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| Parallel Computing | |
| **SOURCE: 01** | **Parallel and Distributed Computing** | |
| 01 | [Introduction to Parallel and Distributed Systems and Why We Use It](https://www.youtube.com/watch?v=FuUd5LrWWkE&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=1&pp=iAQB) | |
| 02 | [Why Not to Use Parallel and Distributed Computing](https://www.youtube.com/watch?v=4ABTT1VfAeg&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=2&pp=iAQB) | |
| 03 | [Speed Up Scalability and Amdhal’s Law Part-1](https://www.youtube.com/watch?v=1Du3DT34_Vc&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=3&pp=iAQB) | |
| 04 | [Hardware Architecture](https://www.youtube.com/watch?v=TemQr3eHIyM&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=4&pp=iAQB) | |
| 05 | [Networks of Workstations (NOW) and Distributed Memory](https://www.youtube.com/watch?v=E3tDJZ-89AY&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=5&pp=iAQB) | |
| 06 | [Computer Clusters](https://www.youtube.com/watch?v=R_Invw8_k0s&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=6&pp=iAQB) | |
| 07 | [Software Architecture and Threads](https://www.youtube.com/watch?v=TxCAhxJ6pas&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=7&pp=iAQB) | |
| 08 | [Processes and Message Passing Programming Paradigm](https://www.youtube.com/watch?v=nnixVawEibE&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=8&pp=iAQB) | |
| 09 | [Distributed Shared Memory (DSM)](https://www.youtube.com/watch?v=K-zoEUeIgYM&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=9&pp=iAQB) | |
| 10 | [Research and Project Topics – Parallel and Distributed Computing](https://www.youtube.com/watch?v=OokfRlMgH-0&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=10&pp=iAQB) | |
| 11 | [Parallel Algorithms](https://www.youtube.com/watch?v=TtCCFD3PWVw&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=11&pp=iAQB) | |
| 12 | [Concurrency and Synchronization in Parallel Computing](https://www.youtube.com/watch?v=-vPC2UMMnXc&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=12&pp=iAQB) | |
| 13 | [Data and Work Partitioning](https://www.youtube.com/watch?v=3rgG47yiPs0&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=13&pp=iAQB) | |
| 14 | [Parallelization Strategies and Granularity Part-1](https://www.youtube.com/watch?v=5Ie5Jbvd_8c&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=14&pp=iAQB) | |
| 15 | [Parallelization Strategies and Granularity Part-2](https://www.youtube.com/watch?v=i18_jRZ2F04&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=15&pp=iAQB) | |
| 16 | [Load Balancing | Characteristics of Tasks | Inter-Task Interaction](https://www.youtube.com/watch?v=Oe2yz6muGHM&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=16&pp=iAQB) | |
| 17 | [Load Balancing | Static and Dynamic Load Balancing](https://www.youtube.com/watch?v=KudUOw5b8F8&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=17&pp=iAQB) | |
| 18 | [Shared Memory Programming](https://www.youtube.com/watch?v=04XahA8bpq0&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=18&pp=iAQB) | |
| 19 | [Distributed Memory Programming | MPI and PVM](https://www.youtube.com/watch?v=fH-M6KKI_uM&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=19&pp=iAQB) | |
| 20 | [Aurora Scoped Behavior and Abstract Data Type | Aurora Supercomputer](https://www.youtube.com/watch?v=iCBT8VC7ue0&list=PLmfNYFrBr4j_fx8DkL-IY6SrFNTZxaA1l&index=20&pp=iAQB) | |
| **SOURCE: 02** | **Parallel and Distributed Computing** | |
| 01 | [Parallel and Distributed Computing – Introduction](https://www.youtube.com/watch?v=cbSoNeugIIw&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=1&pp=iAQB) | |
| 02 | [Horizontal Vertical Scalability](https://www.youtube.com/watch?v=LnnViYSCQJ8&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=2&pp=iAQB) | |
