

1. Record Nr.	UNINA9910741164203321
Titolo	Using event-B for critical device software systems // Neeraj Kumar Singh
Pubbl/distr/stampa	Wiesbaden ; ; New York, : Springer, c2013
ISBN	1-4471-5260-3
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (xviii, 326 pages) : illustrations (some color)
Collana	Gale eBooks
Altri autori (Persone)	SinghNeeraj Kumar
Disciplina	004 004.01
Soggetti	Formal methods (Computer science) Application software - Development Stochastic models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Preface -- Introduction -- Background -- The Modelling Framework: Event-B -- Critical System Development Methodology -- Real-Time Animator and Requirements Traceability -- Refinement Chart -- EB2ALL: An Automatic Code Generator Tool -- Formal Logic Based Heart-Model -- The Cardiac Pacemaker -- Electrocardiogram (ECG) -- Conclusion -- Appendix A: Certification Standards -- Index.
Sommario/riassunto	Defining a new development life-cycle methodology, together with a set of associated techniques and tools to develop highly critical systems using formal techniques, this book adopts a rigorous safety assessment approach explored via several layers (from requirements analysis to automatic source code generation). This is assessed and evaluated via a standard case study: the cardiac pacemaker. Additionally a formalisation of an Electrocardiogram (ECG) is used to identify anomalies in order to improve existing medical protocols. This allows the key issue - that formal methods are not currently integrated into established critical systems development processes - to be discussed in a highly effective and informative way. Using Event-B for Critical Device Software Systems serves as a valuable resource for researchers and students of formal methods. The assessment of critical systems development is applicable to all industries, but engineers and

physicians from the health domain will find the cardiac pacemaker case study of particular value.
