1. Record Nr. UNINA9910299898603321

Autore	Weichslgartner Andreas
Titolo	Invasive Computing for Mapping Parallel Programs to Many-Core Architectures / / by Andreas Weichslgartner, Stefan Wildermann, Michael Glaß, Jürgen Teich
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018
ISBN	981-10-7356-2
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XXII, 164 p. 80 illus., 77 illus. in color.)
Collana	Computer Architecture and Design Methodologies, , 2367-3478
Disciplina	005.275
Soggetti	Electronic circuits Microprocessors Circuits and Systems Processor Architectures Electronic Circuits and Devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Invasive Computing -- Fundamentals -- Self-Embedding -- Hybrid Application Mapping -- Hybrid Mapping for Increased Security -- Conclusions and Future Work.
Sommario/riassunto	This book provides an overview of and essential insights on invasive computing. Pursuing a comprehensive approach, it addresses proper concepts, invasive language constructs, and the principles of invasive hardware. The main focus is on the important topic of how to map task-parallel applications to future multi-core architectures including 1,000 or more processor units. A special focus today is the question of how applications can be mapped onto such architectures while not only taking into account functional correctness, but also non-functional execution properties such as execution times and security properties. The book provides extensive experimental evaluations, investigating the benefits of applying invasive computing and hybrid application mapping to give guarantees on non-functional properties such as timing, energy, and security. The techniques in this book are presented in a step-by-step manner, supported by examples and

figures. All proposed ideas for providing guarantees on performance, energy consumption, and security are enabled by using the concept of invasive computing and the exclusive usage of resources.