| 03 | [Flynn’s Taxonomy (SISD, SIMD, MISD, MIMD)](https://www.youtube.com/watch?v=adxcvdm8f3M&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=3&pp=iAQB) | |
| 04 | [Multithreading, Super-Scalar Processors, Intel HT](https://www.youtube.com/watch?v=mebS0AUp5Fw&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=4&pp=iAQB) | |
| 05 | [Shared Memory Architecture](https://www.youtube.com/watch?v=O2TWVHuMTSM&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=5&pp=iAQB) | |
| 06 | [CPU to RAM Connection Strategies](https://www.youtube.com/watch?v=2_9dIUrWKX0&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=6&pp=iAQB) | |
| 07 | [Distributed Memory Architecture](https://www.youtube.com/watch?v=3wq2_179N8Q&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=7&pp=iAQB) | |
| 08 | [Routing, Routing Table, Routing Mechanism](https://www.youtube.com/watch?v=N_TurKmSDZ0&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=8&pp=iAQB) | |
| 09 | [Threads and Thread Models](https://www.youtube.com/watch?v=oqiHPXk5i4Y&list=PLmfNYFrBr4j86i8akA223SpKHUZzjKbdR&index=9&pp=iAQB) | |
| **SOURCE: 03** | **Parallel Computing and Distributed System** | |
| 01 | [Parallel Computing and Types of Architecture](https://www.youtube.com/watch?v=tWRL2VJL-FA&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=1&pp=iAQB) | |
| 02 | [Flynn’s Classification or Taxonomy in Parallel Computing](https://www.youtube.com/watch?v=D7UK46gXhcA&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=2&pp=iAQB) | |
| 03 | [Pipelining Concept](https://www.youtube.com/watch?v=Rql_NCoYqsM&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=3&pp=iAQB) | |
| 04 | [Synchronization in Process Distribution System Explained | Distributed System and Computing](https://www.youtube.com/watch?v=M8eudxvioGM&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=4&pp=iAQB) | |
| 05 | [Lamport’s Logical Clock Algorithm Explained | Distributed System and Computing](https://www.youtube.com/watch?v=lzn6AUBHmxw&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=5&pp=iAQB) | |
| 06 | [Bully and Ring Election Algorithm Explained | Distributed System and Computing](https://www.youtube.com/watch?v=vKpc0y_Ik3E&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=6&pp=iAQB) | |
| 07 | [Remote Procedure Call Explained | Distributed System and Computing](https://www.youtube.com/watch?v=PtEkcBRO6dk&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=7&pp=iAQB) | |
| 08 | [Transparency in Distributed System | Distributed System and Computing](https://www.youtube.com/watch?v=ZycChXgSpr8&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=8&pp=iAQB) | |
| 09 | [Load Balancing Algorithm and Design | Distributed System and Computing](https://www.youtube.com/watch?v=wX1WZfNyP-E&list=PL0s3O6GgLL5fbwQ8HBuK0Bh--GZzM8j1M&index=9&pp=iAQB) | |
| **SOURCE: 04** | **Parallel Processing and Computing – Advanced Computer Architecture** | |
| 01 | [Parallel Processing and Computing | Introduction Part-1](https://www.youtube.com/watch?v=A37uXAK__LE&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=1&pp=iAQB) | |
| 02 | [Parallel Processing and Computing | Introduction Part-2 | VonNeumann Architecture](https://www.youtube.com/watch?v=s8LVCsNk0Gk&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=2&pp=iAQB) | |
| 03 | [Parallel Processing in Uniprocessor System | Parallel Processing Mechanism](https://www.youtube.com/watch?v=rBdk_hDnQb0&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=3&pp=iAQB) | |
| 04 | [Flynn’s Classification | SISD, SIMD, MISD, MIMD](https://www.youtube.com/watch?v=qgbt9mrQ7Gs&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=4&pp=iAQB) | |
| 05 | [Feng’s Classification and Hardler’s Classification](https://www.youtube.com/watch?v=dr5S4o8mLrc&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=5&pp=iAQB) | |
| 06 | [Amdahl’s Law in Parallel Processing | Speed Up Performance Law](https://www.youtube.com/watch?v=yi3zHpgGXpk&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=6&pp=iAQB) | |
