b9b9b9b9b9b9b9b9b9b9c9c9c9c9c9c9c9c9c9c9c9d9d9d9d9d9d9d9d9d9d;
   defparam B329.INIT_21 =
256'h9898989898989898989999999999999999999999999a9a9a9a9a9a9a9a9a9a9a9b;
   defparam B329.INIT_22 =
256'h9595959595959596969696969696969696969697979797979797979797979798989898;
   defparam B329.INIT_23 =
256'h92929292929393939393939393939393949494949494949494949494959595 95;
   defparam B329.INIT_24 =
256'h8f8f8f909090909090909090909090919191919191919191919191919292929292;
   defparam B329.INIT_25 =
256'h8c8d8d8d8d8d8d8d8d8d8d8d8e8e8e8e8e8e8e8e8e8e8e8e8f8f8f8f8f8f8f8f;
   defparam B329.INIT_26 =
256'h8a8a8a8a8a8a8a8a8a8a8a8b8b8b8b8b8b8b8b8b8b8b8c8c8c8c8c8c8c8c8c8c;
   defparam B329.INIT_27 =
256'h8787878787878787888888888888888888888888898989898989898989898989 8a;
   defparam B329.INIT_28 =
256'h8484848484848585858585858585858585858686868686868686868686868787878787;
   defparam B329.INIT_29 =
256'h8181828282828282828282828282838383838383838383838383838384848484848484;
   defparam B329.INIT_2A =
256'h7f7f7f7f7f7f7f7f7f7f7f8080808080808080808080818181818181818181 81;
   defparam B329.INIT_2B =
256'h7c7c7c7c7c7c7d7d7d7d7d7d7d7d7d7d7d7d7e7e7e7e7e7e7e7e7e7e7e7e7e7f;
   defparam B329.INIT_2C =
256'h797979797a7a7a7a7a7a7a7a7a7a7a7a7b7b7b7b7b7b7b7b7b7b7b7c7c7c7c7c;
   defparam B329.INIT_2D =
256'h777777777777777777777777777878787878787878787878787879797979797979;
   defparam B329.INIT_2E =
256'h747474747474747575757575757575757575757575767676767676767676767676;
   defparam B329.INIT_2F =
256'h717171727272727272727272727273737373737373737373737374747474 74;
   defparam B329.INIT_30 =
256'h6f6f6f6f6f6f6f6f6f6f70707070707070707070707070717171717171717171;
   defparam B329.INIT_31 =
256'h6c6c6c6c6c6d6d6d6d6d6d6d6d6d6d6d6d6d6e6e6e6e6e6e6e6e6e6e6e6e6f6f;
   defparam B329.INIT_32 =
256'h6a6a6a6a6a6a6a6a6a6a6a6a6b6b6b6b6b6b6b6b6b6b6b6b6c6c6c6c6c6c6c6c;
   defparam B329.INIT_33 =
256'h676767676767686868686868686868686868686969696969696969696969696969;
   defparam B329.INIT_34 =
256'h6565656565656565656565656565666666666666666666666666666767676767;
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   defparam B329.INIT_35 =
256'h6262626262626262636363636363636363636363646464646464646464646464;
   defparam B329.INIT_36 =
256'h6060606060606060606060606061616161616161616161616161626262626262;
   defparam B329.INIT_37 =
256'h5d5d5d5d5d5e5e5e5e5e5e5e5e5e5e5e5e5e5e5e5f5f5f5f5f5f5f5f5f5f5f5f;
   defparam B329.INIT_38 =
256'h5b5b5b5b5b5b5b5b5b5b5b5c5c5c5c5c5c5c5c5c5c5c5c5c5d5d5d5d5d5d5d5d;
   defparam B329.INIT_39 =
256'h5858585959595959595959595959595a5a5a5a5a5a5a5a5a5a5a5a5a5b5b;
   defparam B329.INIT_3A =
256'h5656565656565656575757575757575757575757575858585858585858585858;
   defparam B329.INIT_3B =
256'h5454545454545454545454545455555555555555555555555555555656565656;
   defparam B329.INIT_3C =
256'h5151515252525252525252525252525252525353535353535353535353535354;
   defparam B329.INIT_3D =
256'h4f4f4f4f4f4f5050505050505050505050505050505151515151515151515151;
   defparam B329.INIT_3E =
256'h4d4d4d4d4d4d4d4d4d4d4d4e4e4e4e4e4e4e4e4e4e4e4e4e4e4e4f4f4f4f4f4f;
   defparam B329.INIT_3F =
256'h4b4b4b4b4b4b4b4b4b4b4b4b4b4b4b4c4c4c4c4c4c4c4c4c4c4c4c4c4c4d4d4d;
   defparam B329.INITP_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_06 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_07 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.WRITE_MODE = "WRITE_FIRST";
   defparam B329.INIT = 12'h000;
   defparam B329.SRVAL = 12'h000;
   RAMB16_S9 B329 (
      .EN(N7947),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N7979}),
      .DO({N7980, N7981, N7982, N7983, N7984, N7985, N7986, N7987}),
      .DIP({N0})
   );
   defparam B332.INIT_00 =
256'h4848484949494949494949494949494949494a4a4a4a4a4a4a4a4a4a4a4a4a4a;
   defparam B332.INIT_01 =
256'h4646464646464747474747474747474747474747474748484848484848484848;
   defparam B332.INIT_02 =
256'h4444444444444444444545454545454545454545454545454546464646464646;
   defparam B332.INIT_03 =
256'h4242424242424242424242434343434343434343434343434343444444444444;
   defparam B332.INIT_04 =
256'h404040404040404040404040404141414141414141414141414141414142424242;
   defparam B332.INIT_05 =
256'h3e3e3e3e3e3e3e3e3e3e3e3e3e3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f404040;
   defparam B332.INIT_06 =
256'h3c3c3c3c3c3c3c3c3c3c3c3c3c3c3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3e3e;
   defparam B332.INIT_07 =
256'h3a3a3a3a3a3a3a3a3a3a3a3a3a3a3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3c3c;
   defparam B332.INIT_08 =
256'h383838383838383838383838383838383939393939393939393939393939393a3a;
   defparam B332.INIT_09 =
256'h3636363636363636363636363636373737373737373737373737373737373838;
   defparam B332.INIT_0A =
256'h3434343434343434343434343535353535353535353535353535353535353636;
   defparam B332.INIT_0B =
256'h3232323232323232323232333333333333333333333333333333333333343434;
   defparam B332.INIT_0C =
256'h3030303030303031313131313131313131313131313131313131313132323232323232;
   defparam B332.INIT_0D =
256'h2e2e2e2e2e2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f303030303030303030;
   defparam B332.INIT_0E =
256'h2c2c2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2e2e2e2e2e2e2e2e2e2e2e2e;
   defparam B332.INIT_0F =
256'h2b2b2b2b2b2b2b2b2b2b2b2b2b2b2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c;
   defparam B332.INIT_10 =
256'h29292929292929292929292a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2b2b;
   defparam B332.INIT_11 =
256'h2727272727272828282828282828282828282828282828282829292929292929;
   defparam B332.INIT_12 =
256'h2626262626262626262626262626262626262727272727272727272727272727;
   defparam B332.INIT_13 =
256'h2424242424242424242424242425252525252525252525252525252525252526;
   defparam B332.INIT_14 =
256'h2222222222232323232323232323232323232323232323232324242424242424;
   defparam B332.INIT_15 =
256'h2121212121212121212121212121212222222222222222222222222222222222;
   defparam B332.INIT_16 =
256'h1f1f1f1f1f202020202020202020202020202020202020202020202121212121;
   defparam B332.INIT_17 =
256'h1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1f1f1f1f1f1f1f1f1f1f1f1f1f1f;
   defparam B332.INIT_18 =
256'h1c1c1c1c1c1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1e1e1e1e1e;
   defparam B332.INIT_19 =
256'h1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c;
   defparam B332.INIT_1A =
256'h19191a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1b1b1b1b1b1b1b;
   defparam B332.INIT_1B =
256'h1818181818181818181818191919191919191919191919191919191919191919;
   defparam B332.INIT_1C =
256'h1717171717171717171717171717171717171818181818181818181818181818;
   defparam B332.INIT_1D =
256'h1516161616161616161616161616161616161616161616161616171717171717;
   defparam B332.INIT_1E =
256'h1414141414141414151515151515151515151515151515151515151515151515;
   defparam B332.INIT_1F =
256'h1313131313131313131313131313141414141414141414141414141414141414;
   defparam B332.INIT_20 =
256'h1212121212121212121212121212121212121213131313131313131313131313;
   defparam B332.INIT_21 =
256'h1111111111111111111111111111111111111111111111111212121212121212;
   defparam B332.INIT_22 =
256'h1010101010101010101010101010101010101010101010101010101011111111;
   defparam B332.INIT_23 =
256'h0e0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f10;
   defparam B332.INIT_24 =
256'h0d0d0d0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e;
   defparam B332.INIT_25 =
256'h0c0c0c0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d;
   defparam B332.INIT_26 =
256'h0b0b0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c;
   defparam B332.INIT_27 =
256'h0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b;
   defparam B332.INIT_28 =
256'h0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0b;
   defparam B332.INIT_29 =
256'h090909090909090909090909090909090909090909090909090909090a0a0a0a;
   defparam B332.INIT_2A =
256'h0808080808080808080808080808080808080808080809090909090909090909;
   defparam B332.INIT_2B =
256'h0707070707070707070707070707070708080808080808080808080808080808;
   defparam B332.INIT_2C =
256'h0606060707070707070707070707070707070707070707070707070707070707;
   defparam B332.INIT_2D =
256'h0606060606060606060606060606060606060606060606060606060606060606;
   defparam B332.INIT_2E =
256'h0505050505050505050505050505050505050505050606060606060606060606;
   defparam B332.INIT_2F =
256'h0404040405050505050505050505050505050505050505050505050505050505;
   defparam B332.INIT_30 =
256'h0404040404040404040404040404040404040404040404040404040404040404;
   defparam B332.INIT_31 =
256'h0303030303030303030303030303040404040404040404040404040404040404;
   defparam B332.INIT_32 =
256'h0303030303030303030303030303030303030303030303030303030303030303;
   defparam B332.INIT_33 =
256'h0202020202020202020202020202020202020303030303030303030303030303;
   defparam B332.INIT_34 =
256'h0202020202020202020202020202020202020202020202020202020202020202;
   defparam B332.INIT_35 =
256'h0101010101010202020202020202020202020202020202020202020202020202;
   defparam B332.INIT_36 =
256'h0101010101010101010101010101010101010101010101010101010101010101;
   defparam B332.INIT_37 =
256'h0101010101010101010101010101010101010101010101010101010101010101;
   defparam B332.INIT_38 =
256'h0000000000000000010101010101010101010101010101010101010101010101;
   defparam B332.INIT_39 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INIT_3A =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INIT_3B =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INIT_3C =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INIT_3D =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INIT_3E =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INIT_3F =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INITP_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_06 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_07 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.WRITE_MODE = "WRITE_FIRST";
   defparam B332.INIT = 12'h000;
   defparam B332.SRVAL = 12'h000;
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  RAMB16_S9 B332 (
    .EN(N7946),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N7970}),
    .DO({N7971, N7972, N7973, N7974, N7975, N7976, N7977, N7978}),
    .DIP({N0})
  );
  defparam B335.INIT_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B335.INIT_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B335.INIT_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B335.INIT_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B335.INIT_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B335.INIT_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B335.INIT_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B335.INIT_07 =
256'h0101010101010101010101010101010101010101010101010101000000000000;
  defparam B335.INIT_08 =
256'h0101010101010101010101010101010101010101010101010101010101010101;
  defparam B335.INIT_09 =
256'h0101010101010101010101010101010101010101010101010101010101010101;
  defparam B335.INIT_0A =
256'h0202020202020202020202020202020202020202020202020202020101010101;
  defparam B335.INIT_0B =
256'h0202020202020202020202020202020202020202020202020202020202020202;
  defparam B335.INIT_0C =
256'h0303030303030303030303030303030303020202020202020202020202020202;
  defparam B335.INIT_0D =
256'h0303030303030303030303030303030303030303030303030303030303030303;
  defparam B335.INIT_0E =
256'h0404040404040404040404040404040404040404030303030303030303030303;
  defparam B335.INIT_0F =
256'h0404040404040404040404040404040404040404040404040404040404040404;
  defparam B335.INIT_10 =
256'h0505050505050505050505050505050505050505050505050505050505040404;
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   defparam B335.INIT_11 =
256'h0606060606060606060606050505050505050505050505050505050505050505;
   defparam B335.INIT_12 =
256'h0606060606060606060606060606060606060606060606060606060606060606;
   defparam B335.INIT_13 =
256'h0707070707070707070707070707070707070707070707070707070707060606;
   defparam B335.INIT_14 =
256'h0808080808080808080808080808080808080808070707070707070707070707;
   defparam B335.INIT_15 =
256'h0909090909090909090909090808080808080808080808080808080808080808;
   defparam B335.INIT_16 =
256'h0a0a0a0a09090909090909090909090909090909090909090909090909090909;
   defparam B335.INIT_17 =
256'h0b0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a0a;
   defparam B335.INIT_18 =
256'h0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b0b;
   defparam B335.INIT_19 =
256'h0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0b;
   defparam B335.INIT_1A =
256'h0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0c0c;
   defparam B335.INIT_1B =
256'h0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e0d0d;
   defparam B335.INIT_1C =
256'h10100f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0f0e;
   defparam B335.INIT_1D =
256'h1111111111101010101010101010101010101010101010101010101010101010;
   defparam B335.INIT_1E =
256'h1212121212121212121211111111111111111111111111111111111111111111;
   defparam B335.INIT_1F =
256'h1313131313131313131313131312121212121212121212121212121212121212;
   defparam B335.INIT_20 =
256'h1414141414141414141414141414141414141414131313131313131313131313;
   defparam B335.INIT_21 =
256'h1515151515151515151515151515151515151515151515151515141414141414;
   defparam B335.INIT_22 =
256'h1717171717171716161616161616161616161616161616161616161616161615;
   defparam B335.INIT_23 =
256'h1818181818181818181818181818171717171717171717171717171717171717;
   defparam B335.INIT_24 =
256'h1919191919191919191919191919191919191919191918181818181818181818;
   defparam B335.INIT_25 =
256'h1b1b1b1b1b1b1b1b1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a19;
   defparam B335.INIT_26 =
256'h1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1b1b1b1b1b1b1b1b1b1b1b1b1b1b;
   defparam B335.INIT_27 =
256'h1e1e1e1e1e1e1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1c1c1c1c1c;
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   defparam B335.INIT_28 =
256'h1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e;
   defparam B335.INIT_29 =
256'h2121212121212020202020202020202020202020202020202020201f1f1f1f1f;
   defparam B335.INIT_2A =
256'h2222222222222222222222222222222222212121212121212121212121212121;
   defparam B335.INIT_2B =
256'h2424242424242424242423232323232323232323232323232323232323222222;
   defparam B335.INIT_2C =
256'h2625252525252525252525252525252525252525252424242424242424242424;
   defparam B335.INIT_2D =
256'h2727272727272727272727272727272726262626262626262626262626262626;
   defparam B335.INIT_2E =
256'h2929292929292929292828282828282828282828282828282828272727272727;
   defparam B335.INIT_2F =
256'h2b2b2b2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2a2929292929292929292929;
   defparam B335.INIT_30 =
256'h2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b;
   defparam B335.INIT_31 =
256'h2e2e2e2e2e2e2e2e2e2e2e2e2e2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2d2c;
   defparam B335.INIT_32 =
256'h3030303030303030302f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2e2e2e2e2e;
   defparam B335.INIT_33 =
256'h3232323232323232313131313131313131313131313131313030303030303030;
   defparam B335.INIT_34 =
256'h3434343434333333333333333333333333333333333333333332323232323232323232;
   defparam B335.INIT_35 =
256'h3636363535353535353535353535353535353535353434343434343434343434;
   defparam B335.INIT_36 =
256'h3838383737373737373737373737373737373737363636363636363636363636;
   defparam B335.INIT_37 =
256'h3a3a393939393939393939393939393939393938383838383838383838383838;
   defparam B335.INIT_38 =
256'h3c3c3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3a3a3a3a3a3a3a3a3a3a3a3a3a;
   defparam B335.INIT_39 =
256'h3e3e3e3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3c3c3c3c3c3c3c3c3c3c3c3c3c;
   defparam B335.INIT_3A =
256'h404040403f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3e3e3e3e3e3e3e3e3e3e3e3e3e;
   defparam B335.INIT_3B =
256'h4242424242414141414141414141414141414141404040404040404040404040;
   defparam B335.INIT_3C =
256'h4444444444444444434343434343434343434343434343424242424242424242;
   defparam B335.INIT_3D =
256'h4646464646464646454545454545454545454545454545454444444444444444;
   defparam B335.INIT_3E =
256'h4848484848484848484848484848474747474747474747474747474646464646;
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   defparam B335.INIT_3F =
256'h4a4a4a4a4a4a4a4a4a4a4a4a4a4a4a4a49494949494949494949494949484848;
   defparam B335.INITP_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.INITP_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.INITP_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.INITP_06 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.INITP_07 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B335.WRITE_MODE = "WRITE_FIRST";
   defparam B335.INIT = 12'h000;
   defparam B335.SRVAL = 12'h000;
   RAMB16_S9 B335 (
      .EN(N7945),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N7961}),
      .DO({N7962, N7963, N7964, N7965, N7966, N7967, N7968, N7969}),
      .DIP({N0})
   );
   defparam B338.INIT_00 =
256'h4d4d4d4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4b4b4b4b4b4b4b4b4b4b4b4b4b4b;
   defparam B338.INIT_01 =
256'h4f4f4f4f4f4f4f4e4e4e4e4e4e4e4e4e4e4e4e4e4e4d4d4d4d4d4d4d4d4d4d4d;
   defparam B338.INIT_02 =
256'h51515151515151515151515150505050505050505050505050504f4f4f4f4f4f;
   defparam B338.INIT_03 =
256'h5454535353535353535353535353535252525252525252525252525252515151;
   defparam B338.INIT_04 =
256'h5656565656565555555555555555555555555554545454545454545454545454;
   defparam B338.INIT_05 =
256'h5858585858585858585858585757575757575757575757575757565656565656;
   defparam B338.INIT_06 =
256'h5b5b5b5a5a5a5a5a5a5a5a5a5a5a5a5a59595959595959595959595959595858;
   defparam B338.INIT_07 =
256'h5d5d5d5d5d5d5d5d5c5c5c5c5c5c5c5c5c5c5c5c5c5b5b5b5b5b5b5b5b5b5b5b;
   defparam B338.INIT_08 =
256'h605f5f5f5f5f5f5f5f5f5f5f5f5f5e5e5e5e5e5e5e5e5e5e5e5e5e5d5d5d5d5d;
   defparam B338.INIT_09 =
256'h6262626262626261616161616161616161616161606060606060606060606060;
   defparam B338.INIT_0A =
256'h64646464646464646464646464636363636363636363636363636363626262626262;
   defparam B338.INIT_0B =
256'h6767676767676766666666666666666666666666656565656565656565656565656565;
   defparam B338.INIT_0C =
256'h6a69696969696969696969696968686868686868686868686868686867676767676767;
   defparam B338.INIT_0D =
256'h6c6c6c6c6c6c6c6b6b6b6b6b6b6b6b6b6b6b6b6b6a6a6a6a6a6a6a6a6a6a6a6a;
   defparam B338.INIT_0E =
256'h6f6f6f6e6e6e6e6e6e6e6e6e6e6e6e6d6d6d6d6d6d6d6d6d6d6d6d6c6c6c6c6c;
   defparam B338.INIT_0F =
256'h71717171717171717171707070707070707070707070706f6f6f6f6f6f6f6f6f6f;
   defparam B338.INIT_10 =
256'h747474747473737373737373737373737373727272727272727272727272727272717171;
   defparam B338.INIT_11 =
256'h7776767676767676767676767675757575757575757575757574747474747474;
   defparam B338.INIT_12 =
256'h797979797979797979787878787878787878787878787777777777777777777777;
   defparam B338.INIT_13 =
256'h7c7c7c7c7c7b7b7b7b7b7b7b7b7b7b7b7b7a7a7a7a7a7a7a7a7a7a7a7a797979;
   defparam B338.INIT_14 =
256'h7f7f7e7e7e7e7e7e7e7e7e7e7e7d7d7d7d7d7d7d7d7d7d7d7d7c7c7c7c7c7c7c;
   defparam B338.INIT_15 =
256'h818181818181818181818080808080808080808080807f7f7f7f7f7f7f7f7f7f;
   defparam B338.INIT_16 =
256'h848484848484848383838383838383838383838282828282828282828282828181;
   defparam B338.INIT_17 =
256'h878787878786868686868686868686868685858585858585858585858584848484848484;
   defparam B338.INIT_18 =
256'h8a8a898989898989898989898989888888888888888888888888878787878787;
   defparam B338.INIT_19 =
256'h8c8c8c8c8c8c8c8c8c8c8c8b8b8b8b8b8b8b8b8b8b8b8a8a8a8a8a8a8a8a8a8a;
   defparam B338.INIT_1A =
256'h8f8f8f8f8f8f8f8f8e8e8e8e8e8e8e8e8e8e8e8e8d8d8d8d8d8d8d8d8d8d8d8c;
   defparam B338.INIT_1B =
256'h92929292929292929191919191919191919190909090909090909090908f8f8f;
   defparam B338.INIT_1C =
256'h9595959595949494949494949494949493939393939393939393939392929292;
   defparam B338.INIT_1D =
256'h9898989797979797979797979797979796969696969696969696969695959595959595;
   defparam B338.INIT_1E =
256'h9b9b9a9a9a9a9a9a9a9a9a9a9a99999999999999999999999998989898989898 98;
   defparam B338.INIT_1F =
256'h9e9d9d9d9d9d9d9d9d9d9d9d9c9c9c9c9c9c9c9c9c9c9c9b9b9b9b9b9b9b9b9b;
   defparam B338.INIT_20 =
256'ha0a0a0a0a0a0a0a0a0a09f9f9f9f9f9f9f9f9f9f9f9e9e9e9e9e9e9e9e9e9e9e;
   defparam B338.INIT_21 =
256'ha3a3a3a3a3a3a3a3a3a3a2a2a2a2a2a2a2a2a2a2a2a1a1a1a1a1a1a1a1a1a1a1;
  defparam B338.INIT_22 =
256'ha6a6a6a6a6a6a6a6a6a5a5a5a5a5a5a5a5a5a5a5a4a4a4a4a4a4a4a4a4a4a4a3;
  defparam B338.INIT_23 =
256'ha9a9a9a9a9a9a9a9a8a8a8a8a8a8a8a8a8a8a8a7a7a7a7a7a7a7a7a7a7a7a6a6;
  defparam B338.INIT_24 =
256'hacacacacacacacacababababababababababababaaaaaaaaaaaaaaaaaaaaaaa9a9;
  defparam B338.INIT_25 =
256'hafafafafafafafafaeaeaeaeaeaeaeaeaeaeaeadadadadadadadadadadacacac;
  defparam B338.INIT_26 =
256'hb2b2b2b2b2b2b2b2b1b1b1b1b1b1b1b1b1b1b0b0b0b0b0b0b0b0b0b0b0afafaf;
  defparam B338.INIT_27 =
256'hb5b5b5b5b5b5b5b5b4b4b4b4b4b4b4b4b4b4b3b3b3b3b3b3b3b3b3b3b3b2b2b2;
  defparam B338.INIT_28 =
256'hb8b8b8b8b8b8b8b8b7b7b7b7b7b7b7b7b7b7b6b6b6b6b6b6b6b6b6b6b6b5b5b5;
  defparam B338.INIT_29 =
256'hbbbbbbbbbbbbbbbbbababababababababababab9b9b9b9b9b9b9b9b9b9b8b8b8;
  defparam B338.INIT_2A =
256'hbebebebebebebebebebdbdbdbdbdbdbdbdbdbdbcbcbcbcbcbcbcbcbcbcbcbbbb;
  defparam B338.INIT_2B =
256'hc1c1c1c1c1c1c1c1c1c0c0c0c0c0c0c0c0c0c0bfbfbfbfbfbfbfbfbfbfbfbebe;
  defparam B338.INIT_2C =
256'hc4c4c4c4c4c4c4c4c4c3c3c3c3c3c3c3c3c3c3c3c2c2c2c2c2c2c2c2c2c2c1c1;
  defparam B338.INIT_2D =
256'hc7c7c7c7c7c7c7c7c7c7c6c6c6c6c6c6c6c6c6c6c6c5c5c5c5c5c5c5c5c5c5c4;
  defparam B338.INIT_2E =
256'hcacacacacacacacacacacac9c9c9c9c9c9c9c9c9c9c8c8c8c8c8c8c8c8c8c8c8;
  defparam B338.INIT_2F =
256'hcecdcdcdcdcdcdcdcdcdcdcccccccccccccccccccccccbcbcbcbcbcbcbcbcbcb;
  defparam B338.INIT_30 =
256'hd1d1d0d0d0d0d0d0d0d0d0d0cfcfcfcfcfcfcfcfcfcfcfcececececececececece;
  defparam B338.INIT_31 =
256'hd4d4d4d3d3d3d3d3d3d3d3d3d3d3d2d2d2d2d2d2d2d2d2d2d2d1d1d1d1d1d1d1;
  defparam B338.INIT_32 =
256'hd7d7d7d6d6d6d6d6d6d6d6d6d6d6d5d5d5d5d5d5d5d5d5d5d5d5d4d4d4d4d4d4;
  defparam B338.INIT_33 =
256'hdadadadadad9d9d9d9d9d9d9d9d9d9d8d8d8d8d8d8d8d8d8d8d8d8d7d7d7d7d7;
  defparam B338.INIT_34 =
256'hdddddddddddddcdcdcdcdcdcdcdcdcdcdbdbdbdbdbdbdbdbdbdbdbdadadadada;
  defparam B338.INIT_35 =
256'he0e0e0e0e0e0dfdfdfdfdfdfdfdfdfdfdededededededededededededddddddd;
  defparam B338.INIT_36 =
256'he3e3e3e3e3e3e3e3e3e2e2e2e2e2e2e2e2e2e2e1e1e1e1e1e1e1e1e1e1e0e0e0;
  defparam B338.INIT_37 =
256'he6e6e6e6e6e6e6e6e6e5e5e5e5e5e5e5e5e5e5e5e4e4e4e4e4e4e4e4e4e4e3e3;
  defparam B338.INIT_38 =
256'heae9e9e9e9e9e9e9e9e9e9e8e8e8e8e8e8e8e8e8e8e7e7e7e7e7e7e7e7e7e7e7;
  defparam B338.INIT_39 =
256'hededecececececececececebebebebebebebebebebebeaeaeaeaeaeaeaeaea;
  defparam B338.INIT_3A =
256'hf0f0f0efefefefefefefefefefefeeeeeeeeeeeeeeeeeeeeedededededededed;
  defparam B338.INIT_3B =
256'hf3f3f3f3f3f2f2f2f2f2f2f2f2f2f2f1f1f1f1f1f1f1f1f1f1f0f0f0f0f0f0f0;
  defparam B338.INIT_3C =
256'hf6f6f6f6f6f6f5f5f5f5f5f5f5f5f5f5f5f4f4f4f4f4f4f4f4f4f4f3f3f3f3f3;
  defparam B338.INIT_3D =
256'hf9f9f9f9f9f9f9f9f8f8f8f8f8f8f8f8f8f8f7f7f7f7f7f7f7f7f7f7f6f6f6f6;
  defparam B338.INIT_3E =
256'hfcfcfcfcfcfcfcfcfcfbfbfbfbfbfbfbfbfbfbfafafafafafafafafafafaf9f9;
  defparam B338.INIT_3F =
256'hfffffffffffffffffffffffefefefefefefefefefefefdfdfdfdfdfdfdfdfdfc;
  defparam B338.INITP_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.INITP_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.INITP_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.INITP_06 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.INITP_07 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B338.WRITE_MODE = "WRITE_FIRST";
  defparam B338.INIT = 12'h000;
  defparam B338.SRVAL = 12'h000;
  RAMB16_S9 B338 (
    .EN(N7944),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N7952}),
    .DO({N7953, N7954, N7955, N7956, N7957, N7958, N7959, N7960}),
    .DIP({N0})
  );
  FDE BU342 (
    .CE(N1),
    .C(clk),
    .D(addr_2[11]),
    .Q(N13106)
  );
  FDE BU345 (
    .CE(N1),
    .C(clk),
    .D(addr_2[12]),
    .Q(N13105)
  );
  FDE BU348 (
    .CE(N1),
    .C(clk),
    .D(addr_2[13]),
    .Q(N13104)
  );
  defparam BU354.INIT = 16'hcaca;
  LUT4 BU354 (
    .I0(N8023),
    .I1(N8014),
    .I2(N13106),
    .I3(N0),
    .O(N13543)
  );
  defparam BU358.INIT = 16'hcaca;
  LUT4 BU358 (
    .I0(N8005),
    .I1(N7996),
    .I2(N13106),
    .I3(N0),
    .O(N13544)
  );
  MUXF5 BU360 (
    .I0(N13543),
    .I1(N13544),
    .O(N13508),
    .S(N13105)
  );
  defparam BU365.INIT = 16'hcaca;
  LUT4 BU365 (
    .I0(N7987),
    .I1(N7978),
    .I2(N13106),
    .I3(N0),
    .O(N13615)
  );
  defparam BU369.INIT = 16'hcaca;
  LUT4 BU369 (
    .I0(N7969),
    .I1(N7960),
    .I2(N13106),
    .I3(N0),
   .O(N13616)
  );
  MUXF5 BU371 (
   .I0(N13615),
   .I1(N13616),
   .O(N13510),
   .S(N13105)
  );
  MUXF6 BU373 (
   .I0(N13508),
   .I1(N13510),
   .O(dout_3[9]),
   .S(N13104)
  );
  defparam BU379.INIT = 16'hcaca;
  LUT4 BU379 (
   .I0(N8022),
   .I1(N8013),
   .I2(N13106),
   .I3(N0),
   .O(N13722)
  );
  defparam BU383.INIT = 16'hcaca;
  LUT4 BU383 (
   .I0(N8004),
   .I1(N7995),
   .I2(N13106),
   .I3(N0),
   .O(N13723)
  );
  MUXF5 BU385 (
   .I0(N13722),
   .I1(N13723),
   .O(N13687),
   .S(N13105)
  );
  defparam BU390.INIT = 16'hcaca;
  LUT4 BU390 (
   .I0(N7986),
   .I1(N7977),
   .I2(N13106),
   .I3(N0),
   .O(N13794)
  );
  defparam BU394.INIT = 16'hcaca;
  LUT4 BU394 (
   .I0(N7968),
   .I1(N7959),
   .I2(N13106),
   .I3(N0),
   .O(N13795)
);
MUXF5 BU396 (
   .I0(N13794),
   .I1(N13795),
   .O(N13689),
   .S(N13105)
);
MUXF6 BU398 (
   .I0(N13687),
   .I1(N13689),
   .O(dout_3[10]),
   .S(N13104)
);
defparam BU404.INIT = 16'hcaca;
LUT4 BU404 (
   .I0(N8021),
   .I1(N8012),
   .I2(N13106),
   .I3(N0),
   .O(N13901)
);
defparam BU408.INIT = 16'hcaca;
LUT4 BU408 (
   .I0(N8003),
   .I1(N7994),
   .I2(N13106),
   .I3(N0),
   .O(N13902)
);
MUXF5 BU410 (
   .I0(N13901),
   .I1(N13902),
   .O(N13866),
   .S(N13105)
);
defparam BU415.INIT = 16'hcaca;
LUT4 BU415 (
   .I0(N7985),
   .I1(N7976),
   .I2(N13106),
   .I3(N0),
   .O(N13973)
);
defparam BU419.INIT = 16'hcaca;
LUT4 BU419 (
   .I0(N7967),
   .I1(N7958),
   .I2(N13106),
   .I3(N0),
   .O(N13974)
);
MUXF5 BU421 (
   .I0(N13973),
   .I1(N13974),
   .O(N13868),
   .S(N13105)
);
MUXF6 BU423 (
   .I0(N13866),
   .I1(N13868),
   .O(dout_3[11]),
   .S(N13104)
);
defparam BU429.INIT = 16'hcaca;
LUT4 BU429 (
   .I0(N8020),
   .I1(N8011),
   .I2(N13106),
   .I3(N0),
   .O(N14080)
);
defparam BU433.INIT = 16'hcaca;
LUT4 BU433 (
   .I0(N8002),
   .I1(N7993),
   .I2(N13106),
   .I3(N0),
   .O(N14081)
);
MUXF5 BU435 (
   .I0(N14080),
   .I1(N14081),
   .O(N14045),
   .S(N13105)
);
defparam BU440.INIT = 16'hcaca;
LUT4 BU440 (
   .I0(N7984),
   .I1(N7975),
   .I2(N13106),
   .I3(N0),
   .O(N14152)
);
defparam BU444.INIT = 16'hcaca;
LUT4 BU444 (
   .I0(N7966),
   .I1(N7957),
   .I2(N13106),
   .I3(N0),
   .O(N14153)
);
MUXF5 BU446 (
   .I0(N14152),
   .I1(N14153),
   .O(N14047),
   .S(N13105)
);
MUXF6 BU448 (
   .I0(N14045),
   .I1(N14047),
   .O(dout_3[12]),
   .S(N13104)
);
defparam BU454.INIT = 16'hcaca;
LUT4 BU454 (
   .I0(N8019),
   .I1(N8010),
   .I2(N13106),
   .I3(N0),
   .O(N14259)
);
defparam BU458.INIT = 16'hcaca;
LUT4 BU458 (
   .I0(N8001),
   .I1(N7992),
   .I2(N13106),
   .I3(N0),
   .O(N14260)
);
MUXF5 BU460 (
   .I0(N14259),
   .I1(N14260),
   .O(N14224),
   .S(N13105)
);
defparam BU465.INIT = 16'hcaca;
LUT4 BU465 (
   .I0(N7983),
   .I1(N7974),
   .I2(N13106),
   .I3(N0),
   .O(N14331)
);
defparam BU469.INIT = 16'hcaca;
LUT4 BU469 (
   .I0(N7965),
   .I1(N7956),
   .I2(N13106),
   .I3(N0),
   .O(N14332)
);
MUXF5 BU471 (
   .I0(N14331),
   .I1(N14332),
   .O(N14226),
   .S(N13105)
);
MUXF6 BU473 (
   .I0(N14224),
   .I1(N14226),
   .O(dout_3[13]),
   .S(N13104)
);
defparam BU479.INIT = 16'hcaca;
LUT4 BU479 (
   .I0(N8018),
   .I1(N8009),
   .I2(N13106),
   .I3(N0),
   .O(N14438)
);
defparam BU483.INIT = 16'hcaca;
LUT4 BU483 (
   .I0(N8000),
   .I1(N7991),
   .I2(N13106),
   .I3(N0),
   .O(N14439)
);
```

