

## Europass Curriculum Vitae



### Personal Information

First name / Surname

**Claudio Scordino**

E-mail

claudio.scordino@gmail.com

Nationality

Italian

Date of birth

Pisa, August 8<sup>th</sup> 1977

### Desired employment / Occupational field

**Project manager**

### Excerpt

Dr. Claudio Scordino received the M.Sc. degree in Computer Engineering and the PhD from the University of Pisa in 2003 and 2007, respectively. In 2005 he did research at the University of Pittsburgh (US). His research interests include operating systems, real-time scheduling, mixed-criticality and hypervisors, with a particular focus on energy-efficiency.

His previous technical background includes C/C++ and Linux programming, with sporadic collaborations to the Linux kernel development, especially on the SCHED\_DEADLINE real-time CPU scheduler.

He has worked as Project Manager at Evidence Srl since 2008, first managing the development of Linux-based projects for customers, then technical activities for international R&D projects.

### Work experience

Dates

**September 2016 – today**

Occupation or position held

Project Manager – International R&D projects

Main activities and responsibilities

Responsible of national and international R&D projects:

- Writing of the technical proposals
- Effort estimation, break-down and technical management of the development activities
- Periodic coordination with the other international partners and official reviews with the EU commission
- Work Package leader in the P-SOCRATES (FP7), HERCULES (H2020) and RETINA (EUROSTARS) European projects
- R&D activities in the ENABLE-S3 (ECSEL), I-MECH (ECSEL) and SECREDAS (ECSEL) European projects.
- Research activities about multi-core and mixed-criticality scheduling, especially on Linux systems.
- Contributions to the source code of the Linux kernel and the Jailhouse hypervisor.

Responsible for the relationship with the open-source communities (i.e. Linux kernel, Jailhouse hypervisor, company's profile on GitHub).

Responsible of the ERIKA RTOS development flow.

Name and address of employer

Evidence Srl - Italy

Dates	<b>January 2016 – August 2016</b>
Occupation or position held	System architect
Main activities and responsibilities	R&D activity for designing the architecture of the next generation low-latency systems.
Name and address of employer	List S.p.A. - Italy.
Dates	<b>January 2009 – December 2015</b>
Occupation or position held	Project Manager of the “ <i>Operating Systems and Applications</i> ” (OSA) company division
Main activities and responsibilities	<ul style="list-style-type: none"> <li>• Responsible for the activities of more than 10 developers</li> <li>• Management of projects with teams up to 8 developers, length up to 4 man/year, budget up to 600.000 €</li> <li>• Effort estimation, break-down and coordination of the single activities</li> <li>• Supervision of the whole development cycle of software projects (i.e., requirements, architectural design, development, testing) according to ISO9001 standards.</li> <li>• Submission, supervision and management of European research projects of FP7 and H2020 framework programmes: ACTORS (task leader), ERA (task leader), P-SOCRATES( WP leader), AXIOM (WP-leader), HERCULES (WP-leader).</li> <li>• Staff recruitment. Technical and motivational interviews for recruiting.</li> <li>• Periodic interviews and evaluation of employees</li> <li>• Study and selection of new technologies (e.g., standards, libraries, tools) to be used by the company</li> </ul>
Name and address of employer	Evidence Srl – Italy
Dates	<b>September 2006 – December 2008</b>
Occupation or position held	Computer Engineer
Main activities and responsibilities	<ul style="list-style-type: none"> <li>• Design/development of an embedded Linux distribution and of the related development tools</li> <li>• Development/change of Linux kernel drivers</li> <li>• Architectural design and development of C/C++ applications on Linux platforms.</li> <li>• Training to customers (e.g., Siemens, Korg, Atmel, Carel, Altran) about Linux user-space and kernel-space programming</li> <li>• Writing and maintenance of technical documentation.</li> </ul>
Name and address of employer	Evidence Srl – Italy
Dates	<b>June 2006 – August 2006</b>
Occupation or position held	Computer Engineer
Main activities and responsibilities	Consulting for: <ul style="list-style-type: none"> <li>• Documentation of software for Ansaldo</li> <li>• Porting of TCP/IP libraries to an embedded real-time operating system</li> </ul>
Name and address of employer	Intecs S.p.A. - Italy
Dates	<b>2006 – 2007</b>
Occupation or position held	Teacher at the “Open-source software management” class
Main activities and responsibilities	Teaching of the Linux kernel internals
Name and address of employer	University of Pisa – Italy
Dates	<b>February 2005 – June 2006</b>
Occupation or position held	Teaching assistant
Main activities and responsibilities	Contract for two years as teaching assistant at the “ <i>Concurrent and system programming laboratory</i> ” (i.e., concurrent programming on POSIX systems using the C language)
Name and address of employer	University of Pisa - Italy