| 07 | [Principles of Scalable Performance | Performance Metrics](https://www.youtube.com/watch?v=eVIuzh5VMVA&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=7&pp=iAQB) | |
| 08 | [Parallel Processing in Memory | Shared Memory | Distributed Memory](https://www.youtube.com/watch?v=s_6KWykVw9I&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=8&pp=iAQB) | |
| 09 | [Moore’s Law](https://www.youtube.com/watch?v=zBLFkJjrMIE&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=9&pp=iAQB) | |
| 10 | [Parallel Algorithms | Parallel Algorithm Complexity](https://www.youtube.com/watch?v=MBGV8rQlg6Y&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=10&pp=iAQB) | |
| 11 | [System Attributes to Performance | CPU Performance Evaluation](https://www.youtube.com/watch?v=N5BmtcdtMVw&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=11&pp=iAQB) | |
| 12 | [Numerical on System Attribute to Performance | Find CPI-MIPS-Execution Time](https://www.youtube.com/watch?v=Xxj9PND9iwQ&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=12&pp=iAQB) | |
| 13 | [Parallel Programming Models](https://www.youtube.com/watch?v=B60iMb-aQe8&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=13&pp=iAQB) | |
| 14 | [Cache Coherence | Cache Coherence Protocols](https://www.youtube.com/watch?v=XXNTxKm5ssw&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=14&pp=iAQB) | |
| 15 | [Cache Coherence Protocols | Snoopy Bus Protocol](https://www.youtube.com/watch?v=-B3mznGRjac&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=15&pp=iAQB) | |
| 16 | [Directory Based Protocol | Cache Coherence Protocols](https://www.youtube.com/watch?v=ZX_Hke2SNz0&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=16&pp=iAQB) | |
| 17 | [Conditions of Parallelism | Data, Control and Resource Dependence](https://www.youtube.com/watch?v=HZNGbwFI4Rs&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=17&pp=iAQB) | |
| 18 | [Numerical on Data Dependency and Resource Dependency Part-1](https://www.youtube.com/watch?v=ykncSE2Zrsk&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=18&pp=iAQB) | |
| 19 | [Numerical on Data Dependency and Resource Dependency Part-2](https://www.youtube.com/watch?v=jgW-htq8eGw&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=19&pp=iAQB) | |
| 20 | [Bernstein’s Conditions of Parallelism | Conditions of Parallelism Part-2](https://www.youtube.com/watch?v=ZC9jMg4-8x0&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=20&pp=iAQB) | |
| 21 | [Numerical on Detection of Parallelism Using Bernstein’s Condition](https://www.youtube.com/watch?v=kCQrFCVgPKs&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=21&pp=iAQB) | |
| 22 | [Program Flow Mechanisms | Control Flow, Data Flow, Demand Driver](https://www.youtube.com/watch?v=l_UkrZ4EOyQ&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=22&pp=iAQB) | |
| 23 | [Pipelining Concept | Example | Space Time Diagram](https://www.youtube.com/watch?v=8Tdi2jKpISs&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=23&pp=iAQB) | |
| 24 | [Linear Pipeline Processor | Asynchronous and Synchronous | Pipeline vs Non-Pipeline](https://www.youtube.com/watch?v=y7QEd1I_4L8&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=24&pp=iAQB) | |
| 25 | [Numerical on Pipelining and Performance Part-1](https://www.youtube.com/watch?v=G7Tvb6hqXYQ&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=25&pp=iAQB) | |
| 26 | [Numerical on Linear Pipelining Part-2](https://www.youtube.com/watch?v=G9SQX1KV79E&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=26&pp=iAQB) | |
| 27 | [Numerical on Linear Pipelining Part-3](https://www.youtube.com/watch?v=w02IamyWnFY&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=27&pp=iAQB) | |
| 28 | [Non-Linear Pipeline Processor | Linear vs Non-Linear Pipeline](https://www.youtube.com/watch?v=O1S9JxWitaM&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=28&pp=iAQB) | |