```
MUXF5 BU485 (
  .I0(N14438),
  .I1(N14439),
  .O(N14403),
  .S(N13105)
);
defparam BU490.INIT = 16'hcaca;
LUT4 BU490 (
  .I0(N7982),
  .I1(N7973),
  .I2(N13106),
  .I3(N0),
  .O(N14510)
);
defparam BU494.INIT = 16'hcaca;
LUT4 BU494 (
  .I0(N7964),
  .I1(N7955),
  .I2(N13106),
  .I3(N0),
  .O(N14511)
);
MUXF5 BU496 (
  .I0(N14510),
  .I1(N14511),
  .O(N14405),
  .S(N13105)
);
MUXF6 BU498 (
  .I0(N14403),
  .I1(N14405),
  .O(dout_3[14]),
  .S(N13104)
);
defparam BU504.INIT = 16'hcaca;
LUT4 BU504 (
  .I0(N8017),
  .I1(N8008),
  .I2(N13106),
  .I3(N0),
  .O(N14617)
);
defparam BU508.INIT = 16'hcaca;
LUT4 BU508 (
  .I0(N7999),
  .I1(N7990),
  .I2(N13106),
  .I3(N0),
  .O(N14618)
);
MUXF5 BU510 (
  .I0(N14617),
  .I1(N14618),
  .O(N14582),
  .S(N13105)
);
defparam BU515.INIT = 16'hcaca;
LUT4 BU515 (
  .I0(N7981),
  .I1(N7972),
  .I2(N13106),
  .I3(N0),
  .O(N14689)
);
defparam BU519.INIT = 16'hcaca;
LUT4 BU519 (
  .I0(N7963),
  .I1(N7954),
  .I2(N13106),
  .I3(N0),
  .O(N14690)
);
MUXF5 BU521 (
  .I0(N14689),
  .I1(N14690),
  .O(N14584),
  .S(N13105)
);
MUXF6 BU523 (
  .I0(N14582),
  .I1(N14584),
  .O(dout_3[15]),
  .S(N13104)
);
defparam BU529.INIT = 16'hcaca;
LUT4 BU529 (
  .I0(N8016),
  .I1(N8007),
  .I2(N13106),
  .I3(N0),
  .O(N14796)
);
```

```
defparam BU533.INIT = 16'hcaca;
LUT4 BU533 (
  .I0(N7998),
  .I1(N7989),
  .I2(N13106),
  .I3(N0),
  .O(N14797)
);
MUXF5 BU535 (
  .I0(N14796),
  .I1(N14797),
  .O(N14761),
  .S(N13105)
);
defparam BU540.INIT = 16'hcaca;
LUT4 BU540 (
  .I0(N7980),
  .I1(N7971),
  .I2(N13106),
  .I3(N0),
  .O(N14868)
);
defparam BU544.INIT = 16'hcaca;
LUT4 BU544 (
  .I0(N7962),
  .I1(N7953),
  .I2(N13106),
  .I3(N0),
  .O(N14869)
);
MUXF5 BU546 (
  .I0(N14868),
  .I1(N14869),
  .O(N14763),
  .S(N13105)
);
MUXF6 BU548 (
  .I0(N14761),
  .I1(N14763),
  .O(dout_3[16]),
  .S(N13104)
);
defparam BU554.INIT = 16'hcaca;
LUT4 BU554 (
  .I0(N8015),
  .I1(N8006),
  .I2(N13106),
  .I3(N0),
  .O(N14975)
);
defparam BU558.INIT = 16'hcaca;
LUT4 BU558 (
  .I0(N7997),
  .I1(N7988),
  .I2(N13106),
  .I3(N0),
  .O(N14976)
);
MUXF5 BU560 (
  .I0(N14975),
  .I1(N14976),
  .O(N14940),
  .S(N13105)
);
defparam BU565.INIT = 16'hcaca;
LUT4 BU565 (
  .I0(N7979),
  .I1(N7970),
  .I2(N13106),
  .I3(N0),
  .O(N15047)
);
defparam BU569.INIT = 16'hcaca;
LUT4 BU569 (
  .I0(N7961),
  .I1(N7952),
  .I2(N13106),
  .I3(N0),
  .O(N15048)
);
MUXF5 BU571 (
  .I0(N15047),
  .I1(N15048),
  .O(N14942),
  .S(N13105)
);
MUXF6 BU573 (
  .I0(N14940),
  .I1(N14942),
  .O(dout_3[17]),
  .S(N13104)
);
```

```
defparam BU589.INIT = 16'h0100;
LUT4 BU589 (
  .I0(addr_2[13]),
  .I1(addr_2[12]),
  .I2(addr_2[11]),
  .I3(N1),
  .O(N7951)
);
defparam BU594.INIT = 16'h1000;
LUT4 BU594 (
  .I0(addr_2[13]),
  .I1(addr_2[12]),
  .I2(addr_2[11]),
  .I3(N1),
  .O(N7950)
);
defparam BU599.INIT = 16'h0400;
LUT4 BU599 (
  .I0(addr_2[13]),
  .I1(addr_2[12]),
  .I2(addr_2[11]),
  .I3(N1),
  .O(N7949)
);
defparam BU604.INIT = 16'h4000;
LUT4 BU604 (
  .I0(addr_2[13]),
  .I1(addr_2[12]),
  .I2(addr_2[11]),
  .I3(N1),
  .O(N7948)
);
defparam BU609.INIT = 16'h0200;
LUT4 BU609 (
  .I0(addr_2[13]),
  .I1(addr_2[12]),
  .I2(addr_2[11]),
  .I3(N1),
  .O(N7947)
);
defparam BU614.INIT = 16'h2000;
LUT4 BU614 (
  .I0(addr_2[13]),
  .I1(addr_2[12]),
  .I2(addr_2[11]),
  .I3(N1),
      .O(N7946)
   );
   defparam BU619.INIT = 16'h0800;
   LUT4 BU619 (
      .I0(addr_2[13]),
      .I1(addr_2[12]),
      .I2(addr_2[11]),
      .I3(N1),
      .O(N7945)
   );
   defparam BU624.INIT = 16'h8000;
   LUT4 BU624 (
      .I0(addr_2[13]),
      .I1(addr_2[12]),
      .I2(addr_2[11]),
      .I3(N1),
      .O(N7944)
   );

// synopsys translate_on

endmodule

// synopsys translate_off

`timescale   1 ps / 1 ps

module glbl ();

      parameter ROC_WIDTH = 100000;
      parameter TOC_WIDTH = 0;

      wire GSR;
      wire GTS;
      wire PRLD;

      reg GSR_int;
      reg GTS_int;
      reg PRLD_int;

//--------     JTAG Globals --------------
      wire JTAG_TDO_GLBL;
      wire JTAG_TCK_GLBL;
      wire JTAG_TDI_GLBL;
      wire JTAG_TMS_GLBL;
      wire JTAG_TRST_GLBL;
```

```
    reg JTAG_CAPTURE_GLBL;
    reg JTAG_RESET_GLBL;
    reg JTAG_SHIFT_GLBL;
    reg JTAG_UPDATE_GLBL;

    reg JTAG_SEL1_GLBL = 0;
    reg JTAG_SEL2_GLBL = 0 ;
    reg JTAG_SEL3_GLBL = 0;
    reg JTAG_SEL4_GLBL = 0;

    reg JTAG_USER_TDO1_GLBL = 1'bz;
    reg JTAG_USER_TDO2_GLBL = 1'bz;
    reg JTAG_USER_TDO3_GLBL = 1'bz;
    reg JTAG_USER_TDO4_GLBL = 1'bz;

    assign (weak1, weak0) GSR = GSR_int;
    assign (weak1, weak0) GTS = GTS_int;
    assign (weak1, weak0) PRLD = PRLD_int;

    initial begin
        GSR_int = 1'b1;
        PRLD_int = 1'b1;
        #(ROC_WIDTH)
        GSR_int = 1'b0;
        PRLD_int = 1'b0;
    end

    initial begin
        GTS_int = 1'b1;
        #(TOC_WIDTH)
        GTS_int = 1'b0;
    end

endmodule

// synopsys translate_on
```

NOTES ROM

```
////////////////////////////////////////////////////////////////////////////////
// Copyright (c) 1995-2006 Xilinx, Inc.   All rights reserved.
////////////////////////////////////////////////////////////////////////////////
//    ____  ____
//   /   /\/   /
//  /___/  \  /    Vendor: Xilinx
//  \   \   \/     Version: I.34
//   \   \         Application: netgen
//   /   /         Filename: notes.v
//  /___/   /\     Timestamp: Mon May 14 14:25:50 2007
//  \   \  /  \
//   \___\/\___\
//
// Command  : -intstyle ise -w -sim -ofmt verilog C:\Synthesizer\_cg\notes.ngc
C:\Synthesizer\_cg\notes.v
// Device   : 2v6000bf957-4
// Input file   : C:/Synthesizer/_cg/notes.ngc
// Output file  : C:/Synthesizer/_cg/notes.v
// # of Modules     : 1
// Design Name      : notes
// Xilinx           : C:\Xilinx
//
// Purpose:
//     This verilog netlist is a verification model and uses simulation
//     primitives which may not represent the true implementation of the
//     device, however the netlist is functionally correct and should not
//     be modified. This file cannot be synthesized and should only be used
//     with supported simulation tools.
//
// Reference:
//     Development System Reference Guide, Chapter 23
//     Synthesis and Simulation Design Guide, Chapter 6
//
////////////////////////////////////////////////////////////////////////////////

`timescale 1 ns/1 ps

module notes (
  clk, dout, addr
);
  input clk;
  output [13 : 0] dout;
  input [6 : 0] addr;
  // The synopsys directives "translate_off/translate_on" specified
  // below are supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity
  // synthesis tools. Ensure they are correct for your synthesis tool(s)

  // synopsys translate_off

  wire N0;
  wire N1;
  wire \NLW_B6_DOP<0>_UNCONNECTED ;
  wire \NLW_B6_DOP<1>_UNCONNECTED ;
  wire \NLW_B6_DO<14>_UNCONNECTED ;
  wire \NLW_B6_DO<15>_UNCONNECTED ;
  wire [6 : 0] addr_2;
  wire [13 : 0] dout_3;
  assign
    dout[13] = dout_3[13],
    dout[12] = dout_3[12],
    dout[11] = dout_3[11],
    dout[10] = dout_3[10],
    dout[9] = dout_3[9],
    dout[8] = dout_3[8],
    dout[7] = dout_3[7],
    dout[6] = dout_3[6],
    dout[5] = dout_3[5],
    dout[4] = dout_3[4],
    dout[3] = dout_3[3],
    dout[2] = dout_3[2],
    dout[1] = dout_3[1],
    dout[0] = dout_3[0],
    addr_2[6] = addr[6],
    addr_2[5] = addr[5],
    addr_2[4] = addr[4],
    addr_2[3] = addr[3],
    addr_2[2] = addr[2],
    addr_2[1] = addr[1],
    addr_2[0] = addr[0];
  VCC VCC_0 (
    .P(N1)
  );
  GND GND_1 (
    .G(N0)
  );
  defparam B6.INIT_00 =
256'h000d000d000c000b000b000a00090009000800080007000700070006000600000;
  defparam B6.INIT_01 =
256'h00210020001e001c001b00190018001600150014001300120011001000f000e;
```

```
   defparam B6.INIT_02 =
256'h00540050004b00470043003f003c003800350032002f002d002a002800260023;
   defparam B6.INIT_03 =
256'h00d400c800bd00b300a9009f0096008e0086007e00770071006a0064005f0059;
   defparam B6.INIT_04 =
256'h021701f901dd01c201a90191017a01650151013e012c011c010c00fd00ee00e1;
   defparam B6.INIT_05 =
256'h054504f904b1046e042e03f203ba03840352032202f502ca02a2027c02590237;
   defparam B6.INIT_06 =
256'h0d460c880bd40b2a0a8909f2096308dc085d07e50773070806a3064405ea0595;
   defparam B6.INIT_07 =
256'h21731f931dcd1c211a8d190f17a71653151313e412c611b810ba0fc90ee70e10;
   defparam B6.INIT_08 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_09 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_0A =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_0B =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_0C =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_0D =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_0E =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_0F =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_10 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_11 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_12 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_13 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_14 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_15 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_16 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_17 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.INIT_18 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
```

```
  defparam B6.INIT_19 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_1A =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_1B =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_1C =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_1D =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_1E =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_1F =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_20 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_21 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_22 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_23 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_24 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_25 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_26 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_27 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_28 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_29 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_2A =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_2B =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_2C =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_2D =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_2E =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_2F =
256'h0000000000000000000000000000000000000000000000000000000000000000;
```

```
  defparam B6.INIT_30 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_31 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_32 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_33 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_34 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_35 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_36 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_37 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_38 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_39 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_3A =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_3B =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_3C =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_3D =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_3E =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INIT_3F =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B6.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
```

```
   defparam B6.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B6.WRITE_MODE = "WRITE_FIRST";
   defparam B6.INIT = 20'h00000;
   defparam B6.SRVAL = 20'h00000;
   RAMB16_S18 B6 (
      .EN(N1),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0, N0, N0, N0, N0, N0, N0, N0, N0}),
      .DOP({\NLW_B6_DOP<1>_UNCONNECTED ,
\NLW_B6_DOP<0>_UNCONNECTED }),
      .ADDR({N0, N0, N0, addr_2[6], addr_2[5], addr_2[4], addr_2[3], addr_2[2],
addr_2[1], addr_2[0]}),
      .DO({\NLW_B6_DO<15>_UNCONNECTED , \NLW_B6_DO<14>_UNCONNECTED
, dout_3[13], dout_3[12], dout_3[11], dout_3[10], dout_3[9], dout_3[8], dout_3[7],
dout_3[6], dout_3[5], dout_3[4], dout_3[3], dout_3[2], dout_3[1], dout_3[0]}),
      .DIP({N0, N0})
   );

// synopsys translate_on

endmodule

// synopsys translate_off

`timescale   1 ps / 1 ps

module glbl ();

      parameter ROC_WIDTH = 100000;
      parameter TOC_WIDTH = 0;

      wire GSR;
      wire GTS;
      wire PRLD;

      reg GSR_int;
      reg GTS_int;
      reg PRLD_int;

//--------    JTAG Globals --------------
      wire JTAG_TDO_GLBL;
      wire JTAG_TCK_GLBL;
      wire JTAG_TDI_GLBL;
```

```
    wire JTAG_TMS_GLBL;
    wire JTAG_TRST_GLBL;

    reg JTAG_CAPTURE_GLBL;
    reg JTAG_RESET_GLBL;
    reg JTAG_SHIFT_GLBL;
    reg JTAG_UPDATE_GLBL;

    reg JTAG_SEL1_GLBL = 0;
    reg JTAG_SEL2_GLBL = 0 ;
    reg JTAG_SEL3_GLBL = 0;
    reg JTAG_SEL4_GLBL = 0;

    reg JTAG_USER_TDO1_GLBL = 1'bz;
    reg JTAG_USER_TDO2_GLBL = 1'bz;
    reg JTAG_USER_TDO3_GLBL = 1'bz;
    reg JTAG_USER_TDO4_GLBL = 1'bz;

    assign (weak1, weak0) GSR = GSR_int;
    assign (weak1, weak0) GTS = GTS_int;
    assign (weak1, weak0) PRLD = PRLD_int;

    initial begin
       GSR_int = 1'b1;
       PRLD_int = 1'b1;
       #(ROC_WIDTH)
       GSR_int = 1'b0;
       PRLD_int = 1'b0;
    end

    initial begin
       GTS_int = 1'b1;
       #(TOC_WIDTH)
       GTS_int = 1'b0;
    end

endmodule

// synopsys translate_on
```

GUS'S VOICE

```
///////////////////////////////////////////////////////////////////////////////
// Copyright (c) 1995-2006 Xilinx, Inc.   All rights reserved.
///////////////////////////////////////////////////////////////////////////////
//   ____  ____
//  /   /\/   /
// /___/  \  /    Vendor: Xilinx
// \   \   \/     Version: I.34
//  \   \         Application: netgen
//  /   /         Filename: gusvoice.v
// /___/   /\     Timestamp: Wed May 16 01:04:34 2007
// \   \  /  \
//  \___\/\___\
//
// Command  : -intstyle ise -w -sim -ofmt verilog "U:\Desktop\6.111FinalProject\dennis's
sweet sweet code\_cg\gusvoice.ngc" "U:\Desktop\6.111FinalProject\dennis's sweet
sweet code\_cg\gusvoice.v"
// Device       : 2v6000bf957-4
// Input file   : U:/Desktop/6.111FinalProject/dennis's sweet sweet
code/_cg/gusvoice.ngc
// Output file  : U:/Desktop/6.111FinalProject/dennis's sweet sweet code/_cg/gusvoice.v
// # of Modules        : 1
// Design Name         : gusvoice
// Xilinx              : C:\Xilinx
//
// Purpose:
//     This verilog netlist is a verification model and uses simulation
//     primitives which may not represent the true implementation of the
//     device, however the netlist is functionally correct and should not
//     be modified. This file cannot be synthesized and should only be used
//     with supported simulation tools.
//
// Reference:
//     Development System Reference Guide, Chapter 23
//     Synthesis and Simulation Design Guide, Chapter 6
//
///////////////////////////////////////////////////////////////////////////////

`timescale 1 ns/1 ps

module gusvoice (
  clk, dout, addr
);
  input clk;
  output [17 : 0] dout;
```

```
input [13 : 0] addr;

// The synopsys directives "translate_off/translate_on" specified
// below are supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity
// synthesis tools. Ensure they are correct for your synthesis tool(s)

// synopsys translate_off

wire N0;
wire N1;
wire N341;
wire N342;
wire N343;
wire N344;
wire N345;
wire N346;
wire N347;
wire N348;
wire N349;
wire N350;
wire N351;
wire N352;
wire N353;
wire N354;
wire N355;
wire N356;
wire N357;
wire N358;
wire N359;
wire N360;
wire N361;
wire N362;
wire N363;
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wire N367;
wire N368;
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wire N411;
wire N412;
wire N413;
wire N414;
wire N415;
wire N416;
wire N417;
wire N418;
wire N419;
wire N420;
wire N5501;
wire N5502;
wire N5503;
wire N5905;
wire N5907;
wire N5940;
wire N5941;
wire N6012;
wire N6013;
wire N6084;
wire N6086;
wire N6119;
wire N6120;
wire N6191;
wire N6192;
wire N6263;
wire N6265;
wire N6298;
wire N6299;
wire N6370;
wire N6371;
wire N6442;
wire N6444;
wire N6477;
wire N6478;
wire N6549;
wire N6550;
wire N6621;
wire N6623;
wire N6656;
wire N6657;
wire N6728;
wire N6729;
wire N6800;
wire N6802;
wire N6835;
wire N6836;
wire N6907;
wire N6908;
wire N6979;
wire N6981;
wire N7014;
wire N7015;
wire N7086;
wire N7087;
wire N7158;
wire N7160;
wire N7193;
wire N7194;
wire N7265;
wire N7266;
wire N7337;
wire N7339;
wire N7372;
wire N7373;
wire N7444;
wire N7445;
wire N7944;
wire N7945;
wire N7946;
wire N7947;
wire N7948;
wire N7949;
wire N7950;
wire N7951;
wire N7952;
wire N7953;
wire N7954;
wire N7955;
wire N7956;
wire N7957;
wire N7958;
wire N7959;
wire N7960;
wire N7961;
wire N7962;
wire N7963;
wire N7964;
wire N7965;
wire N7966;
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wire N7990;
wire N7991;
wire N7992;
wire N7993;
wire N7994;
wire N7995;
wire N7996;
wire N7997;
wire N7998;
wire N7999;
wire N8000;
wire N8001;
wire N8002;
wire N8003;
wire N8004;
wire N8005;
wire N8006;
wire N8007;
wire N8008;
wire N8009;
wire N8010;
wire N8011;
wire N8012;
wire N8013;
wire N8014;
wire N8015;
wire N8016;
wire N8017;
wire N8018;
wire N8019;
wire N8020;
wire N8021;
wire N8022;
wire N8023;
wire N13104;
wire N13105;
wire N13106;
wire N13508;
wire N13510;
wire N13543;
wire N13544;
wire N13615;
wire N13616;
wire N13687;
wire N13689;
wire N13722;
wire N13723;
wire N13794;
wire N13795;
wire N13866;
wire N13868;
wire N13901;
wire N13902;
wire N13973;
wire N13974;
wire N14045;
wire N14047;
wire N14080;
wire N14081;
wire N14152;
wire N14153;
wire N14224;
wire N14226;
wire N14259;
wire N14260;
wire N14331;
wire N14332;
wire N14403;
wire N14405;
wire N14438;
wire N14439;
wire N14510;
wire N14511;
wire N14582;
wire N14584;
wire N14617;
wire N14618;
wire N14689;
wire N14690;
wire N14761;
wire N14763;
wire N14796;
wire N14797;
wire N14868;
wire N14869;
wire N14940;
wire N14942;
wire N14975;
wire N14976;
wire N15047;
wire N15048;
wire [13 : 0] addr_2;
wire [17 : 0] dout_3;
assign
   dout[17] = dout_3[17],
   dout[16] = dout_3[16],
   dout[15] = dout_3[15],
   dout[14] = dout_3[14],
   dout[13] = dout_3[13],
   dout[12] = dout_3[12],
   dout[11] = dout_3[11],
   dout[10] = dout_3[10],
   dout[9] = dout_3[9],
   dout[8] = dout_3[8],
   dout[7] = dout_3[7],
   dout[6] = dout_3[6],
   dout[5] = dout_3[5],
   dout[4] = dout_3[4],
   dout[3] = dout_3[3],
   dout[2] = dout_3[2],
   dout[1] = dout_3[1],
   dout[0] = dout_3[0],
   addr_2[13] = addr[13],
   addr_2[12] = addr[12],
   addr_2[11] = addr[11],
   addr_2[10] = addr[10],
   addr_2[9] = addr[9],
   addr_2[8] = addr[8],
   addr_2[7] = addr[7],
   addr_2[6] = addr[6],
   addr_2[5] = addr[5],
   addr_2[4] = addr[4],
   addr_2[3] = addr[3],
   addr_2[2] = addr[2],
   addr_2[1] = addr[1],
   addr_2[0] = addr[0];
VCC VCC_0 (
   .P(N1)
);
```

