# 流水线覆盖性分析测试用例集构造表

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#### 1. addu 测试样例表

用例编号	测试类型	前序指令	冲突位置	冲突寄存器	测试样例
1	R-M-RS	subu	MEM	rs	subu \$1, \$2, \$3
					addu \$4, \$1, \$2
2	R-M-RT	subu	MEM	rt	subu \$1, \$2, \$3
					addu \$4, \$2, \$1
3	R-W-RS	subu	WB	rs	subu \$1, \$2, \$3
					nop
					addu \$4, \$1, \$2
4	R-W-RT	subu	WB	rt	subu \$1, \$2, \$3
					nop
				730.3	addu \$4, \$2, \$1
5	R-W-RS	subu	WB	rs	subu \$1, \$2, \$3
			1/		nop
			a X		nop
					addu \$4, \$2, \$1
6	R-W-RT	subu	WB	rt	subu \$1, \$2, \$3
			, \		nop
		. /			nop
	$-\Delta$				addu \$4, \$2, \$1
7	I-M-RS	ori	MEM	rs	ori \$1,20
	Y				addu \$4, \$1, \$2
8	I-M-RT	ori	MEM	rt	ori \$1,20
-14					addu \$4, \$2, \$1
9	I-W-RS	ori	WB	rs	ori \$1,20
					nop
10	T III D.				addu \$4, \$1, \$2
10	I-W-RT	ori	WB	rt	ori \$1,20
					nop
1.1	T W DC		WD		addu \$4, \$2, \$1
11	I-W-RS	ori	WB	rs	ori \$1,20
					nop
					nop
10	тшрт	:	WD		addu \$4, \$1, \$2
12	I-W-RT	ori	WB	rt	ori \$1,20
					nop
					nop
19	I W_M_DC	1	MEM	no.	addu \$4, \$2, \$1
13	LW-M-RS	1w	MEM	rs	1w \$1,0(\$0)

					- 11. 04 01 00
4.4		1	) (F) (		addu \$4, \$1, \$2
14	LW-M-RT	1w	MEM	rt	lw \$1,0(\$0)
					addu \$4, \$2, \$1
					1w \$1,0(\$0)
15	LW-WB-RS	1w	WB	rs	nop
					addu \$4, \$1, \$2
					1w \$1,0(\$0)
16	LW-WB-RT	1w	WB	rt	nop
					addu \$4, \$2, \$1
					lw \$1,0(\$0)
1.77	IW W DC	,	IVD		nop
17	LW-W-RS	1w	WB	rs	nop
					addu \$4, \$1, \$2
	LW-W-RT	1w	WB	rt	lw \$1,0(\$0)
1.0					nop
18					nop
					addu \$4, \$2, \$1
				1997	jal loop
19	J-M-RS	jal	MEM	rs	addu \$1, \$31, \$2
					loop:
			A AX		jal loop
20	J-M-RT	jal	MEM	rt	addu \$1, \$2, \$31
		Jai			loop:
					jal loop
					ori \$4,1
21	J-W-RS	jal	WB	rs	loop:
	/-	7			addu \$1, \$31, \$2
					jal loop
40	1/4	7	WB		ori \$4,1
22	J-W-RS	jal		rt	100p:
14/1					addu \$1, \$2, \$31
					ασσα ψ1, ψ2, ψ01

## 2. subu 测试样例表

用例编号	测试类型	前序指令	冲突位置	冲突寄存器	测试样例
1	R-M-RS	addu	MEM	rs	addu \$1, \$2, \$3
					subu \$4, \$1, \$2
2	R-M-RT	subu	MEM	rt	subu \$1, \$2, \$3
	IV WI IVI	Subu	IVILLIVI	10	subu \$4, \$2, \$1
	R-W-RS	addu	WB	rs	addu \$1, \$2, \$3
3					nop
					addu \$4, \$1, \$2
	R-W-RT	subu	WB		subu \$1, \$2, \$3
4				rt	nop
					subu \$4, \$2, \$1