| 29 | [Classification of Pipeline Processors](https://www.youtube.com/watch?v=dUpaqZN1eIo&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=29&pp=iAQB) | |
| 30 | [General Pipeline and Reservation Table | Latency Analysis and Conflict-Free Schedule](https://www.youtube.com/watch?v=I1_Hnh2iHyI&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=30&pp=iAQB) | |
| 31 | [Numerical 1 on Reservation Table | Find Forbidden Latency, Collision Vector, Greedy Cycle, MAL](https://www.youtube.com/watch?v=2PIj3YekQlk&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=31&pp=iAQB) | |
| 32 | [Numerical 2 on Reservation Table | Find Forbidden Latency, Collision Vector, Greedy Cycle, MAL](https://www.youtube.com/watch?v=gEkjoEXEPSg&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=32&pp=iAQB) | |
| 33 | [Numerical 3 on Reservation Table | Find Forbidden Latency, Collision Vector, Greedy Cycle, MAL](https://www.youtube.com/watch?v=t6uaHxCO6aU&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=33&pp=iAQB) | |
| 34 | [Numerical 4 on Reservation Table | Find Forbidden Latency, Collision Vector, Greedy Cycle, MAL](https://www.youtube.com/watch?v=7AdfBuh9AdE&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=34&pp=iAQB) | |
| 35 | [Numerical 5 on Reservation Table | Find Forbidden Latency, Collision Vector, Greedy Cycle, MAL](https://www.youtube.com/watch?v=ITdw2mGQWIk&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=35&pp=iAQB) | |
| 36 | [RISC and CISC in Computer Architecture | COA | CSA](https://www.youtube.com/watch?v=gCn90yffX84&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=37&pp=iAQB) | |
| 37 | [Control Unit in Computer Architecture | Control Unit Block Diagram and Types](https://www.youtube.com/watch?v=I4noQkBiPEM&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=38&pp=iAQB) | |
| 38 | [Hardwired Control Unit in Computer Architecture | Block Diagram | Working | COA | CSA](https://www.youtube.com/watch?v=yqbsNiNF3Ts&list=PL3R9-um41Jsz4as9nqgVB6YRR90rs0wE6&index=39&pp=iAQB) | |

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| Parallel Programming | |
| **SOURCE: 01** | **Parallel Programming in OpenMP** | |
| 01 | [Introduction to Parallel Programming](https://www.youtube.com/watch?v=a8R784VtXBg&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=1&pp=iAQB) | |
| 02 | [Parallel Architectures and Programming Models](https://www.youtube.com/watch?v=UrjytgchRWM&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=2&pp=iAQB) | |
| 03 | [Pipelining](https://www.youtube.com/watch?v=FlML_53r-zw&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=3&pp=iAQB) | |
| 04 | [Super pipelining and VLIW](https://www.youtube.com/watch?v=uIQOc32NivI&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=4&pp=iAQB) | |
| 05 | [Memory Latency](https://www.youtube.com/watch?v=fUS5dCzdSrQ&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=5&pp=iAQB) | |
| 06 | [Cache and Temporal Locality](https://www.youtube.com/watch?v=LkDgKBHjwz8&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=6&pp=iAQB) | |
| 07 | [Cache, Memory Bandwidth and Spatial Locality](https://www.youtube.com/watch?v=urCWjMS9Bho&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=7&pp=iAQB) | |
| 08 | [Intuition for Shared and Distributed Memory Architectures](https://www.youtube.com/watch?v=TDW37ggXVms&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=8&pp=iAQB) | |
| 09 | [Shared and Distributed Memory Architectures](https://www.youtube.com/watch?v=3m9g-Bv1tkk&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=9&pp=iAQB) | |
| 10 | [Interconnection Networks in Distributed Memory Architectures](https://www.youtube.com/watch?v=BUFbnisqkAM&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=10&pp=iAQB) | |
| 11 | [OpenMP: A Parallel Hello World Program](https://www.youtube.com/watch?v=Ka3rBhwMgXg&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=11&pp=iAQB) | |
