```
Script started on Wed Dec 17 03:34:28 1997
corvina% crystal alufin.sim
Crystal, v.2
: build alufin.sim
[0:00.3u 0:00.4s 72k]
: source alufin.cryvec
: options graphics magic units 0.6
[0:00.0u 0:00.0s 81k]
: inputs asc y0 cin x0
cin isn't in table!
[0:00.0u 0:00.0s 81k]
: outputs not3 as3 and3 co3
[0:00.0u 0:00.0s 81k]
: delay asc -1 0
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
More than 5 transistors in series, see b1 (see source at 796,-
367).
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367).
No more messages of this kind will be printed.....
(8846 stages examined.)
[0:05.0u 0:00.0s 151k]
: critical
Node b3 is driven high at 262.65ns
      ...through fet at (744, -497) to j_pclatch_0/j_pcbit_3/6
_4_15#
      ...through fet at (736, -498) to in3
      ...through fet at (660, -429) to out3
      ...through fet at (510, -492) to as3
      ...through fet at (178, -354) to all_3/xor2_0/6_58_35#
      ...through fet at (159, -330) to Vdd after
    cin3 is driven low at 181.12ns
      ...through fet at (169, -291) to co2
      ...through fet at (94, -287) to GND after
    all_2/or3_0/6_39_47# is driven high at 176.73ns
      ...through fet at (75, -266) to all_2/or3_0/6_8_11#
      ...through fet at (71, -266) to all_2/or3_0/6_11_11#
      ...through fet at (62, -266) to Vdd after
    and2 is driven low at 173.91ns
      ...through fet at (21, -220) to GND after
    all_2/and_0/nand_0/NAND_OUT is driven high at 173.10ns
      ...through fet at (3, -235) to Vdd after
    not2 is driven low at 172.42ns
      ...through fet at (12, -193) to all_2/xor_0/6_39_23#
      ...through fet at (12, -200) to GND after
    y2 is driven high at 167.45ns
      ...through fet at (-156, -329) to Vdd after
    j_buff_0/j_latch_2/6_58_35# is driven low at 165.96ns
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      ...through fet at (-187, -301) to GND after
    j_buff_0/j_latch_2/6_6_35# is driven high at 165.42ns
      ...through fet at (-215, -303) to b2
      ...through fet at (796, -450) to j_pclatch_0/j_pcbit_2/n
orhell_0/6_13_14#
      ...through fet at (796, -454) to Vdd after
    j_pclatch_0/j_pcbit_2/6_58_27# is driven low at 158.57ns
      ...through fet at (765, -413) to GND after
    j_pclatch_0/j_pcbit_2/6_4_15# is driven high at 158.06ns
      ...through fet at (736, -421) to in2
      ...through fet at (660, -416) to out2
      ...through fet at (510, -403) to as2
      ...through fet at (178, -239) to all_2/xor2_0/6_58_35#
      ...through fet at (183, -256) to Vdd after
    all_2/abar is driven low at 126.52ns
      ...through fet at (121, -221) to GND after
    cin2 is driven high at 126.01ns
      ...through fet at (205, -143) to co1
      ...through fet at (430, -322) to out1
      ...through fet at (510, -322) to as1
      ...through fet at (178, -54) to all_1/xor2_0/6_58_35#
      ...through fet at (183, -37) to Vdd after
    all_1/abar is driven low at 68.68ns
      ...through fet at (121, -72) to GND after
    cin1 is driven high at 68.17ns
      ...through fet at (156, 9) to conot
      ...through fet at (430, -233) to out0
      ...through fet at (510, -233) to as0
      ...through fet at (178, 61) to midxor
      ...through fet at (159, 37) to Vdd after
    bbar is driven low at 10.44ns
      ...through fet at (135, 72) to GND after
    xor0 is driven high at 10.06ns
      ...through fet at (161, 118) to all_0/xor_1/6_27_28#
      ...through fet at (142, 142) to Vdd after
    all_0/xor_1/BBAR is driven low at 6.19ns
      ...through fet at (118, 107) to GND after
    not0 is driven high at 5.83ns
      ...through fet at (27, 124) to all_0/xor_0/6_27_28#
      ...through fet at (18, 142) to Vdd after
    asc is driven low at 0.00ns
[0:00.0u 0:00.0s 151k]
: clear
[0:00.0u 0:00.0s 151k]
: delay asc 0 -1
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
(11284 stages examined.)
