

**Third INFN International
School on: "Architectures,
tools and methodologies for
developing efficient large scale
scientific computing
applications" ESC11 -
Bertinoro (Forlì-Cesena) Italy
23-29 October 2011**

Report of Contributions

Contribution ID: 0

Type: **not specified**

Welcome and Opening of the School

Monday 24 October 2011 08:30 (30 minutes)

Session Classification: Session 1

Contribution ID: 1

Type: **not specified**

Concepts of performance and efficiency

Monday 24 October 2011 09:00 (45 minutes)

Presenter: Dr ELMER, Peter (Princeton University)

Session Classification: Session 1

Contribution ID: 2

Type: **not specified**

Modern processors and related optimisation topics - Part 1

Monday 24 October 2011 09:50 (45 minutes)

Presenter: Mr JARP, Sverre (CERN)

Session Classification: Session 1

Contribution ID: 3

Type: **not specified**

Modern processors and related optimisation topics - Part 2

Monday 24 October 2011 11:00 (45 minutes)

Presenter: Mr JARP, Sverre (CERN)

Session Classification: Session 1

Contribution ID: 4

Type: **not specified**

Introduction to Performance tuning tools

Monday 24 October 2011 11:50 (45 minutes)

Presenters: TUURA, Lassi (Fermilab); Dr ELMER, Peter (Princeton University)

Session Classification: Session 1

Contribution ID: 5

Type: **not specified**

Floating point computation: accuracy, optimization, vectorization (with exercises)

Monday 24 October 2011 14:15 (45 minutes)

Presenter: INNOCENTE, Vincenzo (CERN)

Session Classification: Session 1

Contribution ID: 6

Type: **not specified**

Floating point computation: accuracy, optimization, vectorization (with exercises)

Monday 24 October 2011 15:00 (45 minutes)

Presenter: INNOCENTE, Vincenzo (CERN)

Session Classification: Session 1

Contribution ID: 7

Type: **not specified**

Floating point computation: accuracy, optimization, vectorization (with exercises)

Monday 24 October 2011 16:00 (45 minutes)

Presenter: INNOCENTE, Vincenzo (CERN)

Session Classification: Session 1

Contribution ID: 8

Type: **not specified**

Floating point computation: accuracy, optimization, vectorization (with exercises)

Monday 24 October 2011 16:45 (45 minutes)

Presenter: INNOCENTE, Vincenzo (CERN)

Session Classification: Session 1

Contribution ID: 9

Type: **not specified**

Exercises (Floating Point, Memory use, C++)

Wednesday 26 October 2011 08:30 (45 minutes)

Session Classification: Session 3

Contribution ID: **10**

Type: **not specified**

Exercises (Floating Point, Memory use, C++)

Wednesday 26 October 2011 09:20 (45 minutes)

Session Classification: Session 3

Contribution ID: **11**

Type: **not specified**

Exercises (Floating Point, Memory use, C++)

Wednesday 26 October 2011 10:30 (45 minutes)

Session Classification: Session 3

Contribution ID: 12

Type: **not specified**

Exercises (Floating Point, Memory use, C++)

Wednesday 26 October 2011 11:20 (45 minutes)

Session Classification: Session 3

Contribution ID: **13**

Type: **not specified**

Exercises (Floating Point, Memory use, C++)

Wednesday 26 October 2011 14:00 (45 minutes)

Session Classification: Session 3

Contribution ID: 14

Type: **not specified**

Exercises (Floating Point, Memory use, C++)

Wednesday 26 October 2011 14:50 (45 minutes)

Session Classification: Session 3

Contribution ID: 15

Type: **not specified**

Exercises (Floating Point, Memory use, C++)

Wednesday 26 October 2011 15:40 (45 minutes)

Session Classification: Session 3

Contribution ID: **16**

Type: **not specified**

Efficient C++ coding

Tuesday 25 October 2011 08:30 (45 minutes)

