(1)转发机制覆盖测试

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每一项又分为：cal\_r,st,beq

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6.E级Rs与W级load

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每一项又分为：cal\_r,cal\_i,ld,st

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3.E级Rt与M级jal

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6.E级Rt与W级load

7.E级Rt与W级jal

每一项又分为：cal\_r,st

五．M级Rt

1.M级Rt与W级cal\_r

2.M级Rt与W级cal\_i

3.M级Rt与W级load

4.M级Rt与W级jal

每一项又分为：st

一．D级rs

1.D级rs与E级jal

(1)Rs----cal\_r

ori $t0,11

jal eee

addu $t0,$ra,$0

eee:

110@00003000: $ 8 <= 0000000b

130@00003004: $31 <= 0000300c

150@00003008: $ 8 <= 0000300c

(2)Rs---cal\_i

ori $t0,11

jal eee

ori $t0,$ra,11

eee:

110@00003000: $ 8 <= 0000000b

130@00003004: $31 <= 0000300c

150@00003008: $ 8 <= 0000300f

2.D级Rs与M级cal\_r

(1)Rs----cal\_r

ori $t0,11

addu $t1,$t2,$t0

nop

addu $t2,$t1,$t0

110@00003000: $ 8 <= 0000000b

130@00003004: $ 9 <= 0000000b

170@0000300c: $10 <= 00000016

(2)Rs---cal\_i

ori $t0,11

addu $t1,$t2,$t0

nop

ori $t0,$t1,1

110@00003000: $ 8 <= 0000000b

130@00003004: $ 9 <= 0000000b

170@0000300c: $ 8 <= 0000000b

(3)Rs---load

addu $a0,$0,$0

nop

lw $t0,0($a0)

110@00003000: $ 4 <= 00000000

150@00003008: $ 8 <= 00000000

(4)Rs---store

ori $t0,111

addu $a0,$0,$0

nop

sw $t0,0($a0)

110@00003000: $ 8 <= 0000006f

130@00003004: $ 4 <= 00000000

150@0000300c: \*00000000 <= 0000006f

(5)Rs---beq

ori $t1,1

addu $t2,$t1,$0

nop

beq $t2,$t1,out

nop

out:

nop

110@00003000: $ 9 <= 00000001

130@00003004: $10 <= 00000001

(6)Rs---jr

ori $t1,0x00003014

addu $t2,$t1,$0

nop

jr $t2

nop

out:

nop

110@00003000: $ 9 <= 00003014

130@00003004: $10 <= 00003014

3.D级Rs与M级cal\_i

(1)Rs----cal\_r

ori $t0,11

ori $t1,$t2,0

nop

addu $t2,$t1,$t0

110@00003000: $ 8 <= 0000000b

130@00003004: $ 9 <= 00000000

170@0000300c: $10 <= 0000000b

(2)Rs---cal\_i

ori $t0,11

ori $t1,$t2,0

nop

ori $t0,$t1,1

110@00003000: $ 8 <= 0000000b

130@00003004: $ 9 <= 00000000

170@0000300c: $ 8 <= 00000001

190@00003010: $ 8 <= 0000000b

210@00003014: $ 9 <= 00000000

250@0000301c: $ 8 <= 00000001

(3)Rs---load

ori $a0,$0,0

nop

lw $t0,0($a0)

110@00003000: $ 4 <= 00000000

150@00003008: $ 8 <= 00000000

(4)Rs---store

ori $t0,111

ori $a0,$0,0

nop

sw $t0,0($a0)

110@00003000: $ 8 <= 0000006f

130@00003004: $ 4 <= 00000000

150@0000300c: \*00000000 <= 0000006f

(5)Rs---beq

ori $t1,1

ori $t2,$t1,0

nop

beq $t2,$t1,out

nop

out:

nop

110@00003000: $ 9 <= 00000001

130@00003004: $10 <= 00000001

(6)Rs---jr

ori $t1,0x00003014

ori $t2,$t1,0

nop

jr $t2

nop

out:

nop

110@00003000: $ 9 <= 00003014

130@00003004: $10 <= 00003014

4.D级Rs与M级jal

(1)Rs----cal\_r

ori $t0,11

jal eee

nop

addu $t0,$ra,$0

eee:

(2)Rs---cal\_i

ori $t0,11

jal eee

nop

ori $t0,$ra,11

eee:

