Project Number 318736

D7.1 – Final Report on Dissemination

Version 1.3
18 January 2016
Final

Public Distribution

The Open Group

Project Partners: **aicas, HMI, petaFuel, SOFTEAM, Scuola Superiore Sant'Anna, The Open Group, University of Stuttgart, University of York**

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DOCUMENT CONTROL

Version	Status	Date
0.8	Outline and first draft content	2 July 2014
1.0	Dissemination actions through M24	28 July 2015
1.1	Dissemination actions from M30 reporting	4 September 2015
1.2	Disseminations actions from M36 reporting	6 January 2016
1.3	Final review and QA	18 January 2016

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EXECUTIVE SUMMARY

This report summarises the dissemination actions the JUNIPER project has taken during the operation of the project. The actions are organised according to type including presentations of peer reviewed technical papers at conferences, journal publications. Participation in tradeshows, university lectures and other actions to create awareness of the project and the technology advances that have been developed. A total of 71 separate dissemination actions have been carried out, which are complemented by the online dissemination of the project technologies.

1. INTRODUCTION

The strategic objective of the JUNIPER project has been to advance Java based technologies so that the increasing demands in the big data domain can be attained at a much lower cost. This impact is extremely important with regards to big data systems since society as a whole is becoming ever more dependent on big data applications. Many business-critical big data applications (e.g. financial, manufacturing, web-based commerce and media streaming services) are already developed in Java. Major frameworks have been defined for such applications and at the heart of these frameworks lies the Java language and Java virtual machine. As the services and applications to be deployed become more demanding on the computational power, it will be necessary to provide increasingly powerful virtual machines that will enable the operation of these applications and while delivering real-time guarantees. The project partners believe that JUNIPER addresses these needs by providing a scalable Java based platform for current and future Java based high performance real-time big data applications.

The exploitation strategy established by the JUNIPER project partners utilises the industrial reach and product distribution infrastructures of the commercial technology providers within the project, as well as the close ties to industry of the research partners and standardisation partner, to ensure the project technologies will be available to European developers of real-time big data systems. A cornerstone of the exploitation strategy is the decision to make the project technologies that provide the platform, extend the functionalities of the operating system, support advanced scheduling and monitoring capabilities, and deliver new capabilities to model real-time big data applications and data available as open source technologies. Complimenting this approach is the availability without charge of the remaining JUNIPER Java VM technologies in binary form for evaluation purposes enabling anyone to get access to all of the new technologies.

The dissemination actions are therefore important for achieving successful and sustainable exploitation of project results as the actions have created awareness of the project innovations, encourage European big data application developers and technology providers to access and evaluate the technologies from the project, and support the establishment of a community of interested parties who will contribute to the continued evolution of the project innovations.

This report is structured according to the types of dissemination actions that have been taken by the project partners during the operation of the project as follows:

- Presentations of technical papers (Section 2)
- Journal articles and publications (Section 3)
- Presentations of project technologies (Section 4)
- Tradeshows (Section 5)
- University lectures (Section 6)
- Internal technical talks (Section 7)

- Software distribution (Section 8)

A complete listing of all dissemination actions in chronological order is also provided in Section 9.

It is worth noting this report does not reflect the entirety of the dissemination efforts undertaken by the project partners during the operation of the project. Further technical papers and journal articles were prepared over the course of the project, but not all submissions have been selected during the peer review procedures for international conferences or scientific journal publications. The following sections summarise only the dissemination actions that have been successful and have created awareness and understanding of the JUNIPER project and the new technology innovations.

2. PRESENTATIONS OF TECHNICAL PAPERS

The project partners were successful in having 24 technical papers addressing project technologies and innovations selected through peer review procedures for presentation at major conferences in Europe and abroad. Project related technical papers were presented at a total of 20 conferences, most of which were international events that included publication of formal proceedings. The papers and events are listed in Table 1.

