

# Quiz - Solid State Storage Devices (SSDs)

Total points **47/47**

Take the quiz solo, but feel free to consult a partner student, the book, the videos or other resources if needed. Re-take quiz if your score is less than 80% or if you just want some more practice.

The respondent's email (**faiyaz@pdx.edu**) was recorded on submission of this form.

Match each advantage with each type of storage device \*

	SSDs	HDDs	Score	
longer lasting data integrity	<input type="radio"/>	<input checked="" type="radio"/>	1/1	✓
quieter	<input checked="" type="radio"/>	<input type="radio"/>	1/1	✓
less expensive (per byte stored)	<input type="radio"/>	<input checked="" type="radio"/>	1/1	✓
no moving parts	<input checked="" type="radio"/>	<input type="radio"/>	1/1	✓
faster	<input checked="" type="radio"/>	<input type="radio"/>	1/1	✓
larger total capacity	<input type="radio"/>	<input checked="" type="radio"/>	1/1	✓
random reads/writes are just as fast as sequential reads/writes	<input checked="" type="radio"/>	<input type="radio"/>	1/1	✓



✓ With a flash chip, when you need to update a specific location (a page) you must first erase a larger area (a flash block). \*5/5

☒ True



☐ False

✓ Writing a specific location repeatedly on a flash chip causes that location to wear out. \*5/5

☒ True



☐ False

✓ When accessing a particular page within a flash chip, it is possible that some bits get flipped in neighboring pages \*5/5

☒ True



☐ False

✓ Flash chips use terminology such as "block" and "page" in exactly the same way as is used in other parts of operating systems terminology. \*5/5

☐ True

☒ False



✓ A typical SSD contains both persistent flash chips and volatile (e.g., SRAM) memory chips. \*5/5

☒ True



☐ False

✓ SSDs tend to present the exact same client interface as is used for Hard Disk Drives \*5/5

☒ True. this is done for backward compatibility and interoperability



☐ False. SSDs present a flash-aware programming interface that is optimized for performance and reliability of flash-based devices

✓ The \_\_\_\_\_ within an SSD interprets client reads and writes by translating them into internal flash operations. \*5/5

☒ flash translation layer (FTL)



☐ translation lookaside buffer

☐ block to block translation logic

☐ page table

☐ flash controller



✓ Most SSDs use a logical-to-physical map and store that map in volatile memory. How does an SSD avoid losing its map when the device is powered off? \*5/5

- ☒ use asynchronous logging and checkpointing ✓
- ☐ write redundant map recovery information into the pages
- ☐ it uses persistent volatile memory
- ☐ combine error correcting codes with redundant disk arrays
- ☐ avoid loss of volatile memory powered with a backup generator

This form was created inside of Portland State University.

Google Forms