(3)Rs---load

ori $a0,$0,0x00003000

jal eee

subu $ra,$ra,$a0

eee:

lw $t1,0($ra)

(4)Rs---store

ori $t1,1

ori $a0,$0,0x00003000

jal eee

subu $ra,$ra,$a0

eee:

sw $t1,0($ra)

5.D级Rs与W级cal\_r

(1)Rs----cal\_r

ori $t0,11

addu $t1,$t2,$t0

nop

nop

addu $t2,$t1,$t0

(2)Rs---cal\_i

ori $t0,11

addu $t1,$t2,$t0

nop

nop

ori $t0,$t1,1

(3)Rs---load

addu $a0,$0,$0

nop

nop

lw $t0,0($a0)

(4)Rs---store

ori $t0,111

addu $a0,$0,$0

nop

nop

sw $t0,0($a0)

(5)Rs---beq

ori $t1,1

addu $t2,$t1,$0

nop

nop

beq $t2,$t1,out

nop

out:

nop

(6)Rs---jr

ori $t1,0x00003014

addu $t2,$t1,$0

nop

nop

jr $t2

nop

out:

nop

6.D级Rs与W级cal\_i

(1)Rs----cal\_r

ori $t0,11

ori $t1,$t2,0

nop

nop

addu $t2,$t1,$t0

(2)Rs---cal\_i

ori $t0,11

ori $t1,$t2,0

nop

nop

ori $t0,$t1,1

(3)Rs---load

ori $a0,$0,0

nop

nop

lw $t0,0($a0)

(4)Rs---store

ori $t0,111

ori $a0,$0,0

nop

nop

sw $t0,0($a0)

(5)Rs---beq

ori $t1,1

ori $t2,$t1,0

nop

nop

beq $t2,$t1,out

nop

out:

nop

(6)Rs---jr

ori $t1,0x00003014

ori $t2,$t1,0

nop

nop

jr $t2

nop

out:

nop

7.D级Rs与W级load rt

(1)Rs----cal\_r

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

nop

nop

addu $t2,$t1,$t0

110@00003000: $ 9 <= 00000001

130@00003004: $ 8 <= 00000000

150@00003008: $ 9 <= 00000000

210@00003014: $10 <= 00000000

(2)Rs---cal\_i

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

nop

nop

ori $t0,$t1,1

110@00003000: $ 9 <= 00000001

130@00003004: $ 8 <= 00000000

150@00003008: $ 9 <= 00000000

210@00003014: $ 8 <= 00000001

(3)Rs---load

ori $t0,0x00000000

lw $t1,0($t0)

nop

nop

lw $t0,0($t1)

110@00003000: $ 8 <= 00000000

130@00003004: $ 9 <= 00000000

190@00003010: $ 8 <= 00000000

(4)Rs---store

ori $t0,0x00000000

lw $t1,0($t0)

nop

nop

sw $t0,0($t1)

110@00003000: $ 8 <= 00000000

130@00003004: $ 9 <= 00000000

170@00003010: \*00000000 <= 00000000

(5)Rs---beq

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

ori $t2,$t1,0

nop

beq $t1,$t2,out

nop

out:

nop

110@00003000: $ 9 <= 00000001

130@00003004: $ 8 <= 00000000

150@00003008: $ 9 <= 00000000

190@0000300c: $10 <= 00000000

(6)Rs---jr

ori $t0,0x00000000

ori $t2,$0,0x00003020

sw $t2,0($t0)

lw $t1,0($t0)

nop

nop

jr $t1

nop

out:

nop

110@00003000: $ 8 <= 00000000

130@00003004: $10 <= 00003020

130@00003008: \*00000000 <= 00003020

170@0000300c: $ 9 <= 00003020

8.D级Rs与W级jal

(1)Rs----cal\_r

ori $t0,11

jal eee

nop

nop

addu $t0,$ra,$0

eee:

(2)Rs---cal\_i

ori $t0,11

jal eee

nop

nop

ori $t0,$ra,11

eee:

(3)Rs---load

ori $a0,$0,0x00003000

jal eee

subu $ra,$ra,$a0

eee:

nop

lw $t1,0($ra)

(4)Rs---store

ori $t1,1

ori $a0,$0,0x00003000

jal eee

subu $ra,$ra,$a0

eee:

nop

sw $t1,0($ra)

二．D级Rt

1.D级rt与E级jal

(1)Rt----cal\_r

ori $t0,11

jal eee

addu $t0,$0,$ra

eee:

110@00003000: $ 8 <= 0000000b

130@00003004: $31 <= 0000300c

150@00003008: $ 8 <= 0000300c

(2)Rt---store

2.D级Rt与M级cal\_r

(1)Rt----cal\_r

ori $t0,11

addu $t1,$t2,$t0

nop

addu $t2,$t0,$t1

(2)Rt---store

ori $t0,111

addu $a0,$t0,$0

nop

sw $a0,0($0)

(2)Rt---beq

ori $t1,1

addu $t2,$t1,$0

nop

beq $t1,$t2,out

nop

out:

nop

3.D级Rt与M级cal\_i

(1)Rt----cal\_r

ori $t0,11

ori $t1,$t2,0

nop

addu $t2,$t0,$t1

(2)Rt---store

ori $a0,$0,111

nop

sw $a0,0($0)

(3)Rt---beq

ori $t1,1

ori $t2,$t1,0

nop

beq $t1,$t2,out

nop

out:

nop

4.D级Rt与M级jal

(1)Rt----cal\_r

ori $t0,11

jal eee

nop

addu $t0,$0,$ra

eee:

(2)Rt---store

ori $t1,1

ori $a0,$0,0x00003000

jal eee

subu $ra,$ra,$a0

eee:

sw $ra,0($0)

5.D级Rt与W级cal\_r

(1)Rt----cal\_r

ori $t0,11

addu $t1,$t2,$t0

nop

nop

addu $t2,$t0,$t1

(2)Rt---store

ori $t0,111

addu $a0,$0,$0

nop

nop

sw $a0,0($0)

(3)Rt---beq

ori $t1,1

addu $t2,$t1,$0

nop

nop

beq $t1,$t2,out

nop

out:

nop

6.D级Rt与W级cal\_i

(1)Rt----cal\_r

ori $t0,11

ori $t1,$t2,0

nop

nop

addu $t2,$t0,$t1

(4)Rt---store

ori $t0,111

ori $a0,$0,0

nop

nop

sw $a0,0($0)

(5)Rt---beq

ori $t1,1

ori $t2,$t1,0

nop

nop

beq $t1,$t2,out

nop

out:

nop

7.D级Rt与W级load rt

(1)Rt----cal\_r

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

nop

nop

addu $t2,$t0,$t1

(2)Rt---store

ori $t0,0x00000000

lw $t1,0($t0)

nop

nop

sw $t1,0($0)

(3)Rs---beq

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

ori $t2,$t1,0

nop

beq $t2,$t1,out

nop

out:

nop

8.D级Rt与W级jal

(1)Rt----cal\_r

ori $t0,11

jal eee

nop

nop

addu $t0,$0,$ra

eee:

(2)Rt---store

ori $t1,1

ori $a0,$0,0x00003000

jal eee

subu $ra,$ra,$a0

eee:

nop

sw $ra,0($0)

三．E级Rs

1.E级Rs与M级cal\_r

(1)Rs----cal\_r

ori $t2,$0,111

addu $t1,$t2,$t3

subu $t4,$t1,$0

110@00003000: $10 <= 0000006f

130@00003004: $ 9 <= 0000006f

150@00003008: $12 <= 0000006f

(2)Rs----cal\_i

ori $t2,$0,111

subu $t4,$t2,$0

ori $t2,$t4,111

(3)Rs----load

addu $t1,$t2,$t3

lw $t2,0($t1)

110@00003000: $ 9 <= 00000000

130@00003004: $10 <= 00000000

(4)Rs----store

addu $t1,$t2,$t3

sw $t2,0($t1)

2.E级Rs与M级cal\_i

(1)Rs----cal\_r

ori $t2,$0,111

ori $t1,$t2,0

subu $t4,$t1,$0

(2)Rs----cal\_i

ori $t2,$0,111

ori $t4,$t2,0

(3)Rs----load

ori $t1,$t2,$t3

lw $t2,0($t1)

(4)Rs----store

ori $t1,$t2,$t3

sw $t2,0($t1)

3.E级Rs与M级jal

(1)Rs----cal\_r

jal eee

subu $t1,$ra,$t2

eee:

(2)Rs----cal\_i

jal eee

lui $ra,111

eee:

(3)Rs----load

jal eee

lw $0,0($ra)

eee:

(4)Rs----store

jal eee

sw $0,0($ra)

eee:

4.E级Rs与W级cal\_r

(1)Rs----cal\_r

ori $t2,$0,111

addu $t1,$t2,$t3

nop

subu $t4,$t1,$0

(2)Rs----cal\_i

ori $t2,$0,111

subu $t4,$t2,$0

nop

ori $t2,$t4,111

(3)Rs----load

addu $t1,$t2,$t3

nop

lw $t2,0($t1)

(4)Rs----store

addu $t1,$t2,$t3

nop

sw $t2,0($t1)

5.E级Rs与W级cal\_i

(1)Rs----cal\_r

ori $t2,$0,111

ori $t1,$t2,0

nop

subu $t4,$t1,$0

(2)Rs----cal\_i

ori $t2,$0,111

nop

ori $t4,$t2,0

(3)Rs----load

ori $t1,$t2,$t3

nop

lw $t2,0($t1)

(4)Rs----store

ori $t1,$t2,$t3

nop

sw $t2,0($t1)

6.E级Rs与W级load

(1)Rs----cal\_r

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

nop

addu $t2,$t1,$t0

(2)Rs---cal\_i

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

nop

ori $t0,$t1,1

(3)Rs---load

ori $t0,0x00000000

lw $t1,0($t0)

nop

lw $t0,0($t1)

(4)Rs---store

ori $t0,0x00000000

lw $t1,0($t0)

nop

sw $t0,0($t1)

7.E级Rs与W级jal

(1)Rs----cal\_r

jal eee

nop

eee:

subu $t1,$ra,$t2

(2)Rs----cal\_i

jal eee

nop

eee:

lui $ra,111

(3)Rs----load

ori $t1,0x00003000

jal eee

eee:

subu $ra,$ra,$t1

lw $0,0($ra)

(4)Rs----store

ori $t1,0x00003000

jal eee

eee:

subu $ra,$ra,$t1

sw $0,0($ra)

四．E级Rt

1.E级Rt与M级cal\_r

(1)Rt----cal\_r

ori $t2,$0,111

addu $t1,$t2,$t3

subu $t4,$0,$t1

110@00003000: $10 <= 0000006f

130@00003004: $ 9 <= 0000006f

150@00003008: $12 <= ffffff91

170@0000300c: $10 <= 0000006f

190@00003010: $ 9 <= 0000006f

210@00003014: $12 <= ffffff91

(2)Rt----store

addu $t1,$t2,$t3

sw $t1,0($t2)

110@00003000: $ 9 <= 00000000

110@00003004: \*00000000 <= 00000000

2.E级Rt与M级cal\_i

(1)Rt----cal\_r

ori $t2,$0,111

ori $t1,$t2,0

subu $t4,$0,$t1

110@00003000: $10 <= 0000006f

130@00003004: $ 9 <= 0000006f

150@00003008: $12 <= ffffff91

(2)Rt----store

ori $t1,$t2,100

sw $t1,0($t1)

110@00003000: $ 9 <= 00000064

110@00003004: \*00000064 <= 00000064

3.E级Rt与M级jal

(1)Rt----cal\_r

jal eee

subu $t1,$t2,$ra

eee:

110@00003000: $31 <= 00003008

130@00003004: $ 9 <= ffffcff8

(2)Rt----store

jal eee

sw $ra,0($0)

eee:

110@00003000: $31 <= 00003008

110@00003004: \*00000000 <= 00003008

4.E级Rt与W级cal\_r

(1)Rt----cal\_r

ori $t2,$0,111

addu $t1,$t2,$t3

nop

subu $t4,$0,$t1

110@00003000: $10 <= 0000006f

130@00003004: $ 9 <= 0000006f

170@0000300c: $12 <= ffffff91

(2)Rt----store

addu $t1,$t2,$t3

nop

sw $t1,0($t2)

110@00003000: $ 9 <= 00000000

130@00003008: \*00000000 <= 00000000

5.E级Rt与W级cal\_i

(1)Rt----cal\_r

ori $t2,$0,111

ori $t1,$t2,0

nop

subu $t4,$0,$t1

110@00003000: $10 <= 0000006f

130@00003004: $ 9 <= 0000006f

170@0000300c: $12 <= ffffff91

(2)Rt----store

ori $t1,$t2,$t3

nop

sw $t1,0($t2)

