



[Course](#)

[Progress](#)

[Dates](#)

[Discussion](#)

[🏠 Course](#) / [18. Devices and Interrupts](#) / [Worked Examples](#)



[< Previous](#)



[Next >](#)

WE18.1

Bookmark this page

Video explanation of solution is provided below the problem.

Devices and Interrupts

3 points possible (ungraded)

A computer system has three devices whose characteristics are summarized in the following table:

Device	Service time	Interrupt frequency	Deadline
D1	400us	1/(800us)	800us
D2	250us	1/(1000us)	300us
D3	100us	1/(800us)	400us

Service time indicates how long it takes to run the interrupt handler for each device. The maximum time allowed to elapse between an interrupt request and the end of the execution of the interrupt handler is indicated by the deadline.

1. If a user-mode program P takes 100 seconds to execute when interrupts are disabled, approximately how long will P take to run when interrupts are enabled?

Approximate time for P to run with interrupts enabled (seconds):

2. Can the requirements given in the table above be met using a **weak** priority ordering among the interrupt requests? If so give priority ordering for D1, D2, D3 or select device(s) whose deadlines cannot be met. Select all that apply.

Weak priority ordering or list device(s) with missed deadlines:

☐ D1 > D2

☐ D1 > D3

☐ D2 > D1

☐ D2 > D3

☐ D3 > D1

☐ D3 > D2

☐ D1 misses deadline

☐ D2 misses deadline

☐ D3 misses deadline

3. Can the requirements given in the table above be met using a **strong** priority ordering among the interrupt requests? If so give priority ordering for D1, D2, D3 or select device(s) whose deadlines cannot be met. Select all that apply.


Strong priority ordering or list device(s) with missed deadlines:

☐ D1 > D2

☐ D1 > D3

☐ D2 > D1

☐ D3 > D2

 Calculator

☐ $D2 > D3$

☐ $D3 > D1$

☐ $D3 > D2$

☐ D1 misses deadline

☐ D2 misses deadline

☐ D3 misses deadline

Submit

Devices and Interrupts



(Caption will be displayed when you start playing the video.)

0:00 / 0:00

1.0x

Video
[Download video file](#)

Transcripts
[Download SubRip \(.srt\) file](#)
[Download Text \(.txt\) file](#)

Discussion

Hide Discussion

Topic: 18. Devices and Interrupts / WE18.1

Add a Post

Show all posts

by recent activity

There are no posts in this topic yet.

< Previous

Next Up: Lecture Videos (36:48) >

38 min + 8 activities

Calculator



edX

- [About](#)
- [Affiliates](#)
- [edX for Business](#)
- [Open edX](#)
- [Careers](#)
- [News](#)

Legal

- [Terms of Service & Honor Code](#)
- [Privacy Policy](#)
- [Accessibility Policy](#)
- [Trademark Policy](#)
- [Sitemap](#)

Connect

- [Blog](#)
- [Contact Us](#)
- [Help Center](#)
- [Media Kit](#)
- [Donate](#)



© 2021 edX Inc. All rights reserved.
深圳市恒宇博科技有限公司 [粤ICP备17044299号-2](#)