Item	Activity	Date	Partners Involved	Audience or Event
1.	Paper presentation: “Energy-Aware Partitioning of Real-Time Tasks on Homogeneous Multi-Processor Systems”	17 December 2013	SSSUP	International Conference on Energy Aware Computing (ICEAC 2013), Istanbul, Turkey
2.	Paper presentation: “Exploiting Multicore Architectures in Big Data Applications: The JUNIPER Approach”	22 January 2014	York	Programmability Issues for Heterogeneous Multicores (MULTIPROG 2014), Vienna, Austria
3.	Paper presentation: “Portable Real-time Multicore Software on Linux and Commercial RTOSs—How Real-time Java achieves portability on multicore CPUs”	5-7 February 2014	Aicas	Embedded Real Time Software and Systems (ERTS²), Toulouse, France. About 1,000 visitors, mostly from avionics and automotive industries.
4.	Paper presentation: “Multi-cloud and Multi-data Stores - The Challenges Behind Heterogeneous Data Models”	4 April 2014	SOFT	International Conference on Cloud Computing and Services Science (CLOSER 2014), Barcelona, Spain
5.	Paper presentation: “Parallel Search Through Statistical Semantic Spaces”	28 May 2014	HLRS	Enhanced Semantic Web Conference (ESWC 2014), Crete, Greece
6.	Paper presentation: “Scheduling Decisions in Stream Processing on Heterogeneous Clusters”	3 July 2014	BUT	8th International IEEE Conference on Complex, Intelligent and Software Intensive Systems (CISIS 2014), Birmingham, United Kingdom
7.	Paper presentation: “Architecture-Awareness for Real-Time Big Data Systems”	9 September 2014	York	BigWebData 2014 Workshop at EuroMPI / ASIA 2014, Kyoto, Japan
8.	Paper presentation: “HPC in Big	10 September	HLRS	EuroMPI / ASIA 2014 Con-

Item	Activity	Date	Partners Involved	Audience or Event
	Data Age: An Evaluation Report for Java-Based Data-Intensive Applications Implemented with Hadoop and OpenMPI"	2014		ference, Kyoto, Japan
9.	Paper presentation: "Two Generalisations of Roşu and Chen's Trace Slicing Algorithm A"	24 September 2014	Aicas	14th International Conference on Runtime Verification, Toronto, Canada
10.	Paper presentation: "A Weak Simulation Relation for Real-Time Schedulability Analysis of Global Fixed Priority Scheduling Using Linear Hybrid Automata"	8 October 2014	SSSUP	22nd International Conference on Real-Time Networks and Systems (RTNS), Versailles, France
11.	Paper presentation: "Probabilistic Deadline Miss Analysis of Real-Time Systems Using Regenerative Transient Analysis"	8 October 2014	SSSUP	22nd International Conference on Real-Time Networks and Systems (RTNS), Versailles, France
12.	Paper presentation: "WCET Preserving Hardware Prefetch for Many-Core Real-Time Systems"	9 October 2014	York	22nd International Conference on Real-Time Networks and Systems (RTNS), Versailles, France
13.	Paper presentation: "Locality of Java 8 Stream in Real-Time Big Data Applications"	13 October 2014	York	12th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2014), Buffalo, USA. About 30 real-time and embedded Java specialists from academia and industry.
14.	Paper presentation: "Implementation of a resource reservation mechanism for groups of tasks in Linux"	13 October 2014	SSSUP	16th Real-Time Linux Workshop (RTLWS), Dusseldorf, Germany
15.	Paper presentation: "JUNIPER: Towards a Modeling Approach Enabling Efficient Platform for Heterogeneous Big Data Analysis"	23 October 2014	SOFT / HLRS / petaFuel	Central and Eastern European Software Engineering Conference (CEE-SECR), Moscow, Russia
16.	Paper presentation: "Taming the complexity of big data multi-cloud applications with models"	12 November 2014	SOFT	Complex Systems Design & Management (CSDM 2014), Paris, France
17.	Paper presentation: "Real-Time Big Data: the JUNIPER Approach"	2 December 2014	York	IEEE 34th International Real-Time Systems Symposium REACTION Workshop, Rome, Italy
18.	Paper presentation: "Supporting Component-based Development in Partitioned Multiprocessor Real-Time Systems"	7 July 2015	SSSUP	27th Euromicro Conference on Real-Time Systems, Lund, Sweden
19.	Paper presentation: "Response-Time Analysis of Conditional DAG Tasks in Multiprocessor Systems"	8 July 2015	SSSUP	27th Euromicro Conference on Real-Time Systems, Lund, Sweden
20.	Paper presentation: "Practical Aspects of Ontology-Based Analysis and Reasoning for Law Information Represented in Textual Form"	23 July 2015	HLRS	9th International Conference on Advances in Semantic Processing (SEMAPRO 2015), Nice, France. Audi-

Item	Activity	Date	Partners Involved	Audience or Event
				ence of about 50 people.
21.	Paper presentation: "Prefetching to Improve the Worst-case Execution Time of Real-Time Big-Data Tasks"	1 September 2015	York	1st Workshop on Reconfigurable Computing for HPC and HPDA (ReC4P) at International Conference on Field Programmable Logic and Applications (FPL), London, United Kingdom
22.	Paper presentation: "Transparent hardware synthesis of Java for predictable large-scale distributed systems"	2 September 2015	York	2nd International Workshop on FPGAs for Software Programmers (FSP) at International Conference on Field Programmable Logic and Applications (FPL), London, United Kingdom
23.	Paper presentation: "Resource Reservation for Real-Time Self-Suspending Tasks: Theory and Practice"	4 November 2015	SSSUP	23rd International Conference on Real-Time Networks and Systems, Lille, France
24.	Paper presentation: "Response Time Analysis for G-EDF and G-DM Scheduling of Sporadic DAG-Tasks with Arbitrary Deadline"	5 November 2015	SSSUP	23rd International Conference on Real-Time Networks and Systems, Lille, France

Table 1: Peer review papers presented

3. JOURNAL ARTICLES AND PUBLICATIONS

The project partners have had 4 publications in recognised scientific journals, chapters for books and standards publications that have addressed project technologies and innovations. The articles and publications are listed in Table 2.

