10 Lecture - CS501

Important Subjective

1. **What is FALCON-E, and how is it different from ISA?**
   Answer: FALCON-E is a custom instruction set architecture developed by Qualcomm that aims to improve performance and energy efficiency for specific applications. ISA, on the other hand, is a standardized architecture used by many processor manufacturers to ensure compatibility across different processors.

   What are the advantages of FALCON-E architecture?
   Answer: FALCON-E architecture provides improved performance and energy efficiency for specific applications by simplifying the instruction set and optimizing it for the target application.

   What are the advantages of ISA architecture?
   Answer: ISA architecture provides compatibility across different processors, making it easier for software developers to create applications that work on a variety of devices.

   How does instruction set complexity impact performance?
   Answer: The complexity of the instruction set impacts performance because it affects how quickly the processor can execute instructions. Simplifying the instruction set can improve performance and reduce power consumption.

   How does power consumption differ between FALCON-E and ISA architectures?
   Answer: FALCON-E architecture aims to reduce power consumption by optimizing the instruction set for specific applications. ISA architecture, on the other hand, provides compatibility across different processors but may not be optimized for specific applications, leading to higher power consumption.

   Can software written for ISA architecture work on FALCON-E architecture?
   Answer: Software written for ISA architecture may not work on FALCON-E architecture because of the differences in the instruction set. However, FALCON-E architecture can support some ISA instructions.

   How does compatibility with software impact the choice between FALCON-E and ISA?
   Answer: Compatibility with software is an important factor when choosing between FALCON-E and ISA. If compatibility with existing software is critical, ISA may be the better choice. If performance and energy efficiency are more important, FALCON-E may be the better choice.

   Can FALCON-E architecture be used in all types of processors?
   Answer: FALCON-E architecture is a custom design and may not be compatible with all types of processors. It is typically used in processors designed by Qualcomm.

   Can ISA architecture be modified to improve performance and energy efficiency for specific applications?
   Answer: ISA architecture is a standardized architecture and cannot be modified by individual manufacturers. However, manufacturers can optimize the implementation of the architecture to

improve performance and energy efficiency.

What factors should be considered when choosing between FALCON-E and ISA architectures?
Answer: When choosing between FALCON-E and ISA architectures, factors such as the target application, performance requirements, power consumption, and compatibility with existing software should be considered.