	1	1	1		
5	R-W-RS	addu	WB	rs	addu \$1, \$2, \$3 nop nop addu \$4, \$1, \$2
6	R-W-RT	subu	WB	rt	subu \$1, \$2, \$3 nop nop subu \$4, \$2, \$1
7	I-M-RS	ori	MEM	rs	ori \$1,10 subu \$4,\$1,\$2
8	I-M-RT	ori	MEM	rt	ori \$1,2 subu \$4,\$2,\$1
9	I-W-RS	ori	WB	rs	ori \$1,10 nop subu \$4,\$1,\$2
10	I-W-RT	ori	WB	rt	ori \$1,2 nop subu \$4,\$2,\$1
11	I-W-RS	ori	WB	rs	ori \$1,10 nop nop subu \$4,\$1,\$2
12	I-W-RT	ori	WB	rt	ori \$1,2 nop nop subu \$4,\$2,\$1
13	LW-M-RS	1w	MEM	rs	lw \$1,0(\$0) subu \$4,\$1,\$2
14	LW-M-RT	1w	MEM	rt	1w \$1,0(\$0) subu \$4,\$2,\$1
15	LW-W-RS	1w	WB	rs	1w \$1,0(\$0) nop subu \$4,\$1,\$2
16	LW-W-RT	1w	WB	rt	lw \$1,0(\$0) nop subu \$4,\$2,\$1
17	LW-W-RS	1w	WB	rs	lw \$1,0(\$0) nop nop subu \$4,\$1,\$2
18	LW-W-RT	1w	WB	rt	lw \$1,0(\$0) nop nop subu \$4,\$2,\$1

19	J-M-RS	jal	MEM	rs	jal loop subu \$1,\$31,\$2 loop:
20	J-M-RT	jal	MEM	rt	jal loop subu \$1,\$2,\$31 loop:
21	J-W-RS	jal	WB	rs	jal loop ori \$4,1 loop: subu \$1,\$31,\$2
22	J-W-RT	jal	WB	rt	jal loop ori \$4,1 loop: subu \$1,\$2,\$31

#### 3. or i 测试样例表

744 X					
用例编号	测试类型	前序指令	冲突位置	冲突寄存器	测试样例
1	R-M-RS	addu	MEM	rs	addu \$1, \$2, \$3
			a Xa/		ori \$4,\$1,7
		_	VV		addu \$1, \$2, \$3
3	R-W-RS	addu	WB	rs	nop
					ori \$4,\$1,7
5	I-M-RS	ori	MEM	rs	ori \$1,\$2,2
	1 M RS	OTT	MIDM	13	ori \$3,\$1,8
	7/1:				ori \$1,\$2,2
6	I-W-RS	ori	WB	rs	nop
					ori \$3,\$1,8
7	LW-M-RS	1w	MEM	rc	1w \$1,0(\$0)
	LW M NO	1 W	IVILLIVI	rs	ori \$3,\$1,2
114					1w \$1,0(\$0)
8	LW-W-RS	1w	WB	rs	nop
					ori \$3,\$1,2
					1w \$1,0(\$0)
9	LW-W-RS	1w	WB	rs	nop
	Lu u Ko	T W	#10	13	nop
					ori \$3,\$1,2
					jal loop
10	J-M-RS	RS jal MEM	MEM	rs	ori \$31,\$31,1
				loop:	
					jal loop
11	T W DC	:-1	WD	r.c	ori \$1,\$1,1
11	J-W-RS	jal	WB	rs	loop:
					ori \$31,\$31,1

#### 4. j 测试样例表

用例编号	测试类型	测试样例
		ori \$2,5
		ori \$1,1
1	J	addu \$1,\$1,\$2
1		j exit
		ori \$3,1
		exit:

#### 5. lw 测试样例表

用例编号	测试类型	前序指令	冲突位置	冲突寄存器	测试样例
1	R-M-RS	addu	MEM	rs	addu \$1, \$2, \$3
					1w \$4, 0(\$1)
					addu \$1, \$2, \$3
2	R-W-RS	addu	WB	rs	nop
					1w \$4,0(\$1)
				VX	addu \$1, \$2, \$3
3	R-W-RS	addu	WB	rs	nop
					nop
					lw \$4,0(\$1)
4	I-M-RS	ori	MEM	rs	ori \$1,8
			-		1w \$4,0(\$1)
_	T W D0		IIID		ori \$1,8
5	I-W-RS	ori	WB		=
		7			lw \$4,0(\$1)
	Y				ori \$1,8
6	I-W-RS	ori	WB	rs	nop
W.					nop
					1w \$4, 0 (\$1)
7	LW-M-RS	1w	MEM	rs	lw \$1, 4(\$0)
<del>///</del>					1w \$4, 0 (\$1)
0	IW W DC	1	WD		lw \$1,4(\$0)
8	LW-W-RS	1w	WB	rs	nop lw \$4,0(\$1)
					1w \$4,0(\$1) 1w \$1,4(\$0)
9	LW-W-RS	1w	WB	rs	nop
					nop lw \$4,0(\$1)
					jal loop
10	J-M-RS	jal	MEM	rs	lw \$1,0(\$31)
10	J 141 17/2	Jai	IVITEIVI	12	loop:
					jal loop
11	J-M-RT	jal	WB	rs	loop:
					100p.