Item	Activity	Date	Partners Involved	Audience or Event
1.	Journal article: "Message-Passing Interface for Java Applications: Practical Aspects of Leveraging High Performance Computing to Speed and Scale Up the Semantic Web"	30 June 2013	HLRS	International Journal on Advances in Software, vol 6 no 1 & 2, year 2013, pp. 45-55.
2.	Book chapter: "Endorsing supercomputing applications to Java language"	1 November 2014	HLRS	Sustained Simulation Performance 2014: Proceedings of the Joint Workshop on Sustained Simulation Performance, Lecture Notes in Computer Science, pages 99-118.
3.	Journal article: "Heterogeneity-Aware Scheduler for Stream Processing Frameworks"	20 November 2014	BUT	International Journal of Big Data Intelligence, Vol.2, No.2 > pp.70 - 80
4.	Standards Publication: Real-time Specification for Java 2.0	6 December 2015	Aicas	Java Community, Java Community Process members

Table 2: Journal articles and publications

4. PRESENTATIONS OF PROJECT TECHNOLOGIES

The project partners were proactive during the entire operation of the project in seeking opportunities to present the project and the new technologies being developed having presented on 26 separate occasions the project and results at events including international conferences, standardisation communities, as well as invited talks at important gatherings of technical experts. The presentations and events are listed in Table 3.

Item	Activity	Date	Partners Involved	Audience or Event
1.	Presentation: “Introduction to the JUNIPER project objectives, expected results and industry impact”	31 January 2013	TOG	Real-time and Embedded Systems Forum. Approx. 20 real-time systems technology vendors and major industrial users.
2.	Presentation: “Multicore Thread-to-CPU Mapping”	26 February 2013	Aicas	Embedded World Conference, Nurnberg. Audience of about 30 people.
3.	Presentation: “The JUNIPER approach to develop Big Data applications”	25 March 2013	HLRS	27th IEEE International Conference on Advanced Information Networking and Applications (AINA 2013). Audience of approx. 30 people.
4.	Presentation: “Multicore Thread-to-CPU Mapping"	24 April 2013	Aicas	Design West Conference, San Jose. Audience of 50 people.
5.	Invited Talk: “Developing Heterogeneous Embedded Systems”	21 May 2013	York	Timing Analysis on Code-Level (TACLe) Meeting, Porto, Portugal
6.	Presentation: “MODAClouds and JUNIPER Project - Writing and testing transformations from abstract object oriented domain models”	31 May 2013	SOFT	Industrial Track of 7th IEEE International Conference on Research Challenges in Information Science, Paris, France
7.	Presentation: “Portable Echtzeit-Software auf Multicore Systemen”	10 July 2013	Aicas	Embedded Systems Symposium, Munich, Germany. Audience of about 30 embedded engineers and technical management.
8.	Presentation: “Parallel Search Through Statistical Semantic Spaces for Querying Big RDF Data”	29 September 2013	HLRS	7th International Conference on Advances in Semantic Processing (SEMAPRO 2013), Porto, Portugal
9.	International workshop: “Large-scale big data analytic applications for the Web (BigWebData)” – including presentation of the JUNIPER project	13-15 October 2013	HLRS	International Web Information System Engineering (WISE) Conference, Nanjing, China
10.	Presentation: “SCHED_DEADLINE: a contribution from academic research”	23 October 2013	SSSUP	Linux Kernel Summit (LKS) 2013, Edinburgh, United Kingdom
11.	Invited Talk: “Minimum Required Multicore Extension to POSIX”	23 October 2013	York	Real-time & Embedded Systems Forum, London
12.	Presentation: “Design and Imple-	31 October	SSSUP	15th Real Time Linux Work-

