

**Welcome To The 68th
HPC User Forum
Meeting
March 6-7, 2018**



**We Want To Thank
TERATEC and CEA
For Hosting The Forum!**



Thank You To Our Sponsors!

- Atos
- Intel
- Teratec
- CEA

Important Dates For Your Calendar

HPC USER FORUM MEETINGS:

2018 Meetings:

- March 6 & 7, CEA & Teratec, Bruyeres-Le-Chatel, France
- April 16 to 18, Tucson, Arizona
- September 4 to 6, Dearborn, Michigan
- October 1-2, Stuttgart, Germany

Introduction: Logistics

We have a very tight agenda (as usual)

- Please help us keep on time!

Review handouts

- Note: We will post most of the presentations on the web site

Dinner event

CHAIRMAN'S WELCOME

HPC User Forum Mission

**To Improve The Health Of The
High Performance Computing Industry
Through Open Discussions, Information-
sharing And Initiatives Involving
HPC Users In Industry, Government And
Academia
Along With HPC Vendors
And Other Interested Parties**



The IDC HPC User Forum: 68 Meetings Worldwide Since 2000

Amsterdam, Netherlands (SARA)

Annecy, France

Bangalore, India (Indian Institute of Technology)

Beijing, China (Chinese Academy of Sciences)

Bologna, Italy (CINECA)

Bristol, UK

Bruyères-le-Châtel, France (Teratec)

Canberra, Australia

Geneva, Switzerland (CERN)

Kobe, Japan (RIKEN)

Lausanne, Switzerland (EPFL)

London, UK (Imperial College)

Manchester, UK (Manchester University)

Melbourne, Australia

Munich, Germany (LRZ)

New Delhi, India (Indian Institute of Science)

Paris, France (GENCI)

Seoul, Korea (National Institute of Supercomputing & Networking)

Stuttgart, Germany (HLRS)

Warsaw, Poland (University of Warsaw)

Yokohama, Japan (Earth Simulator Center)

Zurich, Switzerland (ETH Zurich)

United States (many locations)



Introduction

HPC User Forum Steering Committee

- Paul Muzio, City University of New York (Chair)
- Rupak Biswas, NASA Ames (Vice Chair)
- Earl Joseph, IDC (Executive Director)
- Swamy Akasapu, General Motors
- Vijay Agarwala, Penn State University
- Alex Akkerman, Ford Motor Company
- C. Scot Atkins, Industry Expert: Advanced Analytics/Dense Supercomputing
- Doug Ball, HPC expert (formerly Boeing)
- Jeff Broughton, NERSC/Lawrence Berkeley National Lab
- Paul Buerger, Avetec
- Simon Burbidge, Imperial College London
- Chris Catherasoo, Caltech
- Clayton Chandler, Credit Suisse/New York
- Jack Collins, National Cancer Institute
- Steve Conway, IDC Research Vice President
- Steve Finn, Cherokee Information Services
- Merle Giles, NSCA/University of Illinois
- Keith Gray, British Petroleum
- Sharan Kalwani, Fermilab
- Arno Kolster, PayPal
- Doug Kothe, Oak Ridge National Laboratory
- Jysoo Lee, King Abdullah University of Science and Technology (KAUST)
- David Martin, Argonne National Laboratory
- Stephane Requena, GENCI
- Michael Resch, HLRS, University of Stuttgart
- Vince Scarafino, Industry Expert
- Suzy Tichenor, Oak Ridge National Laboratory

CHECK OUT OUR WEB SITE: www.hpcuserforum.com



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Hyperion Research helps organizations make effective decisions and seize growth opportunities by providing research and recommendations in both high performance computing and emerging technology areas.



The Hyperion Research Team

Earl Joseph

Research studies & strategic consulting

Steve Conway

Strategic consulting, HPC UF, Big Data, AI

Bob Sorensen

Strategic research, government studies, QC

Alex Norton

Special studies, new data analysis, surveys

Mike Thorp

Global sales management

Kurt Gantrish

Global sales management

Mary Rolph

Meetings and events planning


Jean Sorensen

Office manager

Kirsten Chapman

Data collection and surveys

Hyperion Research HPC Activities

- Track all HPC servers sold each quarter
- 4 HPC User Forum meetings each year 
- Publish 85 plus research reports each year
- Visit all major supercomputer sites & write reports
- Assist in collaborations between buyers/users and vendors
- Assist governments in HPC plans, strategies and direction
- Assist buyers/users in planning and procurements
- Maintain 5 year forecasts in many areas/topics
- Developing a worldwide ROI measurement system
- **HPDA program (includes ML/DL/AI)**
- **HPC Cloud usage tracking**
- **Quarterly tracking of GPUs/accelerators**
- **Cyber Security**
- **Quantum Computing**



