

# PrimeGrid's Primorial Prime Search

On 20 Dec 2010, 08:05:22 UTC, PrimeGrid's PRPNet found the largest known Primorial prime:

843301#-1

The prime is 365,851 digits long and enters Chris Caldwell's "The Largest Known Primes Database" (<http://primes.utm.edu/primes>) ranked 1<sup>st</sup> for Primorial primes and 260<sup>th</sup> overall.

The discovery was made by Michał Gasewicz of Poland using an Intel dual Xeon E5520 @ 2.27GHz with 12GB RAM, running 64 bit Linux. This computer took about 71 hours and 20 minutes to complete the primality test using pfgw x64. Michał is a member of the BOINC@Poland team.

The prime was verified on 23 Dec 2010, by an Intel Q6600 @ 2.4 GHz with 2 GB RAM, running 64 bit Windows XP Professional. This computer took a little over 69 hours 19 minutes to complete the primality test using pfgw x64.

The credits for the discovery are as follows:

1. Michał Gasewicz (Poland), 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=97061>

This is only the 19<sup>th</sup> known  $p\#-1$  Primorial prime and the 1<sup>st</sup> discovered in 18 years. It is the 1<sup>st</sup> found of either form  $(p\#+1, p\#-1)$  in over 9 years. Needless to say, this is an exceptional find. It more than doubles the size of the previous record of 392113#+1 (169966 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 Primorial Prime Search will continue to seek even larger primes. To join the search please visit PrimeGrid: <http://www.primegrid.com>

# PrimeGrid's Primorial Prime Search

## 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>