110@00003000: $ 9 <= 00000064

130@00003008: \*00000000 <= 00000064

6.E级Rt与W级load

(1)Rt----cal\_r

ori $t1,1

ori $t0,0x00000000

lw $t1,0($t0)

nop

addu $t2,$t0,$t1

110@00003000: $ 9 <= 00000001

130@00003004: $ 8 <= 00000000

150@00003008: $ 9 <= 00000000

190@00003010: $10 <= 00000000

(2)Rt---store

ori $t0,0x00000000

lw $t1,0($t0)

nop

sw $t1,0($t0)

110@00003000: $ 8 <= 00000000

130@00003004: $ 9 <= 00000000

150@0000300c: \*00000000 <= 00000000

7.E级Rt与W级jal

(1)Rt----cal\_r

jal eee

nop

eee:

subu $t1,$t2,$ra

110@00003000: $31 <= 00003008

150@00003008: $ 9 <= ffffcff8

(2)Rt----store

ori $t1,0x00003000

jal eee

subu $ra,$ra,$t1

eee:

sw $ra,0($0)

110@00003000: $ 9 <= 00003000

130@00003004: $31 <= 0000300c

150@00003008: $31 <= 0000000c

150@0000300c: \*00000000 <= 0000000c

五．M级Rt

1.M级Rt与W级cal\_r

ori $t2,10

addu $t1,$t2,$t3

sw $t1,0($0)

110@00003000: $10 <= 0000000a

130@00003004: $ 9 <= 0000000a

130@00003008: \*00000000 <= 0000000a

2.M级Rt与W级cal\_i

ori $t2,10

ori $t1,$t2,10

sw $t1,0($0)

110@00003000: $10 <= 0000000a

130@00003004: $ 9 <= 0000000a

130@00003008: \*00000000 <= 0000000a

3.M级Rt与W级load

ori $t2,10

lw $t2,0($0)

sw $t2,0($0)

110@00003000: $10 <= 0000000a

130@00003004: $10 <= 00000000

130@00003008: \*00000000 <= 00000000

4.M级Rt与W级jal

ori $t2,10

jal eee

sw $ra,0($0)

eee:

110@00003000: $10 <= 0000000a

130@00003004: $31 <= 0000300c

130@00003008: \*00000000 <= 0000300c

(2)暂停机制覆盖测试

测试目录：

一．Beq\_rs/rt

(1)E级cal\_r\_rd

(2) E级cal\_i\_rt

(3) E级load\_rt

(4) M级load\_rt

二．Cal\_r\_rs/rt

E级load\_rt

三．Cal\_i\_rs

E级load\_rt

四．load\_rs

E级load\_rt

五．store\_rs

E级load\_rt

六．jr\_rs

(1)E级cal\_r\_rd

(2) E级cal\_i\_rt

(3) E级load\_rt

(4) M级load\_rt

一．Beq

(1) E段cal\_r

ori $s0,1

addu $s1,$s0,$0

beq $s0,$s1,eee

nop

eee:

nop

110@00003000: $16 <= 00000001

130@00003004: $17 <= 00000001

(2) E段cal\_i

ori $s0,1

ori $s1,$s0,2

beq $s1,$s0,eee

nop

eee:

nop

110@00003000: $16 <= 00000001

130@00003004: $17 <= 00000003

(3) E段load

ori $s0,$0,10

lw $s1,0($0)

beq $s1,$s0,eee

nop

eee:

nop

110@00003000: $16 <= 0000000a

130@00003004: $17 <= 00000000

(4) M段load

ori $s0,$0,10

lw $s1,0($0)

nop

beq $s1,$s0,eee

nop

eee:

addu $t0,$t0,$t0

110@00003000: $16 <= 0000000a

130@00003004: $17 <= 00000000

230@00003014: $ 8 <= 00000000

二．Cal\_r

E段load

lw $t2,0($0)

addu $t2,$t2,$t2

110@00003000: $10 <= 00000000

150@00003004: $10 <= 00000000

三．Cal\_i

E段load

lw $t2,0($0)

ori $t2,$t2,100

110@00003000: $10 <= 00000000

150@00003004: $10 <= 00000064

四．Load

E段load

lw $t2,0($0)

lw $t3,0($t2)

110@00003000: $10 <= 00000000

150@00003004: $11 <= 00000000

五．store

E段load

lw $t2,0($0)

sw $t3,0($t2)