Locating HPC Centers: Total US HPC Centers of Activity

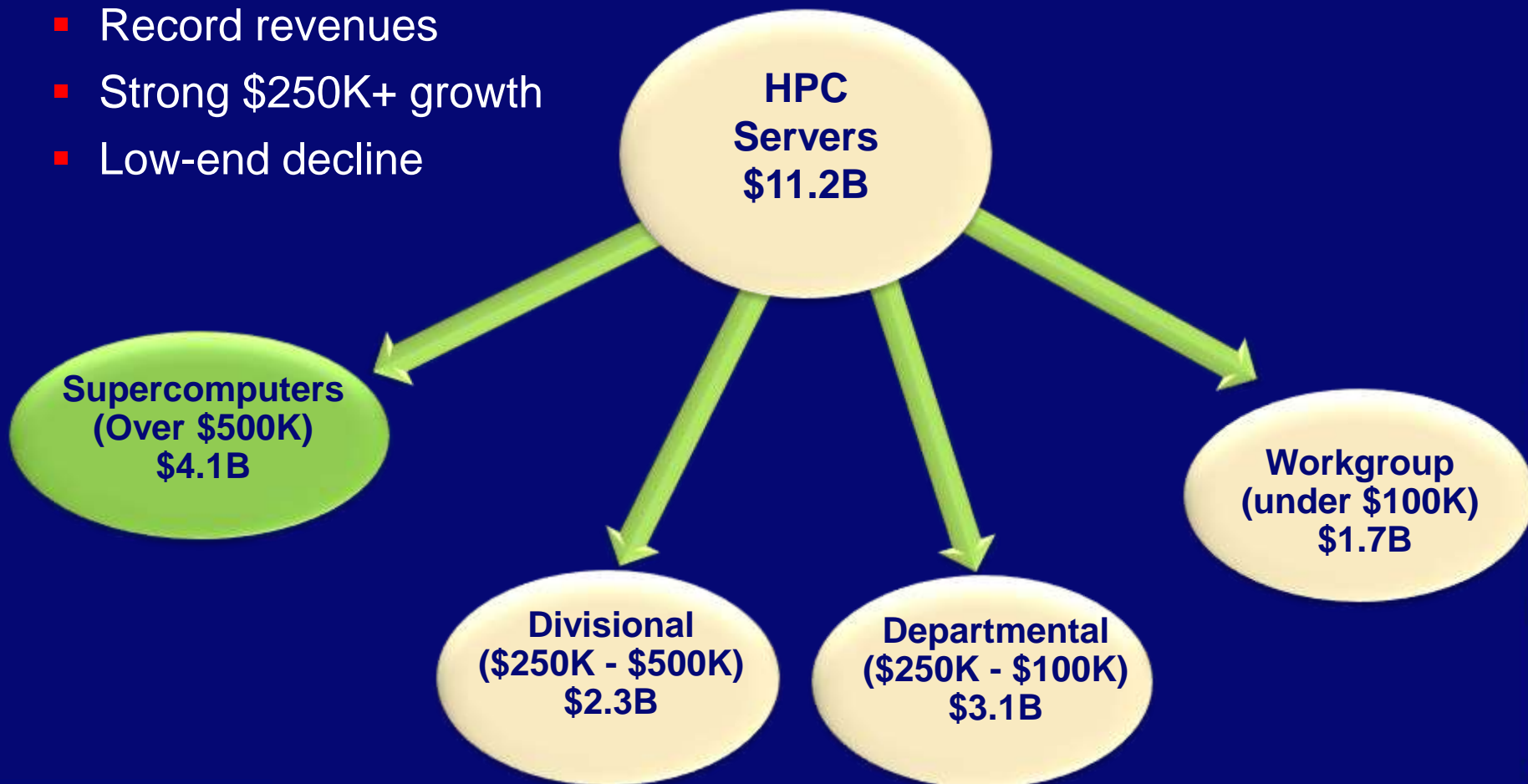


Blue = Industry User Site, Green = Academia/Govt Provider Site

A total of 759 unique sites

The Worldwide HPC Server Market: \$11.2 Billion in 2016

- Record revenues
- Strong \$250K+ growth
- Low-end decline



2016 HPC Market By Vertical (\$ Millions)

2016 Market Results	
Bio-Sciences	1,049
CAE	1,251
Chemical Engineering	183
DCC & Distribution	692
Economics/Financial	624
EDA / IT / ISV	823
Geosciences	844
Mechanical Design	57
Defense	1,125
Government Lab	2,059
University/Academic	1,934
Weather	490
Other	70
Total Revenue	11,200