```
  GND GND_1 (
    .G(N0)
  );
  defparam B6.INIT_00 =
256'hbabfbfbfbfbfffffffffffffffffffffffffff00000000000000000000000000;
  defparam B6.INIT_01 =
256'h6adc4ab00d61b0f7356f9cc5ed0d2843525c584c381f06e9babababababababa;
  defparam B6.INIT_02 =
256'hd0185b9bd2002d4e6f83939ea09e93846d502cfecc96570fc36e15b34dde66ea;
  defparam B6.INIT_03 =
256'h638b93979a91836c512e0ad9a96f31efa45501a949e476048d0a86f665c7257f;
  defparam B6.INIT_04 =
256'hc4d6ed00122940536a7d94afcae1fd1838577792b6d6f6163a597da1c6ea123a;
  defparam B6.INIT_05 =
256'he6dfdcd4d5d2d3d0d6d7d8dee3e4eaeff5fb000a141a232d3c4a5866798c9eb1;
  defparam B6.INIT_06 =
256'hd8bfa78e755c472e1500ecd3c3ae998979695d4d453932261e170f0800f9f1ea;
  defparam B6.INIT_07 =
256'h07cf98602dfac790612effd0a1774d22fcd2ac86643e18f2d4ae916b4e3013f6;
  defparam B6.INIT_08 =
256'h7b18be5f00a650f6a04af8a65908ba6920d28a41f8b36f26e5a56529edb2763e;
  defparam B6.INIT_09 =
256'hb11e8bfc72e359cf49c341c03ebd3fc249cc58df6ffa8a1aae42db6f08a441da;
  defparam B6.INIT_0A =
256'heb1f5488c1f9366fb0ed3375ba044a94e33184d72a81dc348fef4faf1377e049;
  defparam B6.INIT_0B =
256'hfdfdfd02060f131c24323f505d738496acc6e0fa1433517497bae108345f8fbb;
  defparam B6.INIT_0C =
256'h452704e5c7a88a7051371d07edd7c1ac9a89736654473a2d241c130f060602fd;
  defparam B6.INIT_0D =
256'hedb47b470edaa6713d0dd9a9794919edbd9262360be3b89169421bf8d1ae8b68;
  defparam B6.INIT_0E =
256'hcc7922cf7c2edb8c3eefa15708c3782ee49f5913d2904b0dcc8f4e15d89b6225;
  defparam B6.INIT_0F =
256'h911ba634c352e073029524bb4ee57d14ac47e37f1bbb5bfb9b3fe4882dd67a23;
  defparam B6.INIT_10 =
256'h8e0c840276f871ee67e461de5cdd56d855d654d552d451d759df60e66cf77c07;
  defparam B6.INIT_11 =
256'hcd57d95fe066e86eeb6dee6be96ae360de5bd451ca4bc441ba38b02ea6249d1a;
  defparam B6.INIT_12 =
256'hae4ee9851dbd50eb7e16ad40d36bf98c1bae3dd05ae977028c1ba12bb13bc14b;
  defparam B6.INIT_13 =
256'h9c5204b56218c57724d17f2cd9862fd88029d2771bc4680dad51f19632d67212;
  defparam B6.INIT_14 =
256'hbc8c531fe6b2794003cb8e510fd6955412d18b4a04c37937eda75d17c98335eb;
  defparam B6.INIT_15 =
256'h837f766d65584b392816fcebd1b6987e5b411efbd4b18a623710e0b4845424f4;
  defparam B6.INIT_16 =
256'hf93a73b0e41d4d81acd8ff2b4e718fb2cce6fc16283e4b5c6572767f83888888;
  defparam B6.INIT_17 =
256'h68f376fd7bfe78f768e253c5329f0c74d83d9d0158b80f66b50856a0ea3476bc;
  defparam B6.INIT_18 =
256'h7e4302c27939f0ac5e15c87b29dc8634da8425cb680ea643dc7408a131c551e0;
  defparam B6.INIT_19 =
256'h5e4a352108f3dac1a48b6d502a0de7c19b704620f1c798693607d49d6532f6bf;
  defparam B6.INIT_1A =
256'h727375767374717 26a67605c55524a433b342c24191105f9e9ddcdc1ac9c8877;
  defparam B6.INIT_1B =
256'hdbe0e6ebf1f6fc02070d121c222c353b41464c565b616263646a6b6c696f7071;
  defparam B6.INIT_1C =
256'hc2bab3afa8a9a6a7a0a19e9f9c9d9e9b9c9d9a9b9ca2a3a9aab4b9bfc5cad0da;
  defparam B6.INIT_1D =
256'h482605e7c6ad8f72553c230aecd8c3af9a8575695549392d1c1100f4e9e1d5c9;
  defparam B6.INIT_1E =
256'h07ba7128e49b5b16d696551ae2a6733c04d19e6f3c0ddfb081522c02d7b18b6a;
  defparam B6.INIT_1F =
256'h28af3bc252dd7201962ac257ef8c29c66300a147e88e33dd8731e08a3ceba255;
  defparam B6.INIT_20 =
256'h50a7ff56b60d71cd3191f559c22b93006dda50c137ad279c1b95189614971ea1;
  defparam B6.INIT_21 =
256'hf10f32557ca3cff6225282b2e61a5790c9064384c6074d92d8226cb70958abfd;
  defparam B6.INIT_22 =
256'h360ff1ceb49a846a584235281b120e05050105050e1220283a475d6e849ab8d2;
  defparam B6.INIT_23 =
256'h5bea8114b048ec882cd17922d48137e89e5413cd8c4a12d5a0683803d8a88159;
  defparam B6.INIT_24 =
256'hde2270bd0f5cb60c66c1207ee144b0137fe657c73bab299d1f981e9f29af3ec8;
  defparam B6.INIT_25 =
256'h727e93a3b8ccea0320395b789ec0e60c3b6194bef6246098cf0b4b87cc075090;
  defparam B6.INIT_26 =
256'h1cf0cca88864442409e9d7bba99288756b595349483e3d373b393d3b474a5b62;
  defparam B6.INIT_27 =
256'h9f39dd7c1fc26e1ac67227d79045feb7742eefa86a2cf6bd834d20ebc2916d41;
  defparam B6.INIT_28 =
256'h9f066cd645b0238e0675ec5fd74ac73eba32b737bc41ce57e9760d9e39cb6a04;
  defparam B6.INIT_29 =
256'h104a89bffa3574b3f22c70b3fb3e8ad2236fc30f64b50e63b80c6ac3217adc39;
  defparam B6.INIT_2A =
256'h18416a93bce6133c6a98c9f3204e80addb04366491bff11e5586bdef29609fd5;
  defparam B6.INIT_2B =
256'h205a90cb01386ea4db0c3e709ecbf5224b79a2cbf9275482afdd0a3c6a93c1ea;
  defparam B6.INIT_2C =
256'hcd2f8cea47a5fe53a7fc4d9de93586d21e61adf53d85c4074a89c8ff3e74b3e9;
   defparam B6.INIT_2D =
256'h66fc9224b643d15ee770fa7e07880889058 1f86cdf52c12c96016cd2389a0567;
   defparam B6.INIT_2E =
256'hb1845326f5bf8e541be1a2641ddb8f48fdae5e0eba6612be660db554f79635d0;
   defparam B6.INIT_2F =
256'h050c14171a1918120d07fdf3e5d7c9bfac998770593d2607e7c7a37f5b330ade;
   defparam B6.INIT_30 =
256'h4078abde11406f99c8f21843698ab0d2f40d2a435c75859aaabac6d2e2eaf6fd;
   defparam B6.INIT_31 =
256'he555c12894fb5ec62988e6459ffa50a6f74996e4317ac30c5095d5155591cd09;
   defparam B6.INIT_32 =
256'hb46a1bcd7a23cc7519b959f59128bf57e67903921ca228a92bac2aa31b900475;
   defparam B6.INIT_33 =
256'h444944403c33261907f6e0cab0967755320fe3bc8c5c2cf8bf86490ccb8a44fe;
   defparam B6.INIT_34 =
256'h6ab4fe3f85c7044179b2eb1b4f7faad6fd25476689a3bdd7edff10212a373c44;
   defparam B6.INIT_35 =
256'h8f0d8c0680fa74e95bd146b32592fe6bd438a10165c5217cd82f86dd3083d120;
   defparam B6.INIT_36 =
256'he2760fa337cb64f88c21b549dd6dfd8d1da834bf4bd662e974fb7e058c0f9210;
   defparam B6.INIT_37 =
256'hee871baf48e0750da63ad26b049c35c962fa9330c861f9922ac357f0881db549;
   defparam B6.INIT_38 =
256'h2cb33ac148cf56e269f5800c9b27b747d666f68616a636c55ae9790ea232c65a;
   defparam B6.INIT_39 =
256'hbe2b980a7bf162d84dc739b328a2219b158f0d8c0a890786088b0e91139b1da4;
   defparam B6.INIT_3A =
256'h4086d01a68b20554a6f94ca3fa52a90460c01b7bdf3fa40871d53da60f77e44d;
   defparam B6.INIT_3B =
256'h879db3c8e3fd1b3a587b9ec1e8143b6797c7f62b5b93c8003976b3f03273b4fa;
   defparam B6.INIT_3C =
256'h0af4dac8b39d8b7a6d604e46393027231a1616111116161a2327303d4a576476;
   defparam B6.INIT_3D =
256'hd39e6f3f13e3b3885c3005d9ae865b330ce5c29b7855320ff1ceb09173583e24;
   defparam B6.INIT_3E =
256'h14ce8d4b06c4874604c78a4d10d89b6225ecb47b420ed5a1683400cb97673303;
   defparam B6.INIT_3F =
256'h8d24c06000a040e58929d2761fc8711ac77426d38436ec9d5309bf752fe59f5a;
   defparam B6.INITP_00 =
256'h2d6a54ab556aaaad55556aaab554ab56aab4b27387ffe0e665ad54ffffffe000;
   defparam B6.INITP_01 =
256'hcc6739c71c78f0f0f83e07e01ff00001e0000fe07c3871ce7333326c936925a5;
   defparam B6.INITP_02 =
256'h33339c78781fe000003fe03e0f87870e1c71c738c63398ccccccccccc9999998;
   defparam B6.INITP_03 =
256'h32649b6d25a5295ab55aaab55555555554aaaaaaaaaab5552a95a96b69249b3;
   defparam B6.INITP_04 =
256'h9249694ad52aaaaaab54ad2d24936666738e1e0fc00000007f07878f18e63333;
   defparam B6.INITP_05 =
256'haa9555ab5ad25b64d993198c71c70e0f0f81f83f03f07e0f07871c718ce6664d;
   defparam B6.INITP_06 =
256'h4d9326c9b366ccd99cce638e1c1f803fff803e0e1c631999364924b4a56ad555;
   defparam B6.INITP_07 =
256'hc638e3c7878783e0f81f80ff8000000003f81e0f1c39c6319cccccccccd99326;
   defparam B6.WRITE_MODE = "WRITE_FIRST";
   defparam B6.INIT = 12'h000;
   defparam B6.SRVAL = 12'h000;
   RAMB16_S9 B6 (
     .EN(N348),
     .CLK(clk),
     .WE(N0),
     .SSR(N0),
     .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
     .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
     .DOP({N412}),
     .DO({N413, N414, N415, N416, N417, N418, N419, N420}),
     .DIP({N0})
   );
   defparam B9.INIT_00 =
256'h56bd29950575e55ace43bb34b22fac2eaf31b73dc74dd761f07f0d9c2fc75af1;
   defparam B9.INIT_01 =
256'hcf0f4f93d81d61aaf7408edb287acb1d6fc51b71c7217bd63493f255b81b82ea;
   defparam B9.INIT_02 =
256'h325c87b6e40f3d6c9bcafd2c5a8ebcef23568dc5fc346fa7e31f5a96d212528e;
   defparam B9.INIT_03 =
256'hc3e50224415f7c99bbd8f617395b7d9ec0e60c32587ea4caf01641678db7dd08;
   defparam B9.INIT_04 =
256'h7992a7c0d4ed061b344d667f98b0cee7001d364f6c859ebcd9f20f2c4a6c89a6;
   defparam B9.INIT_05 =
256'h14365c7e9bbddefc1d3b58718eacc5d9f20b243d566b889db6cfe8051a324b64;
   defparam B9.INIT_06 =
256'h034484c4044077afe61e5589bcef225584b3e614436e98c2ed173d6389afd1f3;
   defparam B9.INIT_07 =
256'hf965d53da90c73db3ea1ff62c1207ad52f85db3183d42673c00e57a4ed317abf;
   defparam B9.INIT_08 =
256'hc255e477069923b23cc651db61e76dee70f273f06eeb64e15ad34cc035a91e8e;
   defparam B9.INIT_09 =
256'h681acb782ad7842dda832cd57922c66b0baf50f49030d06c07a33ad66e05982f;
   defparam B9.INIT_0A =
256'h4a1aeabb86521ee9b1783f07ce915417da985716d48f4903bd782de3994f01b7;
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   defparam B9.INIT_0B =
256'ha9a59c94877a6c5f4e3d2b15ffead0ba9b8163442603e0bd9a734c24fdd2a67a;
   defparam B9.INIT_0C =
256'he00321445e7d97b1cbe1f711223845576875828f98a1a9aeb2b7b7bbbbb7b7b2;
   defparam B9.INIT_0D =
256'h448acc115398d5175491ce0b447cb5ee225686bbea1f4a7aa6d2fd244c779abd;
   defparam B9.INIT_0E =
256'hc72787e747a7025eb5106cc31a72c41c6ec6186bba0d5ba9f84691db256fb5ff;
   defparam B9.INIT_0F =
256'h289e138dff74e65bcd3eb425920375e24fc02996036bd43ca1096ed63a9f0367;
   defparam B9.INIT_10 =
256'h5fe669ec6ef174f775f87bfd7cff7dfb7af877f56fee68e25cda54ce48c238b2;
   defparam B9.INIT_11 =
256'hb33ac249cb53da61e46bf279fc83068d10971ea52cb336bd40c74ed154d75ee1;
   defparam B9.INIT_12 =
256'h68ea69ec6ae867ea68eb69ec6ff274f77afd7f0285088a0d9013961d9f22a931;
   defparam B9.INIT_13 =
256'hbd37b130aa28a2219b199812900e880785ff7efc76f573f270ee6deb6aec6be9;
   defparam B9.INIT_14 =
256'h88037df26ce660da50ca40ba34ae289e18920c86007af473ed67e15bd54fc943;
   defparam B9.INIT_15 =
256'hbc2ea3158a0071e758ce44ba2fa91f990f84ff79ee68de58ce48be33a9239913;
   defparam B9.INIT_16 =
256'hf15ac33098016edb43b01d8afc69d643b0218efb68d94bb8299a0c7dee64d547;
   defparam B9.INIT_17 =
256'h95f550ac0c6bc72787e747a70b6bcb2f93f357bc2088ed51ba1e86ef53bc2589;
   defparam B9.INIT_18 =
256'hd62977ca1d6bbe1164b70a5cb4065eb0085fb60d64bc176ec51d78d42b86de39;
   defparam B9.INIT_19 =
256'h79be044a90d51f65abf53f89d31968b2fc4690de2877c5105eacfb4998e63988;
   defparam B9.INIT_1A =
256'h2e6fb0ed2f70b2f33471b3f43677b8fa3b7cbe044586cc0e5395da2066a7ed33;
   defparam B9.INIT_1B =
256'h0e5095d71d5e9fe12264a5e62869aaec296aaced2e70adee3071aeef316eaff1;
   defparam B9.INIT_1C =
256'h2671bf09539de72d77c10c519be52b75bb054b91d61c62a8ed2f75ba004187c9;
   defparam B9.INIT_1D =
256'h53a2f03f91e03381d02371bf0e5cabfe4c9be93886d42371c00e58a7f5448edc;
   defparam B9.INIT_1E =
256'h5db0fe4d9bea3887da2877c51362b0ff52a0ef4190de3180d2216fc2115fb200;
   defparam B9.INIT_1F =
256'h93e1307ecc1b69b80655a3f2408fdd2c7ac91765b402519fe93886d52372c00f;
   defparam B9.INIT_20 =
256'h64b70a61b40659b00356a9fc4a9df04391e43285d42675c31665b30654a3f144;
   defparam B9.INIT_21 =
256'h94eb3e95ec489ff64da4fc53aa0158b0025ab1085fb60d65bc0f66bd1067ba11;
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  defparam B9.INIT_22 =
256'h317fce1c6bb90c5aadfc4e9df04395e83f92e53c8fe63990e33a8de43b8ee53d;
  defparam B9.INIT_23 =
256'h4082c304468bcd13549adf256bb1f63c86cc125ca6ec3680ca1463adfb4594e2;
  defparam B9.INIT_24 =
256'h9bd8114e86c3003976b3ec29619edb195693d00d4a87c4054284c1023f80bdff;
  defparam B9.INIT_25 =
256'h518ac3003871aae71f5895ce06437cb5f22a67a0dd1a538bc8013e77b0ed2562;
  defparam B9.INIT_26 =
256'h74a4d90d4176aade174b80b8ed255a92cbff3870a5dd164f87c0f9316aa3db19;
  defparam B9.INIT_27 =
256'hd6fd244c739ac1ed14406b93beea15416d9cc8f8245484b3e3134878a8dc0c40;
  defparam B9.INIT_28 =
256'h0e243e586e88a2bdd7f10b25445e7c9bb5d8f61533527598b6d9fc1f42698caf;
  defparam B9.INIT_29 =
256'hb9c6d8e5f20310222f405263748697a9bad0e1f3091a30465b71839db3c8def4;
  defparam B9.INIT_2A =
256'hafb3b3b8bcc1c9ced2dbdfe3ecf5f9020b131c252d3b434c59626f7c85929fac;
  defparam B9.INIT_2B =
256'hdbd6d2cec9c5c1bcb8b3b3afababa6a6a2a2a29e9e9e9e9e9e9ea2a2a2a6a6ab;
  defparam B9.INIT_2C =
256'h8985807c78736f6b665d59555048433b363229251c18130b06fef9f5f0e8e3df;
  defparam B9.INIT_2D =
256'h434c555d666b73788085898d929296969a9a9f9f9f9f9a9a9a969692928d8d;
  defparam B9.INIT_2E =
256'h687e8fa5b7c8deef0112243142546572839l9eafbcc9d6e3f0fe06131c29323b;
  defparam B9.INIT_2F =
256'hdff00217293f5066778da3b4cae0f60b1d33485e748a9bb1c7ddf2041a2f4157;
  defparam B9.INIT_30 =
256'h0c151e2b33414e5663707e8b98a5b6c3d0e2ef000d1f2c3d4f60728395a6b7c9;
  defparam B9.INIT_31 =
256'hf5fe070f18212a323b444c555e626b747c858e929ba4acb5bec6cfd8e1eef6ff;
  defparam B9.INIT_32 =
256'h0d23394e647a90a1b7c8daebfd0a1b2d3a47586572808d95a2afb8c5ced7e4ec;
  defparam B9.INIT_33 =
256'h7db1e1113d6c98c8f41b467299c1e80b3255789ab9d7fa193352708aa4bfd9f3;
  defparam B9.INIT_34 =
256'h80ca1963adf73d87cd13589ee42567a8e92b68a5e21f5c95d20a4377b0e4184d;
  defparam B9.INIT_35 =
256'ha80763c31e7eda3591e8449ff652a9005cb30a5db40b5eb10457aaf84695e332;
  defparam B9.INIT_36 =
256'h91f055b51474d43498f858bd1c81e140a50569c92989e94dad0d6ccc2c8cec48;
  defparam B9.INIT_37 =
256'h055cb30b62b9146cc71e7ad5318de8449ffb56b61272cd2d8ded4dad0d71d131;
  defparam B9.INIT_38 =
256'h3278bd075197e12b76c00e58a2f13f89d82679c81a69bc0f61b4075eb1045bae;
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   defparam B9.INIT_39 =
256'h5488c1f9326ba8e11e5693d00d4a87c9064789c607488acb0d4e94d51b61a6ec;
   defparam B9.INIT_3A =
256'h5e85add4ff27527ea9d501315c8cb8e8184878a7d70c3c70a4d90d4176aee31b;
   defparam B9.INIT_3B =
256'h7892a8c2d8f20c26405b7993b2ccea0927466987aac9ec0e31547b9ec1e81037;
   defparam B9.INIT_3C =
256'ha5aeb7c0c8d1dee7f4fd0a17202d3a475865728495a2b4c5d7e8fe0f25374c62;
   defparam B9.INIT_3D =
256'h1a1a1e1e1e232327272b30303438383d41464a4e535760646871767e878b949d;
   defparam B9.INIT_3E =
256'h766d646057534e4a413d383834302b272723231e1e1e1a1a1a1a1a1a1a1a1a1a;
   defparam B9.INIT_3F =
256'hc6a38566482e0ff5dfc5af9a846e584735241205f4e7dacdc0b7aaa1948b837a;
   defparam B9.INITP_00 =
256'hcdb2492da5294ad5aa552ab556aa556a954a952b52b5ad2d2d24924d9b333319;
   defparam B9.INITP_01 =
256'h3998ce738c71c78f1e1f07e07fe00000000ffc0fc1f0f0e1c71c639cc6666666;
   defparam B9.INITP_02 =
256'hce31ce7398c6733998cce666733331999999ccccccccd999999b333333333333;
   defparam B9.INITP_03 =
256'h38f1c78e1c70e38e1c70e3871e3c7870f0f0f0f0f0e1e1c3c78e1c71c71c71;
   defparam B9.INITP_04 =
256'h3f03f07c1f07c3e1e0f0787c3c1e1e1f1e1e3c78e3c71c71c718e38e38f1c71e;
   defparam B9.INITP_05 =
256'hc001ffe000ffffc00000000000000007fffffffffffe000007fff000ffc01fe0;
   defparam B9.INITP_06 =
256'h1c71ce31ce318e718e39c70e3c78787c1f81fe00fff800003fffffff00001fff;
   defparam B9.INITP_07 =
256'h01fff0000000000000000000003fffe003fe01fc07c0f83e0f0f0f0f1e3c71c7;
   defparam B9.WRITE_MODE = "WRITE_FIRST";
   defparam B9.INIT = 12'h000;
   defparam B9.SRVAL = 12'h000;
   RAMB16_S9 B9 (
      .EN(N347),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N403}),
      .DO({N404, N405, N406, N407, N408, N409, N410, N411}),
      .DIP({N0})
   );
   defparam B12.INIT_00 =
256'h8d43f9af651fde985715d4975a1de4ab77430edaaa7a4f1ff3cca079522f08e5;
  defparam B12.INIT_01 =
256'h46c74dd75de872fc8b15a837ca61f99027c35fff9b3fdf8428d17a23d07d2adc;
  defparam B12.INIT_02 =
256'hdd44a7137ae64eb925950171dd4dbd2da21282f76be459d14ac340be3fbc3ec0;
  defparam B12.INIT_03 =
256'h99f856b51877d53997fa59bc1b7add3b9efd60bf2285e84bb31679e043ab0e75;
  defparam B12.INIT_04 =
256'hb51472d13493f250af0e6ccb2a89e74aa90867ca2887e644a30261bf1e78d73a;
  defparam B12.INIT_05 =
256'h1b71cc2680db358fee48a30260bb1974ce2d87e6409ff958b71574d33195f352;
  defparam B12.INIT_06 =
256'h53a4f64ca2f44aa0f1479df3499bf1479df3499ff54fa5fb56b00660b6116bc1;
  defparam B12.INIT_07 =
256'he63792e3398fe13789df3082d82a80d12779cf2076c81a70c11365b6085aabfd;
  defparam B12.INIT_08 =
256'h59bc1f7ee140a30260bf1e81db3a99fc5ab50f69c41e78ce2983d92f8adf3590;
  defparam B12.INIT_09 =
256'he95dd242b226970777e757c32f9f0b77e24ab62189f05cc32b92fa61c93093f6;
  defparam B12.INIT_0A =
256'h7afc82038506880a8708860380fd76f371e967e058d64fc740b92ea61b8f0479;
  defparam B12.INIT_0B =
256'h821eba55f18820b74fe6790c9f32c554e775048e1da732bc46cc52dc62e86ef4;
  defparam B12.INIT_0C =
256'hedb8844b13daa16423e6a55f19d3893ff5a7580ab76411ba630cb459fda242e2;
  defparam B12.INIT_0D =
256'h69727b7f83888888837f766d605346351f09f3d9bfa58664411ef7cfa4784d1d;
  defparam B12.INIT_0E =
256'h68a5e623609dd60e477bb0e0103f6f97c2e91134567998b2d1eb00162c3e4f5c;
  defparam B12.INIT_0F =
256'hc72c90f054b41474cf2f8be63d99f0479ff6499bee4190de2c7bc50b559be022;
  defparam B12.INIT_10 =
256'hda54c93fb52aa0168cfd73e85acb41ae1f90fd6fdc44b11e87f45cc52e92fb5f;
  defparam B12.INIT_11 =
256'hcb52d960e76ff67d00870a911392159716991795149211 8b0988027cf670ea64;
  defparam B12.INIT_12 =
256'hcb64f88c21b549dd71019525b949d969f98d1dad3dc858e873038f1aa62db83f;
  defparam B12.INIT_13 =
256'he9821ab347df780ca539d26a039b34cc65fe922ac357eb8418b145de720aa337;
  defparam B12.INIT_14 =
256'h921ea939c554e474049424b348d86cfc9020b448dc7105992dc65af38b24bc55;
  defparam B12.INIT_15 =
256'ha124ab2eb537bf46c850d75ae163eb72f97c038e159c28af3bc64dd964f07b07;
  defparam B12.INIT_16 =
256'h62e568eb69ec6aed70ee71f476f578fa7d0083018407890c8b0d901396199b1e;
  defparam B12.INIT_17 =
256'h1f9e20a326a427aa2daf32b538bb3dbc3fc140c245c846c94ccf52d457da5ddf;
   defparam B12.INIT_18 =
256'h86fc72e761d751cb45bf39b32dac26a01e9d1b9518961598169517 9a189b1a9c;
   defparam B12.INIT_19 =
256'h8de43f9ffb5bb61676da3a9e0367d0349c056edb48b01d8afc69d547b8299f11;
   defparam B12.INIT_1A =
256'h75a9e21f5794d20f5091d3145aa0e52b75bf0953a2ec3b8ddc2f81d42b83da31;
   defparam B12.INIT_1B =
256'h8da7bddcf6142f4d6c8fadd0f316396083aad1fd28547fabdb0b3b6b9fd3083c;
   defparam B12.INIT_1C =
256'h09090e1212161b1f282c353e464f58656e7b8895a2b3c0d2e3f50b1c32485d73;
   defparam B12.INIT_1D =
256'ha29e958c837b766e6561584f4b423e39312c28241f1b16120e0e090909090909;
   defparam B12.INIT_1E =
256'ha7a39a968d898078736a6259504c433b322920180f06f9f0e8dfd6cec5bcb3ab;
   defparam B12.INIT_1F =
256'hbdc2c6cfcfd3d7d7dcdce0e0e0e0e0e0dcdcdcd7d7d3cfcacac2c2bdb5b0ac;
   defparam B12.INIT_20 =
256'h919eabb8c0cedbe3f0f9060f1c25323b435059626a737c8589929a9fa7acb5b9;
   defparam B12.INIT_21 =
256'h1a222b38454e5b68717e8794a1aeb7c4d1deebf4010e1b24313e4b58616e7b88;
   defparam B12.INIT_22 =
256'h2e33373b4044484d515a5e636b70787d858e979ba4adb5bec7d0dde5eef7040d;
   defparam B12.INIT_23 =
256'hdbe0e4e4e8ededf1f6f6fafafe030303070b0b0b10141414181d1d2121262a2a;
   defparam B12.INIT_24 =
256'he7f4010f1c24313a435059616a737b808991969ea3abb0b4b9bdc1c6caced3d7;
   defparam B12.INIT_25 =
256'h32516f8eacc6e5ff19334e687d98adc3d9ef0016273d4f60728390a2b3c0cdda;
   defparam B12.INIT_26 =
256'h537fafdb0b36628db9e50c375f8ab1d900274e7198c0e305284b6e91b4d2f114;
   defparam B12.INIT_27 =
256'hbcf52e669fd810457db6ef235c94c9fd366a9ed3073b6ba0cfff346494c4f424;
   defparam B12.INIT_28 =
256'hf93a7bbdfe4081c2ff4182bf013e7fbcf93673b0ed2a67a4e11e5b94d10e477f;
   defparam B12.INIT_29 =
256'hfb4a98e6357fcd1862b0fa448ed91e68b3f83e84ce14599be12668adef3076b7;
   defparam B12.INIT_2A =
256'hf252b21272d2328ded49a4005bb7126ac51c74cb1e75c81a6dc01366b8075aa8;
   defparam B12.INIT_2B =
256'h1f940e89fe78ee64d94fc036a7198afb68d542af1c85f25bc32c94f961c62a8e;
   defparam B12.INIT_2C =
256'h4ce07000901fab3bc652dd64f077fe850c941b9e25a72aad30b331af2eac26a0;
   defparam B12.INIT_2D =
256'hae54f99f40e68c2dce7415b658f99a37d97512ab48e07912a63ed76bff9428bc;
   defparam B12.INIT_2E =
256'h7a35eca8631ad18844fbb2651cd38634e79548f6a55301b05e08b6600ab45e04;
   defparam B12.INIT_2F =
256'haa7c4915e7b4854d1ae3b0784109cd965e23ebaf733c00c0844808c8884303be;
   defparam B12.INIT_30 =
256'ha583613f1efcdab4936d4721fbd9b388623c16ecc69b714718edbf90663708d9;
   defparam B12.INIT_31 =
256'h1f06e9cbb29980634a3118ffe6c9b0937a583f1d04e7caa88f7254371afcdfc2;
   defparam B12.INIT_32 =
256'h69482f11f8dbc2a58c735a3d240bedd0b79a81684f321d00ebd2b9a0876e5538;
   defparam B12.INIT_33 =
256'h1ef3c5966b4117e8bd8f693e18eecca2805a3812f5d3b28b6a482b05e7c6a887;
   defparam B12.INIT_34 =
256'h8b43fab16c23e39a5a1ada99591de1a1652ef2b67f4710d8a56e3f0cddaa804c;
   defparam B12.INIT_35 =
256'hd76b039835cd6a03a441e27f20c26709ae54fa9f4ef8a24cfead5b09c16f26d9;
   defparam B12.INIT_36 =
256'heb58c5329f1081f369de54ca48c240bb3dbc43c148d057de65f07c079723b742;
   defparam B12.INIT_37 =
256'hdf185089c6034486c70d5398e7317fca1c6fc2156cc31f76d63191f155b51e82;
   defparam B12.INIT_38 =
256'hb4b0b0b0b4b9c1c6cedbe8f6071d33485e7897b5d4f71e41688fbbe716467bab;
   defparam B12.INIT_39 =
256'hdca3662df9c5915c2c01d5a57e57340deacbad8e745a442a1803f6e4d7cec6b9;
   defparam B12.INIT_3A =
256'h9f32c95cf48f2bc263fe9e3fe3832cd07922cf7c29db9142f8ae6923dd9c5a19;
   defparam B12.INIT_3B =
256'hc333a41484f86ddd52ca3fb831aa27a4219e20a223a92fb53bc14bd560ee7d0c;
   defparam B12.INIT_3C =
256'hca2076c71d78ce247ed8338dec46a50362c52483e649ac0f72d941a8107ce757;
