计 算 机 科 学 丛 书

Computer Architecture
A Quantitative Approach

计算机体系结构
量化研究方法

(英文版·第2版)

(美) David A. Patterson
John L. Hennessy 著

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Computer Architecture A Quantitative Approach 2nd Edition

Jicheng Xie

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Computer Architecture John L. Hennessy,David A. Patterson,2011-10-07 Computer Architecture A Quantitative Approach Fifth Edition explores the ways that software and technology in the cloud are accessed by digital media such as cell phones computers tablets and other mobile devices The book which became a part of Intel s 2012 recommended reading list for developers covers the revolution of mobile computing It also highlights the two most important factors in architecture today parallelism and memory hierarchy This fully updated edition is comprised of six chapters that follow a consistent framework explanation of the ideas in each chapter a crosscutting issues section which presents how the concepts covered in one chapter connect with those given in other chapters a putting it all together section that links these concepts by discussing how they are applied in real machine and detailed examples of misunderstandings and architectural traps commonly encountered by developers and architects Formulas for energy static and dynamic power integrated circuit costs reliability and availability are included The book also covers virtual machines SRAM and DRAM technologies and new material on Flash memory Other topics include the exploitation of instruction level parallelism in high performance processors superscalar execution dynamic scheduling and multithreading vector architectures multicore processors and warehouse scale computers WSCs There are updated case studies and completely new exercises Additional reference appendices are available online This book will be a valuable reference for computer architects programmers application developers compiler and system software developers computer system designers and application developers Part of Intel s 2012 Recommended Reading List for Developers Updated to cover the mobile computing revolution Emphasizes the two most important topics in architecture today memory hierarchy and parallelism in all its forms Develops common themes throughout each chapter power performance cost dependability protection programming models and emerging trends What s Next Includes three review appendices in the printed text Additional reference appendices are available online Includes updated Case Studies and completely new exercises *Computer Architecture* John L. Hennessy,David A. Patterson,Christos Kozyrakis,2025-12-02 Computer Architecture A Quantitative Approach has been considered essential reading by instructors students and practitioners of computer design for nearly 30 years The seventh edition of this classic textbook from John Hennessy and David Patterson w Winner of a 2019 Textbook Excellence Award Texty from the Textbook and Academic Authors Association Each chapter follows a consistent framework explanation of the ideas in each chapter a crosscutting issues section which presents how the concepts covered in one chapter connect with those given in other chapters a putting it all together section that links these concepts by discussing how they are applied in real machine and detailed examples of misunderstandings and architectural traps commonly encountered by developers and architects Includes Putting It All Together sections near the end of every chapter providing real world technology examples that demonstrate the principles covered in each chapter Covers new developments in GPU and CPU architectures as well as

domain specific architectures Features more comprehensive coverage of systems on chip and heterogeneity Computer Architecture John L. Hennessy,David A. Patterson,2003 *Performance Evaluation of Complex Systems: Techniques and Tools* Maria Carla Calzarossa,Salvatore Tucci,2003-08-02 This book presents the tutorial lectures given by leading experts in the area at the IFIP WG 7 3 International Symposium on Computer Modeling Measurement and Evaluation Performance 2002 held in Rome Italy in September 2002 The survey papers presented are devoted to theoretical and methodological advances in performance and reliability evaluation as well as new perspectives in the major application fields Modeling and verification issues solution methods workload characterization and benchmarking are addressed from the methodological point of view Among the applications dealt with are hardware and software architectures wired and wireless networks grid environments Web services and real time voice and video processing This book is intended to serve as a state of the art survey and reference for students scientists and engineers active in the area of performance and reliability evaluation

Web Engineering and Peer-to-Peer Computing Enrico Gregori,Ludmila Cherkasova,Gianpaolo Cugola,Fabio Panzieri,Gian P. Picco,2003-06-30 This book constitutes the refereed proceedings of the two thematic workshops held jointly with Networking 2002 WEB Engineering and Peer to Peer C puting Networking 2002 was organized by the Italian National Research Council CNR and was sponsored by the IFIP working groups WG 6 2 Network and Intern work Architectures WG 6 3 Performance of Communication Systems and WG 6 8 Wireless Communications The program of the conference covered ve days and included the main conference three days two tutorial days and one day of thematic workshops TheInternationalWorkshoponWebEngineeringwasdedicatedtothedisc sionoftheprincipalissuesthatemergeinthedesignandimplementationoflar scale complex Web based systems Scalability issues pose a number of ch lenging problems to solve for both applications and the underlying web network infrastructure On one hand web services and internet applications must take into account network performance and transport protocol design to achieve ceptable performance and robustness On the other hand emerging network and Web technologies are determined by the requirements of these applications Fifteen papers were presented that illustrated the current state of the art in this area In addition to the authors of these papers the Workshop on Web Engine ing was attended by about thirty participants who contributed to the workshop by stimulating fruitful discussions at the end of each presentation Thus this workshop provided a excellent opportunity for researchers from both industry and academia to gather exchange ideas and discuss recent results in the dev opment of Web based systems and emerging Internet applications *Artificial Intelligence in Internet of Things (IoT): Key Digital Trends* Frank Lin,David Pastor,Nishtha Kesswani,Ashok Patel,Sushanta Bordoloi,Chaitali Koley,2024-10-16 This book is a collection of high quality research papers presented at 8th International Conference on Internet of Things and Connected Technologies ICIoTCT 2023 held at National Institute of Technology NIT Mizoram India during 29 30 September 2023 This book presents recent advances on IoT and connected technologies This book is designed for marketing managers