Source: Hyperion 2017

1H-2017 HPC Market By Regions (\$K)

	2017	
Data	Q1-2017	Q2-2017
North America	1,163,472	1,298,153
EMEA	648,976	730,000
Asia/Pacific	449,927	484,618
Japan	146,194	131,404
Rest-of-World	28,615	31,175
Total	2,437,183	2,675,351

1H-2017 HPC Market By Shares (\$K)

Mftr	Q1-2017	Q2-2017	Q2 Market Share
HPE/HP	896,027	984,974	36.8%
Dell	488,628	547,582	20.5%
Lenovo	190,521	209,995	7.8%
IBM	97,125	131,682	4.9%
Sugon (Dawning)	71,796	76,369	2.9%
Cray	21,100	47,000	1.8%
NEC	38,572	32,182	1.2%
Fujitsu	42,692	25,801	1.0%
Bull Atos	26,938	19,862	0.7%
Other	563,784	599,905	22.4%
Grand Total	2,437,183	2,675,351	100.0%

HPC Market Forecasts (\$ Millions)

	2016	2021
Supercomputer	4,091	5,356
Divisional	2,273	2,902
Departmental	3,147	4,274
Workgroup	1,689	2,287
Total	11,200	14,819
<i>Source: Hyperion 2017</i>		

Forecast: The Broader HPC Market (\$ Millions)

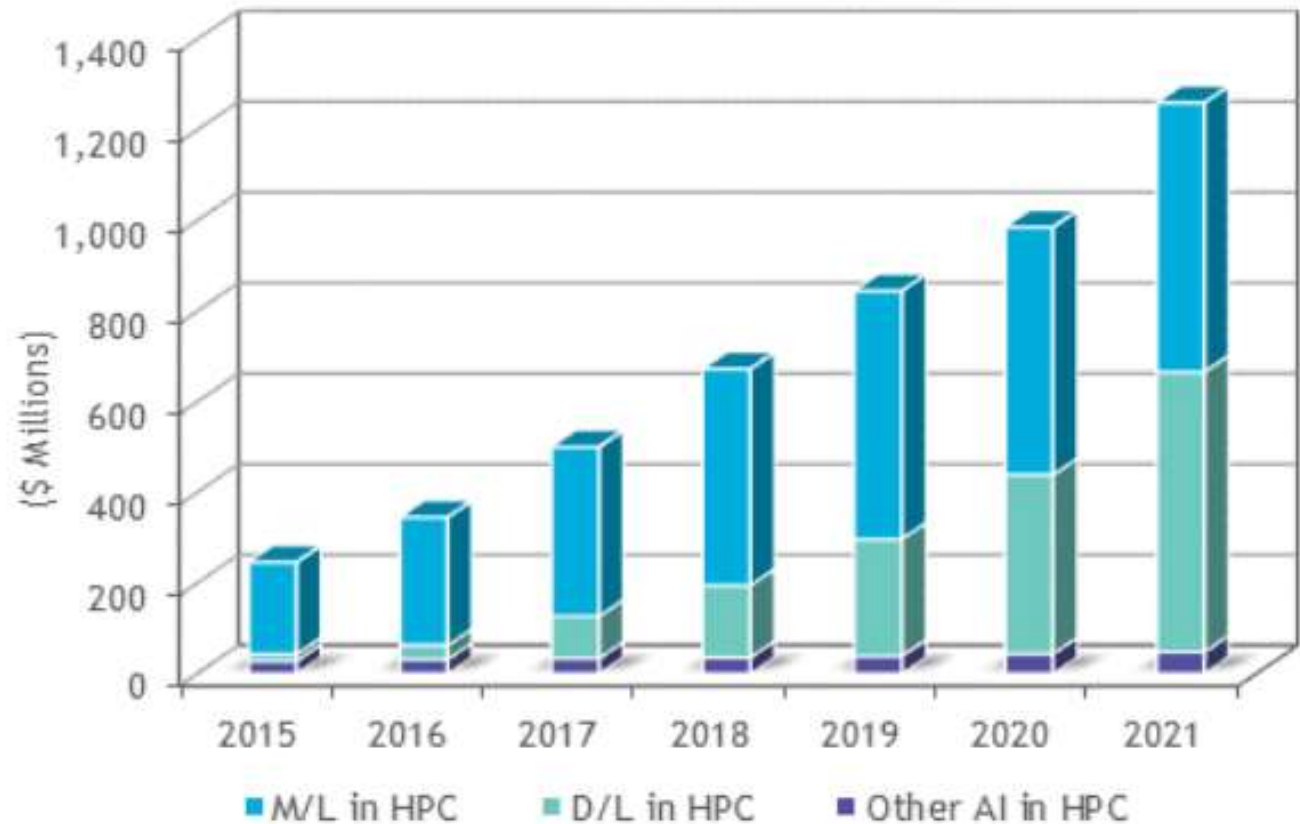
	2016	2021	CAGR 16-21
Server	11,200	14,819	5.8%
Storage	4,316	6,269	7.8%
Middleware	1,277	1,786	6.9%
Applications	3,739	5,071	6.3%
Service	1,907	2,309	3.9%
Total Revenue	22,439	30,253	6.2%