Dates	<b>October 2003 – December 2003</b>
Occupation or position held	Computer Engineer
Main activities and responsibilities	Contract for software development within the European project OCERA. <ul style="list-style-type: none"> <li>• Implementation of the real-time scheduling algorithm on an ARM PXA250 microcontroller by changing the Linux kernel.</li> <li>• Writing scientific publications</li> <li>• Talks at international conferences</li> </ul>
Name and address of employer	Scuola Superiore Sant'Anna
Dates	<b>July 2001 – August 2001</b>
Occupation or position held	Stage
Main activities and responsibilities	Paid stage for 2 months at the <i>Information Technology Division</i> . Development of Perl scripts and MySQL database to help the management of the configuration of the computing center.
Name and address of employer	CERN (European Organization for Nuclear Research) - Switzerland

## Education and training

Dates	<b>January 2004 – December 2007</b>
Title of qualification awarded	Ph.D.
Principal subjects/occupational skills covered	<b>PhD.</b> with study grant in collaboration with Scuola Superiore Sant'Anna. The title of the thesis was " <i>Dynamic Voltage Scaling for Energy-Constrained Real-Time Systems</i> ". The thesis had been defended on December 11th 2007. The thesis proposed innovative real-time scheduling algorithms with energy-saving features.
Name and type of organisation providing education and training	University of Pisa - Italy
Dates	<b>August 2005 – January 2006</b>
Title of qualification awarded	Research activity
Principal subjects/occupational skills covered	Research activity and programming for 5 months on power-aware real-time clusters.
Name and type of organisation providing education and training	<i>Computer Science Department of the University of Pittsburgh (US)</i>
Dates	<b>March 2004</b>
Title of qualification awarded	Certificate of attendance
Name and type of organisation providing education and training	Bertinoro International Spring School for Graduate Studies in Computer Science.
Dates	<b>September 1996 – July 2003</b>
Title of qualification awarded	Master degree in <b>Computer Engineering</b>
Principal subjects/occupational skills covered	Master degree in Computer Engineering, curriculum " <i>Informatic Systems and Applications</i> " obtained on July 24 <sup>th</sup> 2003. The topic of the thesis was " <i>Study and implementation of a real-time scheduling algorithm for energy-saving on a Linux system</i> ". The thesis has been developed at the Scuola Superiore Sant'Anna. The thesis was part of the OCERA (" <i>Open Components for Embedded real-Time Applications</i> ") project, financially supported by the European commission. The thesis was related to the development of a real-time scheduling algorithm with energy-saving features for the Linux kernel.
Name and type of organisation providing education and training	University of Pisa - Italy

Dates **September 1991 – July 1996**  
 Title of qualification awarded Scientific High School degree.  
 Name and type of organisation providing education and training Liceo Scientifico statale F.Buonarroti in Pisa - Italy

**Certificates and awards**

Dates **March 2011**  
 Title of qualification awarded ScrumMaster certificate  
 Name and type of organisation providing education and training Certificate number #137924 released by the Scrum Alliance on March 30<sup>th</sup> 2011.

Dates **December 2008 – today**  
 Activity Sporadic collaboration with the Linux kernel community  
 Principal subjects/occupational skills covered Several patches already merged in the official Linux kernel (full list of contributions available at <http://git.kernel.org/cgiit/linux/kernel/git/torvalds/linux.git/log/?qt=author&q=Scordino>).  
 Proposal, requirements specification and supervision of the original version of the SCHED\_DEADLINE real-time scheduler merged in the official Linux kernel since release 3.14.  
 Design, development and testing of the extensions merged in the kernel releases 4.13 and 4.16.

