

Sheet1

\PH* PH ^ currInt<<2
 \PL* PL ^ currInt<<2

test Din == 011xxxxx
 math Din != x11xxxxx
 jump Din == 111x11xx
 imm Din == 111xxxxx & !jump
 k Din == xxx1xxxx
 zs Din == xxxx11xx
 zd Din == xxxxxx11
 jop Din[4,1:0]
 aluOp Imm ? Din[4:2] : Din[7:5]
 cond Din[3:0]
 \fetch TZ?timer:fetcha

	\decode	\decodeSkip
test	test	fetch
Math & zs & zf	mathzz	skip2
Math & !zs & zd	mathrz	skip1
Math & zs & !zd	mathzr	skip1
Math & !zs & !zd	mathrr	fetch
Imm & zd	mathiz	skip2
Imm & !zd	mathir	skip1
Jump & jop == 0	jump	skip2
Jump & jop == 1	call	skip2
Jump & jop == 2	fetch	fetch
Jump & jop == 3	return	fetch
Jump & jop == 4	jumpz	skip1
Jump & jop == 5	callz	skip1
Jump & jop == 6	fetch	fetch
Jump & jop == 7	table	skip1

\mA SvAluOp[2]?00:SvAluOp[1:0]
 \mL SvAluOp[2]?svAluOp[1:0]:11
 \mCin !svAluOp[2]&svAluOp[0]
 \S {00,svS}
 \D {00,svD}
 \kD prevK ? 0011 : {00,svD}
 \kD2 useK ? 0011 : {00,svD}

label	aAd	bAd	wAd	wReg	dIn	rMem	dOut	wMem	aSel	bSel	logSel	Cin
reset	x	x	PL		1 ?		0 ?		0	0 B	^	0
resetb	x	x	PH		1 ?		0 ?		0	0 B	^	0
resetc	x	x	TL		1 ?		0 ?		0	0 B	^	0
resetd	x	x	TH		1 ?		0 ?		0	0 B	^	0
timer	x	TL	TL		1 ?		0 ?		0	-2 B	B	1
timerb	x	TH	TH		1 ?		0 ?		0	-2 B	B	1

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timerc	x	TL	TL	1 ?	0 ?	0	-2 B	B	0
fetcha	PH*	PL*	PL*	1 ?	1 ?	0	0 B	B	1
fetchb	x	PH*	PH*	1 Inst	0 ?	0	0 B	B	1
fetchc	x	x	x	0 Inst	0 ?	0	0 B	^	0
skipf	PH*	PL*	PL*	1 ?	1 ?	0	0 B	B	1
skipfb	x	PH*	PH*	1 Inst	0 ?	0	0 B	B	1
skipfc	x	x	x	0 Inst	0 ?	0	0 B	^	0
skip2	PH*	PL*	PL*	1 ?	0 ?	0	0 B	B	1
skip2b	x	PH*	PH*	1 ?	0 ?	0	0 B	B	1
skip1	PH*	PL*	PL*	1 ?	0 ?	0	0 B	B	1
skip1b	x	PH*	PH*	1 ?	0 ?	0	0 B	B	1
test	x	x	K	1 ?	0 ?	0	0 B	^	tr
mathrr	S	kD	kD2	1 ?	0 ?	0 mA	B	mL	mCir
call	x	PL*	LL	1 ?	0 ?	0	0 B	B	0
callb	x	PH*	LH	1 ?	0 ?	0	0 B	B	0
jump	PH*	PL*	PL*	1 ?	1 ?	0	0 B	B	1
jumpb	x	x	ML	1 PCL	0 ?	0	0 mem	B	0
jumpc	x	x	ML	1 PCL	0 ?	0	0 mem	B	0
jumpd	x	PH*	PH*	1 ?	0 ?	0	0 B	B	1
jumpe	PH*	PL*	x	0 ?	1 ?	0	0 B	B	0
jumpf	x	x	PH*	1 PCH	0 ?	0	0 mem	B	0
jumpg	x	ML	PL*	1 ?	0 ?	0	0 B	B	0
return	x	LL	PL*	1 ?	0 ?	0	0 B	B	0
returnb	x	LH	PH*	1 ?	0 ?	0	0 B	B	0
mathir	PH*	PL*	PL*	1 ?	1 ?	0	0 B	B	1
mathirb	kD	x	D	1 #	0 ?	0 mA	mem	mL	mCir
mathirc	kD	x	D	1 #	0 ?	0 mA	mem	mL	mCir
mathird	x	PH*	PH*	1 ?	0 ?	0	0 B	B	1
zpa	PH*	PL*	PL*	1 ?	1 ?	0	0 B	B	1
zpab	x	x	ZL	1 zpa	0 ?	0	0 mem	B	0
zpac	x	x	ZL	1 zpa	0 ?	0	0 mem	B	0
zpad	x	PH*	PH*	1 ?	0 ?	0	0 B	B	1
zpaе	ZH	ZL	x	0 ?	1 ?	0	0 B	B	0
zpaф	ZH	ZL	x	0 ?	1 ?	0	0 B	B	0
zpag	x	x	ML	1 lowp	0 ?	0	0 mem	B	0
zpah	ZH	ZL	x	0 ?	1 ?	0	0 B	B	0
zpai	x	x	MH	1 highp	0 ?	0	0 mem	B	0
zpaј	x	ML	x	0 ?	0 ?	0	0 B	B	1
zpak	ZH	ZL	x	0 ?	0 ML+1	1	0 B	B	0
zpal	ZH	ZL	x	0 ?	0 ML+1	1	0 B	B	0
zpaм	x	MH	x	0 ?	0 ?	0	0 B	B	1
zpan	ZH	ZL	x	0 ?	0 MH+1	1	0 B	B	0
zpaо	MH	ML	x	0 ?	1 ?	0	0 B	B	0
mathiz	PH*	PL*	PL*	1 ?	1 ?	0	0 B	B	1