[0:05.3u 0:00.0s 189k]
: critical
Node b3 is driven high at 264.09ns
      ...through fet at (744, -497) to j_pclatch_0/j_pcbit_3/6
_4_15#
      ...through fet at (736, -498) to in3
      ...through fet at (660, -429) to out3
      ...through fet at (510, -492) to as3
      ...through fet at (178, -354) to all_3/xor2_0/6_58_35#
      ...through fet at (159, -330) to Vdd after
    cin3 is driven low at 182.56ns
      ...through fet at (169, -291) to co2
      ...through fet at (94, -287) to GND after
    all_2/or3_0/6_39_47# is driven high at 178.17ns
      ...through fet at (75, -266) to all_2/or3_0/6_8_11#
      ...through fet at (71, -266) to all_2/or3_0/6_11_11#
      ...through fet at (62, -266) to Vdd after
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    and2 is driven low at 175.35ns
      ...through fet at (21, -220) to GND after
    all_2/and_0/nand_0/NAND_OUT is driven high at 174.55ns
      ...through fet at (3, -235) to Vdd after
    not2 is driven low at 173.86ns
      ...through fet at (12, -193) to all_2/xor_0/6_39_23#
      ...through fet at (12, -200) to GND after
    y2 is driven high at 168.89ns
      ...through fet at (-156, -329) to Vdd after
    j_buff_0/j_latch_2/6_58_35# is driven low at 167.40ns
      ...through fet at (-187, -301) to GND after
    j_buff_0/j_latch_2/6_6_35# is driven high at 166.86ns
      ...through fet at (-215, -303) to b2
      ...through fet at (796, -450) to j_pclatch_0/j_pcbit_2/n
orhell_0/6_13_14#
      ...through fet at (796, -454) to Vdd after
    j_pclatch_0/j_pcbit_2/6_58_27# is driven low at 160.01ns
      ...through fet at (765, -413) to GND after
    j_pclatch_0/j_pcbit_2/6_4_15# is driven high at 159.51ns
      ...through fet at (736, -421) to in2
      ...through fet at (660, -416) to out2
      ...through fet at (510, -403) to as2
      ...through fet at (178, -239) to all_2/xor2_0/6_58_35#
      ...through fet at (183, -256) to Vdd after
    all_2/abar is driven low at 127.96ns
      ...through fet at (121, -221) to GND after
    cin2 is driven high at 127.45ns
      ...through fet at (205, -143) to co1
      ...through fet at (430, -322) to out1
      ...through fet at (510, -322) to as1
      ...through fet at (178, -54) to all_1/xor2_0/6_58_35#
      ...through fet at (183, -37) to Vdd after
    all_1/abar is driven low at 70.12ns
      ...through fet at (121, -72) to GND after
    cin1 is driven high at 69.61ns
      ...through fet at (156, 9) to conot
      ...through fet at (430, -233) to out0
      ...through fet at (510, -233) to as0
      ...through fet at (178, 61) to midxor
      ...through fet at (159, 37) to Vdd after
    bbar is driven low at 11.88ns
      ...through fet at (135, 72) to GND after
    xor0 is driven high at 11.51ns
      ...through fet at (161, 118) to all_0/xor_1/6_27_28#
      ...through fet at (142, 142) to Vdd after
    all_0/xor_1/BBAR is driven low at 7.63ns
      ...through fet at (118, 107) to GND after
    not0 is driven high at 7.28ns
      ...through fet at (37, 118) to all_0/xor_0/6_27_28#
      ...through fet at (18, 142) to Vdd after
    all_0/xor_0/BBAR is driven low at 0.35ns
      ...through fet at (-6, 107) to GND after
    asc is driven high at 0.00ns
[0:00.1u 0:00.0s 189k]
: critical -g longpath.crymag
[0:00.0u 0:00.0s 189k]
: clear
[0:00.0u 0:00.0s 189k]
: delay y0 -1 0
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
(8844 stages examined.)