Presenters: Dr BINET, Sebastien (LAL/IN2P3); INNOCENTE, Vincenzo (CERN)

Session Classification: Session 2

Contribution ID: 17

Type: **not specified**

Efficient C++ coding

Tuesday 25 October 2011 09:20 (45 minutes)

Presenters: Dr BINET, Sebastien (LAL/IN2P3); INNOCENTE, Vincenzo (CERN)

Session Classification: Session 2

Contribution ID: **18**

Type: **not specified**

Exercises - Basic C++ optimisations

Tuesday 25 October 2011 10:30 (45 minutes)

Presenters: Dr BINET, Sebastien (LAL/IN2P3); INNOCENTE, Vincenzo (CERN)

Session Classification: Session 2

Contribution ID: **19**

Type: **not specified**

Exercises - Basic C++ optimisations

Tuesday 25 October 2011 11:15 (45 minutes)

Presenters: Dr BINET, Sebastien (LAL/IN2P3); INNOCENTE, Vincenzo (CERN)

Session Classification: Session 2

Contribution ID: **20**

Type: **not specified**

The Memory Crisis

Tuesday 25 October 2011 14:15 (45 minutes)

Presenter: TUURA, Lassi (Fermilab)

Session Classification: Session 2

Contribution ID: **21**

Type: **not specified**

How memory allocation works

Tuesday 25 October 2011 15:00 (45 minutes)

Presenter: TUURA, Lassi (Fermilab)

Session Classification: Session 2

Contribution ID: 22

Type: **not specified**

Exercises - Memory Allocations

Tuesday 25 October 2011 16:00 (45 minutes)

Presenter: TUURA, Lassi (Fermilab)

Session Classification: Session 2

Contribution ID: 23

Type: **not specified**

Exercises - Memory Allocations

Tuesday 25 October 2011 16:45 (45 minutes)

Presenter: TUURA, Lassi (Fermilab)

Session Classification: Session 2

Contribution ID: 24

Type: **not specified**

Evening Lecture: "Architectures of High Throughput DAQ systems" - Niko Neufeld (CERN)

Tuesday 25 October 2011 18:30 (1 hour)

Session Classification: Session 2

Contribution ID: 25

Type: **not specified**

OpenMP tasks

Friday 28 October 2011 08:30 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 5

Contribution ID: 26

Type: **not specified**

OpenMP Memory model

Friday 28 October 2011 09:20 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 5

Contribution ID: 27

Type: **not specified**

A survey of programming models

Friday 28 October 2011 10:30 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 5

Contribution ID: **28**

Type: **not specified**

Work sharing constructs

Lecture and exercises

Presenter: Dr MATTSON, Tim (Intel)

Contribution ID: 29

Type: **not specified**

The OpenMP data environment

Lecture and exercises

Presenter: Dr MATTSON, Tim (Intel)

Contribution ID: **30**

Type: **not specified**

OpenMP tasks

Lecture and exercises

Contribution ID: **31**

Type: **not specified**

OpenMP Memory model

Lecture and exercises

Contribution ID: 32

Type: **not specified**

A survey of programming models

Lecture

Presenter: Dr MATTSON, Tim (Intel)

Contribution ID: 33

Type: **not specified**

Evening Lecture: "Linux on Multicore: challenges and perspective" - Andrea Arcangeli (RedHat)

Friday 28 October 2011 18:30 (1 hour)

Session Classification: Session 5

Contribution ID: 34

Type: **not specified**

Parallel programming theory

Thursday 27 October 2011 08:30 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 4

Contribution ID: 35

Type: **not specified**

An introduction to OpenMP

Thursday 27 October 2011 09:20 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 4

Contribution ID: 36

Type: **not specified**

Synchronization in OpenMP

Thursday 27 October 2011 10:30 (30 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 4

Contribution ID: 37

Type: **not specified**

Work sharing constructs

Thursday 27 October 2011 11:15 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 4

Contribution ID: **38**

Type: **not specified**

The OpenMP data environment

Thursday 27 October 2011 12:05 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 4

