```
SUBDESIGN cnt_reg
(
    we/re, write_strobe, reset      : INPUT;
    ad[2..0]                : INPUT;
    dw[69..0]               : output;
    pipe_depth[7..0]        : output;
    data_in[31..0]          : INPUT;
    data_out[31..0]         : OUTPUT;
)
VARIABLE
    dw[69..0]           :dffe;
    pipe_depth[7..0]    :dff;
BEGIN
    dw[].clk = !write_strobe;
    pipe_depth[].clk = !write_strobe;
    dw[69..0].clrn = !reset;
    Pipe_depth[3..0].prn = !reset;
    Pipe_depth[7..4].clrn = !reset;

IF we/re THEN

    CASE ad[2..0] IS
        WHEN b"000" =>
            dw[23..0].ena=vcc;
            dw[69..24].ena=gnd;
            dw[23..0].d=data_in[23..0];
        WHEN b"001" =>
            dw[23..0].ena=gnd;
            dw[47..24].ena=vcc;
            dw[69..48].ena=gnd;
            dw[47..24].d=data_in[23..0];
        WHEN b"010" =>
            dw[47..0].ena=gnd;
            dw[58..48].ena=vcc;
            dw[69..59].ena=gnd;
            dw[58..48].d=data_in[10..0];
        WHEN b"011" =>
            dw[58..0].ena=gnd;
            dw[69..59].ena=vcc;
            dw[69..59].d=data_in[10..0];
        when b"100" =>
            pipe_depth[7..0].d = data_in[7..0];
    end case;

ELSE

    CASE ad[2..0] IS
        WHEN b"000" =>
            data_out[23..0]=dw[23..0];
            data_out[31..24]=gnd;
        WHEN b"001" =>
            data_out[23..0]=dw[47..24];
            data_out[31..24]=gnd;
        WHEN b"010" =>
            data_out[10..0]=dw[58..48];
            data_out[31..11]=gnd;
        WHEN b"011" =>
            data_out[10..0]=dw[69..59];
            data_out[31..11]=gnd;
        when b"100" =>
            data_out[7..0] = pipe_depth[7..0];
            data_out[31..8]=gnd;
    end case;
```

```
END IF;
END;
```