Awesome Embedded Systems Documentation

Release 1.0

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Jun 27, 2017

You will find many references to information (books, online courses, etc.) related to learning about Embedded System Development.

Contents:

Embedded Systems

Lists resources to learn about embedded systems.

Books

Author(s)	Title	Publisher	Edition	Year
Anderson, Ross J.	Security Engineering: A Guide to Building Dependable Distributed Systems	John Wiley & Sons	2nd	2008
Hagar, Jon Duncan	Software Test Attacks to Break Mobile and Embedded Devices	Chapman & Hall/Crc	1st	2013
Heath, Steve	Embedded Systems Design	Newnes	2nd	2003
Huntley, Samuel	Embedded Device Security: Pwn the device	CreateSpace Independent Publishing Platform	1st	2015
Medoff, Michael and Faller, Rainer	Functional Safety - An IEC 61508 SIL 3 Compliant Development Process	exida.com LLC	3rd	2014
Moyer, Bryon	Real World Multicore Embedded Systems	Newnes	1st	2013
Rausand, Marvin	Reliability of Safety-Critical Systems: Theory and Applications	Wiley	1st	2014
Leveson, Nancy G.	Engineering a Safer World: Systems Thinking Applied to Safety (Engineering Systems)	The MIT Press	1st	2012
Kopetz, Hermann	Real-Time Systems: Design Principles for Distributed Embedded Applications (Real-Time Systems Series)	Springer	2nd	2011
Pathan, Al-Sakib Khan	Securing Cyber-Physical Systems	Crc Press Inc	1st	2015

Courses

- Development of Real-Time Systems

- Embedded Systems - Shape The World

- System Validation: Automata and behavioural equivalences

- System Validation (2): Model process behaviour

- Cybersecurity Fundamentals - Construction of Secure Systems - Landing page for 5 courses about securtiy ~ embedded systems.

- Computer Systems Design for Energy Efficiency

Study Paths

Germany

- B.Sc. Mobile and Embedded Systems (University Passau)
- M.Sc in Embedded System Engineering (University Freiburg)
- M.Sc in Embedded System Design (University of Applied Sciences Bremerhaven)
- M.Sc in Embedded System Engineering (University Duisburg-Essen)
- M.Sc in Embedded Systems (University of Applied Sciences Pforzheim)
- M.Sc in Embedded Computing Systems (University Kaiserslautern)
- M.Eng in Technical Infromatics/Embedded Systems (University of Applied Sciences Berlin)
- M.Sc in Embedded Systems Engineering (International College Berlin)
- M.Sc in Embedded Systems and Mikrorobotics (University Oldenburg)
- M.Sc in Micro-Electronic Systems (University of Allied Sciences Westkueste)
- M.Sc in Embedded Systems (Technical University Chemnitz)

Netherlands

- M.Sc in Embedded Systems (Technical University Delft)

Embedded Software

Lists resources to learn about embedded software.

Books

Author(s)	Title	Publisher	Edition	Year
Barr, Michael	Programming Embedded Systems in C and C++	O'Reilly	1st	1999
Bramer, Brian	C++ for Engineers	Butterworth-Heinemann	1st	1996
Rierson, Leanna	Developing Safety-Critical Software: A Practical Guide for Aviation Software and DO-178C Compliance	CRC Press	1st	2013
Hanmer, Robert	Patterns for Fault Tolerant Software	John Wiley & Sons	1st	2007
Hobbs, Chris	Embedded Software Development for Safety-Critical Systems	Auerbach Publications	1st	2015
Gottschling, Peter	Discovering Modern C++: An Intensive Course for Scientists, Engineers, and Programmers	Addison-Wesley	1st	2015
Guntheroth, Kurt	Optimized C++: Proven Techniques for Heightened Performance	O'Reilly	1st	2016
Kormanyos, Christopher	Real-Time C++: Efficient Object-Oriented and Template Microcontroller Programming	Springer	1st	2015
Labrosse, Jean	Embedded Systems Building Blocks: Complete and Ready-to-Use Modules in C	Elsevier Books	2nd	2000
Ledin, Jim	Embedded Control Systems in C/C++	Elsevier	1st	2004
Miasnikov, Arkady	C++ for Embedded Systems	Amazon	1st	2016
Rohrlich, Michael	Ihr Recht als Programmierer. Juristische Tipps für Angestellte, Selbstständige und Freelancer (schnell + kompakt)	entwickler.press		2016
Grenning, James W.	Test Driven Development for Embedded C	O'Reilly UK Ltd.	1st	2011
Qian, Kai et al.	Embedded Software Development with C	Springer	1st	2009
Samek, Miro	Practical UML Statecharts in C/C++: Event-Driven Programming for Embedded Systems	Taylor & Francis Ltd.	2nd	2008
Walls, Colin	Embedded Software: The Works	Elsevier	1st	2006
White, Elecia	Making Embedded Systems: Design Patterns for Great Software	O'Reilly and Associates	1st	2011

