

**2492\_D IBM Industry Systems**  
**Argonne National Laboratory Customer Reference Video**  
**As Produced Script**  
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**Paul Messina, Science Director, Argonne Leadership Computing Facility:** Argonne National Laboratory is a multipurpose lab.

**Pete Beckman, Director, Argonne Leadership Computing Facility:** The government invests in science & technology in order to keep us competitive in the world and to have the very best and brightest people solving our nation's problems with energy and the environment.

**Paul Messina:** The Argonne Leadership Computing Facility is a facility for open computational science. Its mission is to accelerate the advance of computational science and engineering for the benefit of the humanity and the nation. Accelerating computational science and engineering requires very large machines and we are fortunate to have the Blue Gene/P, that we call Intrepid.

**Pete Beckman:** I would need a 100 years of computing on my laptop to equal one day of computing on Intrepid. The Intrepid system is a 556-teraflop Blue Gene/P connected through a 10 gigabit switch to a very large disc system, about 8 petabytes. We have 40 racks of Blue Gene and that makes about 163,000 cores, which is a mind boggling number. It's really the most parallel machine of its kind on the planet and it's the fastest OpenScience platform right now in the world. The DOE set up a nationwide competition through a project called INCITE that allows the best computational science to get time on the machines.

**Paul Messina:** We try to attract the most promising applications both within Argonne and anywhere else in the world.

**Pete Beckman:** We have about 20 large projects right now on our machine ranging from simulating the heart of a dog and the arrhythmias that happen all the way to stars.

**Paul Messina:** Molecular dynamic simulation is going to help us understand the cause of diseases and in some cases, help design new pharmaceuticals, new medicines that might be able to attack those diseases.

**Pete Beckman:** They will start being able to model therapies for Parkinson's what drugs might be possible that would inhibit Parkinson's.

**Paul Messina:** On Intrepid, they can do the simulation with the fidelity that's needed to get some useful results; they couldn't do that on any other machine before.

**Pete Beckman:** The Blue Gene is designed to be very dense and is very densely packed and is very low power. That allows us to run it in a fairly small space.

**Paul Messina:** The Blue Gene/P uses about a third as much electricity as a machine of comparable size built with more conventional parts. We are talking about an electricity bill that is a million or two dollars a year less.

**Pete Beckman:** IBM has been involved in high performance computing for decades. Partnering with IBM and with the traditional strengths of Argonne in computer science have allowed us to

continue to tune and improve the system software. The goal of the ALCF is breakthrough science. The computational needs of the nation need the biggest and most powerful and most capable supercomputer there is to just look at even more challenging investigations and hopefully even bigger, more exciting discoveries.

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