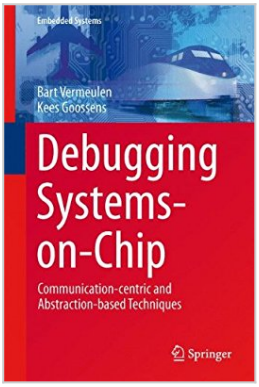

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems)

By Bart Vermeulen, Kees Goossens

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens

This book describes an approach and supporting infrastructure to facilitate debugging the silicon implementation of a System-on-Chip (SOC), allowing its associated product to be introduced into the market more quickly. Readers learn step-by-step the key requirements for debugging a modern, silicon SOC implementation, nine factors that complicate this debugging task, and a new debug approach that addresses these requirements and complicating factors. The authors' novel communication-centric, scan-based, abstraction-based, run/stop-based (CSAR) debug approach is discussed in detail, showing how it helps to meet debug requirements and address the nine, previously identified factors that complicate debugging silicon implementations of SOCs. The authors also derive the debug infrastructure requirements to support debugging of a silicon implementation of an SOC with their CSAR debug approach. This debug infrastructure consists of a generic on-chip debug architecture, a configurable automated design-for-debug flow to be used during the design of an SOC, and customizable off-chip debugger software. Coverage includes an evaluation of the efficiency and effectiveness of the CSAR approach and its supporting infrastructure, using six industrial SOCs and an illustrative, example SOC model. The authors also quantify the hardware cost and design effort to support their approach.

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems)

By Bart Vermeulen, Kees Goossens

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens

This book describes an approach and supporting infrastructure to facilitate debugging the silicon implementation of a System-on-Chip (SOC), allowing its associated product to be introduced into the market more quickly. Readers learn step-by-step the key requirements for debugging a modern, silicon SOC implementation, nine factors that complicate this debugging task, and a new debug approach that addresses these requirements and complicating factors. The authors' novel communication-centric, scan-based, abstraction-based, run/stop-based (CSAR) debug approach is discussed in detail, showing how it helps to meet debug requirements and address the nine, previously identified factors that complicate debugging silicon implementations of SOCs. The authors also derive the debug infrastructure requirements to support debugging of a silicon implementation of an SOC with their CSAR debug approach. This debug infrastructure consists of a generic on-chip debug architecture, a configurable automated design-for-debug flow to be used during the design of an SOC, and customizable off-chip debugger software. Coverage includes an evaluation of the efficiency and effectiveness of the CSAR approach and its supporting infrastructure, using six industrial SOCs and an illustrative, example SOC model. The authors also quantify the hardware cost and design effort to support their approach.

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens Bibliography

- Rank: #5923320 in Books
- Published on: 2014-07-15
- Original language: English
- Number of items: 1
- Dimensions: 9.21" h x .75" w x 6.14" l, .0 pounds
- Binding: Hardcover
- 311 pages

Editorial Review

From the Back Cover

This book describes an approach and supporting infrastructure to facilitate debugging the silicon implementation of a System-on-Chip (SOC), allowing its associated product to be introduced into the market more quickly. Readers learn step-by-step the key requirements for debugging a modern, silicon SOC implementation, nine factors that complicate this debugging task, and a new debug approach that addresses these requirements and complicating factors. The authors' novel communication-centric, scan-based, abstraction-based, run/stop-based (CSAR) debug approach is discussed in detail, showing how it helps to meet debug requirements and address the nine, previously identified factors that complicate debugging silicon implementations of SOCs. The authors also derive the debug infrastructure requirements to support debugging of a silicon implementation of an SOC with their CSAR debug approach. This debug infrastructure consists of a generic on-chip debug architecture, a configurable automated design-for-debug flow to be used during the design of an SOC, and customizable off-chip debugger software. Coverage includes an evaluation of the efficiency and effectiveness of the CSAR approach and its supporting infrastructure, using six industrial SOCs and an illustrative, example SOC model. The authors also quantify the hardware cost and design effort to support their approach.