		lw \$1,0(\$31)
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### 6. sw 测试样例表

用例编号	测试类型	前序指令	冲突位置	冲突寄存器	测试样例
1	R-M-RS	addu	MEM	rs	addu \$1, \$2, \$3 sw \$2, 0(\$1)
2	R-W-RS	addu	WB	rs	addu \$1, \$2, \$3 nop sw \$2, 0(\$1)
3	R-W-RS	addu	WB	rs	addu \$1, \$2, \$3 nop nop sw \$2, 0(\$1)
4	I-M-RS	ori	MEM	rs	ori \$1,8 sw \$2,0(\$1)
5	I-W-RS	ori	WB	rs	ori \$1,8 nop sw \$2,0(\$1)
6	I-W-RS	ori	WB	rs	ori \$1,8 nop nop sw \$2,0(\$1)
7	LW-M-RS	1w	MEM	rs	1w \$1, 4(\$0) sw \$2, 0(\$1)
8	LW-W-RS	1w	WB	rs	lw \$1,4(\$0) nop sw \$2,0(\$1)
9	LW-W-RS	lw	WB	rs	lw \$1, 4(\$0) nop nop sw \$2, 0(\$1)
10	J-M-RS	jal	MEM	rs	jal loop sw \$1,0(\$31) loop:
11	J-M-RT	jal	WB	rs	jal loop loop: sw \$1,0(\$31)

### 7. beq 测试样例表

用例编号	测试类型	前序指令	冲突位置	冲突寄存器	测试样例
1	R-M-RS	addu	MEM	rs	addu \$1, \$3, \$0 beq \$1, \$3, exit ori \$4, 1

					ori \$4,2
					exit:
					addu \$1, \$3, \$0
					beq \$3, \$1, exit
2	R-M-RT	addu	MEM	rt	ori \$4,1
2	IV IVI IVI	addu	MICM	10	ori \$4,2
					exit:
					addu \$1, \$3, \$0
					nop
					beq \$1,\$3, exit
3	R-W-RS	addu	WB	rs	ori \$4,1
					ori \$4,2
					exit:
					addu \$1, \$3, \$0
					nop
					beq \$3, \$1, exit
4	R-W-RT	addu	WB	rt	ori \$4,1
				<b>\XX</b> 7?	ori \$4,2
				KXX	exit:
				/ \	addu \$1, \$3, \$0
			$\Lambda \Lambda X$		nop
			124		nop
5	R-W-RS	addu	WB	rs	beq \$1,\$3,exit
					ori \$4,1
					ori \$4,2
	9/1				exit:
	13	7			addu \$1,\$3,\$0
					nop
14	1/1				nop
6	R-W-RT	addu	WB	rt	beq \$3,\$1,exit
11 ()					ori \$4,1
WX					ori \$4,2
					exit:
					ori \$1,3
_		_			beq \$1, \$3, exit
7	I-M-RS	ori	MEM	rs	ori \$4,1
					ori \$4,2
					exit:
					ori \$1,3
0	T M DW	<b>!</b>	MEM	4	beq \$3, \$1, exit
8	I-M-RT	ori	MEM	rt	ori \$4,1
					ori \$4,2
					exit:

9	I-W-RS	ori	WB	rs	ori \$1,3 nop beq \$1,\$3,exit ori \$4,1 ori \$4,2 exit:
10	I-W-RT	ori	WB	rt	ori \$1,3 nop beq \$3,\$1,exit ori \$4,1 ori \$4,2 exit:
11	I-W-RS	ori	WB	rs	ori \$1,3 nop nop beq \$1,\$3,exit ori \$4,1 ori \$4,2 exit:
12	I-W-RT	ori	WB	rt	ori \$1,3 nop nop beq \$3,\$1,exit ori \$4,1 ori \$4,2 exit:
13	LW-M-RS	1w	МЕМ	rs	addu \$4, \$2, \$3 lw \$1,8(\$0) beq \$1,\$4,exit ori \$5,1 ori \$5,2 exit:
14	LW-M-RT	lw	MEM	rt	addu \$4, \$2, \$3 lw \$1,8(\$0) beq \$4,\$1,exit ori \$5,1 ori \$5,2 exit:
15	LW-WB-RS	lw	WB	rs	addu \$4, \$2, \$3 lw \$1,8(\$0) nop beq \$1,\$4, exit ori \$5,1 ori \$5,2

