

1. Record Nr.	UNINA9910254169403321
Autore	Bindal Ahmet
Titolo	Fundamentals of Computer Architecture and Design // by Ahmet Bindal
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-25811-7
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XIV, 533 p. 531 illus.)
Disciplina	004.22
Soggetti	Electronic circuits Microprocessors Electronics Microelectronics Circuits and Systems Processor Architectures Electronics and Microelectronics, Instrumentation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Review Of Combinational Circuits -- Review Of Sequential Circuits -- Review Of Asynchronous Circuits -- System Bus -- Memory Circuits And Systems -- Central Processing Unit -- System Peripherals -- Special Topics.
Sommario/riassunto	This textbook provides semester-length coverage of computer architecture and design, providing a strong foundation for students to understand modern computer system architecture and to apply these insights and principles to future computer designs. It is based on the author's decades of industrial experience with computer architecture and design, as well as with teaching students focused on pursuing careers in computer engineering. Unlike a number of existing textbooks for this course, this one focuses not only on CPU architecture, but also covers in great detail in system buses, peripherals and memories. This book teaches every element in a computing system in two steps. First, it introduces the functionality of each topic (and subtopics) and then goes into "from-scratch design" of

a particular digital block from its architectural specifications using timing diagrams. The author describes how the data-path of a certain digital block is generated using timing diagrams, a method which most textbooks do not cover, but is valuable in actual practice. In the end, the user is ready to use both the design methodology and the basic computing building blocks presented in the book to be able to produce industrial-strength designs.

- Provides semester-length textbook for students in computer and electrical engineering, covering the design of complex computing blocks from architectural specifications;
- Focuses not only on CPU architecture, but also covers in detail system buses, peripherals and memories;
- Presented in a manner catering to young engineering minds, this textbook minimizes text, while using a systematic design approach with architectural schematics, timing diagrams and control circuits;
- Includes extensive exercises and projects at the end of each chapter;
- Solutions to review problems and PowerPoint slides for instructors available.