| 12 | [Program with Single Thread](https://www.youtube.com/watch?v=PwvvN3s9aSw&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=12&pp=iAQB) | |
| 13 | [Program Memory with Multiple Threads and Multi-Tasking](https://www.youtube.com/watch?v=UXYEGSlPqik&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=13&pp=iAQB) | |
| 14 | [Context Switching](https://www.youtube.com/watch?v=1GvGHgyLYhc&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=14&pp=iAQB) | |
| 15 | [OpenMP: Basic Thread Functions](https://www.youtube.com/watch?v=wkJDYOjsGP4&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=15&pp=iAQB) | |
| 16 | [OpenMP: About OpenMP](https://www.youtube.com/watch?v=tdpNIiAubY4&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=16&pp=iAQB) | |
| 17 | [Shared Memory Consistency Models and The Sequential Consistency Model](https://www.youtube.com/watch?v=OhL1Eazmr48&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=17&pp=iAQB) | |
| 18 | [Race Conditions](https://www.youtube.com/watch?v=Ua1p-FyplkI&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=18&pp=iAQB) | |
| 19 | [OpenMP: Scoping Variables and Some Race Conditions](https://www.youtube.com/watch?v=ukELuDFf41w&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=19&pp=iAQB) | |
| 20 | [OpenMP: Thread Private Variables and More Constructs](https://www.youtube.com/watch?v=GX1DpC37LeM&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=20&pp=iAQB) | |
| 21 | [Computing Sum: First Attempt at Parallelization](https://www.youtube.com/watch?v=oXjKhVMkq9g&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=21&pp=iAQB) | |
| 22 | [Manual Distribution of Work and Critical Sections](https://www.youtube.com/watch?v=IyBczHlcVjM&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=22&pp=iAQB) | |
| 23 | [Distributing for Loops and Reduction](https://www.youtube.com/watch?v=G6GkGHfjBas&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=23&pp=iAQB) | |
| 24 | [Vector-Vector Operations (Dot Product)](https://www.youtube.com/watch?v=KM1tW_PdScg&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=24&pp=iAQB) | |
| 25 | [Matrix-Vector Operations (Matrix-Vector Multiply)](https://www.youtube.com/watch?v=ghM_ssgwVBg&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=25&pp=iAQB) | |
| 26 | [Matrix-Matrix Operations (Matrix-Matrix Multiply)](https://www.youtube.com/watch?v=K84-zInk_ec&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=26&pp=iAQB) | |
| 27 | [Introduction to Tasks](https://www.youtube.com/watch?v=Nak1HHPuKbs&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=27&pp=iAQB) | |
| 28 | [Task Queues and Task Execution](https://www.youtube.com/watch?v=qiA_dvI36i8&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=28&pp=iAQB) | |
| 29 | [Accessing Variables in Tasks](https://www.youtube.com/watch?v=hYTQwJXnbuo&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=29&pp=iAQB) | |
| 30 | [Completion of Tasks and Scoping Variables in Tasks](https://www.youtube.com/watch?v=1nDgmsyKKQw&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=30&pp=iAQB) | |
| 31 | [Recursive Task Spawning and Pitfalls](https://www.youtube.com/watch?v=jP3dhVXSDh8&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=31&pp=iAQB) | |
| 32 | [Understanding LU Factorization](https://www.youtube.com/watch?v=mQyZ3yLk_RY&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=32&pp=iAQB) | |
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| 34 | [Locks](https://www.youtube.com/watch?v=BjZPuSO8Lvc&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=34&pp=iAQB) | |
| 35 | [Advanced Task Handling](https://www.youtube.com/watch?v=tpgIREdWL2s&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=35&pp=iAQB) | |
| 36 | [Matrix Multiplication Using Tasks](https://www.youtube.com/watch?v=eHfZk-qep0E&list=PLJ5C_6qdAvBFMAko9JTyDJDIt1W48Sxmg&index=36&pp=iAQB) | |