Dates **2008**  
 Title of qualification awarded Courses about relationship with the customer  
 Name and type of organisation providing education and training Periodic training courses at “Camera di Commercio di Pisa” and at “Scuola Internazionale di Alta Formazione” (SIAF)

Dates **2006**  
 Title IEEE member

Dates **2005**  
 Activity Sporadic substitute for the “Operating Systems” class at the Computer Science department of the University of Pisa.

Dates **2002**  
 Title of qualification awarded Cisco certificate  
 Name and type of organisation providing education and training “Networking Academy Program” certificate (#201584-570823-750624)

**Personal skills and competences**

Mother tongue **Italian**

Other language **English**

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production		Written production	
B2	Independent user	B2	Independent user	C1	Proficient user	B2	Independent user	C1	Proficient user

(\*) [Common European Framework of Reference for Languages](#)

Management skills and competences	<ul style="list-style-type: none"> <li>• Effort estimation, break down and coordination of complex development activities</li> <li>• Supervision of the whole development cycle of software projects (i.e., requirements, architectural design, development, testing) according to ISO9001 standards.</li> <li>• Traditional software development methodologies (classic waterfall and V-Model)</li> <li>• Agile software development methodologies (extreme programming, SCRUM)</li> <li>• Decision making and self-organization skills.</li> <li>• Knowledge of rules for projects funded by national or European programmes.</li> <li>• Very good skills for inter-personal relationship, tutoring and motivation of employees.</li> <li>• Technical and motivational interviews for recruiting.</li> </ul>
Previous technical experience	<ul style="list-style-type: none"> <li>• Programming languages: <ul style="list-style-type: none"> <li>○ Excellent knowledge: C, C++</li> <li>○ Good knowledge: Bash</li> <li>○ Basic knowledge: Assembler (x86), Java</li> </ul> </li> <li>• Knowledge of HTML, LaTeX, Markdown and UML languages.</li> <li>• Procedural, object-oriented, concurrent and real-time programming.</li> <li>• Several years of research in the following fields: operating systems, real-time scheduling algorithms, energy saving, embedded devices, hypervisors.</li> <li>• Knowledge of the main Design Patterns of the GoF.</li> <li>• Knowledge of the internal architecture of x86 computer and ARM Cortex-A microcontrollers.</li> <li>• Know-how about the internal structure of an operating system and detailed knowledge about the infrastructure of Linux systems (i.e., bootloader, kernel, drivers, filesystem, libraries).</li> <li>• Linux kernel drivers programming.</li> <li>• Knowledge and usage of the POSIX standard.</li> <li>• Usage of both software (gdb) and hardware (Lauterbach Trace32 JTAG) debuggers.</li> <li>• Unit test tools (i.e., cppunit, googletest)</li> <li>• Development tools: gcc, make, ctags, Doxygen</li> <li>• Editors: vim, Eclipse, QtCreator</li> <li>• Software versioning tools: subversion, git</li> <li>• Basic knowledge of Qt libraries and the C++11 standard.</li> <li>• Tools for creating embedded Linux systems (e.g., buildroot, scratchbox, Qemu, bootloader U-Boot, Busybox, crosstool-ng, Yocto)</li> <li>• Basic knowledge of network protocols</li> <li>• Active contribution to the following open-source projects: Linux kernel, Jailhouse hypervisor, RTSim, SOME EtherCATmaster stack.</li> <li>• Knowledge of legal aspects of the main open-source licenses (e.g., GPL/LGPLv2, GPL/LGPLv3, BSD, MIT, etc.)</li> </ul>
Further skills and interests	<ul style="list-style-type: none"> <li>• Very good knowledge of English language, thanks to the 5 months worked at the University of Pittsburgh and the continuous work within international projects.</li> <li>• Collaboration and own initiative.</li> <li>• Hobbies: books, computer science, music, guitar, movies, photography.</li> </ul>