• Describes trends in embedded system design that make the design of SOCs complex and error-prone;
• Analyzes four key requirements for debugging a modern, silicon SOC implementation and identifies nine factors that complicate meeting these debug requirements;
• Uses communication control for debugging SOCs, which can be used with most on-chip SOC communication protocols in use today;
• Uses communication control to (re)create a particular transaction order and demonstrates that this is helpful in the localization of errors in a SOC implementation;
• Demonstrates the necessity of extracting locally- and globally-consistent states during SOC debug and guarantees by design that they are so;
• Uses a fast and scalable event distribution interconnect, which connects on-chip monitors and protocol specific instruments);
• Evaluates benefits and costs of the CSAR approach using six industrial SOC designs and an example SOC model.

About the Author

Bart Vermeulen received his MSc and PhD degrees in Electrical Engineering from the Eindhoven University of Technology in respectively 1997 and 2013. He is currently a Senior Principal in the Central Research and Development organization of NXP Semiconductors, The Netherlands. His research interests include the design, validation and test of robust, distributed architectures for embedded systems. He published 40+ papers and 8 patents.

Kees Goossens received his PhD in Computer Science from the University of Edinburgh in 1993 on hardware verification using embeddings of formal semantics of hardware description languages in proof systems. He worked for Philips/NXP Research from 1995 to 2010 on networks on chip for consumer electronics. He is professor at the Eindhoven University of Technology, where his research focusses on

composable, predictable, low-power embedded systems. He published 2 books, 100+ papers and 24 patents.

Users Review

From reader reviews:

Brandon Li:

Inside other case, little folks like to read book Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems). You can choose the best book if you love reading a book. Provided that we know about how is important a book Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems). You can add information and of course you can around the world by a book. Absolutely right, because from book you can learn everything! From your country until finally foreign or abroad you may be known. About simple matter until wonderful thing you are able to know that. In this era, we can open a book or perhaps searching by internet product. It is called e-book. You can use it when you feel weary to go to the library. Let's learn.

Paul Douglas:

A lot of people always spent their free time to vacation or perhaps go to the outside with them loved ones or their friend. Do you realize? Many a lot of people spent they will free time just watching TV, as well as playing video games all day long. If you want to try to find a new activity that's look different you can read some sort of book. It is really fun for yourself. If you enjoy the book you read you can spent all day every day to reading a e-book. The book Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) it doesn't matter what good to read. There are a lot of people that recommended this book. These were enjoying reading this book. In the event you did not have enough space to create this book you can buy the particular e-book. You can m0ore quickly to read this book from your smart phone. The price is not too costly but this book features high quality.

Effie Morris:

Do you have something that you prefer such as book? The publication lovers usually prefer to choose book like comic, short story and the biggest an example may be novel. Now, why not attempting Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) that give your satisfaction preference will be satisfied by means of reading this book. Reading habit all over the world can be said as the way for people to know world better then how they react in the direction of the world. It can't be said constantly that reading routine only for the geeky individual but for all of you who wants to become success person. So , for all of you who want to start looking at as your good habit, you may pick Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) become your current starter.

Sarah Heath:

That publication can make you to feel relax. This particular book Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) was bright colored and of

course has pictures on the website. As we know that book Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) has many kinds or style. Start from kids until teens. For example Naruto or Private eye Conan you can read and believe you are the character on there. So , not at all of book usually are make you bored, any it makes you feel happy, fun and unwind. Try to choose the best book for you and try to like reading this.

Read Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens for online ebook

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens 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 Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens books to read online.

Online Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens ebook PDF download

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens Doc

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens Mobipocket

Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens EPub

NMYU39E4WDC: Debugging Systems-on-Chip: Communication-centric and Abstraction-based Techniques (Embedded Systems) By Bart Vermeulen, Kees Goossens