Contribution ID: **39**

Type: **not specified**

I/O Efficiency

Thursday 27 October 2011 14:30 (1h 30m)

Presenter: VAGNONI, Vincenzo Maria (BO)

Session Classification: Session 4

Contribution ID: 40

Type: **not specified**

Exercises - I/O Efficiency

Presenter: VAGNONI, Vincenzo Maria (BO)

Contribution ID: 41

Type: **not specified**

I/O Efficiency

Thursday 27 October 2011 16:15 (45 minutes)

Presenter: VAGNONI, Vincenzo Maria (BO)

Session Classification: Session 4

Contribution ID: 42

Type: **not specified**

Evening Lecture: "OpenCL and the quest for Performance Portability" - Timothy G. Mattson (Intel)

Thursday 27 October 2011 18:30 (1 hour)

Session Classification: Session 4

Contribution ID: 43

Type: **not specified**

Students feedback

Saturday 29 October 2011 08:30 (30 minutes)

Session Classification: Session 6

Contribution ID: 44

Type: **not specified**

Final examination

Saturday 29 October 2011 09:00 (2 hours)

Session Classification: Session 6

Contribution ID: 45

Type: **not specified**

Delivery of certificates of attendance

Saturday 29 October 2011 11:30 (30 minutes)

Session Classification: Session 6

Contribution ID: 46

Type: **not specified**

Shuttle departure

Saturday 29 October 2011 14:30 (20 minutes)

Session Classification: Session 6

Contribution ID: 47

Type: **not specified**

Evening Lecture: "High throughput data trasmission through network links"

Presenter: GALLI, Domenico (BO)

Contribution ID: 48

Type: **not specified**

Evening lecture: Virtualization, Grid, Cloud: Integration Paths for Scientific Computing

Presenter: SALOMONI, Davide (CNAF)

Contribution ID: 49

Type: **not specified**

Evening Lecture: "Getting it all with C++: Abstraction, Reusability, Performance and Future-Safety"

Presenter: DREPPER, Ulrich (Red Hat)

Contribution ID: 50

Type: **not specified**

Evening Lecture: "How to program a 1000 core processor" (Timothy G. Mattson, Intel Corp.)

Contribution ID: 51

Type: **not specified**

Evening Lecture: Multicores, GPUs, FPGAs and custom processors for scientific computing: a delicate tradeoff”

Presenter: TRIPICCIONE, Raffaele (FE)

Contribution ID: 52

Type: **not specified**

A survey of programming models

Friday 28 October 2011 11:30 (45 minutes)

Presenter: Dr MATTSON, Tim (Intel)

Session Classification: Session 5

Contribution ID: 53

Type: **not specified**

Lecture on low-level CPU profiling

Friday 28 October 2011 14:30 (45 minutes)

Presenter: Mr JARP, Sverre (CERN)

Session Classification: Session 5

Contribution ID: 54

Type: **not specified**

Physical design of SW

Friday 28 October 2011 15:15 (45 minutes)

Presenter: HEGNER, Benedikt (CERN)

Session Classification: Session 5

Contribution ID: 55

Type: **not specified**

Physical Design Examples/HEP Frameworks

Friday 28 October 2011 16:15 (45 minutes)

Presenter: HEGNER, Benedikt (CERN)

Session Classification: Session 5

Contribution ID: 56

Type: **not specified**

Software Development Tools

Friday 28 October 2011 17:00 (45 minutes)

Presenter: HEGNER, Benedikt (CERN)

Session Classification: Session 5

Contribution ID: 57

Type: **not specified**

Evening Lecture: "GPU for scientific computing" - Alessandro Lonardo - INFN Roma 1

Monday 24 October 2011 18:30 (1 hour)

Session Classification: Session 1

Contribution ID: 58

Type: **not specified**

Announcements

Friday 28 October 2011 17:45 (15 minutes)

Presenter: RUGGIERI, Federico (ROMA3)

Session Classification: Session 5