

Intensive Training School in High-Performance Computing



Dr. Ilias S. Kotsireas, Professor

Wilfrid Laurier University, Waterloo ON, Canada

ikotsire@wlu.ca

Director: CARGO Lab

Computer Algebra Research Group
of
Wilfrid Laurier University

<http://www.cargo.wlu.ca/>

Computing & Supercomputing

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... summary of our usual day-to-day operations ...

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Computing

Microsoft Windows, Apple Macintosh

Text Editor: Notepad, Wordpad, ...

Documents: Word & L^AT_EX, ...

Programming: C, C++, Java, Python, JavaScript, Excel, Ruby ...

Mathematical Software: Maple, Magma, Matlab, Mathematica, GAP, Singular, CoCoA, SAGE, ...

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Supercomputing

Unix/Linux

vi, vim, gvim, emacs

C, C++, Fortran

bash shell scripting, meta-programming, MPI, OpenMP, ...

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- <http://www.hpcwire.com/>

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- <http://www.hpcwire.com/>
- National Supercomputer Centre in Guangzhou
<http://www.nscg-gz.cn/>
Tianhe-2, 3+ million cores, 2.5 billion Yuan

Hard Computational Problems

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- Non-existence of finite projective planes of order 10
- High-resolution images: Fractals

Finding “needles in haystacks”



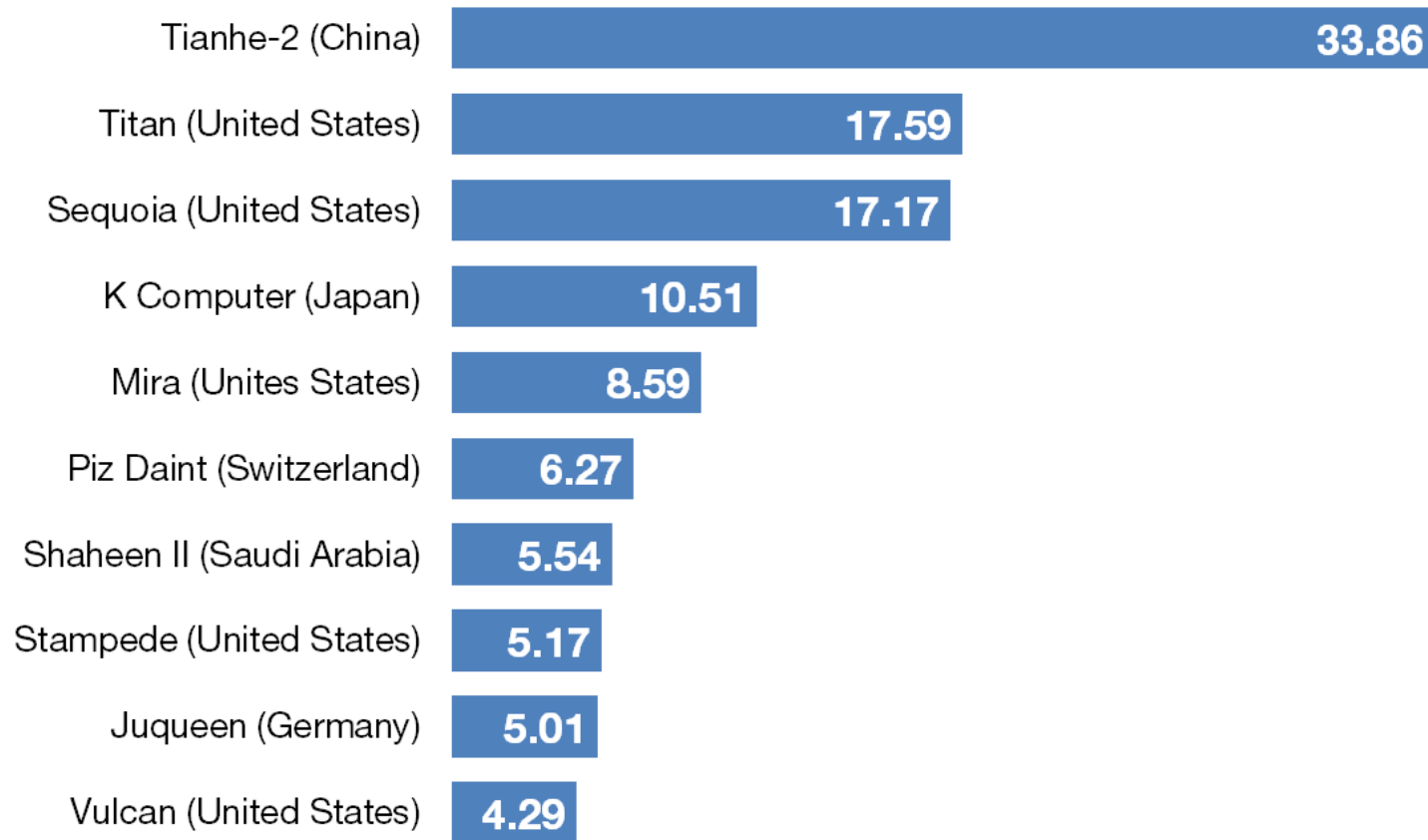
Claude Monet: Haystacks,

Junkyard-Tornado metaphor

大海捞针

Top 10 supercomputers

Petaflop/s on the Linpack benchmark



Source: top500.org

Tianhe-2 pictures

