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	Nota di contenuto	Frontmatter -- Foreword -- Preface -- Contents -- List of figures -- Listings -- List of tables -- Glossary -- 1 Setting the stage -- 2 Parallel programming models and concepts -- 3 Many-core and multi-core computer architectures -- 4 Compiler and runtime interaction -- 5 Fundamental parallel runtime mechanisms -- 6 Mutual exclusion and atomicity -- 7 Barriers and reductions -- 8 Scheduling parallel loops -- 9 Runtime support for task-parallel models -- 10 Summary and final thoughts -- Bibliography -- Index -- List of acronyms
	Sommario/riassunto	This book focuses on the theoretical and practical aspects of parallel programming systems for today's high performance multi-core processors and discusses the efficient implementation of key algorithms needed to implement parallel programming models. Such implementations need to take into account the specific architectural aspects of the underlying computer architecture and the features offered by the execution environment.This book briefly reviews key concepts of modern computer architecture, focusing particularly on the performance of parallel codes as well as the relevant concepts in parallel programming models. The book then turns towards the fundamental algorithms used to implement the parallel programming models and discusses how they interact with modern processors. While the book will focus on the general mechanisms, we will mostly use the Intel processor architecture to exemplify the implementation concepts discussed but will present other processor architectures where

appropriate. All algorithms and concepts are discussed in an easy to understand way with many illustrative examples, figures, and source code fragments.The target audience of the book is students in Computer Science who are studying compiler construction, parallel programming, or programming systems. Software developers who have an interest in the core algorithms used to implement a parallel runtime system, or who need to educate themselves for projects that require the algorithms and concepts discussed in this book will also benefit from reading it. You can find the source code for this book at https://github.com/parallel-runtimes/lomp.