D-Wave Systems Uses ANSYS Engineering Simulation To Help Design Next Generation Of World's Most Advanced Quantum Computers

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PITTSBURGH, April 28, 2015 /PRNewswire/ -- D-Wave Systems is designing and building the world's most advanced quantum computers with help from engineering simulation solutions from ANSYS (NASDAQ: ANSS). This next generation of supercomputers uses quantum mechanics to massively accelerate computation and has the potential to solve some of the most complex computing problems facing organizations today.

Conventional computer technology stores information as 0s and 1s, but a quantum computer uses qubits, which can be a 1 or a 0 or both at the same time. This enables quantum computers to consider and manipulate all combinations of bits simultaneously, making quantum computation powerful – and extremely fast.

Quantum computing places extreme demands on the operating environment. The system must be isolated from external electromagnetic fields and the temperature must be maintained near absolute zero. Multiphysics simulation is a powerful tool to accurately predict the kinds of environments that can be engineered in the real world. D-Wave is using ANSYS® multiphysics solutions ranging from electromagnetic solutions for simulating how integrated circuits function and interact at extremely low temperatures, to structural and computational fluid dynamics to simulate the systems used to cool the quantum processor.

"ANSYS offers a broad product portfolio with consistently high performance across all of its multiphysics products," said Jeremy Hilton, D-Wave's vice president of processor development. "If we weren't using ANSYS, we'd be forced to use disparate tools that don't communicate with each other. These solutions are helping D-Wave optimize today's quantum computers, while giving us valuable insight as we begin planning for the next generation."

"D-Wave is breaking new ground every day – creating computers that are the stuff of science fiction," said Larry Williams, director of product management, ANSYS. "It has never been tried before, but by using the power of ANSYS engineering simulation, this global leader is turning a vision into reality."

About ANSYS, Inc.

ANSYS brings clarity and insight to customers' most complex design challenges through fast, accurate and reliable engineering simulation. Our technology enables organizations — no matter their industry — to predict with confidence that their products will thrive in the real world. Customers trust our software to help ensure product integrity and drive business success through innovation. Founded in 1970, ANSYS employs over 2700 professionals, many of them experts in engineering fields such as finite element analysis, computational fluid dynamics, electronics and electromagnetics, embedded software, system simulation and design optimization. Headquartered south of Pittsburgh, U.S.A., ANSYS has more than 75 strategic sales locations throughout the world with a network of channel partners in 40+ countries. Visit www.ansys.com for more information.

ANSYS also has a strong presence on the major social channels. To join the simulation conversation, please visit: www.ansys.com/Social@ANSYS

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