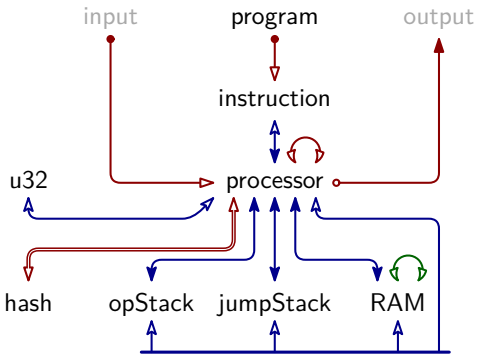
2	$\ominus$	pop	_ st_0	_
1	$\oplus$	push + a	_	_ a
8	$\oplus$	divine	_	_ a
9	$\oplus$	dup + i	_ st_{15} ... st_0	_ st_{15} ... st_0 st_i
17	$\bigcirc^{16}$	swap + i	_ ... st_i ... st_0	_ ... st_0 ... st_i
16	$\bigcirc$	nop	_	_
10	$\ominus$	skiz	_ st_0	_
25	$\bigcirc$	call + d	_	_
24	$\bigcirc$	return	_	_
32	$\bigcirc$	recurse	_	_
18	$\ominus$	assert	_ st_0	_
0	$\bigcirc$	halt	_	_
40	$\bigcirc^{1}$	read_mem	_ addr st_0	_ addr val
48	$\bigcirc$	write_mem	_ addr val	_ addr val
56	$\bigcirc^{10}$	hash	_ $st_9 \ldots st_0$	_ $d_4 \ldots d_0$ $0 \ldots 0$
64	$\bigcirc^{11}$	divine_sibling	_ idx $st_9 \ldots st_5$ $d_4 \ldots d_0$	_ idx>>1 $r_4 \ldots r_0$ $l_4 \ldots l_0$
72	$\bigcirc$	assert_vector	_	_
80	$\bigcirc$	absorb_init	_	_
88	$\bigcirc$	absorb	_	_
96	$\bigcirc^{10}$	squeeze	_ st_9 ... st_0	_ sq_9 ... sq_0
26	$\ominus^{1}$	add	_ st_1 st_0	_ sum
34	$\ominus^{1}$	mul	_ st_1 st_0	_ prod
104	$\bigcirc^{1}$	invert	_ st_0	_ st_0^{-1}
42	$\ominus^{1}$	eq	_ st_1 st_0	_ (st_0==st_1)
4	$\oplus^{2}$	split	_ st_0	_ hi lo
12	$\ominus^{1}$	lt	_ st_1 st_0	_ (st_0<st_1)
20	$\ominus^{1}$	and	_ st_1 st_0	_ (st_0&st_1)
28	$\ominus^{1}$	xor	_ st_1 st_0	_ (st_0^st_1)
36	$\bigcirc^{1}$	log_2_floor	_ st_0	_ $\lfloor \log_2(st_0) \rfloor$
44	$\ominus^{1}$	pow	_ e b	_ b^e
52	$\bigcirc^{2}$	div	_ denom num	_ quot rem
112	$\bigcirc^{3}$	xxadd	_ y_2 y_1 y_0 x_2 x_1 x_0	_ y_2 y_1 y_0 z_2 z_1 z_0
120	$\bigcirc^{3}$	xxmul	_ y_2 y_1 y_0 x_2 x_1 x_0	_ y_2 y_1 y_0 z_2 z_1 z_0
128	$\bigcirc^{3}$	xinvert	_ x_2 x_1 x_0	_ y_2 y_1 y_0
50	$\ominus^{3}$	xbmul	_ x_2 x_1 x_0 b	_ y_2 y_1 y_0
136	$\oplus$	read_io	_	_ a
58	$\ominus$	write_io	_ st_0	_

Table	Base Columns																					
Program	Address					Instruction	IsPadding															
Instruction	Address					CI	NIA	IsPadding														
Processor	CLK	IsPadding	IP	PI	CI	NIA	IB0	...	IB7	JSP	JSO	JSD	ST0	...	ST15	OSP	OSV	HV0	...	HV3	RAMP	RAMV
OpStack	CLK	clk_di						IB1 (≙ shrink stack)								OSP	OSV					
RAM	CLK	clk_di		PI		bcpc0	bcpc1											RAMPDiffInv		RAMP	RAMV	
JumpStack	CLK	clk_di			CI					JSP	JSO	JSD										
Hash	RoundNumber				CI								ST0	...	ST15	CONSTANT0A		...	CONSTANT15B			
U32	CF	Bits	Bits-33_inv		CI	LHS	RHS	LT	AND	XOR	Log2Floor		Pow	LHS_inv		RHS_inv						

#clk	instruction
2	neg
4	sub
7	is_u32
3	lsb



$p = 18446744069414584321$

i	$\mathbb{F}_p(1/i)$	$-\mathbb{F}_p(1/i)$
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	$\sum$
Program	3	1	4
Instruction	4	2	6
Processor	44	13	57
OpStack	5	2	7
RAM	8	6	14
JumpStack	6	2	8
Hash	50	3	53
U32	14	1	15
$\sum$	134	30	164

	init	cons	trans	term	$\sum$
Program	2	1	3	0	6
Instruction	3	1	5	0	9
Processor	39	12	77	2	130
OpStack	5	0	6	0	11
Ram	8	0	14	1	23
JumpStack	6	0	8	0	14
Hash	5	40	26	0	71
U32	2	14	22	2	40
Cross-Table	0	0	0	1	1
$\sum$	70	68	161	6	305