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| 40 | [Parallel Architectures and Programming Models](https://www.youtube.com/watch?v=c217vUMqvCE&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=40&pp=iAQB) | |
| 41 | [Application Distributed Histogram Updation](https://www.youtube.com/watch?v=v8r46ZTmlT4&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=41&pp=iAQB) | |
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| 44 | [Discussion on PMI Collectives Design](https://www.youtube.com/watch?v=svttXP9Sgvc&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=44&pp=iAQB) | |
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| 46 | [MPI Calls for Broadcasting Data](https://www.youtube.com/watch?v=hhmF8il6kFA&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=46&pp=iAQB) | |
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| 49 | [MPI Gathering and Scattering Collectives](https://www.youtube.com/watch?v=-IC4pBF4kUk&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=49&pp=iAQB) | |
| 50 | [MPI Non-Blocking Calls](https://www.youtube.com/watch?v=Neml-gHdj4E&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=50&pp=iAQB) | |
| 51 | [MPI Reduction and Alltoall Collectives](https://www.youtube.com/watch?v=S6JuoX9ZWhE&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=51&pp=iAQB) | |
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| 53 | [An Improved Algorithm for Altoall on The Hypercube Using E Cube Routing](https://www.youtube.com/watch?v=r1soUKt0k5s&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=53&pp=iAQB) | |
| 54 | [Broadcast and Reduce with Recursive Doubling](https://www.youtube.com/watch?v=lkWWVaaa8Ps&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=54&pp=iAQB) | |
| 55 | [Characterization of Interconnects](https://www.youtube.com/watch?v=QSIW0k2MNV4&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=55&pp=iAQB) | |
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| 57 | [Discussion of Message Sizes in Analysis](https://www.youtube.com/watch?v=WeKf1YklVQk&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=57&pp=iAQB) | |
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| 64 | [Reduce Scatter and All Gather with Recursive Doubling](https://www.youtube.com/watch?v=c9MVj9fItH8&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=64&pp=iAQB) | |
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| 68 | [Trees and Cliques](https://www.youtube.com/watch?v=x-xPMwJIQDE&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=68&pp=iAQB) | |
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| 76 | [Breadth First Search BFS Using Matrix Algebra](https://www.youtube.com/watch?v=IREvJbyVD98&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=76&pp=iAQB) | |
| 77 | [BFS Shared Memory Parallelization Using OpenMP](https://www.youtube.com/watch?v=SKhMrCaaduU&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=77&pp=iAQB) | |
| 78 | [Sequential Algorithm Adaption from Prims](https://www.youtube.com/watch?v=XT2oE16lP-M&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=78&pp=iAQB) | |
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| 80 | [Dry Run with The Parallel Strategy](https://www.youtube.com/watch?v=DD60TEzgyQ8&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=80&pp=iAQB) | |
| 81 | [Johnsons Algorithm with 1D Data Distribution](https://www.youtube.com/watch?v=My6Lg3L_SPE&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=81&pp=iAQB) | |
| 82 | [Speedup Analysis on A Grid Graph](https://www.youtube.com/watch?v=FkcekpAjUY0&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=82&pp=iAQB) | |
| 83 | [Floyds Algorithm for All Pair Shortest Paths](https://www.youtube.com/watch?v=OAPexBx_Mns&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=83&pp=iAQB) | |
| 84 | [Floyds Algorithm with 2D Data Distribution](https://www.youtube.com/watch?v=bI3X5OpPbTM&list=PLp6ek2hDcoNBAyEJmxsOowMYNTKsUmTZ8&index=84&pp=iAQB) | |
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