Courses

Communication

- A System View of Communications: From Signals to Packets, Part 1 (Hong Kong University of Science and Technology)
- A System View of Communications: From Signals to Packets, Part 2 (Hong Kong University of Science and Technology)
- A System View of Communications: From Signals to Packets, Part 3 (Hong Kong University of Science and Technology)

Operating Systems

- Embedded Hardware and Operating Systems (University of Turku)
- Real-Time Bluetooth Networks - Shape the World (University of Texas)

Signal Processing

- Signals and Systems, Part 1 (IIT Bombay)
- Signals and Systems, Part 2 (IIT Bombay)
- Discrete Time Signals and Systems, Part 1: Time Domain (Rice University)
- Discrete Time Signals and Systems, Part 2: Frequency Domain (Rice University)

Systems

- Embedded Systems - Shape The World (University of Texas)
- Cyber-Physical Systems (Berkley University of California)
- Introduction to Real-Time Systems (IEEE)
- Computer System Design: Improving Energy Efficiency and Performance (Chalmers University of Technology)

Testing

- UX: Usability Testing (University of Michigan)
- Unit Testing & Other Embedded Software Catalysts (-)

Programming Languages

C

- Microcontrollers and the C Programming Language (-)
- Embedded Systems Programming on ARM Cortex-M3/M4 Processor (-)
- Mastering Microcontroller With Peripheral Driver Development (-)

C++

- C++ For C Programmers, Part A (University of California, Santa Cruz)
- C++ For C Programmers, Part B (University of California, Santa Cruz)
- QT C++ GUI Tutorial For Beginners (-) - not free
- C++ programming in Qt FrameWork Part I (-) - not free
- C++ programming in Qt Framework: Part II (-) - not free
- Integrating Qt Quick with C++ (-) - not free
- Introduction to Qt: A C++ Cross Platform Application Framework (-) - not free
- Modern C++ Libraries (-) - not free
- Beautiful C++: STL Algorithms (-) - not free
- Design Patterns in C++: Creational (-) - not free
- Design Patterns in C++: Structural - Adapter to Decorator (-) - not free
- Design Patterns in C++: Structural - Façade to Proxy (-) - not free

VHDL

- How To Implement Your First VHDL Design on FPGA (-)
- Learn VHDL and FPGA Development (-)
- FPGA Design Learning VHDL (-)
- Learn VHDL Design for use in FPGA and ASIC Digital Systems (-)
- Learn VHDL, ISE and FPGA by Designing a basic Home Alarm (-)

Embedded Hardware

Lists resources to learn about embedded hardware.

Books

Author(s)	Title	Publisher	Edition	Year
Ashenden, Peter	The Designer's Guide to VHDL	Elsevier Ltd, Oxford	3rd	2006
Bergeron, Janick	Writing Testbenches: Functional Verification Of Hdl Models	Springer	1st (reprint)	2013 (2002)
Catsoulis, John	Designing Embedded Hardware	O'Reilly and Associates	2nd	2005
Cohen, Ben	Real Chip Design and Verification: Using Verilog and VHDL	VhdlCohen	1st	2016
Fujiwara, Hideo	Logic Testing and Design for Testability	Mit Press Ltd.	1st	1985
Jasinski, Ricardo	Effective Coding with VHDL: Principles and Best Practice	Mit Press Ltd.	1st	2016
Johnson, Barry W.	VHDL Fault Simulation and Automatic Test Pattern Generation Requirements Document		1st	1996
Johnson, Barry W.	A Survey of Fault Simulation, Fault Grading and Test Pattern Generation Techniques with Emphasis on the Feasibility of VHDL Based Fault Simulation		1st	1997
LaMeres, Brock J.	Introduction to Logic Circuits & Logic Design with VHDL	Springer	1st	2016
Roberts, Gordon W.	Analog Signal Generation for Built-In-Self-Test of Mixed-Signal Integrated Circuits	Springer	1st (reprint)	2013 (1995)
Pedroni, Volnei A.	Circuit Design and Simulation with VHDL	Mit Press Ltd	2nd	2010
Wilson, Peter	Design Recipes for FPGAs: Using Verilog and VHDL	Elsevier Science & Technology	2nd	2015