

暂停

类型	测试类型	前序指令	冲突位置	冲突寄存器	测试序列
R 型	LD-E-RS	lw	D	RS	lw \$4, 0(\$5) addu \$4, \$4, \$5
	LD-E-RT	lw	D	RT	lw \$4, 0(\$5) addu \$4, \$5, \$4
I 型	LD-E-RS	lw	D	RS	lw \$4, 0(\$5) ori \$5, \$4, 0xffff
LD 型	LD-E-RS	lw	D	RS	lw \$4, 0(\$5) lw \$3, 4(\$4)
ST 型	LD-E-RS	lw	D	RS	lw \$4, 0(\$5) sw \$3, 4(\$4)
JR	R-E-RS	addu	D	RS	addu \$4, \$4, \$5 jr \$4
	I-E-RS	ori	D	RS	ori \$4, 0xffff jr \$4
	LD-E-RS	lw	D	RS	lw \$4, 0(\$5) jr \$4
	LD-M-RS	lw	D	RS	lw \$4, 0(\$5) nop jr \$4
B 型	R-E-RS	addu	D	RS	addu \$4, \$4, \$5 beq \$4, \$5, loop
	I-E-RS	ori	D	RS	ori \$4, 0xffff beq \$4, \$5, loop
	LD-E-RS	lw	D	RS	lw \$4, 0(\$5) beq \$4, \$5, loop
	LD-M-RS	lw	D	RS	lw \$4, 0(\$5) nop beq \$4, \$5, loop
	R-E-RT	addu	D	RT	addu \$4, \$4, \$5 beq \$5, \$4, loop
	I-E-RT	ori	D	RT	ori \$4, 0xffff beq \$5, \$4, loop
	LD-E-RT	lw	D	RT	lw \$4, 0(\$5) beq \$5, \$4, loop
	LD-M-RT	lw	D	RT	lw \$4, 0(\$5) nop beq \$5, \$4, loop

转发

类型	测试类型	前序指令	冲突位置	冲突寄存器	测试序列
R 型 (以 addu 为例)	R-W-RS	addu	D	RS	addu \$4, \$4, \$5 nop nop addu \$4, \$4, \$5
	I-W-RS	ori	D	RS	ori \$4, \$5, 0xffff nop nop addu \$4, \$4, \$5
	LD-W-RS	lw	D	RS	lw \$4, 0(\$5) nop nop addu \$4, \$4, \$5
	JAL-W-RS	jal	D	RS	jal loop nop nop addu \$1, \$31, \$1
	R-W-RT	addu	D	RT	addu \$4, \$4, \$5 nop nop addu \$4, \$5, \$4
	I-W-RT	ori	D	RT	ori \$4, \$5, 0xffff nop nop addu \$4, \$5, \$4
	LD-W-RT	lw	D	RT	lw \$4, 0(\$5) nop nop addu \$4, \$5, \$4
	JAL-W-RT	jal	D	RT	jal loop nop nop addu \$1, \$1, \$31
	R-W-RS	addu	E	RS	addu \$4, \$4, \$5 nop addu \$4, \$4, \$5 nop
	I-W-RS	ori	E	RS	ori \$4, \$5, 0xffff nop addu \$4, \$4, \$5 nop
	LD-W-RS	lw	E	RS	lw \$4, 0(\$5)

					nop addu \$4, \$4, \$5 nop
	JAL-W-RS	jal	E	RS	jal loop nop addu \$1, \$31, \$1 nop
	R-M-RS	addu	E	RS	addu \$4, \$4, \$5 addu \$4, \$4, \$5 nop
	I-M-RS	ori	E	RS	ori \$4, \$5, 0xffff addu \$4, \$4, \$5 nop
	JAL-M-RS	jal	E	RS	jal loop addu \$1, \$31, \$1 nop
	R-W-RT	addu	E	RT	addu \$4, \$4, \$5 nop addu \$4, \$5, \$4 nop
	I-W-RT	ori	E	RT	ori \$4, \$5, 0xffff nop addu \$4, \$5, \$4 nop
	LD-W-RT	lw	E	RT	lw \$4, 0(\$5) nop addu \$4, \$5, \$4 nop
	JAL-W-RT	jal	E	RT	jal loop nop addu \$1, \$1, \$31 nop
	R-M-RT	addu	E	RT	addu \$4, \$4, \$5 addu \$4, \$5, \$4 nop
	I-M-RT	ori	E	RT	ori \$4, \$5, 0xffff addu \$4, \$5, \$4 nop
	JAL-M-RT	jal	E	RT	jal loop addu \$1, \$1, \$31 nop
I 型 (以 ori 为	R-W-RS	addu	D	RS	addu \$4, \$4, \$5 nop nop

