PrimeGrid's
Factorial Prime Search

On 30 August 2013, PrimeGrid's PRPNet found the second largest known Factorial prime:

$$147855!-1$$

The prime is 700,177 digits long and will enter Chris Caldwell's "The Largest Known Primes Database" (http://primes.utm.edu/primes) ranked 2nd for Factorial primes and 191st overall.

The discovery was made by Pietari Snow of Finland using an Intel(R) Core(TM) i7 CPU 940 @ 2.93GHz with 6 GB RAM running Linux. This computer took a little over 69 hours and 37 minutes to complete the primality test using pfgw x64. Pietari is a member of the PrimeSearchTeam.

Credits for the discovery are as follows:

1. Pietari Snow (Finland), 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=115328

This is only the 28th known Factorial prime...the 5th discovery in the last 9 years. This is the first -1 Factorial prime since 103040!-1 was discovered in December 2010.

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

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