

CPE 432: Computer Architecture and Organization (2)

Computer Technology Trends
Research Project

Objectives

- Understand the technological improvements and the **effects of these improvements** on emerging computers, communication means, and personal mobile devices.
- Understand the **impact of computer engineering solutions** in a global, economic, environmental, and societal context.
- Know computer engineering **contemporary issues**.
- Prepare a **professional formal report**.

Purpose

- Select an **active contemporary** topic in computer design.
 - The case study of this year is **Samsung Galaxy S22 Smartphones**
- Example topics: new processors, computers, memory hierarchy, storage system, accelerator, GPU, etc.
- Survey the technology **trend** and the **state-of-the-art** solutions/products.
- Discuss the **effects** of the selected technology in a global, economic, environmental, and societal context.
- Give **conclusions** and expected **future** directions.

Procedure

- ✓ **Find a topic** related to a new technology in computer design
- 1. **Research** your topic
- 2. **Prepare** a report
- 3. **Submit** your report in PDF format through MS Teams.

Knowledge Sources

- Technology news: [CNN](#)
- Magazines: [IEEE](#) and [IEEE Computer Society](#)
- The internet, [Google](#), [YouTube](#)
- Encyclopedias: [Wikipedia](#)
- Scholarly literature search engines: [Google Scholar](#)
- Online courses: [Coursera](#)
- [U of J Library](#)

The University of Jordan Library

(library.ju.edu.jo)

- **Horizon Search:** Jordanian Public Universities Network
- **Thesis Search**
- **Electronic Library** (elibrary.ju.edu.jo)
 - Request buying an article
 - EBSCO eBooks
 - ACM Digital Library
 - IEEE Xplore Digital Library
 - Springer Link
 - Science Direct
 - Scopus (Article and Journal Index)
 - Web of Science (Article and Journal Index)

Suggested Topics

- New processor, PMD, or computer
- Multi-core trend
- Low-power designs
- Cache design for multi-core processors
- High-performance memory and storage
- Reliable memory and storage
- GPUs

Research Report

- 2 to 4-page report
- Use IEEE A4 conference template at http://www.ieee.org/conferences_events/conferences/publishing/templates.html
- Structure
 - Title and student name
 - Abstract
 - Introduction and Trend
 - State-of-the-art Solutions
 - **Effects and Changes**
 - Conclusions and future directions
 - References

Grading

Criterion	Mark
Demonstrate an ability to communicate effectively with a range of audiences.	5
Demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	5
Total	10

General

- **Each student** should submit his/her **own distinct report**
- **Cheating will not be tolerated**
- Any **copy-paste** or **paraphrasing** is considered **cheating**
- Deadline: **One week before the last lecture**