[0:04.5u 0:00.0s 212k]
: critical
Node b3 is driven high at 262.65ns
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```
      ...through fet at (744, -497) to j_pclatch_0/j_pcbit_3/6
_4_15#
      ...through fet at (736, -498) to in3
      ...through fet at (660, -429) to out3
      ...through fet at (510, -492) to as3
      ...through fet at (178, -354) to all_3/xor2_0/6_58_35#
      ...through fet at (159, -330) to Vdd after
    cin3 is driven low at 181.12ns
      ...through fet at (169, -291) to co2
      ...through fet at (94, -287) to GND after
    all_2/or3_0/6_39_47# is driven high at 176.73ns
      ...through fet at (75, -266) to all_2/or3_0/6_8_11#
      ...through fet at (71, -266) to all_2/or3_0/6_11_11#
      ...through fet at (62, -266) to Vdd after
    and2 is driven low at 173.91ns
      ...through fet at (21, -220) to GND after
    all_2/and_0/nand_0/NAND_OUT is driven high at 173.10ns
      ...through fet at (3, -235) to Vdd after
    not2 is driven low at 172.42ns
      ...through fet at (12, -193) to all_2/xor_0/6_39_23#
      ...through fet at (12, -200) to GND after
    y2 is driven high at 167.45ns
      ...through fet at (-156, -329) to Vdd after
    j_buff_0/j_latch_2/6_58_35# is driven low at 165.96ns
      ...through fet at (-187, -301) to GND after
    j_buff_0/j_latch_2/6_6_35# is driven high at 165.42ns
      ...through fet at (-215, -303) to b2
      ...through fet at (796, -450) to j_pclatch_0/j_pcbit_2/n
orhell_0/6_13_14#
      ...through fet at (796, -454) to Vdd after
    j_pclatch_0/j_pcbit_2/6_58_27# is driven low at 158.57ns
      ...through fet at (765, -413) to GND after
    j_pclatch_0/j_pcbit_2/6_4_15# is driven high at 158.06ns
      ...through fet at (736, -421) to in2
      ...through fet at (660, -416) to out2
      ...through fet at (510, -403) to as2
      ...through fet at (178, -239) to all_2/xor2_0/6_58_35#
      ...through fet at (183, -256) to Vdd after
    all_2/abar is driven low at 126.52ns
      ...through fet at (121, -221) to GND after
    cin2 is driven high at 126.01ns
      ...through fet at (205, -143) to co1
      ...through fet at (430, -322) to out1
      ...through fet at (510, -322) to as1
      ...through fet at (178, -54) to all_1/xor2_0/6_58_35#
      ...through fet at (183, -37) to Vdd after
    all_1/abar is driven low at 68.68ns
      ...through fet at (121, -72) to GND after
    cin1 is driven high at 68.17ns
      ...through fet at (156, 9) conot
      ...through fet at (430, -233) to out0
      ...through fet at (510, -233) to as0
      ...through fet at (178, 61) to midxor
      ...through fet at (159, 37) to Vdd after
    bbar is driven low at 10.44ns
      ...through fet at (135, 72) to GND after
    xor0 is driven high at 10.06ns
      ...through fet at (161, 118) to all_0/xor_1/6_27_28#
      ...through fet at (142, 142) to Vdd after
    all_0/xor_1/BBAR is driven low at 6.19ns
      ...through fet at (118, 107) to GND after
    not0 is driven high at 5.83ns
      ...through fet at (37, 118) to all_0/xor_0/6_27_28#
      ...through fet at (18, 142) to Vdd after
    y0 is driven low at 0.00ns
[0:00.0u 0:00.0s 212k]
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: clear
[0:00.0u 0:00.0s 212k]
: delay y0 0 -1
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
(11225 stages examined.)