Item	Activity	Date	Partners Involved	Audience or Event
	mentation of the Multiprocessor Bandwidth Inheritance Protocol on Linux"	2013		shop (RTLWS), Lugano-Manno, Switzerland
13.	Presentation: "JUNIPER Technology Development Progress"	6 February 2014	TOG	Real-time and Embedded Systems Forum, San Francisco, USA
14.	Mailing List information: "SCHED_DEADLINE in Linux mainline starting from version 3.14"	30 March 2014	SSSUP	News and technical articles in the main Linux kernel mailing lists.
15.	Presentation: "Adaptive Scheduling Parameters Manager for SCHED_DEADLINE"	27 June 2014	SSSUP	Workshop on Real-Time Scheduling in the Linux Kernel (RTS-LIKE 2014), Pisa, Italy
16.	Presentation: "SCHED_DEADLINE: Internals and Current Development Status"	27 June 2014	SSSUP	Workshop on Real-Time Scheduling in the Linux Kernel (RTS-LIKE 2014), Pisa, Italy
17.	Presentation: "JUNIPER: Support for Real-time Enterprise Big Data Applications"	24 July 2014	TOG	Real-time and Embedded Systems Forum, Boston, USA
18.	Invited Talk: "The next generation of the Realtime Specification for Java"	14 October 2014	Aicas	12th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2014), Buffalo, USA. About 30 real-time and embedded Java specialists from academia and industry.
19.	Presentation: "JUNIPER Support for Big Data Applications"	16 October 2014	York	Boston University Big Data Group, Boston, USA. Audience of about 30 people.
20.	Presentation: "Standardisation of JUNIPER Platform Technologies"	5 February 2015	TOG	Realtime and Embedded Systems Forum, San Diego, USA. About 20 real-time platform technology suppliers and users.
21.	Presentation: "Multicore Thread-to-CPU Mapping"	26 February 2015	Aicas	Embedded World 2015 Nurnberg, Germany. Audience of about 30 people.
22.	Presentation: "Technologies and Tools for Real-time Big Data Systems"	22 July 2015	TOG	Architecture Forum, Baltimore, USA
23.	Presentation: "Stream Processing and scheduling"	22 September 2015	BUT	Talk for university staff about stream processing, University of Eastern Finland, Joensuu, Finland
24.	Presentation: "Integrating Java 8 Streams with the Real-Time Specification for Java"	8 October 2015	York	13th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2015), Paris, France. About 50 engineers and researchers of the real-time Java community

Item	Activity	Date	Partners Involved	Audience or Event
25.	Presentation: “Real-time Specification for Java 2.0”	8 October 2015	Aicas	13th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2015), Paris, France. About 50 engineers and researchers of the real-time Java community.
26.	Presentation: “JUNIPER Software Stack for Java based Big Data Applications”	21 October 2015	TOG	Open Platform 3.0 Forum, Edinburgh, United Kingdom

Table 3: Presentations of project technologies

5. TRADESHOWS

The project and technologies developed within the project were visible at 8 major tradeshows during the project. Project partners represented the project at large tradeshow events in Europe and USA, some of which have over 20,000 attendees on an annual basis. The tradeshows where project technologies were initially introduced and then later demonstrated are listed in Table 4.

Item	Activity	Date	Partners Involved	Audience or Event
1.	Tradeshow booth	26-28 February 2013	Aicas	Embedded World Conference, Nurnberg. Over 20,000 attendees at the event.
2.	Tradeshow booth	18 March 2013	Aicas	Real-Time & Embedded Computing Conference (RTECC), Houston, USA. About 100 attendees.
3.	Tradeshow booth	22-25 April 2013	Aicas	Design West Conference, San Jose. Over 6,000 attendees at the event.
4.	Tradeshow booth with demonstrations	5-7 February 2014	Aicas	Embedded Real Time Software and Systems (ERTS²) Conference, Toulouse, France
5.	Tradeshow booth with demonstrations and training	25-27 February 2014	Aicas	Embedded World 2014, Nurnberg, Germany. About 25,000 visitors: engineers and management from embedded systems industries.
6.	Tradeshow booth with demonstrations and training	1-3 April 2014	Aicas	Electronics Engineering (EE) Live!, San Jose, USA. About 10,000 visitors: engineers and management from embedded systems industries.
7.	Poster session: “Overview of JUNIPER Project Technologies”	12 November 2014	SOFT	Complex Systems Design & Management (CSDM 2014), Paris, France
8.	Tradeshow booth with demonstrations	24-26 February 2015	Aicas	Embedded World 2015 Nurnberg, Germany. About 25,000 visitors of engineers

Item	Activity	Date	Partners Involved	Audience or Event
				and management from the embedded systems industry.

Table 4: Participation at tradeshows

6. UNIVERSITY LECTURES

The academic project partners have carried out visiting lectures on the project technologies at other universities in Europe and have also organised internal seminars. These are listed in Table 5. In addition, all four of the academic project partners have extended their post- and under-graduate taught and research-based degrees curricula to include the project technologies.