## Appendix: list of international scientific publications

### International journals and book chapters

- 2018** C. Scordino, L. Abeni, J. Lelli, *Real-Time and Energy Efficiency in Linux: Theory and Practice*, ACM SIGAPP Applied Computing Review Vol. 18, issue 4, December 2018
- 2018** C. Scordino, E. Guidieri, B. Morelli, A. Marongiu, G. Tagliavini, P. Gai, *Embedded Operating Systems*, Chapter 7 of High-Performance and Time Predictable Embedded Computing River Publishers, 2018.
- 2017** P. Burgio, M. Bertogna, N. Capodieci, R. Cavicchioli, M. Sojka, P. Houdek, A. Marongiu, P. Gai, C. Scordino, B. Morelli, *A software stack for next-generation automotive systems on many-core heterogeneous platforms*, Microprocessors and Microsystems, 52:299-311, Elsevier, July 2017.
- 2016** C. Álvarez, E. Ayguadé, J. Bosch, J. Bueno, A. Cherkashin, A. Filgueras, D.J. González, X. Martorell, N. Navarro, M. Vidal, D. Theodoropoulos, D.N. Pnevmatikatos, D. Catani, D. Oro, C. Fernández, C. Segura, J. Rodríguez, J. Hernando, C. Scordino, *The AXIOM software layers*, Microprocessors and Microsystems, 2016, ISSN: 0141-9331.
- 2015** L.M. Pinho, V. Nélis, P.M. Yomsi, E. Quiñones, M. Bertogna, P. Burgio, A. Marongiu, C. Scordino, P. Gai, M. Ramponi, M. Madiak, *P-SOCRATES: A parallel software framework for time-critical many-core systems*, Microprocessors and Microsystems, 39(8): 1190-1203, November 2015.
- 2015** J. Lelli, C. Scordino, L. Abeni, D. Faggioli, *Deadline scheduling in the Linux kernel*, Software: Practice and Experience, 46(6): 821-839, June 2016.
- 2011** E. Bini, G. Buttazzo, J. Eker, S. Schorr, R. Guerra, G. Fohler, K. Arzen, V. R. Segovia, C. Scordino, *Resource Management on Multicore Systems: The ACTORS Approach*, IEEE Micro, vol. 31, no. 3, pp. 72-81, May/June 2011.
- 2009** E. Bini, C. Scordino, *Optimal Two-Level Speed Assignment for Real-Time Systems*, International Journal of Embedded Systems (IJES), Vol.4, No. 2, Pages 101-111, 2009.
- 2009** L. Abeni, L. Paolopoli, C. Scordino, G. Lipari, *Resource Reservations for General Purpose Applications*, IEEE Transactions on Industrial Informatics, Volume 5:1, Pages 12-21, February 2009.
- 2006** C. Scordino, G. Lipari, *A Resource Reservation Algorithm for Power-Aware Scheduling of Periodic and Aperiodic Real-Time Tasks*, IEEE Transactions on Computers, December 2006.

### Conferences and workshops

- 2018** C. Scordino, L. Abeni, J. Lelli, *Energy-Aware Real-Time Scheduling in the Linux Kernel*, 33<sup>rd</sup> ACP SIGAPP Symposium on Applied Computing (SAC 2018), Pau, France, April 2018.
- 2015** D. Theodoropoulos, D. Pnevmatikatos, C. Alvarez, E. Ayguade, J. Bueno, A. Filgueras, D. Jimenez-Gonzalez, X. Martorell, N. Navarro, C. Segura, C. Fernandez, D. Oro, J. Saeta, P. Gai, C. Scordino, A. Rizzo, R. Giorgi, *The AXIOM project (Agile, eXtensible, fast I/O Module)*, IEEE Proc. 15th Int'l Conf. on Embedded Computer Systems: Architecture, MOdeling and Simulation, July 2015.
- 2015** C. Alvarez, E. Ayguade, J. Bueno, A. Filgueras, D. Jimenez-Gonzalez, X. Martorell, N. Navarro, D. Theodoropoulos, D. Pnevmatikatos, C. Scordino, P. Gai, C. Segura, C. Fernandez, D. Oro, J. Saeta, P. Passera, A. Pomella, A. Rizzo, R. Giorgi, *The AXIOM Software Layers*, IEEE Proc. 18th EUROMICRO-DSD, Aug. 2015, pp. 117-124, ISBN: 978-1-4673-8035-5, DOI: 0.1109/DSD.2015.52
- 2015** V. Nelis, P. M. Yomsi, L. M. Pinho, E. Quinones, M. Bertogna, A. Marongiu, P. Gai, C. Scordino, *A system model and stack for the parallelization of time-critical applications on many-core architectures*, Proceedings of 3rd High-performance and Real-time Embedded Systems (HiRES'15) workshop, in conjunction with 10th International Conference on High-Performance and Embedded Architectures and Compilers (HiPEAC'15), Amsterdam, Netherlands, January 2015.
- 2014** L. Abeni, J. Lelli, C. Scordino, L. Paolopoli, *Greedy CPU reclaiming for SCHED\_DEADLINE*, Proceedings of 16th Real-Time Linux Workshop (RTLWS), Dusseldorf, Germany, October 2014.
- 2014** L. M. Pinho, E. Quinones, M. Bertogna, L. Benini, J. P. Carlos, C. Scordino, M. Ramponi, *P-SOCRATES: a Parallel Software Framework for Time-Critical Many-Core Systems*, Proceedings of 17th Euromicro Conference on Digital System Design (DSD 2014), Verona, Italy, August 2014.

