**COUNCIL OF THE EUROPEAN UNION**

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**NOTE**

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| From: | The Presidency |
| To: | Delegations |
| No. Cion prop.: | 6596/12 RECH 56 COMPET 96 IND 31 TELECOM 32 |
| No. prev. doc.: | 8774/13 RECH 119 COMPET 234 IND 114 TELECOM 83 |
| Subject: | Draft Council Conclusions on 'High Performance Computing: Europe's place in a Global Race' |

Delegations will find attached draft Council Conclusions on 'High Performance Computing: Europe's place in a Global Race' with a view to the discussion by the Research Working Party.

The changes to the previous document are indicated in ~~strikethrough~~ and **bold underlined**.

**ANNEX**

**Draft Council Conclusions on**

**'High Performance Computing: Europe's place in a Global Race'**

THE COUNCIL OF THE EUROPEAN UNION

RECALLING

- the conclusions of the European Council of 11 and 12 December 2008[1], which called for the launching of a European plan for innovation, combined with the development of the ERA and with reflection on the future of the Lisbon Strategy beyond 2010;
- its conclusions of 29 May 2009[2] on Research Infrastructures and the regional dimension of the ERA which called on the Commission to pursue sustainability, global connectivity, interoperability and unimpeded use of pan-European e-Infrastructures, and on the Member States to consider the role of e-Infrastructures in their national roadmaps and/or programmes for research infrastructures;
- its conclusions of 3 December 2009[3] on the Future of ICT research, innovation and infrastructures which invited the Member States to have more coordinated investments in High Performance Computing (HPC) and the Commission to propose financial incentives for jointly developing and sharing research infrastructures in exascale computing, and on Member States and the Commission to pool their investments in HPC under PRACE[4] and to strengthen the position of European industry and academia in the use, development and manufacturing of advanced computing products, services and technologies;
- its conclusions of 17 May 2010[5] on various issues related to the development of the ERA, urging the need for further development of computing infrastructures, such as PRACE ;

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1 Doc. 17271/1/08

2 Doc. 10612/09.

3 Doc. 17190/09.

4 PRACE (Partnership for Advanced Computing in Europe) is an ESFRI project creating a persistent pan-European Research Infrastructure for High Performance Computing: www.prace-ri.eu

5 Doc. 9451/10.

1. WELCOMES **the great emphasis placed by** the Commission~~'s~~ **on the strategic nature of HPC for the EU in its** communication entitled "'High Performance Computing: Europe's place in a Global Race"[1], advocating ~~for~~ a renewed European strategy in HPC and proposing an action plan to position the EU as a centre of innovation, a hub of scientific excellence and a global partner;

2. HIGHLIGHTS that HPC is an important asset for the EU's innovation capacity and STRESSES its strategic importance to the EU's industrial **and scientific** capabilities as well as its citizens, by supporting the development of innovative industrial products and services, increasing competitiveness, and addressing societal and scientific grand challenges more effectively; NOTES that other world nations have declared HPC an area of ~~strategic priority~~ **high importance** and massively increased their efforts in this area;

3. EMPHASISES the importance of deploying and maintaining a world-class and sustainable European HPC infrastructure, and RECOGNISES the achievements of PRACE[2] in pooling leadership-class computing systems and making them available to all researchers in the ~~EU~~ **European Countries, on the basis of, and in order** to enhance scientific excellence **and innovation** and the need to maintain this approach; ~~NOTES that other world nations have declared HPC an area of strategic priority and massively increased their efforts in this area;~~

4. ~~AGREES that achieving leadership in HPC state-of-the-art technologies, systems, software, services and applications in the EU would support growth and competitiveness in the ICT industry and the economy in general, and~~ **EMPHASIZES the strength of the EU in applications, low-power computing and integration and** HIGHLIGTHS that Europe has the ~~technical capabilities~~ **technology, knowledge** and human skills to develop capabilities covering the whole technological spectrum of the next generation of HPC systems **including software, services and applications** (exascale computing);**AGREES that maintaining and extending European strengths in HPC state-of-the-art technologies, systems, software, services and applications would support growth, sustainability (green ICT) and competitiveness in science, the ICT industry and the economy in general.**

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1 [COM(2012) 45 final]

2 Partnership for Advanced Computing in Europe (PRACE) http://www.prace-ri.eu/

5. ACKNOWLEDGES the efforts of HPC stakeholders to support the implementation of an EU-level HPC strategy, in particular PRACE **- as an independent actor on the scientific side -** and the industry-led European Technology Platform for HPC (ETP4HPC);

