

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Parallel Computer Architecture

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Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Why do we need parallel architecture ?
Lecture 2 - Multicore Revolution
Lecture 3 - What is Parallel Architecture?
Lecture 4 - Performance and Benchmarking
Lecture 5 - Reporting Results
Lecture 6 - Some Laws
Lecture 7 - A shift from sequential to parallel
Lecture 8 - Programming Models
Lecture 9 - Shared Memory Paradigm
Lecture 10 - Message Passing Paradigm
Lecture 11 - Examples
Lecture 12 - Cache Basics
Lecture 13 - Memory hierarchy questions - 1
Lecture 14 - Memory hierarchy questions - 2
Lecture 15 - Six basic cache optimisations - 1
Lecture 16 - Six basic cache optimisations - 2
Lecture 17 - Virtual Memory - 1
Lecture 18 - Virtual Memory - 2
Lecture 19 - Cache Coherence Problem
Lecture 20 - Concept of Serialisation
Lecture 21 - Coherence related Conditions
Lecture 22 - Types of Coherence Protocols - 1
Lecture 23 - Types of Coherence Protocols - 2
Lecture 24 - VI Protocol
Lecture 25 - 3 State: MSI Protocol
Lecture 26 - MESI Protocol
Lecture 27 - Dragon Protocol
Lecture 28 - Coherence misses
Lecture 29 - Coherence misses example

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- Lecture 30 - Correctness Requirements
- Lecture 31 - Single-Level caches with an Atomic Bus - 1
- Lecture 32 - Single-Level caches with an Atomic Bus - 2
- Lecture 33 - Multi-Level caches with an Atomic Bus - 1
- Lecture 34 - Multi-Level caches with an Atomic Bus - 2
- Lecture 35 - Split transaction Bus
- Lecture 36 - Phases in Split Transaction Bus
- Lecture 37 - Request table and Organization
- Lecture 38 - Path of a Cache Miss
- Lecture 39 - Multi-Level cache + Split transaction Bus
- Lecture 40 - Introduction to Directory Cache Coherence
- Lecture 41 - Basic Operation of a Directory
- Lecture 42 - Directory Organisations
- Lecture 43 - Directory Overhead Optimisations
- Lecture 44 - Directory Protocol optimisations
- Lecture 45 - Proving Correctness - 1
- Lecture 46 - Proving Correctness - 2
- Lecture 47 - SGI Origin Architecture
- Lecture 48 - Working of protocol
- Lecture 49 - Correctness Issues
- Lecture 50 - Sequent NUMA-Q Architecture
- Lecture 51 - Working of protocol - 1
- Lecture 52 - Working of protocol - 2
- Lecture 53 - Correctness and Protocol Interaction
- Lecture 54 - Sequential Consistency
- Lecture 55 - Implications of Sequential Consistency
- Lecture 56 - Relaxed Consistency Models - 1
- Lecture 57 - Relaxed Consistency Models - 2
- Lecture 58 - Relaxing all Orders
- Lecture 59 - Uninterruptible Instructions
- Lecture 60 - Implementation of atomic instructions
- Lecture 61 - Other synchronisation options
- Lecture 62 - Interconnect Overview
- Lecture 63 - Topologies
- Lecture 64 - Routing
- Lecture 65 - Flow Control