   defparam B12.INIT_3D =
256'h1c65aef74089d21f68b5fe4c99e62f7cc51760b1fa4c99eb388adb2d7fd02278;
   defparam B12.INIT_3E =
256'h2674b8014a93dc2569aef73b84c9125b9fe8317ac30c5599e22b74b9fd468fd8;
   defparam B12.INIT_3F =
256'hb60855a2f0418fdc297bc81563b0fd4b93e12e77c009529be32871ba035095de;
   defparam B12.INITP_00 =
256'h24924925b6db6d924936db24db24db249b649b26c993266666339c71c3c3e0fe;
   defparam B12.INITP_01 =
256'h738e38e1e1f03fc000003fc0f878f1ce318ce66673366666cc99364d936d9249;
   defparam B12.INITP_02 =
256'h333333333336666666664ccd993364c9b26cd9366c99b36666ccccc6663319ce;
   defparam B12.INITP_03 =
256'hfffffffffffffc00000000000000003ff807f07c1e1e3c71c6318c6633333333;
   defparam B12.INITP_04 =
256'h3c1f0fc1f03f01fe00ffc0003ffffffffff8000000000003fffff000003fffff;
   defparam B12.INITP_05 =
256'ha5296b4b692db4926db24d9b2666ccccc667318c639c71c78e1c387878707878;
   defparam B12.INITP_06 =
256'h7878e38c673333264d926da4969694a52b52a55aa556aa556ab552ad52a54ad4;
   defparam B12.INITP_07 =
256'h2db492da4b496d2da4b6d24924936c9b3666667318e38f0f03f003ffff003f0;
   defparam B12.WRITE_MODE = "WRITE_FIRST";
   defparam B12.INIT = 12'h000;
   defparam B12.SRVAL = 12'h000;
   RAMB16_S9 B12 (
     .EN(N346),
     .CLK(clk),
     .WE(N0),
     .SSR(N0),
     .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
     .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
     .DOP({N394}),
     .DO({N395, N396, N397, N398, N399, N400, N401, N402}),
     .DIP({N0})
   );
   defparam B15.INIT_00 =
256'h3c97ed4399ef459ff14ba1f7499ff54b9cee3f95e7398adc2e7fd12274c61769;
   defparam B15.INIT_01 =
256'hb41776d93c9bf95cbb1a74d33290ef49a4025dbb1670cb297fda348ae43a90e6;
   defparam B15.INIT_02 =
256'h920272e24ebe2a9a026dd945b11d88f45cc72f96fe65cd3093fa5dc5238bee51;
   defparam B15.INIT_03 =
256'hd15be56ff58006901297199f21a224a11e9b14920a83fc75ee62db50c43dad22;
   defparam B15.INIT_04 =
256'h25d68330d9862fd87d21c56a0aae4aea8622be59f1881fb74ae174079629b846;
   defparam B15.INIT_05 =
256'hb0885d3606daaa7a4616dda9753c03cb8e5114d7914f0ec8823df3a95e10c277;
   defparam B15.INIT_06 =
256'h534f46423930281f1205f8ebd9c8b6a58f79644e3419ffe5c7a88a674425fedb;
   defparam B15.INIT_07 =
256'hd8f70c273c52687e94a5b6ccd9ebf809121f28353e464b5353585c5c5c5c5c58;
   defparam B15.INIT_08 =
256'h21517cacd8032f5f86b6dd09305c83aacdf41b3e6188a7caed0b2a4d678aa4c2;
   defparam B15.INIT_09 =
256'h4d8ac2ff3875b2eb235c95d2064377b0e91d568ac3f72b6094c8fd2d5c91c1f1;
   defparam B15.INIT_0A =
256'h2e6397cb003468a1d50e477fb8f129669fd8154d86c3fc3976aeec24619ed714;
   defparam B15.INIT_0B =
256'h668096b0cae80221406281a4c7ea11345b82a9d5fc285383afda0a3a6a9acfff;
   defparam B15.INIT_0C =
256'h2d1b06f9e7dacdc4b7aeaaa69d9d9d9da1a1aaaeb7c4cddae7f40617293e54;
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   defparam B15.INIT_0D =
256'h3cffc1895017e3af7b4b16ebbb8f64380ce5be9b78553214f5d7b89e846e5843;
   defparam B15.INIT_0E =
256'h25c56505a949f2973be48d36e38c39ea9749fbb0661cd68c4701bb7a38f7b679;
   defparam B15.INIT_0F =
256'hab24a11e9b199618991b9c22a832bd47d160ef7d109f36c95cef871eba51ed89;
   defparam B15.INIT_10 =
256'hc2186ec41a74ce2d87e649a80b6ed138a0076fd642ae1e8efa6ede53c740b932;
   defparam B15.INIT_11 =
256'h164d89c0fc3874b0ec2c68a8e8286db1f23a83cc115eabf4428fdc2e7bcd1e70;
   defparam B15.INIT_12 =
256'haaccee0f3153799ac0e20833597fa9d802315b8ab9e81b4a78abdf0d4074abde;
   defparam B15.INIT_13 =
256'h6879899eb2c2d7f00519324b647d96afc8e1fe17304d6b88a5c3e00223416284;
   defparam B15.INIT_14 =
256'hecf4fb030a121e252d3440484f57636a767d8995a1adbdcedeeefe0f1f2f4454;
   defparam B15.INIT_15 =
256'h878a8d8c8f929190939291949396999ca4a7aab1b5b8bfc2c6c9ccd4d7dae1e5;
   defparam B15.INIT_16 =
256'hb0bcc8d4dbe7f3fa020e151d292c383b434a4d50585b5e6165686f7276798083;
   defparam B15.INIT_17 =
256'ha7cdef1536587a9bb9d6f30c2a435c70899eb2cbdcf005192e435367788894a4;
   defparam B15.INIT_18 =
256'h367abfff3b7bbbf72f6ba2da11497cafe619487baae1103b6994bee90f355b81;
   defparam B15.INIT_19 =
256'h207fde3897f14ba1fc52a80258ae0051a3f54693e12a77c0095296df246db1f6;
   defparam B15.INIT_1A =
256'h73f069e25acf48bc31a51a8efe6fdf4fbb2692fe66d139a0036bd23598fb5ec1;
   defparam B15.INIT_1B =
256'h3fd66d05982fbe51e47301901aa933bd48d25ce268ee74fa8002830582ff7cfa;
   defparam B15.INIT_1C =
256'hb46613c5721fcc7922cb7821ca7317bc6409a94ded8e2ece690aa541d87410a7;
   defparam B15.INIT_1D =
256'h864504c7854402c17b3af9b3712ce6a05a15cf853bf5ab6117cd8238eaa05103;
   defparam B15.INIT_1E =
256'h09d0975f22e9b0733bfec5884f12d5986023e6a96c33f6b97c3f02c5834605c8;
   defparam B15.INIT_1F =
256'h531adda4672ef1b47c3f06c990531be2a56c34fbbe854d14d79e662df0b77f46;
   defparam B15.INIT_20 =
256'hcc8f5215d89b5e25e8ab6e36f9bc7f4609cc8f5619dca36629f1b47b3e01c88b;
   defparam B15.INIT_21 =
256'hf9b36d27e29c5a15d38e4c06c5844201bb7e3dfbba7d3cffbd804306c5884b0e;
   defparam B15.INIT_22 =
256'hbf6c15be6b14c16e1bc87523d48633e4964cfdb3651bd18638f2a85e14ce843e;
   defparam B15.INIT_23 =
256'hd16d059c38cf66029e3ad5710dad49e98525c56505a545ea8e2ed77b20c96d16;
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  defparam B15.INIT_24 =
256'hff972ec65df48c23ba52e97c14ab3ed168009326bd55ec7f16ae45dd740ba33a;
  defparam B15.INIT_25 =
256'h23c87115be6207a74bf09030d07010b14cec8c28c460009733cf6a029e35cc64;
  defparam B15.INIT_26 =
256'h34eaa05107bd7324da8c42f3a5560cb96b1cca7b28d5832bd9812fd78029d27b;
  defparam B15.INIT_27 =
256'h0ac4833df7b2702be59f5914ce8442f8b36823dd934d03bd772de89e580ec479;
  defparam B15.INIT_28 =
256'h853ffebc7b35f4ae6d27e6a05f19d792500bc98342fcbb752feaa8621ddb9650;
  defparam B15.INIT_29 =
256'h6326edb5783a02c5884b0ed1945215d8975a1ddb9a5917d6945312cc8b4908c6;
  defparam B15.INIT_2A =
256'ha77b5024f9c99d6d4212e2b2865222f2be8e5925f1bc885420e7b37a460dd49c;
  defparam B15.INIT_2B =
256'he0cab59a80664c2d13f5d6b89976583512efd1a9875f3c15eec7a0785125fece;
  defparam B15.INIT_2C =
256'hfb00090d11111611111111090900fbeeeaddd4c7baada08f816c5f49372210f6;
  defparam B15.INIT_2D =
256'h154a87b7eb1b4f7ba6d2fd20486a8daccfe907223c516c7d93a0b6c3d0ddeaee;
  defparam B15.INIT_2E =
256'h6cd94bb32089f251ba1a7ada3a91ec449bee4593e6307fc40f549adb1d5e9bd8;
  defparam B15.INIT_2F =
256'h54f18e2bc35cf98d25ba4ede6efd8914a023ae31b432b533b22caa249a108afb;
  defparam B15.INIT_30 =
256'h7f36f6ad6924db924afcb36619cb7e2ddb8938e6943ee8923ce28c2dd37416b3;
  defparam B15.INIT_31 =
256'hca9c6831fec6935c24edb5824b13dca06d31f9be82460aca8e4e0ecd894909c4;
  defparam B15.INIT_32 =
256'hb8855728fdcfa0714718eebf90613704d5a6774416e2b4855223f4c1926431fd;
  defparam B15.INIT_33 =
256'hf5c28a5724edbe865320edba875421edba8c582af7c899663708daab78491ae7;
  defparam B15.INIT_34 =
256'h8a4501c17c38f7b37332f2b27636fabe82470fd39c6029f1b57e420ad39b642c;
  defparam B15.INIT_35 =
256'hcf7d30de8c3ff2a5570abd7426d99047feb1681fd68e45fcb36a25e19c5813cf;
  defparam B15.INIT_36 =
256'hd87512b455f6973dde8425cb7116bc6207ad5701ab5503ad5c0ab86715c37220;
  defparam B15.INIT_37 =
256'hd04ed658e067ee75fc88139f2ab645d565f58919ad46da6e079f38d069029f3b;
  defparam B15.INIT_38 =
256'he7429efe5ebd2286ea53bb248dfa67d445b628990a80f66be55bd554ce4ccf4d;
  defparam B15.INIT_39 =
256'hd80c457db6f32c6daae7286ab0f1377cc20c56a0eb3988da2d80d32a7dd4308b;
  defparam B15.INIT_3A =
256'hb9c6d3e4f107192e445a748ea8c3e1002241688baed50128547fabdb0b3b6f9f;
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   defparam B15.INIT_3B =
256'ha08a705a442e1d0bfae9dccabdb4a79e968d898480807c7c808084899196a3ac;
   defparam B15.INIT_3C =
256'haa764611e1ad7d4d1df2c296663b0fe8bc956e471ff8d5b28f714e3011f2d8ba;
   defparam B15.INIT_3D =
256'h3d08d8a474400bd7a3733f06d29d6935fcc88f5b26eeb9814c18dfab77430eda;
   defparam B15.INIT_3E =
256'h17fddec4a68769462704e1bf9c744d2a03d8b0895e320bdfaf845828fccc9d6d;
   defparam B15.INIT_3F =
256'ha8a8a8a8a8a4a49f9b928e857c746b5e5144372a1807f5e4d2bda7917b614b31;
   defparam B15.INITP_00 =
256'h3ffe0000003ffc03f83e1e3c71c6318cce6664ccd9b26c9b24db249249249249;
   defparam B15.INITP_01 =
256'h3333398c738e3c387c1f80ffe000001ffc03f83f0f83c1e1f0f07c1f07e03f80;
   defparam B15.INITP_02 =
256'h4ab556aaaa555555555555554aaaaab555aab54ab56a56b5ad2d25b6db64d933;
   defparam B15.INITP_03 =
256'h3c1e1f0f8783c3e1e1c3c78f1c71ce318ce66636666cd9b64936925a5a5ad6a5;
   defparam B15.INITP_04 =
256'h70f1e1c3871e38e38e718e7318c6339ce739c638e38e3c78f0f0e1f0f0f0787c;
   defparam B15.INITP_05 =
256'h26cd9998ce71c70f07e03fff8003fffe007f80fc0fc1f07c3e1e1e1e3c3c3878;
   defparam B15.INITP_06 =
256'h99b326c9b2492492496da4b4b696b4a5ad6b5a94a56a5294a5296b4b692db6db;
   defparam B15.INITP_07 =
256'hfffffc007fc07e0fc1f0f83e0f81f807ff00000007fe03f07c3c78e38c633199;
   defparam B15.WRITE_MODE = "WRITE_FIRST";
   defparam B15.INIT = 12'h000;
   defparam B15.SRVAL = 12'h000;
   RAMB16_S9 B15 (
      .EN(N345),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N385}),
      .DO({N386, N387, N388, N389, N390, N391, N392, N393}),
      .DIP({N0})
   );
   defparam B18.INIT_00 =
256'hc9e3011b354b657b91a7bdcee4f5071425323f4c5a626f78818a8e979b9fa4a8;
   defparam B18.INIT_01 =
256'h3b78b5f32b649dd105396e9ecefe2e5e89b5e0082f5a7da4c7ea0d304e6d8baa;
   defparam B18.INIT_02 =
256'h3094f454af0f6bc62279d42c7ed6287bce1d6bb908529ce22c72b7f93f80bdfe;
  defparam B18.INIT_03 =
256'he669e761e05ad852cc46c136ac2297097ef061ce3fb11e8bf860cd369e0367cb;
  defparam B18.INIT_04 =
256'h3bc64dd964eb72fa810c931aa229b037be45cc4fd659e063e669eb6aed6be968;
  defparam B18.INIT_05 =
256'h9222b242d661f68111a131c150dc6cf78713a22eb945d058e36efa85119c28af;
  defparam B18.INIT_06 =
256'h3fe48527cc6e0fb052ee9028c562ff9830c961fa9327bf58f08519ad46da6efe;
  defparam B18.INIT_07 =
256'h06c68541fcb8782feaa1540bc27528da8d3bee9c4bf9a85600ae58fea84ef399;
  defparam B18.INIT_08 =
256'h14e5b27f4c18e5b27b4814ddaa723f08d099612aeeb2763bffbe834207c68646;
  defparam B18.INIT_09 =
256'hf0c293643507d8ad7f5025f7cc9e6f4011e2b4855223f4c192643506d3a47647;
  defparam B18.INIT_0A =
256'h06d39f71420fdcad7a4b18e5b27f501deabb8c5d2afbcd9e6f4012e3b481521f;
  defparam B18.INIT_0B =
256'hc9925b1fe3ab743801c9925a23ebb8814d16e3ab744109d69f6c3401ce9b6834;
  defparam B18.INIT_0C =
256'hdd944b02be7930ecab6b27e6a26221e1a16121e0a06020e4a4682cf0b47d4105;
  defparam B18.INIT_0D =
256'h7512b455f29739de842acf751bc56f19c3711bc9782bd98c3af1a45709bc732a;
  defparam B18.INIT_0E =
256'h991b9a1d9f22a528af36bd49d060eb7b069b2abf53e77b10a83cd56d069f3cd8;
  defparam B18.INIT_0F =
256'hf151ac0c67cc2c90f058bd2a8efb64d13daf1c89fa6bdd52c43eb42ea822a01f;
  defparam B18.INIT_10 =
256'ha5e21a5c94d6135495db1d62a4ee347ec3125caaf94796e93b8ee13890e73e99;
  defparam B18.INIT_11 =
256'h0f3254779ac1e40c2e567da8cbf7234e7aaad505316191c5f5295992c2ff336c;
  defparam B18.INIT_12 =
256'h587791abc5e4fa1832516b8a9fc2dcfb153852718baec8eb0528466988aac9ec;
  defparam B18.INIT_13 =
256'h485e73899fb5cbe5fa152a455a758aa4bad9ef091f3d536d87a1bbd6f00e2443;
  defparam B18.INIT_14 =
256'he7e7e2e2dee2e2e7ebf4f80105121b2831424b5c697b8899abbccee4f50b1c32;
  defparam B18.INIT_15 =
256'h3004d0a4754d22fad3b08e6b482e0bf1d6c1a69177655442312817 0e01fcf4ef;
  defparam B18.INIT_16 =
256'h21ce721bc4711ac77421d38436ec9d5809c87e3cf7b56f32f1b87b4306d19969;
  defparam B18.INIT_17 =
256'ha038cb62f59124bf57ee8621b959f08c23c35bfb9232ce6e0aae4fef8f38d880;
  defparam B18.INIT_18 =
256'h14a73acd5cef8215a83bce61f48b1ab144d76f02952cbf56ee8518b447de7109;
  defparam B18.INIT_19 =
256'hd759da60e268ea6ff57b068c129c22ac36c14fda64f381109f2dbc4bd968f785;
  defparam B18.INIT_1A =
256'h0a7ae652be29990a7aea5ed343bc2ca519920b80f971ea68e05edb58d553d456;
  defparam B18.INIT_1B =
256'h2188ef57ba2189f053bf228aed54b71f82e951b81b82ea56bd2990fc64cf37a3;
  defparam B18.INIT_1C =
256'hed5dcd39a51581ed59c42c98ff6bd23ea51179e44cb31f86ee55bd248cf356be;
  defparam B18.INIT_1D =
256'hc136aa1a8f0373e858cd41b126960a7fef5fd444b424940575e555c535a11181;
  defparam B18.INIT_1E =
256'hab1b87f763d343af238f0474e454c434a51585f565d546ba2a9a0f83f868dd51;
  defparam B18.INIT_1F =
256'h2590016cd848b4208cfc68cf3ba7127eea56c22d990571dd48b42090fc68d33f;
  defparam B18.INIT_20 =
256'hda53d045be37ab24980d81f66adf4fc438a81d8dfd6ddd4dbe299a0571dd4db9;
  defparam B18.INIT_21 =
256'h36c958e675ff8e18a731bc46d056dc62e86af071f374f273f572ef6cea67e461;
  defparam B18.INIT_22 =
256'ha449f29a3fe38c31d57515b555f69631cd6909a03cd36f079e31c85bf38114a7;
  defparam B18.INIT_23 =
256'he8ab6e31f4b2712feea8631dd7914c01b76d23d58b38e99b48f5a750fda653f7;
  defparam B18.INIT_24 =
256'h8b68492608e5c29b78512902dbaf84582d01d1a171410ddda9703c07cf965d20;
  defparam B18.INIT_25 =
256'h96918d89847c736a6159504336291c0afdecdac9b3a28c7660463016fce2c3a5;
  defparam B18.INIT_26 =
256'h697f94a6b7c9dae7f9061720313a47505d666e777c84898d919196969a9a9a96;
  defparam B18.INIT_27 =
256'h9dc4eb0e355d7fa2cae80f2e516f92b1cfee0c2b45637e98b2cce6fc162c4257;
  defparam B18.INIT_28 =
256'h335e8ab5e50d3d6894bfeb1646729ec9f925507ca8d3ff2a567da9d0fc234a71;
  defparam B18.INIT_29 =
256'h547295b4d7f5183b5e81a8cff21940688fb6e209305c83afda012d5984b0db07;
  defparam B18.INIT_2A =
256'hbdc6d3dce9f607142233445267798aa0b1c7ddf30d233d57718ba6c0def81735;
  defparam B18.INIT_2B =
256'h5550504c4c484848484848484c4c50505555595d62666f737880898d969fa8b0;
  defparam B18.INIT_2C =
256'h746356443726190cfff2e5d7cfc6b9b0a89f9a9289857c78736a6a62625d5955;
  defparam B18.INIT_2D =
256'h7e4e1eeec2966b3f18eccaa27f5d3a17f8dabb9d83684e341a04eed9c3ad9c86;
  defparam B18.INIT_2E =
256'h6a0eb35b00a956ffac5d0bbc6e24d98f45ffba7433f1b06e31f9c0874f16e2b2;
  defparam B18.INIT_2F =
256'hcc56e16bf5840e9d2bba49d766f98c1fae45d870079e3ad26d09a945e58525c5;
  defparam B18.INIT_30 =
256'h4bcc4acb4dce50cd4fd052d459db5de369ea70f67c02880e8f15a026ab31b742;
   defparam B18.INIT_31 =
256'h70dc44af1b8bfc67dc4cc135aa1e971084fd76f36ce562db58d653d04dca4cc9;
   defparam B18.INIT_32 =
256'hb5f5357abf034c99e2307dca1c69bb1162bd1369c72280df42a1086bd3369d09;
   defparam B18.INIT_33 =
256'h304d6a8ca9cbed0a30527399bfe5103a658fbeed204e82b5e81f528ac1fd3975;
   defparam B18.INIT_34 =
256'he1fa17344d667f98b6cee7001e37506d869fb8d1ea031c354e67849dbfd8f512;
   defparam B18.INIT_35 =
256'hde0d406fa2d1042e5d8cbae50f3a648ab4d60026486e94b6dcfe1f416384a6c3;
   defparam B18.INIT_36 =
256'h75b9f93a7abafe3a7bb6f22e6eaae21d5995d10d4984bcf82f679ed60d4073a6;
   defparam B18.INIT_37 =
256'h17579ce02565aaee2e73b8fc4185ca0e5393d81c5ca1e12666a6eb2b6fb0f034;
   defparam B18.INIT_38 =
256'h80d63082d8297fd12370c20f60aefb4491da276cb9024b94dd266fb3fc418ace;
   defparam B18.INIT_39 =
256'h85fe77f068dd51c236a6127eea55bd2490f35bbe2584e74aa90766c01f79d42a;
   defparam B18.INIT_3A =
256'h8424c96909a545e07814ab42da6d009326b443cd5ce671f77d03840687098a03;
   defparam B18.INIT_3B =
256'h1ad99c5b19d896510bc5843af4aa6011c7792adc8d3ae89542eb9841ea9237db;
   defparam B18.INIT_3C =
256'h2f07e4bd9a734c25f9cda6764b1fefbf8f5f2bf7c7925e25f1b880470ed19457;
   defparam B18.INIT_3D =
256'h95919188847b776a61544b3a2d1b0ef8e7d1c0a5907560462b0deed0b193704d;
   defparam B18.INIT_3E =
256'h6386a9cbee0d2b46647e98aec8def40517283a4754616a727f848c8c91959595;
   defparam B18.INIT_3F =
256'h82c8125399df2061a3e0215a9bd40c457eb6eb1f5383b8e313436f9ac6ed143c;
   defparam B18.INITP_00 =
256'h25a492c924d9364c9933666ccc9999999999cc6718e38f0f0f03e03fc003ffff;
   defparam B18.INITP_01 =
256'h639cc6666666cd936492492da4b4b4b5a52d6b5ad6b5ad4a56b5295ad6b5a5ad;
   defparam B18.INITP_02 =
256'h318c639c71c78f07c1fe0007ffe00007ff801ff801ff00ff01fc1f83c3c3871c;
   defparam B18.INITP_03 =
256'h6c99326cd993266ccd993366cd9326c9b26c9b264c999333331998cc67318ce7;
   defparam B18.INITP_04 =
256'he03fc00fff8000000000fff007f03e0f0f0f1c71c718e73198ccccccccd99336;
   defparam B18.INITP_05 =
256'hce6739ce39e38783e07f003fff0000000000000003fff003fc07e07e07e07e07;
   defparam B18.INITP_06 =
256'h5a5b4b4b4b4b4a5ad6a56a956ab552ab54a95ad692db6d9364cc999999999ccc;
   defparam B18.INITP_07 =
256'h3c3c1f03f801fffffffe003fc0fc1f07878f1c71c63199cc999364db6db492d2;
   defparam B18.WRITE_MODE = "WRITE_FIRST";
   defparam B18.INIT = 12'h000;
   defparam B18.SRVAL = 12'h000;
   RAMB16_S9 B18 (
      .EN(N344),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N376}),
      .DO({N377, N378, N379, N380, N381, N382, N383, N384}),
      .DIP({N0})
   );
   defparam B21.INIT_00 =
256'h8ff357b71c7bdb3b9bfb57b20e69c51c77ca2179cb1e71c41765b807559fee38;
   defparam B21.INIT_01 =
256'hb731a71c960c82f769de50c132a41582ef60cd3aa71081ea57c02891f95ec62b;
   defparam B21.INIT_02 =
256'h3cbb39b836b42fad2baa24a2219f1d9816940e8d0781ff79f36ee85dd751cb41;
   defparam B21.INIT_03 =
256'hd84dc339b329a31d97118b057ff977f16ce664de58d251cf49c746c443c140be;
   defparam B21.INIT_04 =
256'h45aa0a6ed2369f036cd039a10a77e04dba2294016ddf50c233a91a900177ec62;
   defparam B21.INIT_05 =
256'hd51b65aff9438edc2675c31260b30154a7fe51a8fb52ae055cb8136fca2a86e6;
   defparam B21.INIT_06 =
256'h235c90c4f9316a9ed7104d85befb3875b2ef2c69aae8296aacf13374ba004590;
   defparam B21.INIT_07 =
256'h174773a3cffe2e5a8abaea154575a5d505356595c5f5255989beed22568abff3;
   defparam B21.INIT_08 =
256'h7da9d4002c5c87b3de0a36618db8e8143f6b9bc7f722527eaed909356090bcec;
   defparam B21.INIT_09 =
256'h50779fc6ed143c638ab6dd08305b82aed50128547fa7d2fe25517ca8d3fb2652;
   defparam B21.INIT_0A =
256'h132d4b6684a3c1e0fe213f5e819fc2e10427496c8fb2d5fc1f466990b8da0229;
   defparam B21.INIT_0B =
256'h3b4c5e6f8096a8b9cfe0f60c22334963798fa5bfd4ef091f39536d87a1bcdaf4;
   defparam B21.INIT_0C =
256'h9098a5aeb7c4cddae2effc05121f2c3a4754616e7b8c99a6b8c5d6e8f5061829;
   defparam B21.INIT_0D =
256'h67747d86939ba4adb6bec7d4dde6eef70008111a232b343d454e576068717a87;
   defparam B21.INIT_0E =
256'hbccddaecfd0f1c2d3f4c596a7784919facb9c6d3e0edfa03101d26333c49565e;
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  defparam B21.INIT_0F =
256'hd2f10b2a44627c97b1cbe5ff152f455f758fa5bbd1e6fc1223394b60728395aa;
  defparam B21.INIT_10 =
256'h7ba2c9f1183f6289acd3f61d40638aadd0f31134577699bbdaf91b3a587795b4;
  defparam B21.INIT_11 =
256'h04346493c3f31f4f7aaad606325d89b4e00c37638ebae10d38608bb2da052c54;
  defparam B21.INIT_12 =
256'ha5da12477bb4e81c5085b9ed22568abfef235787bbeb205084b4e4144474a4d4;
  defparam B21.INIT_13 =
256'h609dda17508dca073f7cb9f22f6ca5e21b5890c9023a77b0e41d568ec7fb346d;
  defparam B21.INIT_14 =
256'hc3fc3976b3f02966a3e01d5a97d4114e8bc8054784c1fe3b78b5f22f6ca9e623;
  defparam B21.INIT_15 =
256'hf8285c8cc1f1255989bdf2265f93c7fc346da1da134b84b8f12a679fd8114e86;
  defparam B21.INIT_16 =
256'h8ab1d8ff264e79a0c8f31b466d99c5f01c47739fcaf621517dadd808386898c8;
  defparam B21.INIT_17 =
256'h95c1e8133b668db9e0082f5682a9d0f71a41648bb3da012850779ec5ed143b62;
  defparam B21.INIT_18 =
256'hb5e91e4e82b6e6164a7aaada0a3a6a9acaf6265681b1dd0d386894bfeb174269;
  defparam B21.INIT_19 =
256'h305f94c8fc316599ce02366b9fd3083c70a9dd11467aaee3174b80b4e81d5181;
  defparam B21.INIT_1A =
256'h9ec1e80b325a81a8d4fb265279a5d0fc2c5883b3df0f3f6f9ecefe336397c7fb;
  defparam B21.INIT_1B =
256'h1c32485d73899fb5cfe5ff152f49637d9cb6d4ef0d2c4a6d8baacdf00e31547b;
  defparam B21.INIT_1C =
256'h081527344557647582944a1b2bfd1e2ef01121f31425465768899abbccee3f50b;
  defparam B21.INIT_1D =
256'hdff4061c2d435466778d9eb0c1d3e4f607192637485a67788a97a8bac7d8eaf7;
  defparam B21.INIT_1E =
256'hceed0b25445e7c97b1cbe5ff19334e637e93aec3ddf3091f354f60768ca2b7cd;
  defparam B21.INIT_1F =
256'h547fabd2fe254c739bc2e90c33567da0c3ea0d30537694b7d6f81735547291b0;
  defparam B21.INIT_20 =
256'hd714518ecb043c79b2eb235890c5fd31669acafe2e5e8ebeee1e4a7aa5d1fc28;
  defparam B21.INIT_21 =
256'h2872c00a549ee9377dc7115ba1e73176b8fe4389ca105297d91a5b9dde1b5d9a;
  defparam B21.INIT_22 =
256'h5dacfa4897e53482d12472c10f5dacfa499cea3987d62472c10f5aa8f6418fd9;
  defparam B21.INIT_23 =
256'h0d5298de2469aff93f89d31963b1fc4690da2872bd0b55a4ee3c86d52372c00f;
  defparam B21.INIT_24 =
256'he92663a0e11e609dde1b5d9edb1c5e9fdc1e5fa0e22365a6ec2d73b4fa4081c7;
  defparam B21.INIT_25 =
256'h78b5ee26639cd5124a83c0f9316ea7e41d5a97d00d4a87c4013e7bb8f5326fac;
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  defparam B21.INIT_26 =
256'h93c7f72b5f98cc01356ea2db134880b9f2265f97d009417ab3eb245d95ce073f;
  defparam B21.INIT_27 =
256'h20426588abd2fa1c446b92bee5113c638fbbea164272a2d201316196c6fa2a5e;
  defparam B21.INIT_28 =
256'h6f78808d96a3b0bdcfdcedff1026374d63798fa4bed9f30d27466483a1c0de01;
  defparam B21.INIT_29 =
256'h2a1903f2e0d3c2b5a89a8d857c736a625955504c4848484848484c5055595d66;
  defparam B21.INIT_2A =
256'h3c11e5b98e673b14ecc5a27b583513f0cdae907153391a00e6ccb197816c5640;
  defparam B21.INIT_2B =
256'hb1671dd7924c06c07f3efcbb7a3dffc2854d14d7a36a31fdc994602cfccc9c6c;
  defparam B21.INIT_2C =
