컴퓨터구조 Assignment-5 - 18점 만점

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(이것을 인쇄한 후 답을 여기에 쓰고, 이것만 제출할 것.)

1.1 (1점x6 = 6점)

[Table 4]

(a)

Address	Virtual page number	TLB (H/M)	Page fault (Y/N)	Physical page number
9E30	9		N	1
FA00	15	H	N	2
5580	5			4
A368	10		N	7
2220	2		N	6
5FC0	5	H	N	4
73F0	7			6

(b)

Address	Virtual page number	TLB (H/M)	Page fault (Y/N)	Physical page number
6C00	6			4
BBB8	11			6
AA00	10	H	N	7
4720	4		N	0
D0D0	13			5
3000	3			0
6EB0	6		N	4

Final TLBs (순서에 상관 없음)

Valid	Tag	Physical Page Number
1	15	2
1	5	4
1	10	7
1	7	6

Valid	Tag	Physical Page Number
1	3	0
1	10	7
1	6	4
1	13	5

Final page tables

	Valid	Physical Page Number		Valid	Physical Page Number
0					
1					
2					
3	1	5		1	0
4	1	0			
5	1	4			
6				1	4
7	1	6			
8					
9	1	1		1	1
10	1	7		1	7
11				1	6
12					
13				1	5
14	1	3		1	3
15	1	2		1	2

1.2 (1점x4 = 4점)

Final TLBs (2-way)

(a)

	V	T	PPN	V	T	PPN
Set 0	1	5	7	0		
Set 1	1	2	4	1	3	6

(b)

	V	T	PPN	V	T	PPN
Set 0	1	3	4	1	5	7
Set 1	1	1	0	1	6	5

Final TLBs (Direct)

(a)

	V	T	PPN
0	0		
1	1	1	4
2	0		
3	1	1	6

(b)

	V	T	PPN
0	0		
1	1	3	5
2	1	1	4
3	1	0	0

1.3 (1점x6 = 6점)

<div align="center">[Table 7]</div>

(a)

Address	Virtual page number	TLB (H/M)	Page fault (Y/N)	Physical page number
9E30	4		N	0
FA00	7			1
5580	2		N	2
A368	5		N	3
2220	1			2
5FC0	2			2
73F0	3			2

(b)

Address	Virtual page number	TLB (H/M)	Page fault (Y/N)	Physical page number
6C00	3			1
BBB8	5		N	3
AA00	5	H	N	3
4720	2		N	2
D0D0	6			2
3000	1			1
6EB0	3			1

Final TLBs (순서에 상관 없음)

Valid	Tag	Physical Page Number
1	3	2
1	5	3

Valid	Tag	Physical Page Number
1	6	2
1	3	1

Final page tables

	Valid	Physical Page Number
0		
1		
2		
3	1	2
4	1	0
5	1	3
6		
7	1	1

	Valid	Physical Page Number
0		
1		
2		
3	1	1
4	1	0
5	1	3
6	1	2
7		

1.4 (1점x2 = 2점)

(a) Number of pages = $2^{32}/8K = 2^{32}/2^{13} = 2^{19}$

   Page table size = $16 \times 2^{19} \times 4$ Bytes = 64×2^{19} Bytes = 2^{25} Bytes = 32 MBytes

(b) Number of pages = $2^{40}/2K = 2^{40}/2^{13} = 2^{27}$

   Page table size = $16 \times 2^{27} \times 4$ Bytes = 64×2^{27} Bytes = 2^{33} Bytes = 8 GBytes