

# PrimeGrid's Factorial Prime Search

On 04 Oct 2010, 15:01:15 UTC, PrimeGrid's PRPNet found the largest known Factorial prime:

94550!-1

The prime is 429,390 digits long and enters Chris Caldwell's "The Largest Known Primes Database" (<http://primes.utm.edu/primes>) ranked 1<sup>st</sup> for Factorial primes and 155<sup>th</sup> overall.

The discovery was made by Dmitry Domanov of Russia using an Intel Xeon E5310 @ 1.60GHz with 4GB RAM, running 32 bit Windows 2003 Server. This computer took about 24 hours and 19 minutes to complete the prime test. Dmitry is a member of Team Russia.

The prime was verified on 05 Oct 2010, by an Intel Q6600 @ 2.4 GHz with 2 GB RAM, running 64 bit Windows XP Professional. This computer took a little over 13 hours 45 minutes to complete the prime test.

The credits for the discovery are as follows:

1. Dmitry Domanov (Russia), discoverer
2. PrimeGrid, et al.
3. fsieve/psieve/fpsieve, sieve programs developed by Mark Rodenkirch and Geoff Reynolds
4. PFGW, primality program developed by Chris Nash & Jim Fougeron

Entry in "The Largest Know Primes Database" can be found here:

<http://primes.utm.edu/primes/page.php?id=95248>

This is only the 24<sup>th</sup> known Factorial prime...the 14<sup>th</sup> discovery in the last 29 years and the first in over 8 years. Needless to say, this is a very rare find. It more than triples the size of the previous record of 34790!-1 (142891 digits).

Using a single PC would have taken years to find this prime. So this timely discovery would not have been possible without the hundreds of volunteers who contributed their spare CPU cycles. A special thanks to everyone who offered their advice and/or computing power to the search - especially Mark Rodenkirch and Geoff Reynolds who were major forces in moving the project forward. Also, thank you to all the sievers and PRPNet'ers who contributed to this effort.

The Factorial Prime Search will continue to seek even larger primes. To join the search please visit PrimeGrid: <http://www.primegrid.com>

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## About PrimeGrid

PrimeGrid is a distributed computing project, developed by Rytis Slatkevičius, which utilizes BOINC and PRPNet to search for primes. PrimeGrid's primary goal is to bring the excitement of prime finding to the "everyday" computer user. Simply download the software and let your computer do the rest. Participants can choose from a variety of prime forms to search. With a little patience, you may find a large or even record breaking prime.

### BOINC

The Berkeley Open Infrastructure for Network Computing (BOINC) is a software platform for distributed computing using volunteered computer resources. It allows users to participate in multiple distributed computing projects through a single program. Currently BOINC is being developed by a team based at the University of California, Berkeley led by David Anderson.

This platform currently supports projects from biology to math to astronomy. For more information, please visit BOINC: <http://boinc.berkeley.edu>

### PRPNet

PRPNet is a client/server application written by Mark Rodenkirch that is specifically designed to help find prime numbers of various forms. It is easily ported between various OS/hardware combinations. PRPNet does not run each PRP test itself, but relies on helper programs, such as LLR, PFGW, phrot, and genefer to do the work.

For more information, please visit PrimeGrid's PRPNet forum thread: [http://www.primegrid.com/forum\\_thread.php?id=1215](http://www.primegrid.com/forum_thread.php?id=1215)

For more information about PrimeGrid and a complete list of available prime search projects, please visit: <http://www.primegrid.com>