

LETTER OF INTENT
REGARDING DEVELOPMENT OF A
GREEN HIGH PERFORMANCE COMPUTING CENTER AND ADVANCED
COMPUTING INITIATIVE IN MASSACHUSETTS

By the Governor of Massachusetts, Presidents of MIT and UMASS, CEOs of EMC and Cisco, and Mayor of Holyoke

June 11, 2009

Purpose

Commit the Patrick-Murray Administration and government, regional, academic and industry leaders from MIT, UMASS, Cisco, EMC and other interested institutions and companies to work collaboratively to create an action plan over the next 120 days that can lead to the development of: a world-class green sustainable research high performance computing center in Holyoke; a statewide collaborative research program to establish Massachusetts as a global leader in the application and development of next generation of computing technologies; and, an economic development initiative in Holyoke including an innovation district powered by green and cost competitive energy.

A Vision for a MA Computing Initiative

Leaders from MIT, UMASS, Cisco, EMC, the Pioneer Valley, and others in higher education and industry believe the development of a green world-class high performance computing center, collaborative research agenda and economic development program would be a transformational initiative for Massachusetts and lead the nation. The framework for a successful Massachusetts advanced computing initiative is envisioned to include:

- In the first phase, a world-class high performance sustainable computing center using green energy and serving as a showcase for “green computing” practices and the application of new “cloud and virtualization” technologies for data center efficiency,
- A world-class collaborative university, industry, government research agenda designed to strengthen the state’s leadership role in emerging computing technologies (e.g., “cloud computing”, “virtualization” and “information integration”) and the application of advanced computation to key research and development areas such as the life sciences, clean energy and climate change, and

- In future phases, the development of an innovation district in Holyoke and a regional information technology innovation cluster, powered by green cost competitive energy and a skilled workforce that will attract new companies and investments to the region as it stimulates entrepreneurship, and leverage the region's existing assets.

Vision of the Green HPCC

Massachusetts needs greater high performance computing capacity to maintain its world-class competitiveness in research and development. High performance computing is an energy-intensive activity that, as currently designed, has both high operating costs and a cumulative impact on the environment. The practical need for enhanced-computational capacity that is also green has inspired the leaders of MIT, UMass, Cisco and EMC to develop a vision for a green high performance computing center and computing initiative. The initiative will match the opportunities presented by the convergence of work in the life sciences, engineering, clean energy and the physical sciences with advances in computation and systems research to place Massachusetts at the forefront of the next generation of technological innovation.

The new HPCC would be:

- A world-class high performance computing center using green energy, green facilities design, and serving as a showcase for concepts of “green computing”.
- A facility designed to strengthen the state's leadership role in the development and application of advanced computing to key R&D areas such as the life sciences, clean energy, climate change, etc.
- A center that would serve as a catalyst for the development of the IT industry throughout Massachusetts and an IT development district with economic and workforce development benefits to City of Holyoke and Western Massachusetts and will support the continued growth and strength of other cornerstones of our economy – financial services, healthcare and higher education.

Background & Details

The HPCC is to be developed in Holyoke and utilized by the major research universities of Massachusetts. The approximately \$100 million facility is to be jointly developed by the state and the universities, with the active support of Massachusetts IT industry. The HPCC would be managed by a collaborative, led by MIT and UMASS, with the sharing of use and costs of operation. The universities and private sector collaborators will develop a collaborative R&D agenda focusing on key areas of research, such as green computing and key HPC applications such as the life sciences, clean energy and the environment. The HPCC collaboration and the Patrick-Murray Administration will work with Holyoke Community College, Springfield Technical Community College and other area leaders to develop the workforce and educational

programs that can lead to new careers and job opportunities in the region. The HPCC's university and corporate collaborators envision a program of active industry engagement, including sponsored R&D, education and training, equipment demonstrations and related activities. The anticipated outcome of this initiative is the development of a world-class IT development district in Holyoke and an affiliated best-in-nation statewide program of research.