例)					ori \$4, \$4, 0xffff
	I-W-RS	ori	D	RS	ori \$4, \$5, 0xffff nop nop ori \$4, \$4, 0x0000
	LD-W-RS	lw	D	RS	lw \$4, 0(\$5) nop nop ori \$4, \$4, 0xffff
	JAL-W-RS	jal	D	RS	jal loop nop nop ori \$1, \$31, 0xffff
	R-W-RS	addu	E	RS	addu \$4, \$4, \$5 nop ori \$4, \$4, 0xffff nop
	I-W-RS	ori	E	RS	ori \$4, \$5, 0xffff nop ori \$4, \$4, 0x0f0f nop
	LD-W-RS	lw	E	RS	lw \$4, 0(\$5) nop ori \$4, \$4, 0xffff nop
	JAL-W-RS	jal	E	RS	jal loop nop ori \$1, \$31, 0xffff nop
	R-M-RS	addu	E	RS	addu \$4, \$4, \$5 ori \$4, \$4, 0xffff nop
	I-M-RS	ori	E	RS	ori \$4, \$5, 0xffff ori \$4, \$4, 0xf0f0 nop
	JAL-M-RS	jal	E	RS	jal loop ori \$1, \$31, 0xffff0 nop
LD 型	R-W-RS	addu	D	RS	addu \$4, \$4, \$5 nop nop lw \$5, 0(\$4)
	I-W-RS	ori	D	RS	ori \$4, \$5, 0xffff nop

					nop lw \$5, 0(\$4)
	LD-W-RS	lw	D	RS	lw \$4, 0(\$5) nop nop lw \$5, 0(\$4)
	JAL-W-RS	jal	D	RS	jal loop nop nop lw \$5, 0(\$31)
	R-W-RS	addu	E	RS	addu \$4, \$4, \$5 nop lw \$5, 0(\$4) nop
	I-W-RS	ori	E	RS	ori \$4, \$5, 0xffff nop lw \$5, 0(\$4) nop
	LD-W-RS	lw	E	RS	lw \$4, 0(\$5) nop lw \$5, 0(\$4) nop
	JAL-W-RS	jal	E	RS	jal loop nop lw \$5, 0(\$31) nop
	R-M-RS	addu	E	RS	addu \$4, \$4, \$5 lw \$5, 0(\$4) nop
	I-M-RS	ori	E	RS	ori \$4, \$5, 0xffff lw \$5, 0(\$4) nop
	JAL-M-RS	jal	E	RS	jal loop lw \$5, 0(\$31) nop
ST 型	R-W-RS	addu	D	RS	addu \$4, \$4, \$5 nop nop sw \$5, 0(\$4)
	I-W-RS	ori	D	RS	ori \$4, \$5, 0xffff nop nop sw \$5, 0(\$4)
	LD-W-RS	lw	D	RS	lw \$4, 0(\$5)

					nop nop sw \$5, 0(\$4)
	JAL-W-RS	jal	D	RS	jal loop nop nop sw \$5, 0(\$31)
	R-W-RT	addu	D	RT	addu \$4, \$4, \$5 nop nop sw \$4, 0(\$5)
	I-W-RT	ori	D	RT	ori \$4, \$5, 0xffff nop nop sw \$4, 0(\$5)
	LD-W-RT	lw	D	RT	lw \$4, 0(\$5) nop nop sw \$4, 0(\$6)
	JAL-W-RT	jal	D	RT	jal loop nop nop sw \$31, 0(\$5)
	R-M-RS	addu	E	RS	addu \$4, \$4, \$5 sw \$5, 0(\$4) nop
	I-M-RS	ori	E	RS	ori \$4, \$4, \$5 sw \$5, 0(\$4) nop
	JAL-M-RS	jal	E	RS	jal loop sw \$5, 0(\$31) nop
	R-W-RS	addu	E	RS	addu \$4, \$4, \$5 nop sw \$5, 0(\$4) nop
	I-W-RS	ori	E	RS	ori \$4, \$5, 0xffff nop sw \$5, 0(\$4) nop
	LD-W-RS	lw	E	RS	lw \$4, 0(\$5) nop sw \$5, 0(\$4) nop