Item	Activity	Date	Partners Involved	Audience or Event
1.	University Lecture: "SCHED_DEADLINE: what it does and doesn't do, yet"	6 May 2014	SSSUP	Department of Automatic Control, Lund University, Sweden
2.	University Lecture: "An Implementation of a Bandwidth Reservation Mechanism for Task Groups in Linux"	19 November 2014	SSSUP	Department of Computer Science, University of Padua, Italy
3.	University Seminar: "Real-time support in Virtualised Environments"	4-8 May 2015	SSSUP	Component-based Software Design Course, MsC Embedded Computing Systems, Pisa, Italy. Audience of about 15 MsC and PhD students.
4.	University Lecture: "Stream Processing and scheduling"	24 September 2015	BUT	Lecture for master students in course of Distributed computing, University of Eastern Finland, Kuopio, Finland

Table 5: University lectures and seminars

7. INTERNAL TALKS

The project partners have carried out internal dissemination events and technology briefings of their own personnel, as well as personnel from organisations with which they have established collaborations. These events are listed in Table 6.

Item	Activity	Date	Partners Involved	Audience or Event
1.	Internal Tech Talk: "Fragmentation in JamaicaVM: Problems and Solution Design Discussion"	3 June 2013	Aicas	About 15 Aicas engineers and technical management, Karlsruhe, Germany
2.	Internal Tech Talk: "Project λ: Exploiting Java 8 use of λ-expressions and streams, how to work on collections, how to implement map/reduce, and how to process a collection in parallel"	10 June 2013	Aicas	About 15 Aicas engineers and technical management, Karlsruhe, Germany
3.	Presentation: "Comparison of JUNIPER project capabilities with current state of the art technology	20 November 2013	petaFuel	Internal corporate discussions concerning technology directions and strategy. In-

Item	Activity	Date	Partners Involved	Audience or Event
	for risk management of financial transactions"			cluded corporate holding PayMint AG.
4.	Internal Tech Talk: "Jamaica Multi-core Monitors and new Tacked Monitor Optimization — Jamaica Performance Impact"	13 January 2014	Aicas	About 15 Aicas engineers and technical management, Karlsruhe, Germany
5.	Internal Tech Talk: "SCHED_DEADLINE in Linux mainline: new features and exploitation plan"	28 May 2014	SSSUP	About 20 engineers and technical managers from SSSUP and its spin-off (Evidence), Pisa, Italy

Table 6: Internal technical talks within partner organisations

8. SOFTWARE DISTRIBUTION

All of the JUNIPER technology components are disseminated online and available for download. The components and the access links are summarised in Table 7.

Item	JUNIPER Component	Link
1.	Platform	https://github.com/juniper-project/platform
2.	Monitoring Library	https://github.com/juniper-project/monitoring-lib
3.	Offline MPI	https://github.com/juniper-project/offline-mpi-extensions
4.	Caicos Acceleration	https://github.com/juniper-project/fpgas-caicos
5.	Real-Time Operating System Extensions	https://github.com/juniper-project/rt-linux-kernel
6.	Real-Time Scheduling Analyser	https://github.com/juniper-project/rt-sched-analysis
7.	Scheduling Advisor	https://github.com/juniperproject/sched-advisor
8.	Real-time Java VM Extensions	https://www.aicas.com/cms/en/JamaicaVM
9.	Modelling Environment	http://forge.modelio.org/projects/juniper-development
10.	MONGO DB Modeller	http://forge.modelio.org/projects/juniper-development
11.	PostgreSQL Modeller	http://forge.modelio.org/projects/juniper-development

Table 7: Dissemination of JUNIPER software technologies

The newly developed technologies are maintained in a centralised GitHub repository for JUNIPER, while extensions developed in the project to existing technologies (e.g. Modelio) are maintained at their respective repositories with appropriate cross-linking.

9. CHRONOLOGICAL LISTING OF DISSEMINATION ACTIONS

Table 8 lists in chronological order all of the dissemination actions that have been carried out by the project during the operation of the project. A total of 71 dissemination actions were taken, which are complemented by the online dissemination of the project technologies (see Section 8 above).

Item	Activity	Date	Partners Involved	Audience or Event
1.	Presentation: "Introduction to the	31 January	TOG	Real-time and Embedded