- 2014** L. M. Pinho, E. Quinones, M. Bertogna, L. Benini, J. P. Carlos, C. Scordino, M. Ramponi, *Time Criticality Challenge in the Presence of Parallelised Execution*, Proceedings of 2nd Workshop on High-Performance and Real-Time Embedded Systems (HiRES 2014), held in conjunction with the 9th International Conference on High-Performance and Embedded Architectures and Compilers (HiPEAC 2014), Vienna, Austria, January 2014.
- 2013** B. Morelli, R. Schiavi, C. Scordino, P. Gai, M. Di Natale, *Automatic generation of controls code from models for real-time Linux platforms*, Proceedings of the 15th Real-Time Linux Workshop (RTLWS), Lugano-Manno, Switzerland, October 2013.
- 2013** G. Keramidas, S. Wong, F. Anjam, A. Brandon, R. Seedorf, C. Scordino, L. Carro, D. Matos, R. Giorgi, S. Kavvadias, S. McKee, B. Goel, V. Spiliopoulos, *Embedded Reconfigurable Computing: the ERA Approach*, Proc. 11th IEEE Int.l Conf. on Industrial Informatics, pp. 827-832, Bochum, Germany, July 2013.
- 2012** C. Kang, S. Kavvadias, A. Scionti, C. Scordino, P. Gai, R. Giorgi, *Dynamically Reconfiguring through Phase Detection on FPGA*, HiPEAC ACACES-2012, pp. 149-152, Fiuggi, Italy, July 2012.
- 2010** N. Manica, L. Abeni, L. Palopoli, D. Faggioli, C. Scordino, *Schedulable Device Drivers: Implementation and Experimental Results*, International Workshop on Operating Systems Platforms for Embedded Real-Time Applications (OSPRT), Brussels, Belgium, July 2010.
- 2009** D. Faggioli, F. Checconi, M. Trimarchi, C. Scordino, *An EDF scheduling class for the Linux kernel*, 11th Real-Time Linux Workshop (RTLWS), pages 197-204, Dresden, Germany, September 2009.
- 2007** L. Abeni, C. Scordino, G. Lipari, L. Palopoli, *Serving Non Real-Time Tasks in a Reservation Environment*, 9th Real-Time Linux Workshop (RTLWS), Linz, November 2007.
- 2006** G. Lipari, C. Scordino, *Linux and Real-Time: Current Approaches and Future Opportunities*, International Congress ANIPLA, Rome, Italy, November 2006.
- 2006** C. Rusu, A. Ferreira, C. Scordino, A. Watson, R. Melhem and D. Mosse, *Energy-Efficient Real-Time Heterogeneous Server Clusters*, 12th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'06), San Jose, California, United States, April 2006.
- 2005** C. Scordino and E. Bini, *Optimal Speed Assignment for Probabilistic Execution Times*, 2nd Power-Aware Real-Time Workshop (PARC'05), Jersey City, NJ, September 2005.
- 2004** C. Scordino and G. Lipari, *Using Resource Reservation Techniques for Power-Aware Scheduling*, Proceedings of the 4th ACM International Conference on Embedded Software (EMSOFT'04), Pisa, Italy, September 2004.
- 2003** C. Scordino and G. Lipari, *Energy Saving Scheduling for Embedded Real-Time Linux Applications*, 5th Real-Time Linux Workshop (RTLWS), Valencia, Spain, November 2003.