	JAL-W-RS	jal	E	RS	jal loop nop sw \$5, 0(\$31) nop
	R-W-RT	addu	E	RT	addu \$4, \$4, \$5 nop sw \$4, 0(\$5) nop
	I-W-RT	ori	E	RT	ori \$4, \$5, 0xffff nop sw \$4, 0(\$5) nop
	LD-W-RT	lw	E	RT	lw \$4, 0(\$5) nop sw \$4, 0(\$6) nop
	JAL-W-RT	jal	E	RT	jal loop nop sw \$31, 0(\$5) nop
	R-W-RT	addu	M	RT	addu \$4, \$4, \$5 sw \$4, 0(\$5) nop nop
	I-W-RT	ori	M	RT	ori \$4, \$5, 0xffff sw \$4, 0(\$5) nop nop
	LD-W-RT	lw	M	RT	lw \$4, 0(\$5) sw \$4, 0(\$6) nop nop
	JAL-W-RT	jal	M	RT	jal loop sw \$31, 0(\$5) nop nop
JR	R-W-RS	addu	D	RS	addu \$4, \$4, \$5 nop nop jr \$4
	I-W-RS	ori	D	RS	ori \$4, \$5, 0xffff nop nop jr \$4

	LD-W-RS	lw	D	RS	lw \$4, 0(\$5) nop nop jr \$4
	JAL-W-RS	jal	D	RS	jal loop nop nop jr \$31
	R-M-RS	addu	D	RS	addu \$4, \$4, \$5 nop jr \$4
	I-M-RS	ori	D	RS	ori \$4, \$5, 0xffff nop jr \$4
	JAL-M-RS	jal	D	RS	jal loop nop jr \$31
	JAL-E-RS	jal	D	RS	jal loop jr \$31
B 型	R-W-RS	addu	D	RS	addu \$4, \$4, \$5 nop nop beq \$4, \$3, loop
	I-W-RS	ori	D	RS	ori \$4, \$5, 0xffff nop nop beq \$4, \$3, loop
	LD-W-RS	lw	D	RS	lw \$4, 0(\$5) nop nop beq \$4, \$3, loop
	JAL-W-RS	jal	D	RS	jal loop nop nop beq \$31, \$3, loop
	R-M-RS	addu	D	RS	addu \$4, \$4, \$5 nop beq \$4, \$3, loop
	I-M-RS	ori	D	RS	ori \$4, \$5, 0xffff nop beq \$4, \$3, loop
	JAL-M-RS	jal	D	RS	jal loop nop beq \$31, \$3, loop

	JAL-E-RS	jal	D	RS	jal loop beq \$31, \$3, loop
	R-W-RT	addu	D	RT	addu \$4, \$4, \$5 nop nop beq \$3, \$4, loop
	I-W-RT	ori	D	RT	ori \$4, \$5, 0xffff nop nop beq \$3, \$4, loop
	LD-W-RT	lw	D	RT	lw \$4, 0(\$5) nop nop beq \$3, \$4, loop
	JAL-W-RT	jal	D	RT	jal loop nop nop beq \$3, \$31, loop
	R-M-RT	addu	D	RT	addu \$4, \$4, \$5 nop beq \$3, \$4, loop
	I-M-RT	ori	D	RT	ori \$4, \$5, 0xffff nop beq \$3, \$4, loop
	JAL-M-RT	jal	D	RT	jal loop nop beq \$3, \$31, loop
	JAL-E-RT	jal	D	RT	jal loop beq \$3, \$31, loop