The HPCC collaborative and the Patrick-Murray Administration will work with Holyoke Mayor Michael Sullivan and the City of Holyoke, a regional task force convened by the Pioneer Valley Planning Commission and the state's IT leaders to develop future phases of the initiative. The region's mayors, community colleges, leading economic development institutions, companies and universities will all be critical participants and leaders in this process.

The HPCC Action Plan and Advanced Computing Initiative Roadmap

This Letter of Intent commits the signatories to work collaboratively over the next 120 days to develop a two pronged strategy to launch development of a green high performance computing center and advanced computing initiative. The most concrete and immediate step will be the creation of an Action Plan for the development of a Green High Performance Computing Center in Holyoke, Massachusetts and a collaborative research agenda in advanced computing and applications. This process will be led by the universities with participation from industry and state and local government.

The elements of the Action Plan include:

- Organizational structure and operating model;
 - Technology infrastructure;
 - Capital and operating financial plan, including public and private sources of funds;
 - Collaborative research agenda;
 - Educational outreach plan;
 - Definition of "green" components – clean energy, tech infrastructure, facility design, R&D agenda;
 - Definition of roles of industry – support, technology, resources, potential co-location of facilities;
- Project Timetable, including design, construction, potential options for phasing and anticipated opening.

Concurrent with the development of the Action Plan, state and local government and industry will work with regional leaders and the universities, to develop a vision and road map for the creation of an innovation district in Western Massachusetts powered by green, cost-

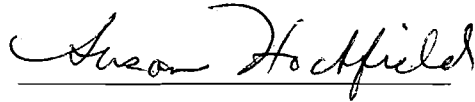
competitive energy. This multi-phase road-map will leverage the competitive advantages presented by the high performance computing center.

Signatories

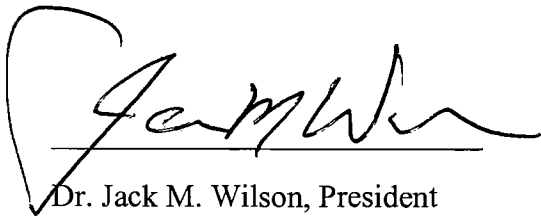
We, the undersigned, who first met on October 15, 2008 to begin exploring ways to strengthen the IT sector in Massachusetts, commit our institutions to working together to create the action plan described above in support of the development of the Green HPCC in Holyoke, Massachusetts. Other leading academic institutions and companies have been involved in developing this initiative to-date; we will encourage their continued participation and invite their signatures to this document, as well as other leaders from government, academic institutions and industry.



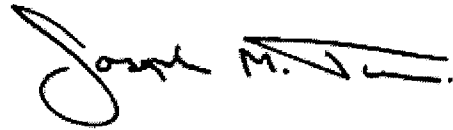
Governor Deval L. Patrick
Commonwealth of Massachusetts



Dr. Susan Hockfield, President
Massachusetts Institute of Technology



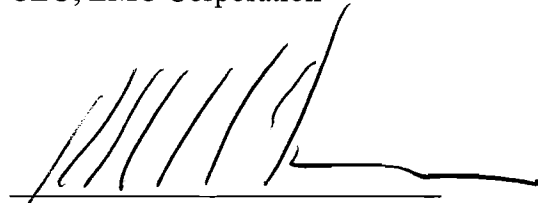
Dr. Jack M. Wilson, President
University of Massachusetts



Joseph M. Tucci, Chairman, President &
CEO, EMC Corporation

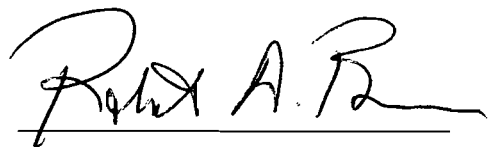


John T. Chambers, Chairman & CEO
Cisco Systems, Inc.



Mayor Michael J. Sullivan
City of Holyoke

Additional Signatures



Dr. Robert A. Brown, President
Boston University



William D. Green, Chief Executive Officer
Accenture