Source: Hyperion 2017

WW M/L, D/L, & AI Forecasts

FIGURE 2

Worldwide M/L, D/L & AI HPC-Based Revenues



Source: Hyperion Research 2017

Questions?

Please email:

ejoseph@hyperionres.com

Or check out:

www.HyperionResearch.com

www.hpcuserforum.com



Agenda

TUESDAY, MARCH 6, 2018

- 12:00-13:00 Registration and lunch
- 13:00-13:15 Welcome: HPC User Forum, CEA/Teratec, and Hyperion Research Update
HPC STRATEGIES AND VISIONS
- 13:15-13:45 EuroHPC: the European HPC Strategy, Leonardo Flores Añover,
European Commission
- 13:45-14:15 Promotion of HPC Industrial Use in Japan: Experience with the K and
post-K Supercomputers, Shig Okaya, Flagship 2020/RIKEN
- 14:15-14:30 Atos Company Update, Agnes Boudot
- 14:30-15:10 The View from America: The AI/BD/HPC Technology Intersection &
Precision Medicine, Dimitri Kusnezov, U.S. Department of Energy
- 15:10-16:00 Break: Social Networking
TECHNICAL TALKS
- 16:00-16:20 ARM Technologies for HPC by Atos BULL, Eric Eppe
~~HPC-based AI/Deep Learning in the Commercial World, Ryan Quick,
Providentia Worldwide~~
- 16:20-16:40 The Status and Prospects for Quantum Computing, Bob Sorensen,
Hyperion Research
- 16:40-17:00 HPC in the Cloud Era, Beppe Ugolotti, NICE SRL
- 17:00-17:20 The Market for HPC Cloud Computing, Steve Conway and Bob Sorensen,
Hyperion Research
- 17:20-17:40 Updates from ETP4HPC and TERATEC
- 17:40-18:00 Question and Answers
- 18:10-18:40 Shuttle Buses to Domaine de Fremigny (dinner and hotel)
- 19:15-20.00 Aperitif/Cocktail Time at the Domaine de Frémigny
- 20:00-22:00 Dinner (Domaine de Frémigny)

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Welcome To The Second Day Of The HPC User Forum Meeting



Agenda: Wednesday, March 7, 2018

HPC APPLICATIONS

- 11:10-11:30 HPC in Agriculture, Denis Wouters, Cybeletech**
- 11:30-11:50 The POP Centre of Excellence: On the Difficulty of "Selling" Free Performance Analysis Services, Bernd Mohr, Forschungszentrum Juelich**
- 11:50-12:10 HPC in Material Science, Andre Colom and Thomas Homolle, Michelin**
- 12:10-12:30 Update on the DOE Exascale Computing Project, Doug Kothe, DOE**
- 12:30-12:50 HPC in Aerospace, Frederic Feyel, SAFRAN**
- 12:50-13:00 Close of HPC User Forum**
- 13:00-14:00 Lunch (provided by CEA/Teratec hosts)**
- 14:00 Shuttle buses to Massy-Palaiseau Railway Station (connections to Paris and airports)**

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