256'ha440dc7813af4fef8f34d4781dc16a0fb76009b25f08b56714c57728da9046fc;
  defparam B21.INIT_2D =
256'h68e562df5dde60e163e566ec72f87e088e18a731c04fdd6cff9225b84be37a0d;
  defparam B21.INIT_2E =
256'h9c0366c92c8ff75ec62d95fc68d43faf1b8bfc6cdc50c535aa1e930b80f972ef;
  defparam B21.INIT_2F =
256'h55abfc52a4fa50a6fc52a80258b30963bd136ec82281db3a95f352b51477da3d;
  defparam B21.INIT_30 =
256'h297bcc1e70c11365b20455a2f44693e03284d12274c6176dbf1162b80a60b203;
  defparam B21.INIT_31 =
256'hec4294e53b8ddf3082d42577c91f70c21369bb0d5eb00253a5f24491e3348ad8;
  defparam B21.INIT_32 =
256'h1268be196fc91f79cf2a80da308ae03691e73d93e93f95eb4192e84399ef4096;
  defparam B21.INIT_33 =
256'h156bc11c76cc277cd72d87dd3389df3a90e63c91ec4298f24da7fd57b20862b8;
  defparam B21.INIT_34 =
256'h4da3f54ba1f74da3f44aa0f64ca2f44aa4fa50a6fc56ac0258b3095fb50f65bb;
  defparam B21.INIT_35 =
256'hb40a60b60c62b40a60b60c62b80e64ba0c62b8095fb10254aafc52a3f94ba1f7;
  defparam B21.INIT_36 =
256'h60bf1e7ddb3694f352ac0b65c41e79d32d88e23892ed439df34da8fe58ae045e;
  defparam B21.INIT_37 =
256'hd33ea6127de54cb41b83ea4db41c7fe249ad1077da3da00366c92887ea49a706;
  defparam B21.INIT_38 =
256'hdf54c83dad2192067beb5fcf44b424940979e955c5319d0879e450bc288ffb67;
  defparam B21.INIT_39 =
256'hbf3cba37b431aa27a5229f18950e870079f26adf58d145be33ab20940d82f66b;
  defparam B21.INIT_3A =
256'h3ecd57e167f27802880e941aa025a72daf35b63cbe3fc147c846c749c643c042;
  defparam B21.INIT_3B =
256'h2cc35bee8518ab3ed168f78a1db043d265f8871aa837c654e372fc86159f29b4;
  defparam B21.INIT_3C =
256'h8429c96909a949e98e2eca6a0aaa46e68122bd59f5902cc85ffb972eca61f994;
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   defparam B21.INIT_3D =
256'h9a47f4a24ffca552fba851faa247f09841e68f33dc8029ce7216bb5bffa444e4;
   defparam B21.INIT_3E =
256'h8f5619dc9b5e1cdb9a5413cd8746fcb67026e0964cfdb3651bcc7e2fdd8e3be8;
   defparam B21.INIT_3F =
256'hecd2b89e7f61421ffcdeb7946c451ef2c79b704414e4b0804c17e3af763d05cc;
   defparam B21.INITP_00 =
256'hfc1f03e0f87c3c3878e3c638c6319cce666333333333319998cc6739ce31c71e;
   defparam B21.INITP_01 =
256'hc00ffe0007fffe000000ffffffe00007ffe003ff007f00fc07e07f03e07e07c0;
   defparam B21.INITP_02 =
256'he07f03f80fc0fc1f83e0f0783c3c3e1e1e0f0f83c1f07c1f03e07e07f01fc03f;
   defparam B21.INITP_03 =
256'h07e03fc03ff003ffc000ffff0000fffe001ff00fe03f07e0f87c1f07c1f03e07;
   defparam B21.INITP_04 =
256'h01f81f03e1f0783c1e0f0f07878787870f1e3871e38f1c78e1c3c78787c1f07e;
   defparam B21.INITP_05 =
256'h4936db64db264cc99998cce739c71c71e1c3e1f03f01ff001ffffffffff001fe;
   defparam B21.INITP_06 =
256'h364d936c926db6d92492496db6db6c924924924db6db6db6db6db692492db6db;
   defparam B21.INITP_07 =
256'h00fe07c1e1e3c78e38e38e31c639ce739cc6733998cccccccccc999b33664c9b;
   defparam B21.WRITE_MODE = "WRITE_FIRST";
   defparam B21.INIT = 12'h000;
   defparam B21.SRVAL = 12'h000;
   RAMB16_S9 B21 (
      .EN(N343),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N367}),
      .DO({N368, N369, N370, N371, N372, N373, N374, N375}),
      .DIP({N0})
   );
   defparam B24.INIT_00 =
256'hedf2faff0307070c0c0c0c0703fffaf6ede9e0d3cabdb0a392806f5d48321c06;
   defparam B24.INIT_01 =
256'he7fc162c4258697f95abbcd2e3f50618293b4c596a7885929facb9c2cad7dce5;
   defparam B24.INIT_02 =
256'hbcd6f40f29435d7791abc6e0fa142e445e7893adc7e1f7112b455b718ba1bbd1;
   defparam B24.INIT_03 =
256'h3a587795b4d2ec0b294462819bb9d3ee0c2b455f7e98b2cce6051f39536d87a2;
   defparam B24.INIT_04 =
256'hc8ef163e658cb3dbfd254c6f96b9dc0326496c8fb1d4f716395b7a98bbdaf817;
  defparam B24.INIT_05 =
256'h517cacdc08386393bfef1a46729dcdf424507ca7d3fe2a517da8d4fb274e75a1;
  defparam B24.INIT_06 =
256'h71a1d1fc2c5c88b8e8184373a3d3ff2f5f8fbeee1e4e7aaada0a3a6595c5f121;
  defparam B24.INIT_07 =
256'hcafa25517cacd8032f5b8bb6e2123d6994c4f0204c77a7d3fe2e5a8ab5e51541;
  defparam B24.INIT_08 =
256'h527aa5d1fc28537ba6d6022d5985b0dc07335f8ab6e10d396894c0eb1b47729e;
  defparam B24.INIT_09 =
256'h7c9fc2e5082b4e7093badd05274f769dc0ec133a6189b4db032e5581a8d4fb27;
  defparam B24.INIT_0A =
256'h707d8f9cadbed0e1f7091e344a647a90aac4def8122d47657f9ebcdbf91c3b5e;
  defparam B24.INIT_0B =
256'h0c07fffaf2ede9e9e4e4e0e0e0e0e4e4e9e9edf2faff030c141d26333c495663;
  defparam B24.INIT_0C =
256'hdac8b3a18b7a6857413423110 0eee1d0c3b1a4978a7d7063564d40372f261d14;
  defparam B24.INIT_0D =
256'hd5baa0866c52381e03e9cfb59f856b553b250bf5dbc5af9a846e58422d1705f0;
  defparam B24.INIT_0E =
256'ha98b684522ffddba9b785a3b18fadbbd9e806143240aeccdb3947a6042270def;
  defparam B24.INIT_0F =
256'he8b8885828f8c89d6d4116e6ba93673c10e9bd966f4820f9d2ab83613916f4d1;
  defparam B24.INIT_10 =
256'hfdc07f4201c4874a0dd0975a21e8ab733a01c9905723eab6824e19e5b1814c1c;
  defparam B24.INIT_11 =
256'hdd9244faab6117c97f35eaa05611c68137f1ab6520da98530dcc8a4403c2803f;
  defparam B24.INIT_12 =
256'h51fa9e47f09942ea933ce5923fe89542f09d4af7a452ffac590bb8691bc87a2b;
  defparam B24.INIT_13 =
256'h27c25efe9a36d67212b252f29232d27213b353f7973cdc8025c96e12b75f04a8;
  defparam B24.INIT_14 =
256'hc561fc9834d067039e3ad26d05a03cd46f0ba742da7611ad49e5851cb854ef8b;
  defparam B24.INIT_15 =
256'hc26f13bc6109ae52f2973be08020c46000a041e17c1cb854f08b27bf5af6922d;
  defparam B24.INIT_16 =
256'hcc945f22e5ad702eedb06e29e7a25c12c88238e99f5102b46113c06d1ac77019;
  defparam B24.INIT_17 =
256'h1305f8ebdac4b39d876d53391e00e1bf9c79562f07e0b98d623206d6a26e3e05;
  defparam B24.INIT_18 =
256'hddfc16344e647e94aabbd1e3f0010e17242d353a434747474747433e3a312820;
  defparam B24.INIT_19 =
256'h87cd135496d7195693d00d457ab2e71b4f84b3e3133f6f96c2e910375a7da0bf;
  defparam B24.INIT_1A =
256'h76e34cb0187de145a50569c52580dc378fe64194eb3e91df2e7ccb1963aef83d;
  defparam B24.INIT_1B =
256'h04901ba72eb53cc346cd50d351d452cc46c53fb52fa41a8b0172e455c633a00d;
  defparam B24.INIT_1C =
256'hfb9c3ddf8421c25f019e3bd7740daa42db740ca539d266fa8e22b242d262ed79;
  defparam B24.INIT_1D =
256'hc87624d3812bd98332dc8a34e38d3be58f3de7913be18b35db8026c76d13b455;
  defparam B24.INIT_1E =
256'ha95c0abd701ed18332e49c4afdaf6215c37629d78a38e69948faa9570ab86b19;
  defparam B24.INIT_1F =
256'he9a05c17ce853cf8af661dd0873ef5a85b12c97b33e59c5306bd7427de9144f6;
  defparam B24.INIT_20 =
256'h884803bf7f3af5b16823e39f5a16d1914c08c37f3ef5b16c28df9a5109c07b32;
  defparam B24.INIT_21 =
256'hc37e3ef9b97534f0b0702febab6a2aeaaa6525e5a0601cdb975712d2924d0dcd;
  defparam B24.INIT_22 =
256'h8033ea9d540bc27930e79e5511c87f3af1ad641fdb965612d18d4d0cc8884703;
  defparam B24.INIT_23 =
256'h33d47517b859fba046e78d32dc862cd6802ed88735e49245f3a15402b5681bcd;
  defparam B24.INIT_24 =
256'had239d1b95149215931b9d25ac37be4ada65f58515a539cd61f58e27bf5cf996;
  defparam B24.INIT_25 =
256'ha3e93382cc1a69bc1366bd146fcb2786e246a60a6fd740a81582f465d648bd33;
  defparam B24.INIT_26 =
256'hfc1228425c7695afd2f013365d84acd703335e93c3f73068a1da175495d6185e;
  defparam B24.INIT_27 =
256'hfcebd9c8bba99c93867e75716864645f5f5f5f64686c7179828f98a5b6c3d5eb;
  defparam B24.INIT_28 =
256'h5828f8c89d6d4115eabe936b441df6d3b08d6a4c290aecd2b3997f694f392312;
  defparam B24.INIT_29 =
256'h20d68c42fcb26c27e19f5a18d7955417d6995c1fe6a97033fbc68e5925f1bc8c;
  defparam B24.INIT_2A =
256'h7f28cc7519c26b14bd660eb7640dba6310b96613c1721fd18234e6974dfeb46a;
  defparam B24.INIT_2B =
256'h29cd6d12b256f79737db7b1bbc6000a545e5892ece7217bb6000a449ed9236da;
  defparam B24.INIT_2C =
256'hbd6206ab4ff3983ce1852ace7317b75c00a545e9892ed27217b75bfba044e489;
  defparam B24.INIT_2D =
256'h2ed37317b85c01a549ee9237db7b20c4690db256fb9f43ec9135da8227cb7419;
  defparam B24.INIT_2E =
256'h7e1ab14de9841cb853ef8b27c25efa9631d16d0dad49e98929c96a0aaa4eee8e;
  defparam B24.INIT_2F =
256'h8521b84fe7831ab149e0770fa63ed56c049b32ca61f99027bf56ee851cb44fe7;
  defparam B24.INIT_30 =
256'h2fe08e3be8913ee79038dd862acf7318b858f89838d87414b04be7831fba52ee;
  defparam B24.INIT_31 =
256'h04d9a97d4d1de9b480480fdb9d6528eba96c2beaa4621dd7914b01b7691fd082;
  defparam B24.INIT_32 =
256'h2f261e1508fff2e0d3c2b19f89735e482e14f9dfc1a28465421ff8d5ae875b30;
  defparam B24.INIT_33 =
256'h2e44596f8192a3b5c6d3e0f2fb08101e222b33383c404549494949494945403c38;
  defparam B24.INIT_34 =
256'hafdf0f3f6a9ac6f21d447097bee60d34577a9dc0e20124425d7b95b4cee8fe18;
  defparam B24.INIT_35 =
256'h4284c50b4c8ecf105293d0124f90cd0a4780bdf52e6b9fd8114579b2e61b4b7f;
  defparam B24.INIT_36 =
256'h70ba004a90da246ab4fa408acf1a5fa5eb357bc0065096dc2167adee347abb01;
  defparam B24.INIT_37 =
256'h4d85befb3471aeeb2865a2e32562a3e4266cadee3075b7fd4288c90f559fe52b;
  defparam B24.INIT_38 =
256'h3d6490b7e20e3a6591bce8184473a3d303336393c7f72c6094c9fd366aa3db14;
  defparam B24.INIT_39 =
256'hf7112f4e6c8ba9c8e60523466583a6c9e80a2d507396bde0072a5179a0c3ea16;
  defparam B24.INIT_3A =
256'ha9bfd9f309233d536d87a1bcd6f00a243e58738da7c5e0fa14324d67859fbed8;
  defparam B24.INIT_3B =
256'h3e4b5865778495a2b4c5d7e8f90b213248596f8596acc2d8ed031933495f798f;
  defparam B24.INIT_3C =
256'h98949490908b8b8b8b90909494989da1a5aeb2b7c0c8d1dae2ebf4010a172431;
  defparam B24.INIT_3D =
256'h6b553b250bf5dfc9b8a2917f6e5c4b3e2d1f1205f8ebe2d5cdc4bbb2aea5a19d;
  defparam B24.INIT_3E =
256'h9f784d2503dbb48d6a431bf9d6b3906d4a2704e6c7a58668492b10f2d8b99f85;
  defparam B24.INIT_3F =
256'h8c5824efbb87531eeaba865626f1c292623206d6ab7b4f1ff3c89c714519f2c7;
  defparam B24.INITP_00 =
256'hc1f81f83f07e0f81f03f03f03f81fe01fe00ff801ff801ffc003fffff007ffff;
  defparam B24.INITP_01 =
256'hf81f81fc07f803fe007fe001fff800003ffffc00007ff007f01fc0fe07c0fc0f;
  defparam B24.INITP_02 =
256'h3ffc07e0f0f0e1c71ce39ce738c6318c639c638e71c71c38e1c387870787c3e0;
  defparam B24.INITP_03 =
256'h5b496d24b6da492db6db6db649364c9933333319ce71c71e3c3e0fc03ff80000;
  defparam B24.INITP_04 =
256'hffffffff803f03c3c71c631999999326d924925b692da5a5b4b4b4b4b69692d2;
  defparam B24.INITP_05 =
256'h318c6739ce738c738e71ce38e71c639c738e71ce38e38e3870f0f0f83f03fc00;
  defparam B24.INITP_06 =
256'hf0f0f0e1c3c78f0e1e1e0f07c0fc07fe0007fffff8003fc07c1e1e1c71c738c6;
  defparam B24.INITP_07 =
256'h1f07e0fc07e01fe007fff0000000001ffff8007ff003ff007f807f01f81f03e1;
  defparam B24.WRITE_MODE = "WRITE_FIRST";
  defparam B24.INIT = 12'h000;
  defparam B24.SRVAL = 12'h000;
  RAMB16_S9 B24 (
    .EN(N342),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N358}),
    .DO({N359, N360, N361, N362, N363, N364, N365, N366}),
    .DIP({N0})
  );
  defparam B27.INIT_00 =
256'hd6955316d9985b1ee1a4672ef1b87b430acd945c23eab2794008cf9b622ef5c1;
  defparam B27.INIT_01 =
256'ha45507b86e24da8c42f7b2681dd38e4802b8722deba5601edd975614d7965513;
  defparam B27.INIT_02 =
256'h4df1963ae3872cd07922c66f18c16e17c46d1ac3701dca7725d27f31de8f41f2;
  defparam B27.INIT_03 =
256'hb64ee57d14ab43da760da945e07c18b44feb8727c363ff9f3fdf7f1fc46408a8;
  defparam B27.INIT_04 =
256'h21b048db6e019427be51e4770ea134c85bee8518af42da6d049c2fc65df58c1f;
  defparam B27.INIT_05 =
256'hbc4fe2760da033c659ec7f0ea134c75aed8013a639cc5ff28918af3ed568fb8e;
  defparam B27.INIT_06 =
256'hd56c089f3bd26e05a138d067039a32c961f88f27be51e87b13a63dd068fb9225;
  defparam B27.INIT_07 =
256'h3ada7a1aba56f69637d2720eae4ae68122b955f08c28c45ffb9233ca66019d39;
  defparam B27.INIT_08 =
256'he4842dd1761abf6308a84cf19535da7a1ec36707ac4cf09535d57a1abe5afe9a;
  defparam B27.INIT_09 =
256'h5afe9e43e7872cd07515b95e02a74bf09839dd812acf7313bc6105a94ef2973b;
  defparam B27.INIT_0A =
256'hbf52ea8118b047e37f16b24ee98521bd5df89430d06c0cac4cec8c31d17515b5;
  defparam B27.INIT_0B =
256'h57d456d75de369eb75fb8107911ca62cbb40cf59ec770a982bba4ddc6f02992c;
  defparam B27.INIT_0C =
256'h5aca3aaf23930878ec61d64abf37ac259e128f0481fa73f06de65fdc59d754d5;
  defparam B27.INIT_0D =
256'ha81480eb57c7339f0b76e252be2a9a0676e24eb92a95016ddd49b92599057aea;
  defparam B27.INIT_0E =
256'h55ce46bf38b1269e138c0070e55ace3eae1e930373e354c434a41484f460cc3c;
  defparam B27.INIT_0F =
256'h1eac37c14bd15ce167ed73f97b0182088a0b8d0a8c0d8b0885027bf471ea63dc;
  defparam B27.INIT_10 =
256'h50f0902ccc6804a43fdb730eaa41dd74089f36c95cf48715a837ca59e7760593;
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   defparam B27.INIT_11 =
256'hf0a65809bf7122d48132e0913eeb9941ef9740e9963fe38c35da7e22c76b0bb0;
   defparam B27.INIT_12 =
256'h6b2ef1b4773af8bb7a3df7b67533f2b06b29e39e5817cc8741fbb1671dd3893f;
   defparam B27.INIT_13 =
256'h622ef9c5915c24f4bb874e1ae5b178440cd39a6229f5b77f4209cc93561ee1a8;
   defparam B27.INIT_14 =
256'h693d0ee2b286562bfbcb9b6b3b0fdbb07b501bebbb8c5727f3c38f5f2afac696;
   defparam B27.INIT_15 =
256'hbd9b6f4821f9d2ab7f582801d5ae82572b04d4ad81562afed3a7774c1cf5c599;
   defparam B27.INIT_16 =
256'hf2d8ba9f8167442a07edcaab886a472806e7c0a17a5c3411eac7a07d56330ce5;
   defparam B27.INIT_17 =
256'h5954433a2d251306f5e7d6c5b3a6907f6958422c1605ebd5bba58b755641260c;
   defparam B27.INIT_18 =
256'h505d666f7780848d919a9aa3a3a7a7acacb0acaca7a7a39f96968d897c776f66;
   defparam B27.INIT_19 =
256'hc7e5ff1e345268869cb6cce6fc16284253697a909db3c5d6e3f502131c2d3a47;
   defparam B27.INIT_1A =
256'hb9dcfa22406786a9ccef0d30537694bbdafd1b3e5d809ebddbfe183751748eac;
   defparam B27.INIT_1B =
256'hdcf6102a44637d9bb6d4ee112b4e688ba5c8e70a244b698ca6ceec0f2e557396;
   defparam B27.INIT_1C =
256'h34455668758b9caebfd5e6f80923354b5c76889db3cde3f90f293f59738da7c1;
   defparam B27.INIT_1D =
256'h5d6e7b8895a7b4c5d2e4edfe0b1d253744555e6f7c8e97a8b5c7d4e5f2041526;
   defparam B27.INIT_1E =
256'hed081d334963798fa4bad0e6f71123394a606d8394a6b7c9daebfd0e1b2d3a4b;
   defparam B27.INIT_1F =
256'h6786a4c3e1001e3d5b7a94b2d1ef0a2842617b99b4cee806213b556f89a3bdd8;
   defparam B27.INIT_20 =
256'h5e819fc2e10422456386a5c8e609284b698caac9e70a294c6a8daccae90c2a49;
   defparam B27.INIT_21 =
256'h85a3c2e0ff1d3c5a7997b6d4f311304e6d8caac9e70624436184a2c1e002213f;
   defparam B27.INIT_22 =
256'h4c6f96b9dc032a4d7093b6d8fb1e416487a5c8e70a284b6988abc9e806294866;
   defparam B27.INIT_23 =
256'hfc2c5c87b7e713436e9ecaf5214c789fcbf61e457198c3eb123d658cb3dafd24;
   defparam B27.INIT_24 =
256'h7aafe71c5489c1f62e639bd004386da1d50a3e72a6db0f3f73a8d8083c6c9ccc;
   defparam B27.INIT_25 =
256'h88c1f52e629bd3084079b2e61f5790c9fd356ea7db144c85bef22b639cd00942;
   defparam B27.INIT_26 =
256'hc5fa2e629bcf083c71a9de124a7fb7ec245991c6fa336ba0d40d457aaee71f54;
   defparam B27.INIT_27 =
256'h8abaea1a4a7aaada09396e99cefe325d92c2f6265a8fc3f3275c90c0f4285d91;
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   defparam B27.INIT_28 =
256'h062d5880abd2fe2a557ca8d4ff2b5682b2dd09356590c0e71747739ecefe2e5a;
   defparam B27.INIT_29 =
256'h9cbbdef81b395c7b9ebcdffe20436689accff215375a86a9d0f31a3d698bb7de;
   defparam B27.INIT_2A =
256'hf812304a6583a2bcdaf4132d4c66849ebddbfa14334d708aa8c7e500223d5f7e;
   defparam B27.INIT_2B =
256'h6d87aac4e3fd203a587291abcae4021c3b55748eacc2e1fb1933526886a0bfd9;
   defparam B27.INIT_2C =
256'h577a9cbbde0124466988afcef00f32507896b9d3f61537567993b6d0f30d304e;
   defparam B27.INIT_2D =
256'hfb19415f82a5cceb123058769dbce302294c6f91b4d7fe1d44638aa8cbee1134;
   defparam B27.INIT_2E =
256'hb5d3fa193c5a82a0c3e109274a6d90b3d6f81b3a6180a2c5e8072e4c6f8eb5d4;
   defparam B27.INIT_2F =
256'h9ebde0fe2140637da0bee10022416482a5c4eb0528466988abc9ec0b2e4c7392;
   defparam B27.INIT_30 =
256'h476a8dafd7fa213f6789b1cff6153c5f82a5c8e60d2c537295b3d6f9173a5d7c;
   defparam B27.INIT_31 =
256'haed1f81b42658cafd6f920436b8db5d8ff22496c93b6dd0023466d90b3d6fd20;
   defparam B27.INIT_32 =
256'hfb1e456c8fb6dd00284f7699c0e70f315980a7caf1143b5e85a8d0f21a3d6487;
   defparam B27.INIT_33 =
256'h06325d89b0dc072f5681a9d0f71e4a6d98bbe70a315880a2caf1183b6289b1d4;
   defparam B27.INIT_34 =
256'h5596d8155693d009467fbcf0296196ce03376ba0d404386898c8f828547fafdb;
   defparam B27.INIT_35 =
256'h2f8ff353af0f6ac62178d0277ad12876c91c6ab90752a0ea307ac0054b91d214;
   defparam B27.INIT_36 =
256'h8f169417951896159312900a84fa74ee64d54bbc2d9f0c7dea57c02d95fe67cb;
   defparam B27.INIT_37 =
256'he2760aa333c757eb7b0f9f2fba4ada6afa8515a530bc47d35eea71f87f068910;
   defparam B27.INIT_38 =
256'h0da53ed26aff9730c45df18922b64fe78018b145de760ba337d064f88d25b94e;
   defparam B27.INIT_39 =
256'h07a43dd56e0ba33cd57206a337d46801992dc65ff38b20b851e57d16af47e078;
   defparam B27.INIT_3A =
256'h8b3ee89640ef9943ed973ce2882dcf7416bb5dfe9f40dd7f20c15efb9835d26f;
   defparam B27.INIT_3B =
256'h07d4a16a32fbbf83470bcb8b4b0aca8a4601bc782fe69d540bbe711fd2802fe1;
   defparam B27.INIT_3C =
256'h6d58402709f0d3ba987b5e402301e0c2a17b55330de7bc966c461bf1c298693a;
   defparam B27.INIT_3D =
256'h3f3c39322a271f18150d0a07ff01fdfaf7f8f5f6f3f0edeae2dad3c7bbab9686;
   defparam B27.INIT_3E =
256'hb7a7978b7f7c7d828c9fb6dafa224f80adde0f3c6d95badef91023313b404643;
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  defparam B27.INIT_3F =
256'h0000c20561d861faa65a1bdca16627db8624ba39a804508ebbdae9f3efe8dccc;
  defparam B27.INITP_00 =
256'h738c631ce7398c67398ce6339cc67398c6318c718e38e38e1c7870f0f0f0783c;
  defparam B27.INITP_01 =
256'h999cccd99993366cd9b366cd993336666673319cc6318e718e39c718e39c738c;
  defparam B27.INITP_02 =
256'h00fffc00ff807f01f80fc1f81f03e0f83e0f87c3c3c3c3870e38e38e718c6731;
  defparam B27.INITP_03 =
256'hf803fe007ff8001ffff00007fff000ffc01fe01fe03fc03fe007ffc000000000;
  defparam B27.INITP_04 =
256'he0fc1f07c3e0f87c1e0f87c3e0f07c1f83f03f01f807f00ff807f807f807f807;
  defparam B27.INITP_05 =
256'hf01fe01fe03fc07f80fe01fc07f807f803fc00ff803fe01ff00fe03f01f83f03;
  defparam B27.INITP_06 =
256'hb3664cc9999ccc6318e38f1e1e0f07e0fc07e03f81fc07f01fc07e01fc07f00f;
  defparam B27.INITP_07 =
256'h09e1cd555552952aaaa1555552a952b52d696d24924936c9364d9b26cd9364c9;
  defparam B27.WRITE_MODE = "WRITE_FIRST";
  defparam B27.INIT = 12'h000;
  defparam B27.SRVAL = 12'h000;
  RAMB16_S9 B27 (
    .EN(N341),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N349}),
    .DO({N350, N351, N352, N353, N354, N355, N356, N357}),
    .DIP({N0})
  );
  FDE BU31 (
    .CE(N1),
    .C(clk),
    .D(addr_2[11]),
    .Q(N5503)
  );
  FDE BU34 (
    .CE(N1),
    .C(clk),
    .D(addr_2[12]),
    .Q(N5502)
  );
  FDE BU37 (
    .CE(N1),
    .C(clk),
    .D(addr_2[13]),
    .Q(N5501)
  );
  defparam BU43.INIT = 16'hcaca;
  LUT4 BU43 (
    .I0(N420),
    .I1(N411),
    .I2(N5503),
    .I3(N0),
    .O(N5940)
  );
  defparam BU47.INIT = 16'hcaca;
  LUT4 BU47 (
    .I0(N402),
    .I1(N393),
    .I2(N5503),
    .I3(N0),
    .O(N5941)
  );
  MUXF5 BU49 (
    .I0(N5940),
    .I1(N5941),
    .O(N5905),
    .S(N5502)
  );
  defparam BU54.INIT = 16'hcaca;
  LUT4 BU54 (
    .I0(N384),
    .I1(N375),
    .I2(N5503),
    .I3(N0),
    .O(N6012)
  );
  defparam BU58.INIT = 16'hcaca;
  LUT4 BU58 (
    .I0(N366),
    .I1(N357),
    .I2(N5503),
    .I3(N0),
    .O(N6013)
  );
  MUXF5 BU60 (
    .I0(N6012),
    .I1(N6013),
    .O(N5907),
    .S(N5502)
  );
  MUXF6 BU62 (
    .I0(N5905),
    .I1(N5907),
    .O(dout_3[0]),
    .S(N5501)
  );
  defparam BU68.INIT = 16'hcaca;
  LUT4 BU68 (
    .I0(N419),
    .I1(N410),
    .I2(N5503),
    .I3(N0),
    .O(N6119)
  );
  defparam BU72.INIT = 16'hcaca;
  LUT4 BU72 (
    .I0(N401),
    .I1(N392),
    .I2(N5503),
    .I3(N0),
    .O(N6120)
  );
  MUXF5 BU74 (
    .I0(N6119),
    .I1(N6120),
    .O(N6084),
    .S(N5502)
  );
  defparam BU79.INIT = 16'hcaca;
  LUT4 BU79 (
    .I0(N383),
    .I1(N374),
    .I2(N5503),
    .I3(N0),
    .O(N6191)
  );
  defparam BU83.INIT = 16'hcaca;
  LUT4 BU83 (
    .I0(N365),
    .I1(N356),
    .I2(N5503),
    .I3(N0),
    .O(N6192)
```

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);
MUXF5 BU85 (
   .I0(N6191),
   .I1(N6192),
   .O(N6086),
   .S(N5502)
);
MUXF6 BU87 (
   .I0(N6084),
   .I1(N6086),
   .O(dout_3[1]),
   .S(N5501)
);
defparam BU93.INIT = 16'hcaca;
LUT4 BU93 (
   .I0(N418),
   .I1(N409),
   .I2(N5503),
   .I3(N0),
   .O(N6298)
);
defparam BU97.INIT = 16'hcaca;
LUT4 BU97 (
   .I0(N400),
   .I1(N391),
   .I2(N5503),
   .I3(N0),
   .O(N6299)
);
MUXF5 BU99 (
   .I0(N6298),
   .I1(N6299),
   .O(N6263),
   .S(N5502)
);
defparam BU104.INIT = 16'hcaca;
LUT4 BU104 (
   .I0(N382),
   .I1(N373),
   .I2(N5503),
   .I3(N0),
   .O(N6370)
);
defparam BU108.INIT = 16'hcaca;
LUT4 BU108 (
   .I0(N364),
   .I1(N355),
   .I2(N5503),
   .I3(N0),
   .O(N6371)
);
MUXF5 BU110 (
   .I0(N6370),
   .I1(N6371),
   .O(N6265),
   .S(N5502)
);
MUXF6 BU112 (
   .I0(N6263),
   .I1(N6265),
   .O(dout_3[2]),
   .S(N5501)
);
defparam BU118.INIT = 16'hcaca;
LUT4 BU118 (
   .I0(N417),
   .I1(N408),
   .I2(N5503),
   .I3(N0),
   .O(N6477)
);
defparam BU122.INIT = 16'hcaca;
LUT4 BU122 (
   .I0(N399),
   .I1(N390),
   .I2(N5503),
   .I3(N0),
   .O(N6478)
);
MUXF5 BU124 (
   .I0(N6477),
   .I1(N6478),
   .O(N6442),
   .S(N5502)
);
defparam BU129.INIT = 16'hcaca;
LUT4 BU129 (
   .I0(N381),
   .I1(N372),
   .I2(N5503),
   .I3(N0),
   .O(N6549)
```