business professionals researchers academicians and graduate level students seeking to learn how IoT and connecting technologies increase the amount of data gained through devices enhance customer experience and widen the scope of IoT analytics in enhancing customer marketing outcomes Windows 2000 Performance Guide Mark Friedman,Odysseas Pentakalos,2002 For repairing performance loss or maximizing current potential this guide aims to provide the information and conceptual framework that will enable readers to be performance experts Includes information on processor performance application profiling and hardware considerations **Architectures for Terabit Cell Switches Supporting Differentiated Quality of Service** Kevin Warren James,2000 **Computer Architecture** John L. Hennessy,David A. Patterson,2006-11-03 The era of seemingly unlimited growth in processor performance is over single chip architectures can no longer overcome the performance limitations imposed by the power they consume and the heat they generate Today Intel and other semiconductor firms are abandoning the single fast processor model in favor of multi core microprocessors chips that combine two or more processors in a single package In the fourth edition of Computer Architecture the authors focus on this historic shift increasing their coverage of multiprocessors and exploring the most effective ways of achieving parallelism as the key to unlocking the power of multiple processor architectures Additionally the new edition has expanded and updated coverage of design topics beyond processor performance including power reliability availability and dependability CD System Requirements PDF Viewer The CD material includes PDF documents that you can read with a PDF viewer such as Adobe Acrobat or Adobe Reader Recent versions of Adobe Reader for some platforms are included on the CD HTML Browser The navigation framework on this CD is delivered in HTML and JavaScript It is recommended that you install the latest version of your favorite HTML browser to view this CD The content has been verified under Windows XP with the following browsers Internet Explorer 6 0 Firefox 1 5 under Mac OS X Panther with the following browsers Internet Explorer 5 2 Firefox 1 0 6 Safari 1 3 and under Mandriva Linux 2006 with the following browsers Firefox 1 0 6 Konqueror 3 4 2 Mozilla 1 7 11 The content is designed to be viewed in a browser window that is at least 720 pixels wide You may find the content does not display well if your display is not set to at least 1024x768 pixel resolution Operating System This CD can be used under any operating system that includes an HTML browser and a PDF viewer This includes Windows Mac OS and most Linux and Unix systems Increased coverage on achieving parallelism with multiprocessors Case studies of latest technology from industry including the Sun Niagara Multiprocessor AMD Opteron and Pentium 4 Three review appendices included in the printed volume review the basic and intermediate principles the main text relies upon Eight reference appendices collected on the CD cover a range of topics including specific architectures embedded systems application specific processors some guest authored by subject experts Eshbach's Handbook of Engineering Fundamentals Ovid Wallace Eshbach,2009-01-27 With specialization now the norm in engineering students preparing for the FE and PE exams and practitioners going outside their specialty need a general reference with material across a number of disciplines Since 1936 Eshbach s Handbook of

Engineering Fundamentals has been the bestselling reference covering the general principles of engineering today it s more relevant than ever For this Fifth Edition respected author Myer Kutz fully updates and reshapes the text focusing on the basics the important formulas tables and standards necessary for complete and accurate knowledge across engineering disciplines With chapters on mathematical principles physical units and standards as well as the fundamentals of mechanical aerospace electrical chemical and industrial engineering this classic reference is more relevant than ever to both practicing engineers and students studying for the FE and PE exams **Very Large Data Bases** ,2001 **Proceedings of the Twenty-seventh International Conference on Very Large Databases, Roma, Italy, 11-14 September, 2001** Petrus Maria Gerardus Apers,2001 Architectures, Languages and Techniques for Concurrent Systems World Occam and Transputer User Group. Technical Meeting,1999 **Grid Computing** ,2001 Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology ,2000 **Proceedings of the ... Midwest Symposium on Circuits and Systems** ,2002 **Report** ,2000 **Annual Connectors and Interconnection Technology Symposium Proceedings** ,1997 **High-Performance Computing** Laurence T. Yang,Minyi Guo,2006 With hyperthreading in Intel processors hypertransport links in next generation AMD processors multi core silicon in today s high end microprocessors from IBM and emerging grid computing parallel and distributed computers have moved into the mainstream **Optimizing Inter-instruction Value Communication Through Degree of Use Prediction** Jeffrey Adam Butts,2004

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