[0:05.0u 0:00.0s 230k]
: critical
Node b3 is driven high at 263.37ns
      ...through fet at (744, -497) to j_pclatch_0/j_pcbit_3/6
_4_15#
      ...through fet at (736, -498) to in3
      ...through fet at (660, -429) to out3
      ...through fet at (510, -492) to as3
      ...through fet at (178, -354) to all_3/xor2_0/6_58_35#
      ...through fet at (159, -330) to Vdd after
    cin3 is driven low at 181.84ns
      ...through fet at (169, -291) to co2
      ...through fet at (94, -287) to GND after
    all_2/or3_0/6_39_47# is driven high at 177.46ns
      ...through fet at (75, -266) to all_2/or3_0/6_8_11#
      ...through fet at (71, -266) to all_2/or3_0/6_11_11#
      ...through fet at (62, -266) to Vdd after
    and2 is driven low at 174.64ns
      ...through fet at (21, -220) to GND after
    all_2/and_0/nand_0/NAND_OUT is driven high at 173.83ns
      ...through fet at (3, -235) to Vdd after
    not2 is driven low at 173.15ns
      ...through fet at (12, -193) to all_2/xor_0/6_39_23#
      ...through fet at (12, -200) to GND after
    y2 is driven high at 168.18ns
      ...through fet at (-156, -329) to Vdd after
    j_buff_0/j_latch_2/6_58_35# is driven low at 166.69ns
      ...through fet at (-187, -301) to GND after
    j_buff_0/j_latch_2/6_6_35# is driven high at 166.15ns
      ...through fet at (-215, -303) to b2
      ...through fet at (796, -450) to j_pclatch_0/j_pcbit_2/n
orhell_0/6_13_14#
      ...through fet at (796, -454) to Vdd after
    j_pclatch_0/j_pcbit_2/6_58_27# is driven low at 159.29ns
      ...through fet at (765, -413) to GND after
    j_pclatch_0/j_pcbit_2/6_4_15# is driven high at 158.79ns
      ...through fet at (736, -421) to in2
      ...through fet at (660, -416) to out2
      ...through fet at (510, -403) to as2
      ...through fet at (178, -239) to all_2/xor2_0/6_58_35#
      ...through fet at (183, -256) to Vdd after
    all_2/abar is driven low at 127.25ns
      ...through fet at (121, -221) to GND after
    cin2 is driven high at 126.74ns
      ...through fet at (205, -143) to co1
      ...through fet at (430, -322) to out1
      ...through fet at (510, -322) to as1
      ...through fet at (178, -54) to all_1/xor2_0/6_58_35#
      ...through fet at (183, -37) to Vdd after
    all_1/abar is driven low at 69.41ns
      ...through fet at (121, -72) to GND after
    cin1 is driven high at 68.90ns
      ...through fet at (156, 9) to conot
      ...through fet at (430, -233) to out0
      ...through fet at (510, -233) to as0
      ...through fet at (178, 61) to midxor
      ...through fet at (159, 37) to Vdd after
    bbar is driven low at 11.16ns
      ...through fet at (135, 72) to GND after
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    xor0 is driven high at 10.79ns
      ...through fet at (161, 118) to all_0/xor_1/6_27_28#
      ...through fet at (142, 142) to Vdd after
    all_0/xor_1/BBAR is driven low at 6.92ns
      ...through fet at (118, 107) to GND after
    not0 is driven high at 6.56ns
      ...through fet at (37, 118) to all_0/xor_0/6_27_28#
      ...through fet at (46, 135) to Vdd after
    all_0/xor_0/ABAR is driven low at 0.50ns
      ...through fet at (-20, 100) to GND after
    y0 is driven high at 0.00ns
[0:00.0u 0:00.0s 230k]
: clear
[0:00.0u 0:00.0s 230k]
: delay x0 -1 0
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
(10488 stages examined.)