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);
defparam BU133.INIT = 16'hcaca;
LUT4 BU133 (
   .I0(N363),
   .I1(N354),
   .I2(N5503),
   .I3(N0),
   .O(N6550)
);
MUXF5 BU135 (
   .I0(N6549),
   .I1(N6550),
   .O(N6444),
   .S(N5502)
);
MUXF6 BU137 (
   .I0(N6442),
   .I1(N6444),
   .O(dout_3[3]),
   .S(N5501)
);
defparam BU143.INIT = 16'hcaca;
LUT4 BU143 (
   .I0(N416),
   .I1(N407),
   .I2(N5503),
   .I3(N0),
   .O(N6656)
);
defparam BU147.INIT = 16'hcaca;
LUT4 BU147 (
   .I0(N398),
   .I1(N389),
   .I2(N5503),
   .I3(N0),
   .O(N6657)
);
MUXF5 BU149 (
   .I0(N6656),
   .I1(N6657),
   .O(N6621),
   .S(N5502)
);
defparam BU154.INIT = 16'hcaca;
LUT4 BU154 (
   .I0(N380),
   .I1(N371),
   .I2(N5503),
   .I3(N0),
   .O(N6728)
);
defparam BU158.INIT = 16'hcaca;
LUT4 BU158 (
   .I0(N362),
   .I1(N353),
   .I2(N5503),
   .I3(N0),
   .O(N6729)
);
MUXF5 BU160 (
   .I0(N6728),
   .I1(N6729),
   .O(N6623),
   .S(N5502)
);
MUXF6 BU162 (
   .I0(N6621),
   .I1(N6623),
   .O(dout_3[4]),
   .S(N5501)
);
defparam BU168.INIT = 16'hcaca;
LUT4 BU168 (
   .I0(N415),
   .I1(N406),
   .I2(N5503),
   .I3(N0),
   .O(N6835)
);
defparam BU172.INIT = 16'hcaca;
LUT4 BU172 (
   .I0(N397),
   .I1(N388),
   .I2(N5503),
   .I3(N0),
   .O(N6836)
);
MUXF5 BU174 (
   .I0(N6835),
   .I1(N6836),
   .O(N6800),
   .S(N5502)
```

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);
defparam BU179.INIT = 16'hcaca;
LUT4 BU179 (
   .I0(N379),
   .I1(N370),
   .I2(N5503),
   .I3(N0),
   .O(N6907)
);
defparam BU183.INIT = 16'hcaca;
LUT4 BU183 (
   .I0(N361),
   .I1(N352),
   .I2(N5503),
   .I3(N0),
   .O(N6908)
);
MUXF5 BU185 (
   .I0(N6907),
   .I1(N6908),
   .O(N6802),
   .S(N5502)
);
MUXF6 BU187 (
   .I0(N6800),
   .I1(N6802),
   .O(dout_3[5]),
   .S(N5501)
);
defparam BU193.INIT = 16'hcaca;
LUT4 BU193 (
   .I0(N414),
   .I1(N405),
   .I2(N5503),
   .I3(N0),
   .O(N7014)
);
defparam BU197.INIT = 16'hcaca;
LUT4 BU197 (
   .I0(N396),
   .I1(N387),
   .I2(N5503),
   .I3(N0),
   .O(N7015)
);
MUXF5 BU199 (
   .I0(N7014),
   .I1(N7015),
   .O(N6979),
   .S(N5502)
);
defparam BU204.INIT = 16'hcaca;
LUT4 BU204 (
   .I0(N378),
   .I1(N369),
   .I2(N5503),
   .I3(N0),
   .O(N7086)
);
defparam BU208.INIT = 16'hcaca;
LUT4 BU208 (
   .I0(N360),
   .I1(N351),
   .I2(N5503),
   .I3(N0),
   .O(N7087)
);
MUXF5 BU210 (
   .I0(N7086),
   .I1(N7087),
   .O(N6981),
   .S(N5502)
);
MUXF6 BU212 (
   .I0(N6979),
   .I1(N6981),
   .O(dout_3[6]),
   .S(N5501)
);
defparam BU218.INIT = 16'hcaca;
LUT4 BU218 (
   .I0(N413),
   .I1(N404),
   .I2(N5503),
   .I3(N0),
   .O(N7193)
);
defparam BU222.INIT = 16'hcaca;
LUT4 BU222 (
   .I0(N395),
   .I1(N386),
   .I2(N5503),
   .I3(N0),
   .O(N7194)
);
MUXF5 BU224 (
   .I0(N7193),
   .I1(N7194),
   .O(N7158),
   .S(N5502)
);
defparam BU229.INIT = 16'hcaca;
LUT4 BU229 (
   .I0(N377),
   .I1(N368),
   .I2(N5503),
   .I3(N0),
   .O(N7265)
);
defparam BU233.INIT = 16'hcaca;
LUT4 BU233 (
   .I0(N359),
   .I1(N350),
   .I2(N5503),
   .I3(N0),
   .O(N7266)
);
MUXF5 BU235 (
   .I0(N7265),
   .I1(N7266),
   .O(N7160),
   .S(N5502)
);
MUXF6 BU237 (
   .I0(N7158),
   .I1(N7160),
   .O(dout_3[7]),
   .S(N5501)
);
defparam BU243.INIT = 16'hcaca;
LUT4 BU243 (
   .I0(N412),
   .I1(N403),
   .I2(N5503),
   .I3(N0),
   .O(N7372)
);
defparam BU247.INIT = 16'hcaca;
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LUT4 BU247 (
   .I0(N394),
   .I1(N385),
   .I2(N5503),
   .I3(N0),
   .O(N7373)
);
MUXF5 BU249 (
   .I0(N7372),
   .I1(N7373),
   .O(N7337),
   .S(N5502)
);
defparam BU254.INIT = 16'hcaca;
LUT4 BU254 (
   .I0(N376),
   .I1(N367),
   .I2(N5503),
   .I3(N0),
   .O(N7444)
);
defparam BU258.INIT = 16'hcaca;
LUT4 BU258 (
   .I0(N358),
   .I1(N349),
   .I2(N5503),
   .I3(N0),
   .O(N7445)
);
MUXF5 BU260 (
   .I0(N7444),
   .I1(N7445),
   .O(N7339),
   .S(N5502)
);
MUXF6 BU262 (
   .I0(N7337),
   .I1(N7339),
   .O(dout_3[8]),
   .S(N5501)
);
defparam BU278.INIT = 16'h0100;
LUT4 BU278 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
    .I3(N1),
    .O(N348)
);
defparam BU283.INIT = 16'h1000;
LUT4 BU283 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N347)
);
defparam BU288.INIT = 16'h0400;
LUT4 BU288 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N346)
);
defparam BU293.INIT = 16'h4000;
LUT4 BU293 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N345)
);
defparam BU298.INIT = 16'h0200;
LUT4 BU298 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N344)
);
defparam BU303.INIT = 16'h2000;
LUT4 BU303 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N343)
);
defparam BU308.INIT = 16'h0800;
LUT4 BU308 (
    .I0(addr_2[13]),
      .I1(addr_2[12]),
      .I2(addr_2[11]),
      .I3(N1),
      .O(N342)
   );
   defparam BU313.INIT = 16'h8000;
   LUT4 BU313 (
      .I0(addr_2[13]),
      .I1(addr_2[12]),
      .I2(addr_2[11]),
      .I3(N1),
      .O(N341)
   );
   defparam B317.INIT_00 =
256'hfdfdfdfdfdfdfdfdfdfdfdfdffffffffffffff00000000000000000000000000;
   defparam B317.INIT_01 =
256'hf0f0f1f2f3f3f4f4f5f6f6f7f7f8f9f9fafafbfbfcfcfdfdfdfdfdfdfdfdfdfd;
   defparam B317.INIT_02 =
256'hd1d3d4d5d6d7d8d9dadbdcdddedfe0e1e2e3e4e5e6e7e8e9e9eaebecededeeef;
   defparam B317.INIT_03 =
256'ha7a8a9abacaeafb1b2b4b5b6b8b9bbbcbdbfc0c1c3c4c5c7c8c9cacbcdcecfd0;
   defparam B317.INIT_04 =
256'h95969697989899999a9a9b9b9c9c9d9e9e9f9fa0a0a1a1a2a3a3a4a4a5a5a6a7;
   defparam B317.INIT_05 =
256'h858586868787888889898a8a8b8b8c8c8d8d8e8f8f9090919192929393949495;
   defparam B317.INIT_06 =
256'h76767777787879797a7a7a7b7b7c7c7d7d7e7e7f7f8080818182828383838484;
   defparam B317.INIT_07 =
256'h6969696a6a6a6b6b6c6c6c6d6d6e6e6f6f6f7070717172727273737474757575;
   defparam B317.INIT_08 =
256'h5d5e5e5e5f5f5f5f606060616162626263636364646465656566666767676868;
   defparam B317.INIT_09 =
256'h55555555565656565757575758585858595959595a5a5a5b5b5b5b5c5c5c5d5d;
   defparam B317.INIT_0A =
256'h50505050505051515151515151525252525252525353535353535454545454555;
   defparam B317.INIT_0B =
256'h4e4e4e4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f5050505050;
   defparam B317.INIT_0C =
256'h5050504f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4e;
   defparam B317.INIT_0D =
256'h52525252525252525252515151515151515151515150505050505050505050;
   defparam B317.INIT_0E =
256'h5757575656565656565655555555555555555454545454545454545353535353;
   defparam B317.INIT_0F =
256'h5d5d5d5d5c5c5c5c5c5b5b5b5b5a5a5a5a5a59595959595858585858575757;
   defparam B317.INIT_10 =
256'h65656565646464636363636262626261616161606060605f5f5f5f5e5e5e5e5e;
  defparam B317.INIT_11 =
256'h6d6d6d6d6c6c6c6c6b6b6b6b6a6a6a6a69696969686868686767676766666666;
  defparam B317.INIT_12 =
256'h7474747474737373737372727272717171717170707070706f6f6f6f6e6e6e6e;
  defparam B317.INIT_13 =
256'h7a7a7a797979797979787878787878777777777777767676767675757575757575;
  defparam B317.INIT_14 =
256'h7e7e7e7e7d7d7d7d7d7d7d7d7c7c7c7c7c7c7c7c7c7b7b7b7b7b7b7b7a7a7a7a;
  defparam B317.INIT_15 =
256'h808080808080808080807f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7f7e7e7e7e7e7e;
  defparam B317.INIT_16 =
256'h7e7e7e7e7e7f7f7f7f7f7f7f7f7f7f7f7f7f7f80808080808080808080808080;
  defparam B317.INIT_17 =
256'h78787878797979797a7a7a7a7b7b7b7b7b7c7c7c7c7c7d7d7d7d7d7d7e7e7e7e;
  defparam B317.INIT_18 =
256'h6d6e6e6e6f6f6f7070717171727272737373747474757575757676767777777777;
  defparam B317.INIT_19 =
256'h606061616262626363646465656666666767686868696a6a6b6b6b6c6c6c6d;
  defparam B317.INIT_1A =
256'h50515152525353545455555656575758585959 5a5a5b5b5b5c5c5d5d5e5e5f5f;
  defparam B317.INIT_1B =
256'h404041414242434444454546464747484849494a4a4b4b4c4c4d4d4e4e4f4f50;
  defparam B317.INIT_1C =
256'h303031313232333334343535363637373838393939 3a3a3b3b3c3c3d3d3e3e3f3f;
  defparam B317.INIT_1D =
256'h21222222232324242525262626272728282929 2a2a2b2b2c2c2d2d2d2e2e2f2f;
  defparam B317.INIT_1E =
256'h15151516161617171718181919191a1a1b1b1b1c1c1d1d1d1e1e1f1f1f202021;
  defparam B317.INIT_1F =
256'h0b0b0b0b0c0c0c0d0d0d0d0e0e0e0f0f0f1010101011111112121213131314 14;
  defparam B317.INIT_20 =
256'h04040404040505050505050606060607070707070808080809090909 0a0a0a0a;
  defparam B317.INIT_21 =
256'h000000000000000000010101010101010102020202020202020202030303030303;
  defparam B317.INIT_22 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B317.INIT_23 =
256'h0504040404040303030303030202020202020201010101010101010100000000;
  defparam B317.INIT_24 =
256'h0e0e0d0d0d0c0c0c0b0b0b0a0a0a0909090808080807070707060606060 50505;
  defparam B317.INIT_25 =
256'h1b1b1a1a191918181817171616151515141413131212121111111010 0f0f0f0e;
  defparam B317.INIT_26 =
256'h2c2b2b2a2a292928282726262525242423232222212120201f1f1e1e1d1d1c1c;
  defparam B317.INIT_27 =
256'h40403f3e3e3d3c3c3b3a3a393838373636353434333332313130302f2e2e2d2d;
   defparam B317.INIT_28 =
256'h5858575655545453525150504f4e4d4d4c4b4a4a494847474645454443424241;
   defparam B317.INIT_29 =
256'h74737271706f6e6d6c6c6b6a69686766666564636261616 05f5e5d5c5c5b5a59;
   defparam B317.INIT_2A =
256'h91908f8e8d8c8b8a8988878686858483828180 7f7e7d7c7c7b7a797877767574;
   defparam B317.INIT_2B =
256'haeadacabaaa9a8a7a6a6a5a4a3a2a1a09f9e9d9c9b9b9a999897969594939291;
   defparam B317.INIT_2C =
256'hc9c8c7c6c6c5c4c3c2c1c1c0bfbebdbcbcbbbab9b8b7b6b6b5b4b3b2b1b0afae;
   defparam B317.INIT_2D =
256'he1e0e0dfdededddcdbdbdad9d9d8d7d6d6d5d4d3d2d2d1d0cfcfcecdcccbcbca;
   defparam B317.INIT_2E =
256'hf6f5f5f4f3f3f2f2f1f0f0efefeeededecebebeae9e9e8e7e7e6e5e5e4e3e3e2;
   defparam B317.INIT_2F =
256'h07070606050504040303020101 0000fffffefefdfdfcfcfbfafaf9f9f8f8f7f6;
   defparam B317.INIT_30 =
256'h15151414141313121211111110100f0f0e0e0e0d0d0c0c0b0b0a0a0909080807;
   defparam B317.INIT_31 =
256'h20201f1f1f1e1e1e1e1d1d1d1c1c1c1b1b1b1a1a1a1919191818171717161616;
   defparam B317.INIT_32 =
256'h2727272626262626262525252525242424242423232323222222222221212120;
   defparam B317.INIT_33 =
256'h2929292929292929292929292929292929282828282828282828282827272727;
   defparam B317.INIT_34 =
256'h2727272727272828282828282828282829292929292929292929292929292929;
   defparam B317.INIT_35 =
256'h2021212121212222222223232323232424242424252525252526262626262627;
   defparam B317.INIT_36 =
256'h171818181919191 91a1a1a1b1b1b1b1c1c1c1d1d1d1d1e1e1e1e1f1f1f202020;
   defparam B317.INIT_37 =
256'h0e0e0f0f0f1010101111111112121212131313141414141515151616161717 17;
   defparam B317.INIT_38 =
256'h05050606060607070707080808090909090a0a0a0b0b0b0b0c0c0c0d0d0d0d0e;
   defparam B317.INIT_39 =
256'hfdfefefefefeffffffff00000000010101010202020203030303040404040505;
   defparam B317.INIT_3A =
256'hf8f8f8f8f8f8f9f9f9f9f9f9fafafafafafbfbfbfbfbfcfcfcfcfcfdfdfdfd;
   defparam B317.INIT_3B =
256'hf5f5f5f5f5f5f5f5f5f5f5f5f6f6f6f6f6f6f6f6f6f6f7f7f7f7f7f7f7f7f7f7;
   defparam B317.INIT_3C =
256'hf5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5f5;
   defparam B317.INIT_3D =
256'hf7f7f7f7f7f7f7f7f7f7f7f7f6f6f6f6f6f6f6f6f6f6f6f6f5f5f5f5f5f5f5f5;
   defparam B317.INIT_3E =
256'hfbfbfbfbfbfafafafafafafafaf9f9f9f9f9f9f9f9f9f8f8f8f8f8f8f8f8f8f8;
   defparam B317.INIT_3F =
256'h0000000000fffffffffffefefefefefefdfdfdfdfdfdfcfcfcfcfcfcfcfbfbfb;
   defparam B317.INITP_00 = 256'hfffffffffffffffffffffffffffffffffffffffffffffffffffffffffffe000;
   defparam B317.INITP_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B317.INITP_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B317.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B317.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B317.INITP_05 = 256'h0001ffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B317.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B317.INITP_07 = 256'h07ffffffffffffffffffffffffffffffffffffffffffffffffc0000000000000;
   defparam B317.WRITE_MODE = "WRITE_FIRST";
   defparam B317.INIT = 12'h000;
   defparam B317.SRVAL = 12'h000;
   RAMB16_S9 B317 (
      .EN(N7951),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N8015}),
      .DO({N8016, N8017, N8018, N8019, N8020, N8021, N8022, N8023}),
      .DIP({N0})
   );
   defparam B320.INIT_00 =
256'h0808080707070606060605050505040404040303030302020202020101010100;
   defparam B320.INIT_01 =
256'h131312121111111010100f0f0f0e0e0e0d0d0d0c0c0c0b0b0b0a0a0a09090908;
   defparam B320.INIT_02 =
256'h201f1f1e1e1e1d1d1c1c1b1b1b1a1a1919191818171717161616151514141413;
   defparam B320.INIT_03 =
256'h2d2d2d2c2c2b2b2a2a2929292828272726262625252424232323222221212020;
   defparam B320.INIT_04 =
256'h3c3b3b3a3a39393938383737363635353534343333323231313030302f2f2e2e;
   defparam B320.INIT_05 =
256'h4a4a494948484747474646454544444343434242414140403f3f3e3e3e3d3d3c;
   defparam B320.INIT_06 =
256'h57575656565555545454535352525251515050504f4f4e4e4d4d4d4c4c4b4b4a;
   defparam B320.INIT_07 =
256'h616161616060605f5f5f5e5e5e5e5d5d5d5c5c5c5b5b5b5a5a5a595958585857;
   defparam B320.INIT_08 =
256'h6969696969686868686767676766666666666565656564646464636363636262;
   defparam B320.INIT_09 =
256'h6f6f6f6f6f6e6e6e6e6e6e6d6d6d6d6d6d6c6c6c6c6c6b6b6b6b6b6a6a6a6a6a;
   defparam B320.INIT_0A =
256'h7373737373737372727272727272727171717171717171707070707070706f;
   defparam B320.INIT_0B =
256'h757575757575757575757575747474747474747474747474747474747473737373;
   defparam B320.INIT_0C =
256'h747474747474747474747474757575757575757575757575757575757575757575;
   defparam B320.INIT_0D =
256'h717171717171717272727272727272737373737373737373737373747474747474;
   defparam B320.INIT_0E =
256'h6b6c6c6c6c6c6d6d6d6d6d6d6e6e6e6e6e6e6f6f6f6f6f6f6f70707070707070;
   defparam B320.INIT_0F =
256'h65656565656666666666676767676868686868696969696a6a6a6a6b6b6b6b;
   defparam B320.INIT_10 =
256'h5d5d5d5d5e5e5e5e5f5f5f5f6060606061616161626262626363636364646464;
   defparam B320.INIT_11 =
256'h5455555555565656565757575758585859595959595a5a5a5a5b5b5b5b5c5c5c5c;
   defparam B320.INIT_12 =
256'h4c4c4d4d4d4d4e4e4e4e4f4f4f4f505050505151515252525253535353545454;
   defparam B320.INIT_13 =
256'h44454545454646464647474747484848484849494949494a4a4a4a4b4b4b4b4c4c;
   defparam B320.INIT_14 =
256'h3d3d3d3d3e3e3e3e3f3f3f3f4040404041414141424242424243434343444444;
   defparam B320.INIT_15 =
256'h3536363636363737373737383838383939393939393a3a3a3a3b3b3b3b3c3c3c3c3d;
   defparam B320.INIT_16 =
256'h2e2f2f2f2f3030303030313131313132323232323333333333343434343434353535;
   defparam B320.INIT_17 =
256'h2828292929292929292a2a2a2a2a2b2b2b2b2b2c2c2c2c2c2d2d2d2d2d2e2e2e2e2e;
   defparam B320.INIT_18 =
256'h2323232324242424242425252525252526262626262627272727272728282828;
   defparam B320.INIT_19 =
256'h1e1e1f1f1f1f1f1f202020202020202021212121212121222222222222222223;
   defparam B320.INIT_1A =
256'h1a1a1a1a1b1b1b1b1b1b1b1b1c1c1c1c1c1c1c1d1d1d1d1d1d1d1d1e1e1e1e1e;
   defparam B320.INIT_1B =
256'h1616161617171717171717171818181818181818191919191919191919191a1a1a1a;
   defparam B320.INIT_1C =
256'h121212121212121313131313131314141414141414151515151515151516161616;
   defparam B320.INIT_1D =
256'h0d0d0d0d0d0d0e0e0e0e0e0e0f0f0f0f0f0f10101010101010111111111111111111;
   defparam B320.INIT_1E =
256'h080808080808090909090909090a0a0a0a0a0a0b0b0b0b0b0b0c0c0c0c0c0c0c0d;
   defparam B320.INIT_1F =
256'h030303030304040404040404040505050505050506060606060606060707070707070708;
   defparam B320.INIT_20 =
256'hfefefefefefeffffffffffffff000000000000000101010101010202020202020203;
   defparam B320.INIT_21 =
256'hf8f8f9f9f9f9f9fafafafafafbfbfbfbfbfcfcfcfcfcfdfdfdfdfdfe;
   defparam B320.INIT_22 =
256'hf3f3f3f4f4f4f4f4f4f5f5f5f5f5f6f6f6f6f6f7f7f7f7f7f8f8f8f8;
   defparam B320.INIT_23 =
256'hefefefefefefeff0f0f0f0f0f0f0f1f1f1f1f1f1f2f2f2f2f2f2f3f3f3;
   defparam B320.INIT_24 =
256'hebebebebebebebececececececececececededededededededeeeeeeeeeeeeeeeeee;
   defparam B320.INIT_25 =
256'he7e7e7e8e8e8e8e8e8e8e8e8e9e9e9e9e9e9e9e9e9eaeaeaeaeaeaeaeaeaebeb;
   defparam B320.INIT_26 =
256'he4e4e4e4e4e4e4e4e5e5e5e5e5e5e5e5e5e5e6e6e6e6e6e6e6e6e6e7e7e7e7e7;
   defparam B320.INIT_27 =
256'he1e1e1e1e1e1e1e1e2e2e2e2e2e2e2e2e2e2e2e3e3e3e3e3e3e3e3e3e3e4e4;
   defparam B320.INIT_28 =
256'hdfdfdfdfdfdfdfdfdfe0e0e0e0e0e0e0e0e0e0e0e0e0e0e0e1e1e1e1e1;
   defparam B320.INIT_29 =
256'hdededededededededededededededededededededfdfdfdfdfdfdfdfdfdfdf;
   defparam B320.INIT_2A =
256'hddddddddddddddddddddddddddddddddddededededededededededededededededede;
   defparam B320.INIT_2B =
256'hdddddddddddddddddddddddddddddddddddddddddddddddddddddddddddddddd;
   defparam B320.INIT_2C =
256'hdededededededededededededededededededededededededddddddddddddd;
   defparam B320.INIT_2D =
256'hdededededededededededededededededededededededededededededededede;
   defparam B320.INIT_2E =
256'hddddddddddddddddddddddddddddddddddddddddddddddddddddddddededededede;
   defparam B320.INIT_2F =
256'hdbdbdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdddddddddd;
   defparam B320.INIT_30 =
256'hdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdb;
   defparam B320.INIT_31 =
256'hdadadadadadadadadadadadadadadadadadadadadadadadadadadadadadadada;
   defparam B320.INIT_32 =
256'hd9d9d9d9d9d9d9d9d9d9d9d9dadadadadadadadadadadadadadadadadadadada;
   defparam B320.INIT_33 =
256'hd7d7d7d7d7d7d7d7d7d8d8d8d8d8d8d8d8d8d8d8d8d8d8d9d9d9d9d9d9d9d9d9;
   defparam B320.INIT_34 =
256'hd3d3d3d3d3d3d4d4d4d4d4d4d4d5d5d5d5d5d5d5d6d6d6d6d6d6d6d6d6d7d7;
   defparam B320.INIT_35 =
256'hcdcecececececececfcfcfcfcfcfd0d0d0d0d0d1d1d1d1d1d1d2d2d2d2d2d2d2d3;
   defparam B320.INIT_36 =
256'hc7c7c8c8c8c8c8c9c9c9c9c9cacacacacacbcbcbcbcbcbccccccccccccdcdcdcd;
   defparam B320.INIT_37 =
256'hc2c2c2c2c2c2c3c3c3c3c3c3c4c4c4c4c4c4c5c5c5c5c5c6c6c6c6c6c7c7c7c7;
  defparam B320.INIT_38 =
256'hbdbdbdbdbdbdbdbebebebebebebebfbfbfbfbfbfc0c0c0c0c0c0c1c1c1c1c1c1;
  defparam B320.INIT_39 =
256'hb9b9b9b9b9b9b9b9babababababababababbbbbbbbbbbbbbbbbcbcbcbcbcbcbcbc;
  defparam B320.INIT_3A =
256'hb6b6b6b6b6b6b6b6b6b6b7b7b7b7b7b7b7b7b7b7b7b8b8b8b8b8b8b8b8b8b8b9;
  defparam B320.INIT_3B =
256'hb4b4b4b4b4b4b4b4b4b4b4b4b4b4b4b5b5b5b5b5b5b5b5b5b5b5b5b5b5b5b6b6;
  defparam B320.INIT_3C =
256'hb3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b4b4b4b4b4;
  defparam B320.INIT_3D =
256'hb3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3;
  defparam B320.INIT_3E =
256'hb3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3;
  defparam B320.INIT_3F =
256'hb4b4b4b4b4b4b4b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3;
  defparam B320.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B320.INITP_04 = 256'hfffffffffffffffffffffffffffffffffffffffffffffffffffffffffff00000;
  defparam B320.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INITP_06 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.INITP_07 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B320.WRITE_MODE = "WRITE_FIRST";
  defparam B320.INIT = 12'h000;
  defparam B320.SRVAL = 12'h000;
  RAMB16_S9 B320 (
    .EN(N7950),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N8006}),
    .DO({N8007, N8008, N8009, N8010, N8011, N8012, N8013, N8014}),
    .DIP({N0})
  );
  defparam B323.INIT_00 =
256'hb7b7b7b7b7b7b6b6b6b6b6b6b6b6b5b5b5b5b5b5b5b5b5b5b4b4b4b4b4b4b4b4;
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   defparam B323.INIT_01 =
256'hbebdbdbdbdbcbcbcbcbcbbbbbbbbbababababab9b9b9b9b9b9b8b8b8b8b8b8b7;
   defparam B323.INIT_02 =
256'hc6c6c6c6c5c5c5c5c4c4c4c4c3c3c3c2c2c2c2c1c1c1c0c0c0bfbfbfbfbebebe;
   defparam B323.INIT_03 =
256'hd0d0d0cfcfcfcecececdcdcdcdcccccccbcbcbcacacac9c9c9c9c8c8c8c7c7c7;
   defparam B323.INIT_04 =
256'hdadadad9d9d9d8d8d8d8d7d7d7d6d6d6d5d5d5d4d4d4d3d3d3d3d2d2d2d1d1d1;
   defparam B323.INIT_05 =
256'he5e4e4e4e3e3e3e2e2e2e1e1e1e0e0e0dfdfdfdededededddddddcdcdcdbdbdb;
   defparam B323.INIT_06 =
256'hefefeeeeeeededededecececebebebeaeaeae9e9e9e8e8e8e7e7e7e7e6e6e6e5e5;
   defparam B323.INIT_07 =
256'hfafaf9f9f9f8f8f8f7f7f7f6f6f6f5f5f5f4f4f4f3f3f3f2f2f2f1f1f1f0f0ef;
   defparam B323.INIT_08 =
256'h040404030303020202010101000000fffffffffefefefdfdfdfcfcfcfbfbfbfa;
   defparam B323.INIT_09 =
256'h0d0d0d0d0c0c0c0c0b0b0b0a0a0a0a0909090808080707070706060605050504;
   defparam B323.INIT_0A =
256'h161515151515141414141313131212121211111111111010101010f0f0f0e0e0e;
   defparam B323.INIT_0B =
256'h1d1d1c1c1c1c1c1b1b1b1b1b1a1a1a1a1919191919181818181717171716161616;
   defparam B323.INIT_0C =
256'h2121212121212121212020202020202020201f1f1f1f1f1f1e1e1e1e1e1d1d1d1d;
   defparam B323.INIT_0D =
256'h2323232323232323232323232323232323232323222222222222222222222222;
   defparam B323.INIT_0E =
256'h2020202121212121212121212122222222222222222222222222222223232323 23;
   defparam B323.INIT_0F =
256'h1b1b1b1b1c1c1c1c1c1c1d1d1d1d1d1d1e1e1e1e1e1e1f1f1f1f1f2020202020;
   defparam B323.INIT_10 =
256'h1414141515151515161616161617171717181818181819191919191a1a1a1a1b;
   defparam B323.INIT_11 =
256'h0c0c0c0d0d0d0d0e0e0e0f0f0f1010101010111111111112121212131313131314;
   defparam B323.INIT_12 =
256'h0303030404040505050606060607070707080808090909090a0a0a0b0b0b0b0c;
   defparam B323.INIT_13 =
256'hf9fafafafbfbfbfcfcfcfcfdfdfdfefefefeffffff0000000101010102020203;
   defparam B323.INIT_14 =
256'hf0f1f1f1f1f2f2f2f3f3f3f3f4f4f4f4f5f5f5f6f6f6f7f7f7f7f8f8f8f9f9f9;
   defparam B323.INIT_15 =
256'he8e8e8e9e9e9e9eaeaeaeaebebebebecececededededeeeeeeeeefefefeff0f0;
   defparam B323.INIT_16 =
256'he0e0e0e0e1e1e1e1e2e2e2e2e3e3e3e3e4e4e4e5e5e5e5e6e6e6e6e7e7e7e7e8;
   defparam B323.INIT_17 =
256'hd8d8d8d8d9d9d9d9dadadadadbdbdbdbdcdcdcdcdddddddddededededfdfdfdf;
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  defparam B323.INIT_18 =
256'hd0d0d0d0d1d1d1d1d2d2d2d2d3d3d3d3d4d4d4d4d5d5d5d5d6d6d6d6d7d7d7d7;
  defparam B323.INIT_19 =
256'hc9c9cacacacacacbcbcbcbcbcccccccccccdcdcdcdcdcececececececfcfcfcfd0;
  defparam B323.INIT_1A =
256'hc5c5c5c5c5c5c5c6c6c6c6c6c6c6c6c7c7c7c7c7c7c7c8c8c8c8c8c8c9c9c9c9;
  defparam B323.INIT_1B =
256'hc2c2c2c2c2c3c3c3c3c3c3c3c3c3c3c3c3c3c3c3c4c4c4c4c4c4c4c4c4c4c5c5;
  defparam B323.INIT_1C =
256'hc2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2;
  defparam B323.INIT_1D =
256'hc2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2;
  defparam B323.INIT_1E =
256'hc2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2;
  defparam B323.INIT_1F =
256'hc2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2;
  defparam B323.INIT_20 =
256'hc2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2c2;
  defparam B323.INIT_21 =
256'hc1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c2c2c2c2c2c2c2c2c2c2c2c2;
  defparam B323.INIT_22 =
256'hc1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1;
  defparam B323.INIT_23 =
256'hc0c0c0c0c0c0c0c0c0c0c0c0c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1;
  defparam B323.INIT_24 =
256'hc0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0;
  defparam B323.INIT_25 =
256'hbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfc0c0c0c0c0c0c0c0c0c0c0c0c0c0;
  defparam B323.INIT_26 =
256'hbcbcbcbcbdbdbdbdbdbdbdbdbdbdbdbdbdbdbdbebebebebebebebebebebebebf;
  defparam B323.INIT_27 =
256'hb9b9b9b9b9b9bababababababababababababbbbbbbbbbbbbbbbbbbcbcbcbcbcbc;
  defparam B323.INIT_28 =
256'hb5b5b5b5b5b6b6b6b6b6b6b7b7b7b7b7b7b7b7b7b8b8b8b8b8b8b8b8b8b9b9b9;
  defparam B323.INIT_29 =
256'hb0b1b1b1b1b1b1b2b2b2b2b2b2b2b3b3b3b3b3b3b3b4b4b4b4b4b4b4b4b5b5b5;
  defparam B323.INIT_2A =
256'hababababacacacacacacadadadadadaeaeaeaeaeaeafafafafafafb0b0b0b0b0;
  defparam B323.INIT_2B =
256'ha4a4a5a5a5a5a5a6a6a6a6a7a7a7a7a7a8a8a8a8a9a9a9a9a9aaaaaaaaaaabab;
  defparam B323.INIT_2C =
256'h9c9c9c9c9d9d9d9d9e9e9e9e9f9f9fa0a0a0a1a1a1a1a2a2a2a2a3a3a3a3a4a4;
  defparam B323.INIT_2D =
256'h9292929393939494949595959696969797979898989899999999a9a9a9a9b9b9b;
  defparam B323.INIT_2E =
256'h87878788888989898a8a8a8b8b8b8c8c8c8d8d8d8e8e8f8f8f90909091919192;
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   defparam B323.INIT_2F =
