

# *BECOMING.A(THING)* : A SEMIOTIC INSTRUMENT ŠPELA PETRIČ AND MIHA TURŠIČ

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1/ EXASCALE COMPUTING

2/ RESEARCH GOAL

3/ TOWARD EXASCALE SUPERCOMPUTING : FET HPC/HIGH PERFORMANCE COMPUTING PROJECTS

# 1/ EXASCALE COMPUTING

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Exascale computing is the goal to build a supercomputer that can achieve ‘the Exascale’, that is a million, million, million calculations every second.

The first Exascale computers will be very highly parallel systems, consisting of a hierarchy of architectural levels.

Building such a computer demands researches in many areas such as hardware design, programming models, algorithms & tools, and applications.

Key challenges for the Exascale includes energy efficiency, usability, programmability and ability to handle data with the overarching goal of fulfilling grand-challenge science endeavours in areas such as sustainable energy, climate change and the beginnings of the Universe.

<https://en.wikipedia.org/wiki/Supercomputer>

## 2/ RESEARCH GOAL

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The goal of the research of Exascale Super Computing explained by the scientist George Beckett, University of Edinburgh (INTERTWINE)

<https://www.youtube.com/watch?v=AJgKUbbgppo>

# 3/ A RESEARCH TOWARD EXASCALE SUPERCOMPUTING FET HPC/HIGH PERFORMANCE COMPUTING PROJECTS

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The artists visited several FET HPC (High Performance Computing) projects and research laboratories and facilities. However, their residency was mostly with the INTERTWinE (Interoperability Toward Exascale) project at the EPCC centre of the Edinburgh University (<https://www.epcc.ed.ac.uk/>).

<b>WHAT do we do?</b>	We help scientists to write effective software for tomorrow's Exascale supercomputers
<b>WHY do we do it?</b>	Today's scientific software won't work on tomorrow's Exascale supercomputers
<b>HOW do we do it?</b>	We bring together scientists, application developers, and HPC innovators to make parallel programming work on tomorrow's Exascale supercomputers
<b>WHO are we?</b>	We are HPC experts from <u>leading European supercomputing centres, ICT industry, and research labs</u>

The INTERTWinE project or addressing the problem of programming-model design and implementation for the Exascale.

#### Resources

«The race toward exascale supercomputing targets 2020», by Susan Fourtané

<http://www.feart.eu/index.php?id=62>

<https://www.intertwine-project.eu/>

## CREDITS

«Becoming.a(Thing)» has been created by Špela Petrič and Miha Turšič  
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