Item	Activity	Date	Partners Involved	Audience or Event
	JUNIPER project objectives, expected results and industry impact"	2013		Systems Forum. Approx. 20 real-time systems technology vendors and major industrial users.
2.	Presentation: "Multicore Thread-to-CPU Mapping"	26 February 2013	Aicas	Embedded World Conference, Nurnberg. Audience of about 30 people.
3.	Tradeshow booth	26-28 February 2013	Aicas	Embedded World Conference, Nurnberg. Over 20,000 attendees at the event.
4.	Tradeshow booth	18 March 2013	Aicas	Real-Time & Embedded Computing Conference (RTECC), Houston, USA. About 100 attendees.
5.	Presentation: "The JUNIPER approach to develop Big Data applications"	25 March 2013	HLRS	27th IEEE International Conference on Advanced Information Networking and Applications (AINA 2013). Audience of approx. 30 people.
6.	Presentation: "Multicore Thread-to-CPU Mapping"	24 April 2013	Aicas	Design West Conference, San Jose. Audience of 50 people.
7.	Tradeshow booth	22-25 April 2013	Aicas	Design West Conference, San Jose. Over 6,000 attendees at the event.
8.	Invited Talk: "Developing Heterogeneous Embedded Systems"	21 May 2013	York	Timing Analysis on Code-Level (TACLe) Meeting, Porto, Portugal
9.	Presentation: "MODAClouds and JUNIPER Project - Writing and testing transformations from abstract object oriented domain models"	31 May 2013	SOFT	Industrial Track of 7th IEEE International Conference on Research Challenges in Information Science, Paris, France
10.	Internal Tech Talk: "Fragmentation in JamaicaVM: Problems and Solution Design Discussion"	3 June 2013	Aicas	About 15 Aicas engineers and technical management, Karlsruhe, Germany
11.	Internal Tech Talk: "Project λ: Exploiting Java 8 use of λ-expressions and streams, how to work on collections, how to implement map/reduce, and how to process a collection in parallel"	10 June 2013	Aicas	About 15 Aicas engineers and technical management, Karlsruhe, Germany
12.	Journal article: "Message-Passing Interface for Java Applications: Practical Aspects of Leveraging High Performance Computing to Speed and Scale Up the Semantic Web"	30 June 2013	HLRS	International Journal on Advances in Software, vol 6 no 1 & 2, year 2013, pp. 45-55.
13.	Presentation: "Portable Echtzeit-Software auf Multicore Systemen"	10 July 2013	Aicas	Embedded Systems Symposium, Munich,

Item	Activity	Date	Partners Involved	Audience or Event
				Germany. Audience of about 30 embedded engineers and technical management.
14.	Presentation: "Parallel Search Through Statistical Semantic Spaces for Querying Big RDF Data"	29 September 2013	HLRS	7th International Conference on Advances in Semantic Processing (SEMAPRO 2013), Porto, Portugal
15.	International workshop: "Large-scale big data analytic applications for the Web (BigWebData)" – including presentation of the JUNIPER project	13-15 October 2013	HLRS	International Web Information System Engineering (WISE) Conference, Nanjing, China
16.	Invited Talk: "Minimum Required Multicore Extension to POSIX"	23 October 2013	York	Real-time & Embedded Systems Forum, London
17.	Presentation: "SCHED_DEADLINE: a contribution from academic research"	23 October 2013	SSSUP	Linux Kernel Summit (LKS) 2013, Edinburgh, United Kingdom
18.	Presentation: "Design and Implementation of the Multiprocessor Bandwidth Inheritance Protocol on Linux"	31 October 2013	SSSUP	15th Real Time Linux Workshop (RTLWS), Lugano-Manno, Switzerland
19.	Presentation: "Comparison of JUNIPER project capabilities with current state of the art technology for risk management of financial transactions"	20 November 2013	petaFuel	Internal corporate discussions concerning technology directions and strategy. Included corporate holding PayMint AG.
20.	Paper presentation: "Energy-Aware Partitioning of Real-Time Tasks on Homogeneous Multi-Processor Systems"	17 December 2013	SSSUP	International Conference on Energy Aware Computing (ICEAC 2013), Istanbul, Turkey
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24.	Paper presentation: "Portable Real-time Multicore Software on Linux and Commercial RTOSs— How Real-time Java achieves portability on multicore CPUs"	5-7 February 2014	Aicas	Embedded Real Time Software and Systems (ERTS²), Toulouse, France. About 1,000 visitors, mostly from avionics and automotive industries.
25.	Tradeshow booth with demonstrations	5-7 February 2014	Aicas	Embedded Real Time Software and Systems (ERTS²) Conference, Toulouse, France