256'h7a7b7b7c7c7c7d7d7e7e7e7f7f80808081818182828383838484858585868686;
   defparam B323.INIT_30 =
256'h6d6d6e6e6f6f6f70707171727272737374747575757676777777787879797a7a;
   defparam B323.INIT_31 =
256'h5f5f5f60606161626263636364646565666667676868686969 6a6a6b6b6b6c6c;
   defparam B323.INIT_32 =
256'h505151525252535354545555565656575758585959 5a5a5b5b5b5c5c5d5d5e5e;
   defparam B323.INIT_33 =
256'h4343434444454545464647474848484949 4a4a4b4b4b4c4c4d4d4e4e4e4f4f50;
   defparam B323.INIT_34 =
256'h3637373738383839393a3a3a3b3b3b3c3c3d3d3d3e3e3f3f3f40404141414242;
   defparam B323.INIT_35 =
256'h2c2c2d2d2d2d2e2e2e2f2f2f3030303131313132323233333334343535353636;
   defparam B323.INIT_36 =
256'h2424242525252525262626262727272728282828292929292a2a2a2b2b2b2b2c;
   defparam B323.INIT_37 =
256'h1f1f1f1f20202020202020202121212121212222222222222223232323232424;
   defparam B323.INIT_38 =
256'h1d1d1d1d1d1d1d1d1d1d1d1d1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1f1f1f1f;
   defparam B323.INIT_39 =
256'h1f1f1f1f1f1f1f1f1f1f1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1e1d1d1d1d1d1d;
   defparam B323.INIT_3A =
256'h2525242424242424232323232323222222222222212121212121202020202020;
   defparam B323.INIT_3B =
256'h2d2d2c2c2c2c2b2b2b2b2a2a2a2a292929292828282827272727262626252525;
   defparam B323.INIT_3C =
256'h3737363636353535343434333333333232323131313030302f2f2f2e2e2e2d2d;
   defparam B323.INIT_3D =
256'h42424141414040403f3f3e3e3e3d3d3d3c3c3c3b3b3b3a3a3a39393938383837;
   defparam B323.INIT_3E =
256'h4e4d4d4d4c4c4b4b4b4a4a4a4949494848474747464646454545444443434342;
   defparam B323.INIT_3F =
256'h5959585857575756565655555554545453535352525251515050504f4f4f4e4e;
   defparam B323.INITP_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INITP_01 =
256'h00000000000000000000000000000000000000000000000000000000001ffff;
   defparam B323.INITP_02 =
256'hfffffffffffffffffffffffffffffffffffff800000000000000000000000000;
   defparam B323.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INITP_06 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.INITP_07 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B323.WRITE_MODE = "WRITE_FIRST";
   defparam B323.INIT = 12'h000;
   defparam B323.SRVAL = 12'h000;
   RAMB16_S9 B323 (
      .EN(N7949),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N7997}),
      .DO({N7998, N7999, N8000, N8001, N8002, N8003, N8004, N8005}),
      .DIP({N0})
   );
   defparam B326.INIT_00 =
256'h646363636262626161616060605f5f5f5e5e5e5d5d5d5c5c5c5b5b5b5a5a5a59;
   defparam B326.INIT_01 =
256'h6e6e6d6d6d6c6c6c6b6b6b6a6a6a696969696868686767676666666565656464;
   defparam B326.INIT_02 =
256'h7777777676767675757574747474737373727272717171717070706f6f6f6e6e;
   defparam B326.INIT_03 =
256'h7f7f7f7f7e7e7e7e7e7d7d7d7d7c7c7c7c7b7b7b7b7a7a7a7979797978787878;
   defparam B326.INIT_04 =
256'h8685858585858584848484848483838383838282828282818181818180808080;
   defparam B326.INIT_05 =
256'h8989898989898989898989888888888888888888878787878787878686868686;
   defparam B326.INIT_06 =
256'h8b8b8b8b8b8b8b8b8b8b8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8989;
   defparam B326.INIT_07 =
256'h8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8b8b8b8b8b8b8b8b8b8b8b8b8b8b8b8b;
   defparam B326.INIT_08 =
256'h8888888888888888888888888989898989898989898989898989898a8a8a8a8a8a;
   defparam B326.INIT_09 =
256'h8484848485858585858585858586868686868686868686878787878787878787;
   defparam B326.INIT_0A =
256'h8181818181818181818182828282828282828283838383838383838384848484;
   defparam B326.INIT_0B =
256'h7e7e7e7e7e7e7f7f7f7f7f7f7f7f7f7f7f7f7f7f808080808080808080808080;
   defparam B326.INIT_0C =
256'h7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e7e;
   defparam B326.INIT_0D =
256'h818080808080808080808080807f7f7f7f7f7f7f7f7f7f7f7f7f7e7e7e7e7e7e7e;
   defparam B326.INIT_0E =
256'h8685858585858584848484848483838383838382828282828282818181818181;
   defparam B326.INIT_0F =
256'h8d8d8c8c8c8b8b8b8a8a8a898989898888888888888888878787878787868686;
   defparam B326.INIT_10 =
256'h9696969595959494949393939392929291919190909090908f8f8f8e8e8e8e8d8d;
   defparam B326.INIT_11 =
256'ha2a2a1a1a0a0a09f9f9f9e9e9d9d9d9c9c9c9b9b9b9a9a999999989898979797;
   defparam B326.INIT_12 =
256'hafafaeaeaeadadacacabababaaaaa9a9a9a8a8a7a7a6a6a6a5a5a4a4a4a3a3a2;
   defparam B326.INIT_13 =
256'hbebdbdbcbcbbbbbababab9b9b8b8b7b7b6b6b5b5b5b4b4b3b3b2b2b2b1b1b0b0;
   defparam B326.INIT_14 =
256'hcdcccccccbcbcacac9c9c8c8c7c7c6c6c5c5c4c4c3c3c2c2c1c1c0c0c0bfbfbe;
   defparam B326.INIT_15 =
256'hdddcdcdbdbdadad9d9d8d8d7d7d6d6d5d5d4d4d3d3d2d2d1d1d0d0cfcfcececd;
   defparam B326.INIT_16 =
256'hececebebeaeae9e9e9e8e8e7e7e6e6e5e5e4e4e3e3e2e2e1e1e0e0dfdfdededd;
   defparam B326.INIT_17 =
256'hfbfafafaf9f9f8f8f7f7f6f6f6f5f5f4f4f3f3f2f2f1f1f1f0f0efefeeeeeded;
   defparam B326.INIT_18 =
256'h080707060606050505040403030302020101010000fffffffefefdfdfdfcfcfb;
   defparam B326.INIT_19 =
256'h131212121111111010100f0f0f0e0e0e0d0d0d0c0c0c0b0b0b0a0a0909090808;
   defparam B326.INIT_1A =
256'h1c1b1b1b1b1a1a1a1a191919181818181717171616161615151514141413131 3;
   defparam B326.INIT_1B =
256'h23232323222222222221212121212020201f1f1f1f1e1e1e1e1e1d1d1d1c1c1c;
   defparam B326.INIT_1C =
256'h2929292828282828282727272727272626262626252525252525242424242423;
   defparam B326.INIT_1D =
256'h2d2d2d2d2d2d2d2c2c2c2c2c2c2c2b2b2b2b2b2b2b2a2a2a2a2a2a2a29292929;
   defparam B326.INIT_1E =
256'h31313131313030303030303030302f2f2f2f2f2f2f2f2f2e2e2e2e2e2e2e2e2e2d;
   defparam B326.INIT_1F =
256'h3535343434343434343434343333333333333333333232323232323232313131;
   defparam B326.INIT_20 =
256'h3838383838383838373737373737373737363636363636363635353535353535;
   defparam B326.INIT_21 =
256'h3c3c3c3c3c3c3c3b3b3b3b3b3b3b3b3a3a3a3a3a3a3a39393939393939393939;
   defparam B326.INIT_22 =
256'h414141414141414040404040403f3f3f3f3f3f3e3e3e3e3e3e3e3d3d3d3d3d3d;
   defparam B326.INIT_23 =
256'h4747474747464646464645454545454544444444444444434343434242424242;
   defparam B326.INIT_24 =
256'h4e4e4e4d4d4d4d4d4c4c4c4c4c4b4b4b4b4b4a4a4a4a49494949494948484848;
   defparam B326.INIT_25 =
256'h545454545353535353525252525252515151515150505050504f4f4f4f4f4e4e;
   defparam B326.INIT_26 =
256'h5959595959585858585858575757575757575656565656565555555555555554;
   defparam B326.INIT_27 =
256'h5e5d5d5d5d5d5d5c5c5c5c5c5c5b5b5b5b5b5b5b5a5a5a5a5a5a5959;
   defparam B326.INIT_28 =
256'h6262616161616161616160606060606060605f5f5f5f5f5f5e5e5e5e5e5e;
   defparam B326.INIT_29 =
256'h6666656565656565656565646464646464646464636363636363636362626262;
   defparam B326.INIT_2A =
256'h69696969686868686868686868686868676767676767676767676767666666666666666;
   defparam B326.INIT_2B =
256'h6b6b6b6b6b6b6b6b6b6a6a6a6a6a6a6a6a6a6a6a6a6a6a6969696969696969;
   defparam B326.INIT_2C =
256'h6b6c6c6c6c6c6c6c6c6c6c6c6c6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b;
   defparam B326.INIT_2D =
256'h6a6a6a6a6a6a6a6a6a6a6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b;
   defparam B326.INIT_2E =
256'h6464656565656565666666666666676767676767676868686868686969696969696969;
   defparam B326.INIT_2F =
256'h5c5c5c5d5d5d5d5e5e5e5f5f5f5f606060616161616262626263636363646464;
   defparam B326.INIT_30 =
256'h5151515252535353545454555555565656575757585858595959595a5a5a5b5b5b;
   defparam B326.INIT_31 =
256'h444545464646474748484849494a4a4a4b4b4b4c4c4d4d4d4e4e4f4f4f505050;
   defparam B326.INIT_32 =
256'h37383839393939a3a3b3b3b3c3c3d3d3e3e3e3f3f404040414142424243434444;
   defparam B326.INIT_33 =
256'h2a2b2b2c2c2c2d2d2e2e2e2f2f303030313132323233333434353535363637 37;
   defparam B326.INIT_34 =
256'h1e1f1f1f20202021212222222323232424252525262627272728282929292a2a;
   defparam B326.INIT_35 =
256'h13131414141515151616161717171818181919191a1a1a1b1b1b1c1c1c1d1d1e1e;
   defparam B326.INIT_36 =
256'h080909090a0a0a0b0b0b0c0c0c0d0d0d0e0e0e0f0f0f10101011111112121213;
   defparam B326.INIT_37 =
256'hff000000000101010102020203030303040404050505050606060707070808 08;
   defparam B326.INIT_38 =
256'hf8f9f9f9f9f9fafafafafafbfbfbfbfbfcfcfcfcfdfdfdfdfdfefefefefeffffff;
   defparam B326.INIT_39 =
256'hf4f4f4f4f4f4f5f5f5f5f5f5f5f5f6f6f6f6f6f6f6f7f7f7f7f7f7f8f8f8f8f8;
   defparam B326.INIT_3A =
256'hf2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f3f3f3f3f3f3f3f3f3f3f3f3f3f4f4f4f4;
   defparam B326.INIT_3B =
256'hf2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2;
   defparam B326.INIT_3C =
256'hf5f5f5f5f4f4f4f4f4f4f4f4f4f4f4f4f3f3f3f3f3f3f3f3f3f3f3f3f3f2f2f2;
   defparam B326.INIT_3D =
256'hf8f8f8f8f8f8f8f7f7f7f7f7f7f7f7f7f6f6f6f6f6f6f6f6f6f6f5f5f5f5f5f5;
   defparam B326.INIT_3E =
256'hfbfafafafafafafafafafafafafafafafaf9f9f9f9f9f9f9f9f9f9f9f8f8f8f8;
  defparam B326.INIT_3F =
256'hfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfb;
  defparam B326.INITP_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B326.INITP_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B326.INITP_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B326.INITP_03 =
256'h00000000000000000000000000000000000000000000000000000000000007ff;
  defparam B326.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B326.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
  defparam B326.INITP_06 =
256'h8000000000000000000000000000000000000000000000000000000000000000;
  defparam B326.INITP_07 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
  defparam B326.WRITE_MODE = "WRITE_FIRST";
  defparam B326.INIT = 12'h000;
  defparam B326.SRVAL = 12'h000;
  RAMB16_S9 B326 (
    .EN(N7948),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N7988}),
    .DO({N7989, N7990, N7991, N7992, N7993, N7994, N7995, N7996}),
    .DIP({N0})
  );
  defparam B329.INIT_00 =
256'hfafafbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfb;
  defparam B329.INIT_01 =
256'hf8f8f8f8f8f8f8f8f9f9f9f9f9f9f9f9f9f9f9fafafafafafafafafafafafafa;
  defparam B329.INIT_02 =
256'hf3f3f3f3f3f4f4f4f4f4f4f5f5f5f5f5f5f6f6f6f6f6f6f6f7f7f7f7f7f7f7f7;
  defparam B329.INIT_03 =
256'hebececececedededededeeeeeeeeeefefefefeff0f0f0f0f1f1f1f1f1f2f2f2f2f2;
  defparam B329.INIT_04 =
256'he3e3e4e4e4e4e5e5e5e6e6e6e6e7e7e7e7e8e8e8e8e9e9e9e9eaeaeaeaebebeb;
  defparam B329.INIT_05 =
256'hdadbdbdbdbdcdcdcdddddddddddedededededfdfdfe0e0e0e0e1e1e1e1e2e2e2e3e3;
  defparam B329.INIT_06 =
256'hd1d1d1d2d2d2d3d3d3d3d4d4d4d5d5d5d6d6d6d6d7d7d7d8d8d8d9d9d9d9dada;
  defparam B329.INIT_07 =
256'hc6c6c6c7c7c7c8c8c8c9c9cacacacbcbcbccccccdcdcdcececececfcfcfd0d0d0;
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   defparam B329.INIT_08 =
256'hb9b9bababbbbbbbcbcbdbdbdbebebfbfbfc0c0c1c1c1c2c2c2c3c3c4c4c4c5c5;
   defparam B329.INIT_09 =
256'hacacadadaeaeaeafafb0b0b0b1b1b2b2b3b3b3b4b4b5b5b5b6b6b7b7b7b8b8b9;
   defparam B329.INIT_0A =
256'h9f9fa0a0a1a1a1a2a2a3a3a3a4a4a5a5a5a6a6a7a7a7a8a8a9a9aaaaaaababac;
   defparam B329.INIT_0B =
256'h9293939494949595969696979797989899999 9a9a9b9b9b9c9c9d9d9d9e9e9f;
   defparam B329.INIT_0C =
256'h868787888888989898a8a8a8b8b8c8c8d8d8d8e8e8f8f8f90909091919292;
   defparam B329.INIT_0D =
256'h7c7c7c7d7d7d7e7e7e7f7f7f8080808181818282828383838484848585858686;
   defparam B329.INIT_0E =
256'h7373737474747475757575767676767777777787878787979797a7a7a7b7b7b7b;
   defparam B329.INIT_0F =
256'h6c6c6c6d6d6d6d6d6e6e6e6e6e6f6f6f6f7070707070717171717272727273;
   defparam B329.INIT_10 =
256'h67676868686868686868696969696969696a6a6a6a6a6a6b6b6b6b6b6b6c6c;
   defparam B329.INIT_11 =
256'h6565656565656565656565656565656566666666666666666666666667676767676767;
   defparam B329.INIT_12 =
256'h6363636363636363636363636363636364646464646464646464646464646464;
   defparam B329.INIT_13 =
256'h6161616161616161616162626262626262626262626262626262626262636363;
   defparam B329.INIT_14 =
256'h6060606060606060606060606161616161616161616161616161616161616161;
   defparam B329.INIT_15 =
256'h6262626262626261616161616161616161616161616161616161616161606060;
   defparam B329.INIT_16 =
256'h6766666666666666656565656565646464646464646363636363636363626262;
   defparam B329.INIT_17 =
256'h6d6d6c6c6c6c6c6b6b6b6b6b6a6a6a6a6a6969696969686868686867676767676767;
   defparam B329.INIT_18 =
256'h74737373737272727272717171717170707070706f6f6f6f6e6e6e6e6e6d6d6d;
   defparam B329.INIT_19 =
256'h7b7b7a7a7a7a797979797978787878787777777777767676767675757575747474;
   defparam B329.INIT_1A =
256'h8483838382828282818181808080807f7f7f7f7e7e7e7d7d7d7d7c7c7c7c7b7b;
   defparam B329.INIT_1B =
256'h8d8d8c8c8c8b8b8b8a8a8a898989898888888787878686868685858584 8484;
   defparam B329.INIT_1C =
256'h969696969595959494949493939392929292919191909090 8f8f8f8f8e8e8e8d;
   defparam B329.INIT_1D =
256'h9f9f9f9f9e9e9e9d9d9d9d9c9c9c9c9b9b9b9a9a9a9a99999998989898979797;
   defparam B329.INIT_1E =
256'ha8a8a8a7a7a7a7a6a6a6a6a5a5a5a4a4a4a4a3a3a3a2a2a2a2a1a1a1a0a0a0a0;
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  defparam B329.INIT_1F =
256'hb2b1b1b1b0b0b0afafafaeaeaeaeadadadacacacacabababaaaaaaa9a9a9a9;
  defparam B329.INIT_20 =
256'hbabababab9b9b9b9b8b8b8b7b7b7b7b6b6b6b6b5b5b5b4b4b4b4b3b3b3b2b2b2;
  defparam B329.INIT_21 =
256'hc2c2c2c1c1c1c1c1c0c0c0c0bfbfbfbfbebebebebdbdbdbdbcbcbcbcbbbbbbbb;
  defparam B329.INIT_22 =
256'hc8c8c8c8c8c7c7c7c7c7c7c6c6c6c6c6c5c5c5c5c5c4c4c4c4c4c3c3c3c3c3c2;
  defparam B329.INIT_23 =
256'hcdcdcdcdcccccccccccccccccccccbcbcbcbcbcbcacacacacacac9c9c9c9c9c8;
  defparam B329.INIT_24 =
256'hd0d0d0d0d0cfcfcfcfcfcfcfcfcfcfcfcfcfcecececececececececececdcdcdcd;
  defparam B329.INIT_25 =
256'hd1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0d0;
  defparam B329.INIT_26 =
256'hd0d0d0d0d0d0d0d0d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1d1;
  defparam B329.INIT_27 =
256'hcecececfcfcfcfcfcfcfcfcfcfcfcfcfcfd0d0d0d0d0d0d0d0d0d0d0d0d0d0d0;
  defparam B329.INIT_28 =
256'hcccccccccccccccccccccccdcdcdcdcdcdcdcdcdcdcdcdcecececececececece;
  defparam B329.INIT_29 =
256'hc9c9c9c9c9cacacacacacacacacacacacacacbcbcbcbcbcbcbcbcbcbcbcbcc;
  defparam B329.INIT_2A =
256'hc8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c9c9c9c9c9c9c9c9c9c9;
  defparam B329.INIT_2B =
256'hc8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8;
  defparam B329.INIT_2C =
256'hc8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8;
  defparam B329.INIT_2D =
256'hcacacacacacacacacacac9c9c9c9c9c9c9c9c9c9c9c9c9c9c9c9c9c8c8c8c8c8;
  defparam B329.INIT_2E =
256'hcfcfcecececececececdcdcdcdcdcdcccccccccccccccccbcbcbcbcbcbcbcbcaca;
  defparam B329.INIT_2F =
256'hd5d5d5d5d4d4d4d4d4d3d3d3d3d2d2d2d2d2d1d1d1d1d1d0d0d0d0cfcfcfcf;
  defparam B329.INIT_30 =
256'hdddddddcdcdcdcdbdbdbdbdadadadad9d9d9d9d8d8d8d8d8d7d7d7d7d6d6d6d6;
  defparam B329.INIT_31 =
256'he6e5e5e5e5e4e4e4e3e3e3e3e2e2e2e2e1e1e1e0e0e0e0dfdfdfdfdededededd;
  defparam B329.INIT_32 =
256'hf0f0f0efefefeeeeedededecececebebebeaeaeae9e9e9e8e8e8e8e7e7e7e6e6;
  defparam B329.INIT_33 =
256'hfefdfdfcfcfbfbfbfafaf9f9f8f8f8f7f7f6f6f5f5f5f4f4f3f3f3f2f2f1f1f1;
  defparam B329.INIT_34 =
256'h0c0b0b0b0a0a09090808070707060605050404030303020201010000fffffefe;
  defparam B329.INIT_35 =
256'h1919191818171717161615151514141313121212111110100f0f0f0e0e0d0d0c;
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   defparam B329.INIT_36 =
256'h26252525242423232322222221212020201f1f1f1e1e1d1d1d1c1c1b1b1b1a1a;
   defparam B329.INIT_37 =
256'h3231313030302f2f2f2e2e2d2d2d2c2c2c2b2b2b2a2a29292928282827272626;
   defparam B329.INIT_38 =
256'h3d3c3c3c3b3b3b3a3a3a39393938383837373736363635353434343333333232;
   defparam B329.INIT_39 =
256'h4646464545454544444444434343424242414141414040403f3f3f3e3e3e3d3d;
   defparam B329.INIT_3A =
256'h4d4d4d4d4d4c4c4c4c4c4b4b4b4b4b4a4a4a4a49494949484848484847474747;
   defparam B329.INIT_3B =
256'h525252525252515151515151505050505050504f4f4f4f4f4f4e4e4e4e4e4e4d;
   defparam B329.INIT_3C =
256'h5555555555555555555454545454545454545453535353535353535353535252;
   defparam B329.INIT_3D =
256'h5656565656565656565656565656565656565656565656565555555555555555;
   defparam B329.INIT_3E =
256'h5555555555555656565656565656565656565656565656565656565656565656;
   defparam B329.INIT_3F =
256'h5252525252525353535353535353535454545454545454545455555555555555555;
   defparam B329.INITP_00 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_01 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_02 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B329.INITP_06 =
256'h00000000000000000000000000000000ffffffffffffffffffffffffffffffff;
   defparam B329.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B329.WRITE_MODE = "WRITE_FIRST";
   defparam B329.INIT = 12'h000;
   defparam B329.SRVAL = 12'h000;
   RAMB16_S9 B329 (
      .EN(N7947),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N7979}),
      .DO({N7980, N7981, N7982, N7983, N7984, N7985, N7986, N7987}),
      .DIP({N0})
   );
   defparam B332.INIT_00 =
256'h4c4c4d4d4d4d4d4e4e4e4e4e4f4f4f4f4f505050505050515151515151515152;
   defparam B332.INIT_01 =
256'h45464646464747474747484848484949494949 4a4a4a4a4a4b4b4b4b4b4c4c4c;
   defparam B332.INIT_02 =
256'h3e3e3e3e3f3f3f3f404040404141414142424242434343434344444444444454545;
   defparam B332.INIT_03 =
256'h363636373737373838383839393939393a3a3a3a3b3b3b3b3c3c3c3c3d3d3d3d;
   defparam B332.INIT_04 =
256'h2f2f3030303030313131313132323232323333333333343434343435353535353536;
   defparam B332.INIT_05 =
256'h2a2a2a2a2a2b2b2b2b2b2b2c2c2c2c2c2c2c2d2d2d2d2d2e2e2e2e2e2e2f2f2f;
   defparam B332.INIT_06 =
256'h262626262627272727272727272728282828282828282929292929292a2a2a;
   defparam B332.INIT_07 =
256'h23232323232324242424242424242424252525252525252525252526262626;
   defparam B332.INIT_08 =
256'h2020202121212121212121212121212122222222222222222222222323232323;
   defparam B332.INIT_09 =
256'h1e1e1e1e1e1e1e1e1e1e1e1f1f1f1f1f1f1f1f1f1f1f1f2020202020202020;
   defparam B332.INIT_0A =
256'h1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1d1d1d1d1d1d1d1d1d1d1d1d1d1d1e1e;
   defparam B332.INIT_0B =
256'h1a1a1a1a1a1a1a1a1a1a1a1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b;
   defparam B332.INIT_0C =
256'h1919191919191919191919191a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a1a;
   defparam B332.INIT_0D =
256'h1919191919191919191919191919191919191919191919191919191919191919;
   defparam B332.INIT_0E =
256'h1818181818181818181818181818181818181818181818191919191919191919;
   defparam B332.INIT_0F =
256'h1616171717171717171717171717171717171717171717171818181818181818;
   defparam B332.INIT_10 =
256'h1414141415151515151515151515151515151516161616161616161616161616;
   defparam B332.INIT_11 =
256'h1212121212121212121212121313131313131313131313131414141414141414;
   defparam B332.INIT_12 =
256'h0e0e0f0f0f0f0f0f0f0f0f0f101010101010101010101011111111111111111111;
   defparam B332.INIT_13 =
256'h0b0b0b0b0b0b0b0c0c0c0c0c0c0c0c0c0d0d0d0d0d0d0d0d0d0e0e0e0e0e0e0e;
   defparam B332.INIT_14 =
256'h07070707070707080808080808080809090909090909090a0a0a0a0a0a0a0b;
   defparam B332.INIT_15 =
256'h0304040404040404040404040505050505050505050506060606060606060606070707;
   defparam B332.INIT_16 =
256'h0101010101010101010102020202020202020202020202030303030303030303;
   defparam B332.INIT_17 =
256'hfefefeffffffffffffffffffffffffff00000000000000000000000000010101;
   defparam B332.INIT_18 =
256'hfbfbfcfcfcfcfcfcfcfcfcfcfcfdfdfdfdfdfdfdfdfdfdfefefefefefefefefe;
   defparam B332.INIT_19 =
256'hf8f8f8f8f8f9f9f9f9f9f9f9f9fafafafafafafafafafafafbfbfbfbfbfbfbfb;
   defparam B332.INIT_1A =
256'hf5f5f5f6f6f6f6f6f6f6f6f6f6f6f6f6f7f7f7f7f7f7f7f7f7f7f7f8f8f8f8f8;
   defparam B332.INIT_1B =
256'hf4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f4f5f5f5f5f5f5f5f5f5f5;
   defparam B332.INIT_1C =
256'hf3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f3f4;
   defparam B332.INIT_1D =
256'hf1f1f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2f2;
   defparam B332.INIT_1E =
256'hf0f0f0f0f0f0f0f0f0f0f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1f1;
   defparam B332.INIT_1F =
256'heeeeeeeeeeeeeeeeeeeeeeefefefefefefefefefefefefefefefeff0f0f0f0f0;
   defparam B332.INIT_20 =
256'heaebebebebebebebebebebecececececececececececedededededededededededee;
   defparam B332.INIT_21 =
256'he6e6e6e7e7e7e7e7e7e7e8e8e8e8e8e8e8e8e9e9e9e9e9e9e9eaeaeaeaeaeaea;
   defparam B332.INIT_22 =
256'he1e1e1e2e2e2e2e2e2e3e3e3e3e3e3e3e4e4e4e4e4e4e5e5e5e5e5e5e5e6e6e6;
   defparam B332.INIT_23 =
256'hdddddddddddddddddededededededefdfdfdfdfde0e0e0e0e0e0e0e0e1e1e1e1;
   defparam B332.INIT_24 =
256'hd8d9d9d9d9d9d9d9d9dadadadadadadadadbdbdbdbdbdbdbdbdcdcdcdcdcdcdc;
   defparam B332.INIT_25 =
256'hd5d5d5d5d5d5d5d6d6d6d6d6d6d6d6d6d7d7d7d7d7d7d7d7d8d8d8d8d8d8d8d8;
   defparam B332.INIT_26 =
256'hd1d1d1d2d2d2d2d2d2d2d2d2d3d3d3d3d3d3d3d3d3d4d4d4d4d4d4d4d4d4d5d5;
   defparam B332.INIT_27 =
256'hcfcfcfcfcfcfcfcfcfcfcfcfcfcfd0d0d0d0d0d0d0d0d0d0d0d1d1d1d1d1d1d1;
   defparam B332.INIT_28 =
256'hcdcdcdcdcdcdcdcdcdcdcdcdcecececececececececececececececececececf;
   defparam B332.INIT_29 =
256'hcecececdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcdcd;
   defparam B332.INIT_2A =
256'hd0d0cfcfcfcfcfcfcfcfcfcfcfcfcfcececececececececececececececececece;
   defparam B332.INIT_2B =
256'hd3d3d3d3d3d3d3d2d2d2d2d2d2d2d1d1d1d1d1d1d1d1d1d0d0d0d0d0d0d0d0d0;
   defparam B332.INIT_2C =
256'hd9d9d8d8d8d8d8d7d7d7d7d7d7d6d6d6d6d6d6d5d5d5d5d5d5d4d4d4d4d4d4d3;
   defparam B332.INIT_2D =
256'he0e0e0dfdfdfdfdededededddddddddddcdcdcdcdbdbdbdbdadadadadad9d9d9;
   defparam B332.INIT_2E =
256'he9e9e9e8e8e8e7e7e7e7e6e6e6e5e5e5e5e4e4e4e3e3e3e3e2e2e2e2e1e1e1e0;
   defparam B332.INIT_2F =
256'hf4f3f3f3f2f2f2f1f1f1f0f0f0efefefeeeeeeedededecececebebebebeaeaea;
   defparam B332.INIT_30 =
256'hfffefefefdfdfdfcfcfcfbfbfafafaf9f9f9f8f8f8f7f7f7f6f6f6f5f5f5f4f4;
   defparam B332.INIT_31 =
256'h090909080808070707060606050505040404030303020202010101000000ffff;
   defparam B332.INIT_32 =
256'h14141313131212121111111010100f0f0f0e0e0e0d0d0d0c0c0c0b0b0b0a0a0a;
   defparam B332.INIT_33 =
256'h1f1e1e1e1d1d1d1c1c1c1b1b1b1a1a1a19191918181817171716161615151514;
   defparam B332.INIT_34 =
256'h2929282828272727262626252525242424232323222222222121212020201f1f;
   defparam B332.INIT_35 =
256'h3434333333323232313131303030 2f2f2f2e2e2e2d2d2d2c2c2b2b2b2a2a2a29;
   defparam B332.INIT_36 =
256'h3e3e3e3d3d3d3c3c3c3b3b3b3a3a3a3939393838383737373636363535353534;
   defparam B332.INIT_37 =
256'h4848474747464646454545444444444343434342424241414140404040 3f3f3f3f;
   defparam B332.INIT_38 =
256'h5151505050504f4f4f4e4e4e4e4d4d4d4d4c4c4c4b4b4b4b4a4a4a4949494848;
   defparam B332.INIT_39 =
256'h5959595958585857575757565656565555555554545454535353535252525151;
   defparam B332.INIT_3A =
256'h61616161606060605f5f5f5f5e5e5e5e5d5d5d5d5c5c5c5c5b5b5b5b5a5a5a5a;
   defparam B332.INIT_3B =
256'h6868686767676767666666666666656565656464646464636363636262626261;
   defparam B332.INIT_3C =
256'h6e6e6e6e6e6d6d6d6d6d6c6c6c6c6c6b6b6b6b6b6a6a6a6a6a69696969696868;
   defparam B332.INIT_3D =
256'h74747373737373737272727272727171717171717070707070706f6f6f6f6f6e;
   defparam B332.INIT_3E =
256'h7878787878787877777777777777777676767676767675757575757574747474;
   defparam B332.INIT_3F =
256'h7b7b7b7b7b7b7b7b7a7a7a7a7a7a7a7a7a7a7a79797979797979797979797978;
   defparam B332.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INITP_02 =
256'hffff000000000000000000000000000000000000000000000000000000000000;
   defparam B332.INITP_03 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_04 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_05 = 256'hffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff;
   defparam B332.INITP_06 =
256'h000000000000000000000000000000000000000000000000000000003fffffff;
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   defparam B332.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B332.WRITE_MODE = "WRITE_FIRST";
