

PS3GRID Live: with a *pen drive* we can carry out computational biomedical calculations on our Playstation 3

Everyone can contribute to advances in biomedical research by contributing the calculative ability of our Playstation 3 to scientists. It's as easy as inserting a *pen drive* into the console and restarting it.

15 November 2007. Researchers at the Research Unit on Biomedical Informatics (GRIB) at the Instituto Municipal de Investigación Médica (IMIM) and the Universidad Pompeu Fabra (UPF) in Barcelona, have invented a surprising and revolutionary computational initiative, the platform www.ps3grid.net within the PS3GRID project, will allow those interested in participating to put their own videogame console at the disposal of high-level international science.

In only a few seconds using a 1 GB *pen drive*, we can load Linux Live operating system in the Playstation3 and the PS3GRID software. The Playstation 3 will be connected to the PS3GRID server, this will allow you to unload the job to be completed (the scientific calculations in which you will participate). Molecular calculations will be carried out 16 times faster than with a normal PC. To return to the normal Playstation 3 game activity, just restart the console again. At first, the participation system was more complicated, but recently, by using the *pen drive* as a main support, it has sought to simplify the process for everyone who is interested in collaborating.

The project is coordinated by **Gianni De Fabritiis, researcher at the Research Unit on Biomedical Informatics (GRIB) at the IMIM-UPF and the Department of Experimental and Health Sciences at the UPF**, with the collaboration of Matt Harvey, researcher at the Imperial College in London, as well as Jordi Villà and Giovanni Giupponi, also researchers at the Computational Biochemical and Biophysics lab at GRIB-IMIM/UPF.

According to researchers, this is possible thanks to the use of the powerful processor *Cell*, that includes the recently commercialised *PlayStation3*, and the software *CellMD* (www.acellera.com/cellmd) with the ability to function at a processing speed greater than that of 16 conventional computers. De Fabritiis comments that "the combined computational force of all the PS3s reaches the features of a powerful supercomputer, given that at this time there are 3 million PS3s in the world". The researcher added that **"the calculation capacity of 100 consoles would equal thousands of conventional computers"**

The simulation of the behaviour of microscopic biomolecules is of enormous difficulty when designing algorithms and architecture analysis, even for the most modern computers. The elemental physics behind enzymatic reactions, the tertiary structure of proteins or the conductivity of ions through biological membranes, among many other biological processes, is just beginning to be understood. Therefore, the capacity to calculate is essential to resolving the operation of high-complexity biological systems.

This initiative will allow society to contribute and to be, along with this group of researchers, a participant in the exciting world of basic biomedical research. Likewise, with the goal of contributing to the progress of science, the group of scientists at the GRIB-IMIM/UPF has made the use of this technology available to biomedical researchers all over the world to carry out calculations much faster than can be done with conventional computers. To participate, contact GRIB directly.

HOW TO JOIN THE PROJECT

The project has already been under way for some months, though it would be interesting to incorporate as many people as possible to increase the calculation capacity. At the moment, the group of researchers count some 130 machines connected, all of which are located outside Spain. Anyone interested in donating part of the computational time of their Playstation 3 to science can simply download the program onto a 1 GB or more *pen drive* from the website <http://www.ps3grid.net/live> and insert it into their Playstation 3.

About GRIB

The Research Unit on Biomedical Informatics (GRIB) is made up of researchers from the IMIM-Hospital del Mar, a public organisation dedicated to scientific research in the Biomedicine and Health Science fields, and researchers from the Universidad Pompeu Fabra. The research that the unit is working on is based on the use of new information technologies in health and life sciences, including the conception and design of specialised informatic applications, their development and evaluation, as well as collaborations with other biomedical professionals for their application in social and scientific problems of interest. It is located in the Barcelona Biomedical Research Park and its Coordinator is Ferran Sanz. <http://nemo.imim.es/grib/>

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