# PrimeGrid's
# Mega Prime Search

On 21 June 2016, 15:59:00 UTC, PrimeGrid's PPS Mega Prime Search project found the Mega Prime:

$$329*2^{3518451}+1$$

The prime is 1,059,162 digits long and will enter Chris Caldwell's "The Largest Known Primes Database" (http://primes.utm.edu/primes) ranked 132nd overall.

The discovery was made by Stefan Larsson of Sweden using an Intel(R) Core(TM) i7-3930K CPU @ 3.20GHz with 16GB RAM, running Microsoft Windows 10. This computer took about 1 hour 20 minutes to complete the primality test using LLR. Stefan is a member of the Sicituradastra. team.

The prime was verified on 23 June 2016, 19:45:48 UTC by Wiktor Jezioro of Poland using an Intel(R) Xeon(R) CPU E5-2690 v2 @ 3.00GHz with 30GB RAM, running Linux. This computer took about 1 hour 57 minutes to complete the primality test using LLR. Wiktor is a member of the BOINC@Poland team.

Credits for the discovery are as follows:

1. Stefan Larsson (Sweden), discoverer
2. PrimeGrid, et al.
3. Srsieve, sieving program developed by Geoff Reynolds
4. PSieve, sieving program developed by Ken Brazier and Geoff Reynolds
5. LLR, primality program developed by Jean Penné
6. OpenPFGW, a primality program developed by Chris Nash & Jim Fougeron with maintenance and improvements by Mark Rodenkirch

Entry in "The Largest Know Primes Database" can be found here:
https://primes.utm.edu/primes/page.php?id=121817

OpenPFGW, a primality program developed by Chris Nash & Jim Fougeron, was used to check for Fermat Number divisibility (including generalized and extended). For more information about Fermat and generalized Fermat Number divisors, please see Wilfrid Keller's sites:

- http://www.prothsearch.net/fermat.html
- http://www.prothsearch.net/GFNfacs.html

Using a single PC would have taken years to find this prime. So this timely discovery would not have been possible without the thousands of volunteers who contributed their spare CPU cycles. A special thanks to everyone who contributed their advice and/or computing power to the search - especially all the sievers who work behind the scenes to make a find like this possible.

The Mega 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, Lennart Vogel, and John Blazek, 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, wwww, 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