Courseware Course Info Discussion Wiki Progress Discussion Guidelines Resources Exploring Engineering

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Syllabus

MULTIPROGRAMMING AND MULTITHREADING

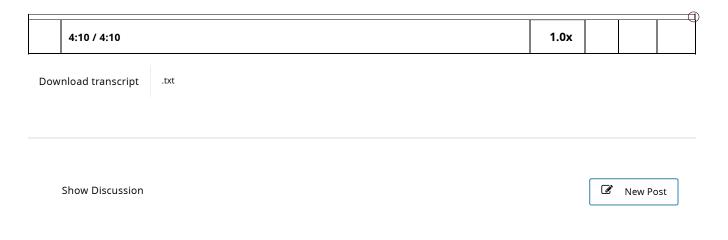
How to Use Jade

THREAD-LEVEL PARALLELISM

	3:26 / 3:26	1.0x		
Dow	nload transcript .txt			
	Show Discussion		New Po	st

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Help



1. CHECK YOUR UNDERSTANDING (1/1 point)

In the video, the two-way multithreaded pipeline executed the following two threads:

	<u>Threa</u>	<u>ıd 2</u>
D R1, R2, R3	ADD	R7, R1, 0
T R4, R1	ADD	R4, R7, R2
D R5, R4, R3	AND	R5, R4, 1
D R6, R5, 2	STR	R5, R1, 0
z LOOP	ADD	R1, R1, 0
	D R5, R4, R3 D R6, R5, 2	D R1, R2, R3 ADD T R4, R1 ADD D R5, R4, R3 AND D R6, R5, 2 STR

How was the two-way multithreaded pipeline able to achieve higher throughput than the 2-way superscalar pipeline without multithreading?

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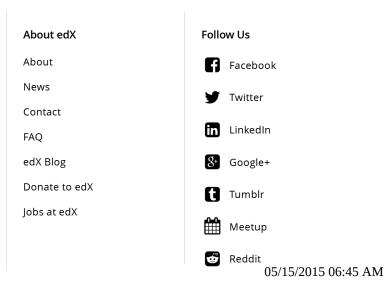
	J-way mun	ithreaded pipelir	ne did not require any forwarding of data.
	·		
XPLANATIO	N		
he first ans	wer is inco	rrect since the d	ata dependences are still present in both threads.
he second a		rue. As we saw ir	n the video, the hardware moved pairs of instructions, one from each thread,
	r did not re	order instruction	ns
he compile	r did flot ic		
orwarding \	was in fact	performed withi	in the pipeline. For instance, when the first instruction in each thread (the two results were forwarded into EX for the following NOT and ADD instructions.
orwarding \	was in fact	performed withi	in the pipeline. For instance, when the first instruction in each thread (the two
orwarding (DDs) move	was in fact d together	performed withi into MEM, their	in the pipeline. For instance, when the first instruction in each thread (the two results were forwarded into EX for the following NOT and ADD instructions.



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