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mathizb	x	x	K	1 #	0 ?	0	0 mem	B	0
mathizc	x	x	K	1 #	0 ?	0	0 mem	B	0
mathizd	K	x	K	1 #	0 ?	0 mA	mem	mL	mCir
mathize	K	x	K	1 #	0 ?	0 mA	mem	mL	mCir
mathizf	x	PH*	PH*	1 ?	0 ?	0	0 B	B	1
mathizg	x	PH*	PH*	1 ?	0 ?	0	0 B	B	1
mathizo	K	x	K	1 value	0 ?	0 mA	mem	mL	mCir
mathizp	x	K	x	0 ?	0 ?	0	0 B	B	0
mathizq	MH	ML	x	0 ?	0 K	1	0 B	B	0

sA7 sA0 A0 wIR wFL next

x	x	x	0	0 resetb	PH,PL = 0
x	x	x	0	0 resetc	
x	x	x	0	0 resetd	TH,TL = 0
x	x	x	0	0 fetch	
x	x	x	0	0 Z?(TZ?fetcha:timerb):timer	TL -= 1
x	x	x	0	0 timerc	TH -= 1

x	x	x	0	0 timer
	0	0 x	0	0 C?fetchb:fetchc
x	x	x	1	0 decode
x	x	x	1	0 decode
	0	0 x	0	0 C?skipfb:skipfc
x	x	x	0	0 decodeSkip
x	x	x	0	0 decodeSkip
x	x	x	0	0 C?skip2b:skip1
x	x	x	0	0 skip1
x	x	x	0	0 C?skip1b:fetch
x	x	x	0	0 fetch
x	x	x	0	0 useK ltr?fetch:skipf
x	x	x	0	1 fetch
x	x	x	0	0 callb
x	x	x	0	0 jump
	0	0 x	0	0 C?jumpb:jumpc
x	x	x	0	0 jumpd
x	x	x	0	0 jumpe
x	x	x	0	0 jumpe
	0	0 x	0	0 jumpf
x	x	x	0	0 jumpg
x	x	x	0	0 fetch
x	x	x	0	0 returnb
x	x	x	0	0 fetch
	0	0 x	0	0 C?mathirb:mathirc
x	x	x	0	1 mathird
x	x	x	0	1 fetch
x	x	x	0	0 fetch
	0	0 x	0	0 C?zpab:zpac
x	x	x	0	0 zpad
x	x	x	0	0 svlnd?zpa:zpa
x	x	x	0	0 svlnd?zpa:zpa
	0	0 x	0	0 rtn
	1	1 0	0	0 zpag
x	x	x	0	0 zpah
	1	1 1	0	0 zpai
x	x	x	0	0 svlnc?zpa:zpa
x	x	x	0	0 C?zpak:zpal
	1	1 0	0	0 zpam
	1	1 0	0	0 zpao
x	x	x	0	0 zpan
	1	1 1	0	0 zpao
x	x	x	0	0 rtn
	0	0 x	0	0 prevK?(C?mathizd:mathize):(C?mathizb:mathizc)

	0	0 x	0	0 \$zpa,mathizo
	0	0 x	0	0 mathizf
x	x	x	0	1 \$zpa,mathizp
x	x	x	0	1 mathizg
x	x	x	0	0 \$zpa,mathizo
x	x	x	0	0 \$zpa,mathizp
x	x	x	0	1 mathizp
x	x	x	0	0 mathizq
x	x	x	0	0 fetch