5.12.3, 5.12.6, 6.4.1, 6.4.2, 6.7.1, 6.9.3, 6.18.2

Chris Bero

HW 8

CPE 431

pg. 436 5.12.3 4096 $\frac{16\,GB}{1} \cdot \frac{1024\,MB}{1\,GB} \cdot \frac{1024\,KB}{1\,MB} = 16,777,216\,KB$

$\frac{16\,GB}{4KB/pg} = \boxed{4,194,304 \text{ pages}}$

Common case and worste case are 1

5.12.1 VA Page 200 is read-only, so the write should fail and return an exception.

6.4.1

	addiu	2
	addiu	2
loop:	l.d	6
	l.d	6
	add.d	4
	s.d	1
	addiu	2
	bne	

19 cycles per loop

4 cycles to set up loop
18966 cycles total unrolled.

6.4.2 $f1 is the dependant variable, it affects $f1, $f0, $f2, $f4 of the next loop.

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6.7.1

Possible Values of X: 2
Possible Values of Y: 2
Possible Values of W: 1, 3, 3, 5
Possible Values of Z: 0, 2, 2, 4

X and Y are independant and only assigned a single value, no matter what order they fall in they will have the same end value.

W and Z both depend on X + Y, their values will change based on their order in execution.

6.9.3

Cycle	Issue Slot A	Issue Slot B
1	A1 - Ø	
2		B1 - Ø
3		
4	A2	
5		B2
6	A3	
7		B3
8	A4	
9		B4
10		

Takes 10 cycles, no issue slots wasted due to hazards.

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6.18.2 Single precision: 4 bytes, 13 nonzero elements.
integer: 2 bytes
3 arrays:

A: 13 elements X 4 bytes = 52 bytes
IA: 7 integers X 2 bytes: 14 bytes
JA: 13 integers X 2 bytes: 26 bytes

92 bytes