PrimeGrid's
Factorial Prime Search

On 11 June 2011, PrimeGrid's PRPNet found the largest known Factorial prime:

110059!+1

The prime is 507,082 digits long and will enter Chris Caldwell's "The Largest Known Primes Database" (http://primes.utm.edu/primes) ranked 1st for Factorial primes and 130th overall.

The discovery was made by Peter Doggart of the United Kingdom using an AMD Phenom 9600 X4 @ 2.3GHz with 3 GB RAM running 32 bit Windows 7. This computer took just under 57 hours and 46 minutes to complete the primality test using pfgw. Peter is a member of the PrimeSearchteam.

The prime was verified on 11 June 2011, by an Intel i5 @ 2.8 GHz with 4 GB RAM, running Max OS X. This computer took a little over 15 hours and 43 minutes to complete the primality test using pfgw x64.

Credits for the discovery are as follows:

1. Peter Doggart, 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=100445

This is only the 26th known Factorial prime...the 3rd discovery in the last 9 years. This is the first +1 Factorial prime since 26951!+1 was discovered in May 2002.

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