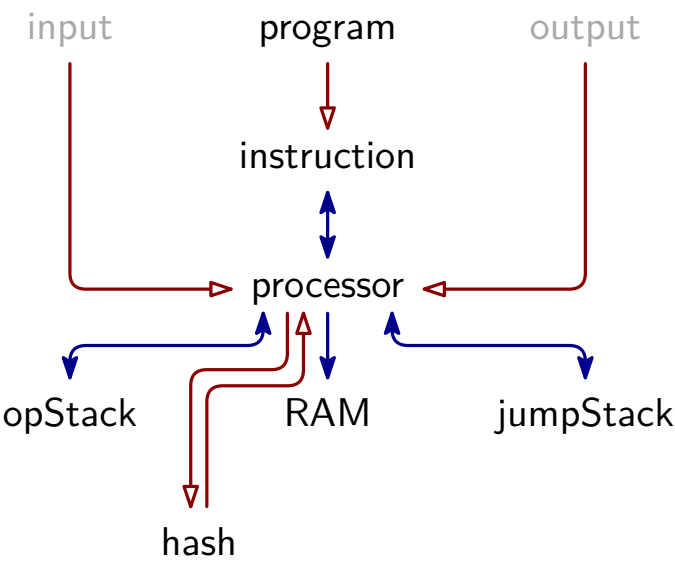


```

02  ⊖  pop
01  ⊕  push + a
04  ⊕  divine
05  ⊕  dup + i
09  swap + i
08  ○  nop
06  ⊖  skiz
13  ○  call + d
12  ○  return
16  ○  recurse
10  ⊖  assert
00  ○  halt
20  ⊙  read_mem
24  ○  write_mem
28  hash
32  divine_sibling  st12 % 2 = 0 ⇒ left node
36  ○  assert_vector
14  ☹  add
18  ☹  mul
40  ⊙  invert
44  split          hi → st0'
22  ☹  eq
72  lsb
56  xxadd
60  xxmuls
64  xinv
38  ☼  xbmuls      st0 · (st1, st2, st3)
68  ⊕  read_io
42  ⊖  write_io

```



$$p = 18446744069414584321$$

| <i>i</i> | $1/i$     | $-1/i$    |
|----------|-----------|-----------|
| 2        | 092...161 | 922...160 |
| 3        | 122...881 | 614...440 |
| 4        | 138...241 | 461...080 |
| 5        | 147...457 | 368...864 |
| 6        | 153...601 | 307...720 |

|             | base | ext | $\Sigma$ |
|-------------|------|-----|----------|
| Program     | 3    | 1   | 4        |
| Instruction | 4    | 2   | 6        |
| Processor   | 38   | 8   | 46       |
| OpStack     | 4    | 1   | 5        |
| RAM         | 4    | 1   | 5        |
| JumpStack   | 5    | 1   | 6        |
| Hash        | 49   | 2   | 51       |
| $\Sigma$    | 107  | 16  | 123      |

| Table       | Base Columns |           |    |                               |     |           |           |     |     |     |     |     |                       |      |      |            |     |     |      |             |      |  |  |  |  |
|-------------|--------------|-----------|----|-------------------------------|-----|-----------|-----------|-----|-----|-----|-----|-----|-----------------------|------|------|------------|-----|-----|------|-------------|------|--|--|--|--|
| Program     | Address      |           |    | Instruction                   |     |           | IsPadding |     |     |     |     |     |                       |      |      |            |     |     |      |             |      |  |  |  |  |
| Instruction | Address      |           |    | CI                            | NIA | IsPadding |           |     |     |     |     |     |                       |      |      |            |     |     |      |             |      |  |  |  |  |
| Processor   | CLK          | IsPadding | IP | CI                            | NIA | IB0       | ...       | IB6 | JSP | JS0 | JSD | ST0 | ...                   | ST15 | OSP  | OSV        | HV0 | ... | HV3  | RAMV        |      |  |  |  |  |
| OpStack     | CLK          |           |    | IB1 ( $\hat{=}$ shrink stack) |     |           |           |     |     |     |     |     |                       | OSP  |      | OSV        |     |     |      |             |      |  |  |  |  |
| RAM         | CLK          |           |    |                               |     |           |           |     |     |     |     |     | RAMP ( $\hat{=}$ ST1) |      |      |            |     |     | RAMV |             | IORD |  |  |  |  |
| JumpStack   | CLK          |           |    | CI                            |     |           |           |     | JSP |     |     | JS0 | JSD                   |      |      |            |     |     |      |             |      |  |  |  |  |
| Hash        | RoundNumber  |           |    |                               |     |           |           |     |     |     |     | ST0 |                       | ...  | ST15 | CONSTANT0A |     |     | ...  | CONSTANT15B |      |  |  |  |  |

| #clk | instruction  |
|------|--------------|
| 2    | neg          |
| 4    | sub          |
| 68   | is_u32       |
| 139  | split_assert |
| 146  | lte          |
| 148  | lt           |
| 295  | and          |
| 301  | xor          |
| 195  | reverse      |
| 164  | div          |