[0:03.5u 0:00.0s 259k]
: critical
Node b3 is driven high at 255.37ns
      ...through fet at (744, -497) to j_pclatch_0/j_pcbit_3/6
_4_15#
      ...through fet at (736, -498) to in3
      ...through fet at (660, -429) to out3
      ...through fet at (510, -492) to as3
      ...through fet at (178, -354) to all_3/xor2_0/6_58_35#
      ...through fet at (159, -330) to Vdd after
    cin3 is driven low at 173.84ns
      ...through fet at (169, -291) to co2
      ...through fet at (94, -287) to GND after
    all_2/or3_0/6_39_47# is driven high at 169.45ns
      ...through fet at (75, -266) to all_2/or3_0/6_8_11#
      ...through fet at (71, -266) to all_2/or3_0/6_11_11#
      ...through fet at (62, -266) to Vdd after
    and2 is driven low at 166.63ns
      ...through fet at (21, -220) to GND after
    all_2/and_0/nand_0/NAND_OUT is driven high at 165.83ns
      ...through fet at (3, -235) to Vdd after
    not2 is driven low at 165.14ns
      ...through fet at (12, -193) to all_2/xor_0/6_39_23#
      ...through fet at (12, -200) to GND after
    y2 is driven high at 160.17ns
      ...through fet at (-156, -329) to Vdd after
    j_buff_0/j_latch_2/6_58_35# is driven low at 158.68ns
      ...through fet at (-187, -301) to GND after
    j_buff_0/j_latch_2/6_6_35# is driven high at 158.14ns
      ...through fet at (-215, -303) to b2
      ...through fet at (796, -450) to j_pclatch_0/j_pcbit_2/n
orhell_0/6_13_14#
      ...through fet at (796, -454) to Vdd after
    j_pclatch_0/j_pcbit_2/6_58_27# is driven low at 151.29ns
      ...through fet at (765, -413) to GND after
    j_pclatch_0/j_pcbit_2/6_4_15# is driven high at 150.79ns
      ...through fet at (736, -421) to in2
      ...through fet at (660, -416) to out2
      ...through fet at (510, -403) to as2
      ...through fet at (178, -239) to all_2/xor2_0/6_58_35#
      ...through fet at (183, -256) to Vdd after
    all_2/abar is driven low at 119.24ns
      ...through fet at (121, -221) to GND after
    cin2 is driven high at 118.73ns
      ...through fet at (205, -143) to co1
      ...through fet at (430, -322) to out1
      ...through fet at (510, -322) to as1
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      ...through fet at (178, -54) to all_1/xor2_0/6_58_35#
      ...through fet at (183, -37) to Vdd after
    all_1/abar is driven low at 61.40ns
      ...through fet at (121, -72) to GND after
    cin1 is driven high at 60.89ns
      ...through fet at (156, 9) to conot
      ...through fet at (430, -233) to out0
      ...through fet at (510, -233) to as0
      ...through fet at (178, 61) to midxor
      ...through fet at (159, 37) to Vdd after
    bbar is driven low at 3.16ns
      ...through fet at (135, 72) to GND after
    xor0 is driven high at 2.79ns
      ...through fet at (161, 118) to all_0/xor_1/6_27_28#
      ...through fet at (142, 142) to Vdd after
    x0 is driven low at 0.00ns
[0:00.0u 0:00.1s 259k]
: clear
[0:00.0u 0:00.0s 259k]
: delay x0 0 -1
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
(8590 stages examined.)