110@00003000: $10 <= 00000000

130@00003004: \*00000000 <= 00000000

六．Jr

(1) E段cal\_r

ori $t3,$0,0x0000300c

addu $t2,$t2,$t3

jr $t2

nop

110@00003000: $11 <= 0000300c

130@00003004: $10 <= 0000300c

(2) E段cal\_i

ori $t3,$0,0x0000300c

ori $t2,$t3,0

jr $t2

nop

110@00003000: $11 <= 0000300c

130@00003004: $10 <= 0000300c

(3) E段load

ori $t3,$0,0x0000300c

sw $t3,0($0)

lw $t2,0($0)

jr $t2

nop

110@00003000: $11 <= 0000300c

110@00003004: \*00000000 <= 0000300c

150@00003008: $10 <= 0000300c

(4) M段load

ori $t3,$0,0x0000300c

sw $t3,0($0)

lw $t2,0($0)

nop

jr $t2

nop

110@00003000: $11 <= 0000300c

110@00003004: \*00000000 <= 0000300c

150@00003008: $10 <= 0000300c

综合测试

测试代码

ori $a0,$0,1999

ori $a1,$a0,111

lui $a2,12345

lui $a3,0xffff

lui $t0,0xffff

beq $a3,$t0,eee

addu $s7,$0,$a0

nop

ori $a3,$a3,0xffff

addu $s0,$a0,$a1

addu $s1,$a3,$a3

addu $s2,$a3,$s0

beq $s2,$s3,eee

subu $s0,$a0,$s2

subu $s1,$a3,$a3

eee:

subu $s2,$a3,$a0

subu $s3,$s2,$s1

ori $t0,$0,0x0000

sw $a0,0($t0)

nop

sw $a1,4($t0)

sw $s0,8($t0)

sw $s1,12($t0)

sw $s2,16($t0)

sw $s5,20($t0)

lw $t1,20($t0)

lw $t7,0($t0)

lw $t6,20($t0)

sw $t6,24($t0)

lw $t5,12($t0)

jal end

ori $t0,$t0,1

ori $t1,$t1,1

ori $t2,$t2,2

beq $t0,$t2,eee

lui $t3,1111

jal out

end:

addu $t0,$t0,$t7

jr $ra

out:

addu $t0,$t0,$t3

ori $t2,$t0,0

beq $t0,$t2,qqq

lui $v0,10

qqq:

lui $v0,11

j www

nop

www:

lui $ra,100

机器码

340407cf

3485006f

3c063039

3c07ffff

3c08ffff

10e80009

0004b821

00000000

34e7ffff

00858021

00e78821

00f09021

12530002

00928023

00e78823

00e49023

02519823

34080000

ad040000

00000000

ad050004

ad100008

ad11000c

ad120010

ad150014

8d090014

8d0f0000

8d0e0014

ad0e0018

8d0d000c

0c000c25

35080001

35290001

354a0002

110affec

3c0b0457

0c000c27

010f4021

03e00008

010b4021

350a0000

110a0001

3c02000a

3c02000b

08000c2e

00000000

3c1f0064

测试输出

110@00003000: $ 4 <= 000007cf

130@00003004: $ 5 <= 000007ef

150@00003008: $ 6 <= 30390000

170@0000300c: $ 7 <= ffff0000

190@00003010: $ 8 <= ffff0000

250@00003018: $23 <= 000007cf

270@0000303c: $18 <= fffef831

290@00003040: $19 <= fffef831

310@00003044: $ 8 <= 00000000

310@00003048: \*00000000 <= 000007cf

350@00003050: \*00000004 <= 000007ef

370@00003054: \*00000008 <= 00000000

390@00003058: \*0000000c <= 00000000

410@0000305c: \*00000010 <= fffef831

430@00003060: \*00000014 <= 00000000

470@00003064: $ 9 <= 00000000

490@00003068: $15 <= 000007cf

510@0000306c: $14 <= 00000000

510@00003070: \*00000018 <= 00000000

550@00003074: $13 <= 00000000

570@00003078: $31 <= 00003080

590@0000307c: $ 8 <= 00000001

610@00003094: $ 8 <= 000007d0

650@0000309c: $ 8 <= 000007d0

670@00003080: $ 9 <= 00000001

690@00003084: $10 <= 00000002

750@0000308c: $11 <= 04570000

770@00003090: $31 <= 00003098

790@00003094: $ 8 <= 00000f9f

810@0000309c: $ 8 <= 04570f9f

830@000030a0: $10 <= 04570f9f

890@000030a8: $ 2 <= 000a0000

910@000030ac: $ 2 <= 000b0000

970@000030b8: $31 <= 00640000