Item	Activity	Date	Partners Involved	Audience or Event
26.	Tradeshow booth with demonstrations and training	25-27 February 2014	Aicas	Embedded World 2014, Nurnberg, Germany. About 25,000 visitors: engineers and management from embedded systems industries.
27.	Mailing List information: “SCHED_DEADLINE in Linux mainline starting from version 3.14”	30 March 2014	SSSUP	News and technical articles in the main Linux kernel mailing lists.
28.	Tradeshow booth with demonstrations and training	1-3 April 2014	Aicas	Electronics Engineering (EE) Live!, San Jose, USA. About 10,000 visitors: engineers and management from embedded systems industries.
29.	Paper presentation: “Multi-cloud and Multi-data Stores - The Challenges Behind Heterogeneous Data Models”	4 April 2014	SOFT	International Conference on Cloud Computing and Services Science (CLOSER 2014), Barcelona, Spain
30.	University Lecture: “SCHED_DEADLINE: what it does and doesn't do, yet”	6 May 2014	SSSUP	Department of Automatic Control, Lund University, Sweden
31.	Internal Tech Talk: “SCHED_DEADLINE in Linux mainline: new features and exploitation plan”	28 May 2014	SSSUP	About 20 engineers and technical managers from SSSUP and its spin-off (Evidence), Pisa, Italy
32.	Paper presentation: “Parallel Search Through Statistical Semantic Spaces”	28 May 2014	HLRS	Enhanced Semantic Web Conference (ESWC 2014), Crete, Greece
33.	Presentation: “Adaptive Scheduling Parameters Manager for SCHED_DEADLINE”	27 June 2014	SSSUP	Workshop on Real-Time Scheduling in the Linux Kernel (RTS-LIKE 2014), Pisa, Italy
34.	Presentation: “SCHED_DEADLINE: Internals and Current Development Status”	27 June 2014	SSSUP	Workshop on Real-Time Scheduling in the Linux Kernel (RTS-LIKE 2014), Pisa, Italy
35.	Paper presentation: “Scheduling Decisions in Stream Processing on Heterogeneous Clusters”	3 July 2014	BUT	8th International IEEE Conference on Complex, Intelligent and Software Intensive Systems (CISIS 2014), Birmingham, United Kingdom
36.	Presentation: “JUNIPER: Support for Real-time Enterprise Big Data Applications”	24 July 2014	TOG	Real-time and Embedded Systems Forum, Boston, USA
37.	Paper presentation: “Architecture-Awareness for Real-Time Big Data Systems”	9 September 2014	York	BigWebData 2014 Workshop at EuroMPI / ASIA 2014, Kyoto, Japan
38.	Paper presentation: “HPC in Big Data Age: An Evaluation Report for Java-Based Data-Intensive Applications Implemented with Hadoop and OpenMPI”	10 September 2014	HLRS	EuroMPI / ASIA 2014 Conference, Kyoto, Japan

Item	Activity	Date	Partners Involved	Audience or Event
39.	Paper presentation: “Two Generalisations of Roşu and Chen's Trace Slicing Algorithm A”	24 September 2014	Aicas	14th International Conference on Runtime Verification, Toronto, Canada
40.	Paper presentation: “A Weak Simulation Relation for Real-Time Schedulability Analysis of Global Fixed Priority Scheduling Using Linear Hybrid Automata”	8 October 2014	SSSUP	22nd International Conference on Real-Time Networks and Systems (RTNS), Versailles, France
41.	Paper presentation: “Probabilistic Deadline Miss Analysis of Real-Time Systems Using Regenerative Transient Analysis”	8 October 2014	SSSUP	22nd International Conference on Real-Time Networks and Systems (RTNS), Versailles, France
42.	Paper presentation: “WCET Preserving Hardware Prefetch for Many-Core Real-Time Systems”	9 October 2014	York	22nd International Conference on Real-Time Networks and Systems (RTNS), Versailles, France
43.	Paper presentation: “Implementation of a resource reservation mechanism for groups of tasks in Linux”	13 October 2014	SSSUP	16th Real-Time Linux Workshop (RTLWS), Dusseldorf, Germany
44.	Paper presentation: “Locality of Java 8 Stream in Real-Time Big Data Applications”	13 October 2014	York	12th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2014), Buffalo, USA. About 30 real-time and embedded Java specialists from academia and industry.
45.	Invited Talk: “The next generation of the Realtime Specification for Java”	14 October 2014	Aicas	12th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2014), Buffalo, USA. About 30 real-time and embedded Java specialists from academia and industry.
46.	Presentation: “JUNIPER Support for Big Data Applications”	16 October 2014	York	Boston University Big Data Group, Boston, USA. Audience of about 30 people.
47.	Paper presentation: “JUNIPER: Towards a Modeling Approach Enabling Efficient Platform for Heterogeneous Big Data Analysis”	23 October 2014	SOFT / HLRS / petaFuel	Central and Eastern European Software Engineering Conference (CEE-SECR), Moscow, Russia
48.	Book chapter: “Endorsing supercomputing applications to Java language”	1 November 2014	HLRS	Sustained Simulation Performance 2014: Proceedings of the Joint Workshop on Sustained Simulation Performance, Lecture Notes in Computer Science, pages 99-118.
49.	Paper presentation: “Taming the complexity of big data multi-cloud	12 November 2014	SOFT	Complex Systems Design & Management (CSDM 2014),