   defparam B332.INIT = 12'h000;
   defparam B332.SRVAL = 12'h000;
   RAMB16_S9 B332 (
      .EN(N7946),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N7970}),
      .DO({N7971, N7972, N7973, N7974, N7975, N7976, N7977, N7978}),
      .DIP({N0})
   );
   defparam B335.INIT_00 =
256'h7b7b7b7b7c7c7c7c7c7c7c7c7c7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b;
   defparam B335.INIT_01 =
256'h7a7a7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b;
   defparam B335.INIT_02 =
256'h797979797979797979797979797a7a7a7a7a7a7a7a7a7a7a7a7a7a7a7a7a7a7a;
   defparam B335.INIT_03 =
256'h7777777777777778787878787878787878787878787878787878797979797979;
   defparam B335.INIT_04 =
256'h7575757575757575757676767676767676767676767676767777777777777777;
   defparam B335.INIT_05 =
256'h7272727273737373737373737373737374747474747474747474747475757575;
   defparam B335.INIT_06 =
256'h6f6f6f6f707070707070707070707070717171717171717171717272727272727272;
   defparam B335.INIT_07 =
256'h6c6c6d6d6d6d6d6d6d6d6d6d6e6e6e6e6e6e6e6e6e6e6e6e6e6f6f6f6f6f6f6f;
   defparam B335.INIT_08 =
256'h6a6a6a6a6a6a6a6a6a6a6b6b6b6b6b6b6b6b6b6b6b6b6b6c6c6c6c6c6c6c6c6c;
   defparam B335.INIT_09 =
256'h676767676868686868686868686868686868696969696969696969696969696a;
   defparam B335.INIT_0A =
256'h6666666666666666666666666666666666666666666767676767676767676767;
   defparam B335.INIT_0B =
256'h6666656565656565656565656565656565656565656565666666666666666666;
   defparam B335.INIT_0C =
256'h6666666666666666666666666666666666666666666666666666666666666666;
   defparam B335.INIT_0D =
256'h6868686868686868686868676767676767676767676767676767676767676766;
   defparam B335.INIT_0E =
256'h6a6a6a6a6a696969696969696969696969696969696969686868686868686868;
   defparam B335.INIT_0F =
256'h6c6c6c6c6c6c6c6c6c6c6c6c6b6b6b6b6b6b6b6b6b6b6b6b6a6a6a6a6a6a6a6a;
   defparam B335.INIT_10 =
256'h70707070706f6f6f6f6f6f6f6f6e6e6e6e6e6e6e6e6e6d6d6d6d6d6d6d6d6d6d;
   defparam B335.INIT_11 =
256'h7474747474747474737373737373737272727272727271717171717171717070;
   defparam B335.INIT_12 =
256'h7a797979797979787878787878777777777777767676767676767575757575 75;
   defparam B335.INIT_13 =
256'h807f7f7f7f7f7e7e7e7e7e7d7d7d7d7d7d7c7c7c7c7c7b7b7b7b7b7b7a7a7a7a;
   defparam B335.INIT_14 =
256'h8686858585858585848484848483838383838382828282828181818181808080;
   defparam B335.INIT_15 =
256'h8c8c8c8b8b8b8b8b8a8a8a8a8a8a898989898988888888888787878787868686;
   defparam B335.INIT_16 =
256'h90909090909090908f8f8f8f8f8f8f8e8e8e8e8e8e8e8d8d8d8d8d8d8d8c8c8c;
   defparam B335.INIT_17 =
256'h9393929292929292929292929292929292929292929291919191919191919191;
   defparam B335.INIT_18 =
256'h9292929292929292929292929393939393939393939393939393939393939393;
   defparam B335.INIT_19 =
256'h8f8f8f8f8f9090909090909090909191919191919191919191919292929292 92;
   defparam B335.INIT_1A =
256'h89898a8a8a8a8a8a8b8b8b8b8b8b8c8c8c8c8c8d8d8d8d8d8d8e8e8e8e8e8e8f;
   defparam B335.INIT_1B =
256'h8282828283838383848484848585858585868686868787878788888888898989;
   defparam B335.INIT_1C =
256'h78787979797a7a7a7b7b7b7b7c7c7c7d7d7d7e7e7e7e7f7f7f80808080818181;
   defparam B335.INIT_1D =
256'h6d6e6e6e6f6f6f707070717171727272737373747474757575767676777777 78;
   defparam B335.INIT_1E =
256'h62636363646464656565666666676768686869696 96a6a6a6b6b6b6c6c6c6d6d;
   defparam B335.INIT_1F =
256'h57575858585959595a5a5b5b5b5c5c5c5d5d5d5e5e5e5f5f6060606161616262;
   defparam B335.INIT_20 =
256'h4b4c4c4c4d4d4d4e4e4f4f4f5050505151525252535353545454555555565657;
   defparam B335.INIT_21 =
256'h3f404040414142424243434344444545454646464747484848494949 4a4a4b4b;
   defparam B335.INIT_22 =
256'h34343435353636363737373838383939393a3a3b3b3b3c3c3c3d3d3e3e3e3f3f;
   defparam B335.INIT_23 =
256'h29292a2a2a2b2b2b2c2c2c2d2d2d2e2e2e2f2f2f303030313131323232333333;
   defparam B335.INIT_24 =
256'h2021212121222222222323232324242424252525262626262727272828282829;
   defparam B335.INIT_25 =
256'h1a1a1b1b1b1b1b1b1c1c1c1c1c1c1d1d1d1d1d1e1e1e1e1e1f1f1f1f1f202020;
   defparam B335.INIT_26 =
256'h1718181818181818181818181818181818191919191919191919191a1a1a1a1a;
   defparam B335.INIT_27 =
256'h1717171717171717171717171717171717171717171717171717171717171717;
   defparam B335.INIT_28 =
256'h1a1a1919191919191919191919191918181818181818181818181818181818;
   defparam B335.INIT_29 =
256'h1e1d1d1d1d1d1d1c1c1c1c1c1c1c1c1b1b1b1b1b1b1b1b1a1a1a1a1a1a1a1a1a;
   defparam B335.INIT_2A =
256'h232322222222222222222121212121212020202020201f1f1f1f1f1e1e1e1e1e;
   defparam B335.INIT_2B =
256'h2928282828282827272727272726262626262525252525252424242424232323;
   defparam B335.INIT_2C =
256'h2e2e2e2e2e2d2d2d2d2d2d2c2c2c2c2c2c2b2b2b2b2b2a2a2a2a2a2929292929;
   defparam B335.INIT_2D =
256'h3434343433333333333332323232323231313131313030303030302f2f2f2f2f2f;
   defparam B335.INIT_2E =
256'h3a3a3a3a39393939393838383838373737373737363636363635353535353434;
   defparam B335.INIT_2F =
256'h41414040404040403f3f3f3f3f3e3e3e3e3e3d3d3d3d3c3c3c3c3c3b3b3b3b3b3a;
   defparam B335.INIT_30 =
256'h4746464646464645454545454544444444444443434343434342424242424141;
   defparam B335.INIT_31 =
256'h4b4a4a4a4a4a4a4a4a4a49494949494949494848484848484848484747474747;
   defparam B335.INIT_32 =
256'h4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4b4b4b4b4b4b4b4b4b4b4b4b4b4b;
   defparam B335.INIT_33 =
256'h4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c4c;
   defparam B335.INIT_34 =
256'h49494a4a4a4a4a4a4a4a4a4a4a4a4a4b4b4b4b4b4b4b4b4b4b4b4b4b4b4b4b4c;
   defparam B335.INIT_35 =
256'h4646464646464647474747474747474848484848484848484849494949494949;
   defparam B335.INIT_36 =
256'h4141424242424242424243434343434343444444444444444445454545454546;
   defparam B335.INIT_37 =
256'h3d3d3d3d3e3e3e3e3e3e3e3e3f3f3f3f3f3f3f40404040404040404141414141;
   defparam B335.INIT_38 =
256'h3a3a3a3a3a3b3b3b3b3b3b3b3b3b3b3b3c3c3c3c3c3c3c3c3c3c3c3d3d3d3d3d;
   defparam B335.INIT_39 =
256'h38383838383838383939393939393939393939393939393939393a3a3a3a3a3a3a;
   defparam B335.INIT_3A =
256'h3636363637373737373737373737373737373737373737373737383838383838383838;
   defparam B335.INIT_3B =
256'h3535353535353535353535353535363636363636363636363636363636363636;
   defparam B335.INIT_3C =
256'h3535353535353535353535353535353535353535353535353535353535353535;
   defparam B335.INIT_3D =
256'h3636363636353535353535353535353535353535353535353535353535353535;
   defparam B335.INIT_3E =
256'h3838383838373737373737373737373737373736363636363636363636363636;
   defparam B335.INIT_3F =
256'h3b3b3b3a3a3a3a3a3a3a3a3a3a393939393939393939393939383838383838383838;
   defparam B335.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B335.WRITE_MODE = "WRITE_FIRST";
   defparam B335.INIT = 12'h000;
   defparam B335.SRVAL = 12'h000;
   RAMB16_S9 B335 (
      .EN(N7945),
      .CLK(clk),
      .WE(N0),
      .SSR(N0),
      .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
      .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5],
addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
      .DOP({N7961}),
      .DO({N7962, N7963, N7964, N7965, N7966, N7967, N7968, N7969}),
      .DIP({N0})
   );
   defparam B338.INIT_00 =
256'h3e3e3e3e3e3e3e3e3d3d3d3d3d3d3d3d3d3c3c3c3c3c3c3c3c3c3b3b3b3b3b3b;
   defparam B338.INIT_01 =
256'h4343434242424242424241414141414141404040404040403f3f3f3f3f3f3f3f;
   defparam B338.INIT_02 =
256'h4848484847474747474746464646464645454545454544444444444443434343;
   defparam B338.INIT_03 =
256'h4e4e4e4e4e4d4d4d4d4d4c4c4c4c4c4b4b4b4b4b4a4a4a4a4a49494949494948;
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   defparam B338.INIT_04 =
256'h5555555454545454545353535353525252525251515151515050505050504f4f4f4f;
   defparam B338.INIT_05 =
256'h5c5c5b5b5b5b5b5a5a5a5a5a5959595958585858585757575757565656565555;
   defparam B338.INIT_06 =
256'h626262626261616161616060606060605f5f5f5f5e5e5e5e5e5d5d5d5d5c5c5c;
   defparam B338.INIT_07 =
256'h6968686868686767676767676666666666666565656565646464646463636363;
   defparam B338.INIT_08 =
256'h6e6e6e6e6e6e6d6d6d6d6d6c6c6c6c6c6b6b6b6b6b6b6a6a6a6a6a6a69696969;
   defparam B338.INIT_09 =
256'h747474747373737373737272727272717171717171707070707070706f6f6f6f6f;
   defparam B338.INIT_0A =
256'h7a7a7a7a7a797979797978787878787777777777777676767676757575757574;
   defparam B338.INIT_0B =
256'h82818181818080808080807f7f7f7f7f7e7e7e7e7d7d7d7d7d7c7c7c7c7b7b7b7b7b;
   defparam B338.INIT_0C =
256'h8a8a8a89898989888888888787878686868686858585848484848383838282 82;
   defparam B338.INIT_0D =
256'h939393929292929291919190909090908f8f8e8e8e8e8d8d8d8c8c8c8c8b8b8b8a;
   defparam B338.INIT_0E =
256'h9c9c9c9b9b9b9b9a9a9a9a999999999898989797979696969695959594949494;
   defparam B338.INIT_0F =
256'ha4a4a4a3a3a3a3a2a2a2a2a1a1a1a1a0a0a0a09f9f9f9f9e9e9e9e9d9d9d9d9c;
   defparam B338.INIT_10 =
256'habaaaaaaaaaaaaaaa9a9a9a9a8a8a8a8a8a7a7a7a7a6a6a6a6a6a5a5a5a5a5a4;
   defparam B338.INIT_11 =
256'hb0b0b0b0afafafafafafaeaeaeaeaeaeadadadadadadacacacacacacabababab;
   defparam B338.INIT_12 =
256'hb4b4b4b4b4b4b3b3b3b3b3b3b3b3b2b2b2b2b2b2b2b2b1b1b1b1b1b1b1b0b0b0;
   defparam B338.INIT_13 =
256'hb8b8b7b7b7b7b7b7b7b7b7b7b6b6b6b6b6b6b6b6b6b5b5b5b5b5b5b5b5b5b4b4;
   defparam B338.INIT_14 =
256'hbbbbbbbabababababababababababab9b9b9b9b9b9b9b9b9b9b8b8b8b8b8b8b8b8;
   defparam B338.INIT_15 =
256'hbdbdbdbdbdbdbdbdbdbdbdbdbcbcbcbcbcbcbcbcbcbcbbbbbbbbbbbbbbbbbbbb;
   defparam B338.INIT_16 =
256'hbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbfbebebebebebebebebebebebebebebebd;
   defparam B338.INIT_17 =
256'hc1c1c1c1c1c1c1c1c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0;
   defparam B338.INIT_18 =
256'hc1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1c1;
   defparam B338.INIT_19 =
256'hbfbfbfc0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c0c1c1c1c1c1c1;
   defparam B338.INIT_1A =
256'hbdbdbdbebebebebebebebebebebebebebebebebebfbfbfbfbfbfbfbfbfbfbfbf;
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   defparam B338.INIT_1B =
256'hbbbbbcbcbcbcbcbcbcbcbcbcbcbcbcbcbcbcbcbcbdbdbdbdbdbdbdbdbdbdbdbdbd;
   defparam B338.INIT_1C =
256'hbabababababababababababababbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb;
   defparam B338.INIT_1D =
256'hb9b9b9b9b9b9b9b9b9b9b9b9babababababababababababababababababababababa;
   defparam B338.INIT_1E =
256'hb8b8b8b8b8b8b8b8b8b8b8b8b8b9b9b9b9b9b9b9b9b9b9b9b9b9b9b9b9b9b9b9b9;
   defparam B338.INIT_1F =
256'hb6b6b6b6b6b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b7b8b8b8b8b8b8b8b8b8;
   defparam B338.INIT_20 =
256'hb4b4b4b4b4b5b5b5b5b5b5b5b5b5b5b5b5b5b5b5b5b5b6b6b6b6b6b6b6b6b6b6;
   defparam B338.INIT_21 =
256'hb2b2b2b2b2b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b3b4b4b4b4b4b4b4b4b4;
   defparam B338.INIT_22 =
256'hb0b0b0b0b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b1b2b2b2b2b2b2b2b2b2b2b2b2;
   defparam B338.INIT_23 =
256'hadaeaeaeaeaeaeaeaeaeaeaeafafafafafafafafafafafafb0b0b0b0b0b0b0b0;
   defparam B338.INIT_24 =
256'haaaaaaababababababababababacacacacacacacacacacadadadadadadadadadad;
   defparam B338.INIT_25 =
256'ha7a7a7a7a7a7a7a8a8a8a8a8a8a8a8a8a8a8a9a9a9a9a9a9a9a9aaaaaaaaaaaa;
   defparam B338.INIT_26 =
256'ha3a3a4a4a4a4a4a4a4a4a4a5a5a5a5a5a5a5a5a5a5a6a6a6a6a6a6a6a6a6a7a7;
   defparam B338.INIT_27 =
256'ha0a0a0a1a1a1a1a1a1a1a1a1a1a1a2a2a2a2a2a2a2a2a2a2a3a3a3a3a3a3a3a3;
   defparam B338.INIT_28 =
256'h9e9e9e9e9e9e9e9e9e9e9e9e9e9f9f9f9f9f9f9f9f9f9f9f9fa0a0a0a0a0a0a0;
   defparam B338.INIT_29 =
256'h9b9b9b9b9c9c9c9c9c9c9c9c9c9c9c9c9c9d9d9d9d9d9d9d9d9d9d9d9d9d9d9d;
   defparam B338.INIT_2A =
256'h999a9a9a9a9a9a9a9a9a9a9a9a9a9a9a9a9a9b9b9b9b9b9b9b9b9b9b9b9b9b9b;
   defparam B338.INIT_2B =
256'h98989898989898989898989898999999999999999999999999999999999999999;
   defparam B338.INIT_2C =
256'h96969696969696969696969696979797979797979797979797979797979797989898;
   defparam B338.INIT_2D =
256'h939494949494949494949494949494959595959595959595959595959595959696;
   defparam B338.INIT_2E =
256'h919191929292929292929292929292929292939393939393939393939393939393;
   defparam B338.INIT_2F =
256'h8f8f8f90909090909090909090909090909090919191919191919191919191919191;
   defparam B338.INIT_30 =
256'h8d8d8d8d8d8d8e8e8e8e8e8e8e8e8e8e8e8e8e8e8f8f8f8f8f8f8f8f8f8f8f8f;
   defparam B338.INIT_31 =
256'h8b8b8b8b8b8b8b8b8b8b8c8c8c8c8c8c8c8c8c8c8c8c8c8c8c8d8d8d8d8d8d8d;
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   defparam B338.INIT_32 =
256'h8889898989898989898989898989898a8a8a8a8a8a8a8a8a8a8a8a8a8b8b8b8b;
   defparam B338.INIT_33 =
256'h8686868686868687878787878787878787878787888888888888888888888888888;
   defparam B338.INIT_34 =
256'h83838383838383848484848484848484858585858585858585858585868686868686;
   defparam B338.INIT_35 =
256'h7e7e7e7e7e7f7f7f7f7f7f8080808080808181818181818182828282828282828283;
   defparam B338.INIT_36 =
256'h7677777777777878787879797979797a7a7a7a7b7b7b7b7c7c7c7c7c7d7d7d7d;
   defparam B338.INIT_37 =
256'h6d6e6e6e6f6f6f6f70707071717171727272737373737474747475757576767 6;
   defparam B338.INIT_38 =
256'h646465656565666666676767686868686969696a6a6a6b6b6b6b6c6c6c6d6d6d;
   defparam B338.INIT_39 =
256'h5b5b5b5b5c5c5c5d5d5d5e5e5e5e5f5f5f6060606061616162626263636363 64;
   defparam B338.INIT_3A =
256'h5051515152525253535354545455555555565656575757585858595959 5a5a5a;
   defparam B338.INIT_3B =
256'h454545464646474748484849494a4a4a4b4b4b4c4c4c4d4d4e4e4e4f4f4f5050;
   defparam B338.INIT_3C =
256'h373738383939393a3a3b3b3c3c3d3d3d3e3e3f3f404040414142424243434444;
   defparam B338.INIT_3D =
256'h27282829292a2a2b2b2c2c2d2d2e2e2e2f2f3030313132323333343435353636;
   defparam B338.INIT_3E =
256'h16161717181819191a1a1b1b1c1d1d1e1e1f2020212122222324242525262627;
   defparam B338.INIT_3F =
256'h00000102020304040506070809 0a0b0b0c0d0e0f0f1011111212131314141515;
   defparam B338.INITP_00 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.INITP_01 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.INITP_02 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.INITP_03 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.INITP_04 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.INITP_05 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.INITP_06 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.INITP_07 =
256'h0000000000000000000000000000000000000000000000000000000000000000;
   defparam B338.WRITE_MODE = "WRITE_FIRST";
   defparam B338.INIT = 12'h000;
```

```
  defparam B338.SRVAL = 12'h000;
  RAMB16_S9 B338 (
    .EN(N7944),
    .CLK(clk),
    .WE(N0),
    .SSR(N0),
    .DI({N0, N0, N0, N0, N0, N0, N0, N0}),
    .ADDR({addr_2[10], addr_2[9], addr_2[8], addr_2[7], addr_2[6], addr_2[5], addr_2[4], addr_2[3], addr_2[2], addr_2[1], addr_2[0]}),
    .DOP({N7952}),
    .DO({N7953, N7954, N7955, N7956, N7957, N7958, N7959, N7960}),
    .DIP({N0})
  );
  FDE BU342 (
    .CE(N1),
    .C(clk),
    .D(addr_2[11]),
    .Q(N13106)
  );
  FDE BU345 (
    .CE(N1),
    .C(clk),
    .D(addr_2[12]),
    .Q(N13105)
  );
  FDE BU348 (
    .CE(N1),
    .C(clk),
    .D(addr_2[13]),
    .Q(N13104)
  );
  defparam BU354.INIT = 16'hcaca;
  LUT4 BU354 (
    .I0(N8023),
    .I1(N8014),
    .I2(N13106),
    .I3(N0),
    .O(N13543)
  );
  defparam BU358.INIT = 16'hcaca;
  LUT4 BU358 (
    .I0(N8005),
    .I1(N7996),
    .I2(N13106),
    .I3(N0),
    .O(N13544)
```

```
);
MUXF5 BU360 (
   .I0(N13543),
   .I1(N13544),
   .O(N13508),
   .S(N13105)
);
defparam BU365.INIT = 16'hcaca;
LUT4 BU365 (
   .I0(N7987),
   .I1(N7978),
   .I2(N13106),
   .I3(N0),
   .O(N13615)
);
defparam BU369.INIT = 16'hcaca;
LUT4 BU369 (
   .I0(N7969),
   .I1(N7960),
   .I2(N13106),
   .I3(N0),
   .O(N13616)
);
MUXF5 BU371 (
   .I0(N13615),
   .I1(N13616),
   .O(N13510),
   .S(N13105)
);
MUXF6 BU373 (
   .I0(N13508),
   .I1(N13510),
   .O(dout_3[9]),
   .S(N13104)
);
defparam BU379.INIT = 16'hcaca;
LUT4 BU379 (
   .I0(N8022),
   .I1(N8013),
   .I2(N13106),
   .I3(N0),
   .O(N13722)
);
defparam BU383.INIT = 16'hcaca;
LUT4 BU383 (
   .I0(N8004),
   .I1(N7995),
   .I2(N13106),
   .I3(N0),
   .O(N13723)
);
MUXF5 BU385 (
   .I0(N13722),
   .I1(N13723),
   .O(N13687),
   .S(N13105)
);
defparam BU390.INIT = 16'hcaca;
LUT4 BU390 (
   .I0(N7986),
   .I1(N7977),
   .I2(N13106),
   .I3(N0),
   .O(N13794)
);
defparam BU394.INIT = 16'hcaca;
LUT4 BU394 (
   .I0(N7968),
   .I1(N7959),
   .I2(N13106),
   .I3(N0),
   .O(N13795)
);
MUXF5 BU396 (
   .I0(N13794),
   .I1(N13795),
   .O(N13689),
   .S(N13105)
);
MUXF6 BU398 (
   .I0(N13687),
   .I1(N13689),
   .O(dout_3[10]),
   .S(N13104)
);
defparam BU404.INIT = 16'hcaca;
LUT4 BU404 (
   .I0(N8021),
   .I1(N8012),
   .I2(N13106),
   .I3(N0),
   .O(N13901)
```

```
);
defparam BU408.INIT = 16'hcaca;
LUT4 BU408 (
   .I0(N8003),
   .I1(N7994),
   .I2(N13106),
   .I3(N0),
   .O(N13902)
);
MUXF5 BU410 (
   .I0(N13901),
   .I1(N13902),
   .O(N13866),
   .S(N13105)
);
defparam BU415.INIT = 16'hcaca;
LUT4 BU415 (
   .I0(N7985),
   .I1(N7976),
   .I2(N13106),
   .I3(N0),
   .O(N13973)
);
defparam BU419.INIT = 16'hcaca;
LUT4 BU419 (
   .I0(N7967),
   .I1(N7958),
   .I2(N13106),
   .I3(N0),
   .O(N13974)
);
MUXF5 BU421 (
   .I0(N13973),
   .I1(N13974),
   .O(N13868),
   .S(N13105)
);
MUXF6 BU423 (
   .I0(N13866),
   .I1(N13868),
   .O(dout_3[11]),
   .S(N13104)
);
defparam BU429.INIT = 16'hcaca;
LUT4 BU429 (
   .I0(N8020),
   .I1(N8011),
   .I2(N13106),
   .I3(N0),
   .O(N14080)
);
defparam BU433.INIT = 16'hcaca;
LUT4 BU433 (
   .I0(N8002),
   .I1(N7993),
   .I2(N13106),
   .I3(N0),
   .O(N14081)
);
MUXF5 BU435 (
   .I0(N14080),
   .I1(N14081),
   .O(N14045),
   .S(N13105)
);
defparam BU440.INIT = 16'hcaca;
LUT4 BU440 (
   .I0(N7984),
   .I1(N7975),
   .I2(N13106),
   .I3(N0),
   .O(N14152)
);
defparam BU444.INIT = 16'hcaca;
LUT4 BU444 (
   .I0(N7966),
   .I1(N7957),
   .I2(N13106),
   .I3(N0),
   .O(N14153)
);
MUXF5 BU446 (
   .I0(N14152),
   .I1(N14153),
   .O(N14047),
   .S(N13105)
);
MUXF6 BU448 (
   .I0(N14045),
   .I1(N14047),
   .O(dout_3[12]),
   .S(N13104)
```

```
);
defparam BU454.INIT = 16'hcaca;
LUT4 BU454 (
   .I0(N8019),
   .I1(N8010),
   .I2(N13106),
   .I3(N0),
   .O(N14259)
);
defparam BU458.INIT = 16'hcaca;
LUT4 BU458 (
   .I0(N8001),
   .I1(N7992),
   .I2(N13106),
   .I3(N0),
   .O(N14260)
);
MUXF5 BU460 (
   .I0(N14259),
   .I1(N14260),
   .O(N14224),
   .S(N13105)
);
defparam BU465.INIT = 16'hcaca;
LUT4 BU465 (
   .I0(N7983),
   .I1(N7974),
   .I2(N13106),
   .I3(N0),
   .O(N14331)
);
defparam BU469.INIT = 16'hcaca;
LUT4 BU469 (
   .I0(N7965),
   .I1(N7956),
   .I2(N13106),
   .I3(N0),
   .O(N14332)
);
MUXF5 BU471 (
   .I0(N14331),
   .I1(N14332),
   .O(N14226),
   .S(N13105)
);
MUXF6 BU473 (
   .I0(N14224),
   .I1(N14226),
   .O(dout_3[13]),
   .S(N13104)
);
defparam BU479.INIT = 16'hcaca;
LUT4 BU479 (
   .I0(N8018),
   .I1(N8009),
   .I2(N13106),
   .I3(N0),
   .O(N14438)
);
defparam BU483.INIT = 16'hcaca;
LUT4 BU483 (
   .I0(N8000),
   .I1(N7991),
   .I2(N13106),
   .I3(N0),
   .O(N14439)
);
MUXF5 BU485 (
   .I0(N14438),
   .I1(N14439),
   .O(N14403),
   .S(N13105)
);
defparam BU490.INIT = 16'hcaca;
LUT4 BU490 (
   .I0(N7982),
   .I1(N7973),
   .I2(N13106),
   .I3(N0),
   .O(N14510)
);
defparam BU494.INIT = 16'hcaca;
LUT4 BU494 (
   .I0(N7964),
   .I1(N7955),
   .I2(N13106),
   .I3(N0),
   .O(N14511)
);
MUXF5 BU496 (
   .I0(N14510),
   .I1(N14511),
   .O(N14405),
   .S(N13105)
);
MUXF6 BU498 (
   .I0(N14403),
   .I1(N14405),
   .O(dout_3[14]),
   .S(N13104)
);
defparam BU504.INIT = 16'hcaca;
LUT4 BU504 (
   .I0(N8017),
   .I1(N8008),
   .I2(N13106),
   .I3(N0),
   .O(N14617)
);
defparam BU508.INIT = 16'hcaca;
LUT4 BU508 (
   .I0(N7999),
   .I1(N7990),
   .I2(N13106),
   .I3(N0),
   .O(N14618)
);
MUXF5 BU510 (
   .I0(N14617),
   .I1(N14618),
   .O(N14582),
   .S(N13105)
);
defparam BU515.INIT = 16'hcaca;
LUT4 BU515 (
   .I0(N7981),
   .I1(N7972),
   .I2(N13106),
   .I3(N0),
   .O(N14689)
);
defparam BU519.INIT = 16'hcaca;
LUT4 BU519 (
   .I0(N7963),
   .I1(N7954),
   .I2(N13106),
   .I3(N0),
   .O(N14690)
```

```
);
MUXF5 BU521 (
   .I0(N14689),
   .I1(N14690),
   .O(N14584),
   .S(N13105)
);
MUXF6 BU523 (
   .I0(N14582),
   .I1(N14584),
   .O(dout_3[15]),
   .S(N13104)
);
defparam BU529.INIT = 16'hcaca;
LUT4 BU529 (
   .I0(N8016),
   .I1(N8007),
   .I2(N13106),
   .I3(N0),
   .O(N14796)
);
defparam BU533.INIT = 16'hcaca;
LUT4 BU533 (
   .I0(N7998),
   .I1(N7989),
   .I2(N13106),
   .I3(N0),
   .O(N14797)
);
MUXF5 BU535 (
   .I0(N14796),
   .I1(N14797),
   .O(N14761),
   .S(N13105)
);
defparam BU540.INIT = 16'hcaca;
LUT4 BU540 (
   .I0(N7980),
   .I1(N7971),
   .I2(N13106),
   .I3(N0),
   .O(N14868)
);
defparam BU544.INIT = 16'hcaca;
LUT4 BU544 (
   .I0(N7962),
   .I1(N7953),
   .I2(N13106),
   .I3(N0),
   .O(N14869)
);
MUXF5 BU546 (
   .I0(N14868),
   .I1(N14869),
   .O(N14763),
   .S(N13105)
);
MUXF6 BU548 (
   .I0(N14761),
   .I1(N14763),
   .O(dout_3[16]),
   .S(N13104)
);
defparam BU554.INIT = 16'hcaca;
LUT4 BU554 (
   .I0(N8015),
   .I1(N8006),
   .I2(N13106),
   .I3(N0),
   .O(N14975)
);
defparam BU558.INIT = 16'hcaca;
LUT4 BU558 (
   .I0(N7997),
   .I1(N7988),
   .I2(N13106),
   .I3(N0),
   .O(N14976)
);
MUXF5 BU560 (
   .I0(N14975),
   .I1(N14976),
   .O(N14940),
   .S(N13105)
);
defparam BU565.INIT = 16'hcaca;
LUT4 BU565 (
   .I0(N7979),
   .I1(N7970),
   .I2(N13106),
   .I3(N0),
   .O(N15047)
```

```
);
defparam BU569.INIT = 16'hcaca;
LUT4 BU569 (
   .I0(N7961),
   .I1(N7952),
   .I2(N13106),
   .I3(N0),
   .O(N15048)
);
MUXF5 BU571 (
   .I0(N15047),
   .I1(N15048),
   .O(N14942),
   .S(N13105)
);
MUXF6 BU573 (
   .I0(N14940),
   .I1(N14942),
   .O(dout_3[17]),
   .S(N13104)
);
defparam BU589.INIT = 16'h0100;
LUT4 BU589 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N7951)
);
defparam BU594.INIT = 16'h1000;
LUT4 BU594 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N7950)
);
defparam BU599.INIT = 16'h0400;
LUT4 BU599 (
   .I0(addr_2[13]),
   .I1(addr_2[12]),
   .I2(addr_2[11]),
   .I3(N1),
   .O(N7949)
);
defparam BU604.INIT = 16'h4000;
```

```
  LUT4 BU604 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N7948)
  );
  defparam BU609.INIT = 16'h0200;
  LUT4 BU609 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N7947)
  );
  defparam BU614.INIT = 16'h2000;
  LUT4 BU614 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N7946)
  );
  defparam BU619.INIT = 16'h0800;
  LUT4 BU619 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N7945)
  );
  defparam BU624.INIT = 16'h8000;
  LUT4 BU624 (
    .I0(addr_2[13]),
    .I1(addr_2[12]),
    .I2(addr_2[11]),
    .I3(N1),
    .O(N7944)
  );

// synopsys translate_on

endmodule

// synopsys translate_off
```

```
`timescale   1 ps / 1 ps

module glbl ();

    parameter ROC_WIDTH = 100000;
    parameter TOC_WIDTH = 0;

    wire GSR;
    wire GTS;
    wire PRLD;

    reg GSR_int;
    reg GTS_int;
    reg PRLD_int;

//--------    JTAG Globals --------------
    wire JTAG_TDO_GLBL;
    wire JTAG_TCK_GLBL;
    wire JTAG_TDI_GLBL;
    wire JTAG_TMS_GLBL;
    wire JTAG_TRST_GLBL;

    reg JTAG_CAPTURE_GLBL;
    reg JTAG_RESET_GLBL;
    reg JTAG_SHIFT_GLBL;
    reg JTAG_UPDATE_GLBL;

    reg JTAG_SEL1_GLBL = 0;
    reg JTAG_SEL2_GLBL = 0 ;
    reg JTAG_SEL3_GLBL = 0;
    reg JTAG_SEL4_GLBL = 0;

    reg JTAG_USER_TDO1_GLBL = 1'bz;
    reg JTAG_USER_TDO2_GLBL = 1'bz;
    reg JTAG_USER_TDO3_GLBL = 1'bz;
    reg JTAG_USER_TDO4_GLBL = 1'bz;

    assign (weak1, weak0) GSR = GSR_int;
    assign (weak1, weak0) GTS = GTS_int;
    assign (weak1, weak0) PRLD = PRLD_int;

    initial begin
       GSR_int = 1'b1;
       PRLD_int = 1'b1;
       #(ROC_WIDTH)
       GSR_int = 1'b0;
```

```
        PRLD_int = 1'b0;
    end

    initial begin
        GTS_int = 1'b1;
        #(TOC_WIDTH)
        GTS_int = 1'b0;
    end

endmodule

// synopsys translate_on
```