[0:03.2u 0:00.0s 300k]
: critical
Node b3 is driven high at 256.44ns
      ...through fet at (744, -497) to j_pclatch_0/j_pcbit_3/6
_4_15#
      ...through fet at (736, -498) to in3
      ...through fet at (660, -429) to out3
      ...through fet at (510, -492) to as3
      ...through fet at (178, -354) to all_3/xor2_0/6_58_35#
      ...through fet at (159, -330) to Vdd after
    cin3 is driven low at 174.91ns
      ...through fet at (169, -291) to co2
      ...through fet at (94, -287) to GND after
    all_2/or3_0/6_39_47# is driven high at 170.52ns
      ...through fet at (75, -266) to all_2/or3_0/6_8_11#
      ...through fet at (71, -266) to all_2/or3_0/6_11_11#
      ...through fet at (62, -266) to Vdd after
    and2 is driven low at 167.70ns
      ...through fet at (21, -220) to GND after
    all_2/and_0/nand_0/NAND_OUT is driven high at 166.89ns
      ...through fet at (3, -235) to Vdd after
    not2 is driven low at 166.21ns
      ...through fet at (12, -193) to all_2/xor_0/6_39_23#
      ...through fet at (12, -200) to GND after
    y2 is driven high at 161.24ns
      ...through fet at (-156, -329) to Vdd after
    j_buff_0/j_latch_2/6_58_35# is driven low at 159.75ns
      ...through fet at (-187, -301) to GND after
    j_buff_0/j_latch_2/6_6_35# is driven high at 159.21ns
      ...through fet at (-215, -303) to b2
      ...through fet at (796, -450) to j_pclatch_0/j_pcbit_2/n
orhell_0/6_13_14#
      ...through fet at (796, -454) to Vdd after
    j_pclatch_0/j_pcbit_2/6_58_27# is driven low at 152.36ns
      ...through fet at (765, -413) to GND after
    j_pclatch_0/j_pcbit_2/6_4_15# is driven high at 151.85ns
      ...through fet at (736, -421) to in2
      ...through fet at (660, -416) to out2
      ...through fet at (510, -403) to as2
      ...through fet at (178, -239) to all_2/xor2_0/6_58_35#
      ...through fet at (183, -256) to Vdd after
    all_2/abar is driven low at 120.31ns
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      ...through fet at (121, -221) to GND after
    cin2 is driven high at 119.80ns
      ...through fet at (205, -143) to co1
      ...through fet at (430, -322) to out1
      ...through fet at (510, -322) to as1
      ...through fet at (178, -54) to all_1/xor2_0/6_58_35#
      ...through fet at (183, -37) to Vdd after
    all_1/abar is driven low at 62.47ns
      ...through fet at (121, -72) to GND after
    cin1 is driven high at 61.96ns
      ...through fet at (156, 9) to conot
      ...through fet at (430, -233) to out0
      ...through fet at (510, -233) to as0
      ...through fet at (178, 61) to midxor
      ...through fet at (159, 37) to Vdd after
    bbar is driven low at 4.23ns
      ...through fet at (135, 72) to GND after
    xor0 is driven high at 3.85ns
      ...through fet at (161, 118) to all_0/xor_1/6_27_28#
      ...through fet at (170, 135) to Vdd after
    all_0/xor_1/ABAR is driven low at 0.50ns
      ...through fet at (104, 100) to GND after
    x0 is driven high at 0.00ns
[0:00.0u 0:00.0s 300k]
: clear
[0:00.0u 0:00.0s 300k]
: delay cin -1 0
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
cin isn't in table!
(0 stages examined.)
[0:00.0u 0:00.0s 300k]
: critical
Sorry, but that critical path doesn't exist.
[0:00.0u 0:00.0s 300k]
: clear
[0:00.0u 0:00.0s 300k]
: delay cin 0 -1
Marking transistor flow...
Setting Vdd to 1...
Setting GND to 0...
cin isn't in table!
(0 stages examined.)
[0:00.0u 0:00.0s 300k]
: critical
Sorry, but that critical path doesn't exist.
[0:00.0u 0:00.0s 300k]
: clear
[0:00.0u 0:00.0s 300k]
[0:00.0u 0:00.0s 300k]
: quit
[0:27.1u 0:00.6s 300k] Crystal done.
corvina% exit
exit

script done on Wed Dec 17 03:35:12 1997
```