Item	Activity	Date	Partners Involved	Audience or Event
	applications with models"			Paris, France
50.	Poster session: "Overview of JUNIPER Project Technologies"	12 November 2014	SOFT	Complex Systems Design & Management (CSDM 2014), Paris, France
51.	University Lecture: "An Implementation of a Bandwidth Reservation Mechanism for Task Groups in Linux"	19 November 2014	SSSUP	Department of Computer Science, University of Padua, Italy
52.	Journal article: "Heterogeneity-Aware Scheduler for Stream Processing Frameworks"	20 November 2014	BUT	International Journal of Big Data Intelligence, Vol.2, No.2 > pp.70 - 80
53.	Paper presentation: "Real-Time Big Data: the JUNIPER Approach"	2 December 2014	York	IEEE 34th International Real-Time Systems Symposium REACTION Workshop, Rome, Italy
54.	Presentation: "Standardisation of JUNIPER Platform Technologies"	5 February 2015	TOG	Realtime and Embedded Systems Forum, San Diego, USA. About 20 real-time platform technology suppliers and users.
55.	Presentation: "Multicore Thread-to-CPU Mapping"	26 February 2015	Aicas	Embedded World 2015 Nurnberg, Germany. Audience of about 30 people.
56.	Tradeshow booth with demonstrations	24-26 February 2015	Aicas	Embedded World 2015 Nurnberg, Germany. About 25,000 visitors of engineers and management from the embedded systems industry.
57.	University Seminar: "Real-time support in Virtualised Environments"	4-8 May 2015	SSSUP	Component-based Software Design Course, MsC Embedded Computing Systems, Pisa, Italy. Audience of about 15 MsC and PhD students.
58.	Paper presentation: "Supporting Component-based Development in Partitioned Multiprocessor Real-Time Systems"	7 July 2015	SSSUP	27th Euromicro Conference on Real-Time Systems, Lund, Sweden
59.	Paper presentation: "Response-Time Analysis of Conditional DAG Tasks in Multiprocessor Systems"	8 July 2015	SSSUP	27th Euromicro Conference on Real-Time Systems, Lund, Sweden
60.	Presentation: "Technologies and Tools for Real-time Big Data Systems"	22 July 2015	TOG	Architecture Forum, Baltimore, USA
61.	Paper presentation: "Practical Aspects of Ontology-Based Analysis and Reasoning for Law Information Represented in Textual Form"	23 July 2015	HLRS	9th International Conference on Advances in Semantic Processing (SEMAPRO 2015), Nice, France. Audience of about 50 people.
62.	Paper presentation: "Prefetching to Improve the Worst-case Execution	1 September	York	1st Workshop on Reconfigurable Computing

Item	Activity	Date	Partners Involved	Audience or Event
	Time of Real-Time Big-Data Tasks"	2015		for HPC and HPDA (ReC4P) at International Conference on Field Programmable Logic and Applications (FPL), London, United Kingdom
63.	Paper presentation: "Transparent hardware synthesis of Java for predictable large-scale distributed systems"	2 September 2015	York	2nd International Workshop on FPGAs for Software Programmers (FSP) at International Conference on Field Programmable Logic and Applications (FPL), London, United Kingdom
64.	Presentation: "Stream Processing and scheduling"	22 September 2015	BUT	Talk for university staff about stream processing, University of Eastern Finland, Joensuu, Finland
65.	University Lecture: "Stream Processing and scheduling"	24 September 2015	BUT	Lecture for master students in course of Distributed computing, University of Eastern Finland, Kuopio, Finland
66.	Presentation: "Integrating Java 8 Streams with the Real-Time Specification for Java"	8 October 2015	York	13th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2015), Paris, France. About 50 engineers and researchers of the real-time Java community
67.	Presentation: "Real-time Specification for Java 2.0"	8 October 2015	Aicas	13th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2015), Paris, France. About 50 engineers and researchers of the real-time Java community.
68.	Presentation: "JUNIPER Software Stack for Java based Big Data Applications"	21 October 2015	TOG	Open Platform 3.0 Forum, Edinburgh, United Kingdom
69.	Paper presentation: "Resource Reservation for Real-Time Self-Suspending Tasks: Theory and Practice"	4 November 2015	SSSUP	23rd International Conference on Real-Time Networks and Systems, Lille, France
70.	Paper presentation: "Response Time Analysis for G-EDF and G-DM Scheduling of Sporadic DAG-Tasks with Arbitrary Deadline"	5 November 2015	SSSUP	23rd International Conference on Real-Time Networks and Systems, Lille, France
71.	Standards Publication: "Real-time Specification for Java 2.0"	6 December 2015	Aicas	Java Community, Java Community Process members

Table 8: JUNIPER dissemination actions in chronological order