6. STRESSES the importance of supporting and strengthening the dual role of European industry in HPC, both as supplier of state-of-the-art technologies and systems, and as user of HPC to innovate in products, processes and services;

**6a. STRESSES the importance of supporting and strengthening the role of academic HPC users.**

UNDERLINING the overall objective to achieve European leadership in **the development** ~~the supply~~ and use of HPC systems**, software, applications** and services by 2020:

7. RECOGNISES the need for an EU-level policy in HPC addressing the entire HPC ecosystem: world-class and sustainable HPC infrastructure; HPC use by Science and by industry, ~~especially~~ **including** SMEs; HPC industrial supply for ~~independent~~ development of exascale computing; excellence in HPC **software, methodology and** applications; ~~EU-level governance;~~ and achieving a level-playing field for EU companies;

8. INVITES Member States, the Commission, and industry to ~~increase their~~ **ensure appropriate** investments in HPC (noting the importance of investment in software development, HPC methodologies, **education and** training ~~and education~~, in addition to hardware) and to optimise ~~national and~~ European investment ~~in order to match similar efforts in other world regions~~ **while taking into account past efforts of Member States for investments in world-class HPC infrastructure**. ~~To enable such optimisation of investments,~~ INVITES Member States and the Commission **to exchange and** to share priorities and plans for HPC development in the context of the appropriate ~~policy~~ fora, ~~such as ERAC and expert groups~~ **in association with PRACE and the European Technology Platform on HPC**;

**8a. HIGHLIGHTS the importance of PRACE for pooling and sharing a range of computing resources, as well as leadership and expertise, to provide a world-class European HPC infrastructure, and for stimulating innovation, science and industry; ASKS the Commission to explore all EU funding possibilities (including through the ICT programme of Horizon 2020) and instruments to support the development of leadership-class HPC capabilities in Europe as well as the acquisition of world-class HPC systems on the global market in global competition to address the needs of various HPC user communities**;

~~9. STRESSES the importance of linking the acquisition of HPC systems with the development of advanced European HPC technology through the use of innovation instruments such as Pre-Commercial Procurement and Public Procurement of Innovative solutions, as well as alternative methods for development of HPC technologies. HIGHLIGHTS the importance of PRACE for pooling and sharing national and EU resources, including leadership and expertise, to provide a world-class European HPC infrastructure, and for stimulating innovation through joint public procurement, pre-commercial procurement and other innovation instruments to support the development of leadership-class HPC capabilities in Europe;~~

**9.** [1]

10. NOTES the importance of Centres of Excellence and networks in HPC applications addressing key societal, scientific and industrial challenges in areas that are strategic for Europe; **in this context underlines the role of training for users;**

[1] DE and FR propose a new para 9: **Stressing the importance to develop advanced HPC technologies, software, applications and services in Europe, INVITES the Commission to support academic and industrial research activities covering design of hardware, components and software as well as HPC services and applications, and to explore all EU funding possibilities included in Horizon 2020 in order to choose the most appropriate instruments.**

11. INVITES Member States and the Commission to step up the efforts to substantially increase the supply of scientists and engineers with HPC skills, through adequate training and educational programmes addressed to industry and academia;

12. INVITES Member States to **consider** set**ting** up HPC Competence Centres to facilitate the development of required competences in HPC, to facilitate access to HPC capabilities and services **to science** and to support the transfer of ~~industry~~ relevant expertise from ~~national and regional~~ supercomputing centres to industry – including to SMEs. ~~NOTES the importance of supporting the provision of platform-based technology and HPC methodologies, in addition to HPC hardware, to address real-life industry requirements ;~~

13. INVITES the Commission to ~~pursue the elimination of~~ **continue its efforts to reduce** inequalities in the access of EU manufacturers to foreign HPC markets with the relevant countries, in order to ~~ensure~~ **promote** fair access by European companies and a level playing field**, which also includes fair access for HPC-purchasers to non-European HPC-systems**;

14. RECOGNISES the need for all relevant actors, public and private, to work in partnership; in this context INVITES the Commission to ~~further~~ **review and** elaborate its ~~action~~ plan**s** for HPC**,[1] especially regarding the funding of both European HPC infrastructure and the development of a wll-balanced European R&D programme on advanced HPC technologies, software, services and applications,** and to report to the Council on progress made before end 2015.

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[1] DE and FR propose the para to read: "…plans for HPC, **to present a proposal to the Council before the end of 2013, especially regarding the funding of both European HPC infrastructure and R&D activities for advanced HPC technologies, software, services and applications within Horizon 2020."**