Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science)

By MengChu Zhou, F. Dicesare

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science)
By MengChu Zhou, F. Dicesare

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems develops two essential resource-sharing concepts: parallel and sequential mutual exclusions and theoretical results in Petri synthesis. A parallel mutual exclusion (PME) is defined to model a resource shared by independent distributed processes, and a sequential mutual exclusion is a sequential composition of PMEs, modeling a resource shared by sequentially-related processes.
A hybrid synthesis methodology for Petri net models and controllers is proposed using top-down, modular, and bottom-up design ideas and the mutual exclusion theory. An aggregate Petri net model is refined by replacing places and /or transitions with basic design modules which are mathematically and graphically described. Petri net design methods are presented for such buffers as automatic storage and retrieval systems. Using the proposed method synthesizes both Petri net structure and feasible initial markings, guaranteeing that resulting Petri nets have desirable system properties such as freedom from deadlock and cyclic behavior.
A Petri net controller is extended to error recovery for automated manufacturing systems. The theory can guarantee that the desired system properties achieved by the original design will be preserved when the controller is augmented to deal with an error in the prescribed methods. Control code has been directly generated from Petri net definitions. The algorithm and implementation details are given for a flexible manufacturing system. Using the approach presented in *Petri Net Synthesis for Discrete Event Control of Manufacturing Systems*, engineers and research workers can develop their own discrete event control applications and experiments.

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science)

By MengChu Zhou, F. Dicesare

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems develops two essential resource-sharing concepts: parallel and sequential mutual exclusions and theoretical results in Petri synthesis. A parallel mutual exclusion (PME) is defined to model a resource shared by independent distributed processes, and a sequential mutual exclusion is a sequential composition of PMEs, modeling a resource shared by sequentially-related processes.

A hybrid synthesis methodology for Petri net models and controllers is proposed using top-down, modular, and bottom-up design ideas and the mutual exclusion theory. An aggregate Petri net model is refined by replacing places and /or transitions with basic design modules which are mathematically and graphically described. Petri net design methods are presented for such buffers as automatic storage and retrieval systems. Using the proposed method synthesizes both Petri net structure and feasible initial markings, guaranteeing that resulting Petri nets have desirable system properties such as freedom from deadlock and cyclic behavior. A Petri net controller is extended to error recovery for automated manufacturing systems. The theory can guarantee that the desired system properties achieved by the original design will be preserved when the controller is augmented to deal with an error in the prescribed methods. Control code has been directly generated from Petri net definitions. The algorithm and implementation details are given for a flexible manufacturing system. Using the approach presented in *Petri Net Synthesis for Discrete Event Control of Manufacturing Systems*, engineers and research workers can develop their own discrete event control applications and experiments.

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare Bibliography

- Rank: #4402010 in eBooks
- Published on: 2012-12-06
- Released on: 2012-12-06
- Format: Kindle eBook

Download and Read Free Online Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare

Editorial Review

Users Review

From reader reviews:

Valerie Garrison:

The feeling that you get from Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) is the more deep you looking the information that hide in the words the more you get enthusiastic about reading it. It does not mean that this book is hard to know but Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) giving you buzz feeling of reading. The author conveys their point in a number of way that can be understood simply by anyone who read this because the author of this guide is well-known enough. That book also makes your own vocabulary increase well. Therefore it is easy to understand then can go with you, both in printed or e-book style are available. We recommend you for having this specific Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) instantly.

Billy Anderson:

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) can be one of your basic books that are good idea. Most of us recommend that straight away because this reserve has good vocabulary that will increase your knowledge in language, easy to understand, bit entertaining but nonetheless delivering the information. The writer giving his/her effort to set every word into joy arrangement in writing Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) however doesn't forget the main place, giving the reader the hottest as well as based confirm resource information that maybe you can be certainly one of it. This great information can drawn you into new stage of crucial pondering.

Mildred Lucas:

The book untitled Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) contain a lot of information on this. The writer explains your ex idea with easy approach. The language is very simple to implement all the people, so do certainly not worry, you can easy to read it. The book was authored by famous author. The author brings you in the new age of literary works. You can easily read this book because you can please read on your smart phone, or device, so you can read the book in anywhere and anytime. In a situation you wish to purchase the e-book, you can start their official web-site as well as order it. Have a nice examine.

Fern Gooding:

Beside this kind of Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) in your phone, it could give you a way to get nearer to the new knowledge or information. The information and the knowledge you will got here is fresh from oven so don't always be worry if you feel like an older people live in narrow village. It is good thing to have Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) because this book offers to you personally readable information. Do you occasionally have book but you don't get what it's facts concerning. Oh come on, that wil happen if you have this inside your hand. The Enjoyable arrangement here cannot be questionable, like treasuring beautiful island. Use you still want to miss it? Find this book and also read it from right now!

Download and Read Online Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare #8L3OH0DBWM2

Read Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare for online ebook

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare books to read online.

Online Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare ebook PDF download

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare Doc

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare Mobipocket

Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare EPub

8L3OH0DBWM2: Petri Net Synthesis for Discrete Event Control of Manufacturing Systems (The Springer International Series in Engineering and Computer Science) By MengChu Zhou, F. Dicesare