					exit:
16	LW-WB-RT	lw	WB	rt	addu \$4, \$2, \$3 lw \$1, 8(\$0) nop beq \$4, \$1, exi ori \$5, 1 ori \$5, 2 exit:
17	LW-W-RS	lw	WB	rs	addu \$4, \$2, \$3 lw \$1, 8(\$0) nop nop beq \$1, \$4, exi ori \$5, 1 ori \$5, 2 exit:
18	LW-W-RT	1w	WB	rt	addu \$4, \$2, \$3 lw \$1,8(\$0) nop nop beq \$4,\$1,exi ori \$5,1 ori \$5,2 exit:

用例编号	测试类型	前序指令	冲突位置	冲突寄存器	测试样例
	R-M-RS	addu	MEM	rs	ori \$1,4 jal loop addu \$31,\$31,\$1 ori \$2,1 ori \$3,1 j exit ori \$8,1 loop: jr \$31 ori \$4,1 exit:
2	R-W-RS	addu	WB	rs	ori \$1,4 jal loop addu \$31,\$31,\$1 ori \$2,1 ori \$3,1 j exit

		T	Т		1
					ori \$8,1
					loop:
					ori \$5,1
					jr \$31
					ori \$4,1
					exit:
					ori \$1,4
					jal loop
					addu \$31, \$31, \$1
					ori \$2,1
					ori \$3,1
					j exit
3	R-W-RS	subu	WB	rs	ori \$8,1
					loop:
					ori \$5,1
					ori \$6,1
				XAX	jr \$31
				<b>1000</b>	ori \$4,1
				Ky.V	exit:
				/	ori \$1,4
			XAX		ori \$1,4
					ori \$1,4
					jal loop
					ori \$31,8
		7			ori \$2,1
4	I-M-RS	ori	MEM	rs	ori \$3,1
	/6	7			j exit
	1,4				ori \$8,1
	• / .				loop:
M		Y			jr \$31
1-1X					ori \$4,1
11/1/2					exit:
<del>-                                    </del>					ori \$1,4
					ori \$1,4
					ori \$1,4
					jal loop
					ori \$31,8
					ori \$2,1
5	I-W-RS	ori	WB	rs	ori \$3,1
					j exit ori \$8,1
					loop:
					ori \$5,1
					jr \$31

					01 1
					ori \$4,1
					exit:
					ori \$1,4
					ori \$1,4
					ori \$1,4
					jal loop
					ori \$31,8
					ori \$2,1
					ori \$3,1
6	I-W-RS	ori	WB	rs	j exit
					ori \$8,1
					loop:
					ori \$5,1
					ori \$6,1
					jr \$31
					ori \$4,1
				75A Y	exit:
				NYX 1	ori \$1,4
			1	14.4	ori \$2,0x301c
			AXX		sw \$2,0(\$0)
					jal loop
			124		lw \$31,0(\$0)
					ori \$2,1
7	LW-M-RS	1w	MEM	rs	ori \$3,1
		7			j exit
	9/1				ori \$8,1
	/-	7			loop:
		$\langle \lambda \rangle$			jr \$31
4.0	1/-				ori \$4,1
Y					exit:
11/	7				ori \$1,4
$\mathcal{U}X$					ori \$2,0x301c
4 4 /	LW-WB-RS	1w			sw \$2,0(\$0)
					jal loop
					1w \$31, 0(\$0)
					ori \$2,1
			WB		ori \$3,1
8				rs	j exit
					ori \$8,1
					loop:
					ori \$5,1
					jr \$31
					ori \$4,1
					exit:

9	LW-W-RS	1w	WB	rs	ori \$1,4 ori \$2,0x301c sw \$2,0(\$0) jal loop lw \$31,0(\$0) ori \$2,1 ori \$3,1 j exit ori \$8,1 loop: ori \$5,1 ori \$6,1 jr \$31 ori \$4,1 exit:
10	J-M-RS	jal	WB	rs	ori \$1,4  jal loop addu \$31,\$31,\$1  ori \$2,1  ori \$3,1  j exit  ori \$8,1  loop: jr \$31  ori \$4,1  exit:
lí	J-W-RS	jal	WB	rs	ori \$1,4  jal loop  addu \$31,\$31,\$1  ori \$2,1  ori \$3,1  j exit  ori \$8,1  loop:  ori \$5,1  jr \$31  ori \$4,1  exit: