PrimeGrid's
Sophie Germain Prime Search

On 14 September 2016 04:24:46 UTC, PrimeGrid's Sophie Germain Prime Search found World Record twin primes:

$$2996863034895*2^{1290000}\pm1$$

The twin primes are 388,342 digits long, eclipsing the previous record of 200,700 digits. They will enter Chris Caldwell's "The Largest Known Primes Database" (http://primes.utm.edu/primes) ranked 1st for twins, and each entered individually ranked 4180th overall.

The discovery was made by Tom Greer of the United States using an Intel(R) Xeon(R) CPU E5-2623 v3 @ 3GHz with 32 GB RAM running Windows 10 Professional. This computer, using LLR, took approximately 23 minutes to complete the primality tests of both primes. Tom is a member of the Sicituradastra. team.

The prime was verified on 15 September 2016 01:32:51 UTC, by Don Palmer of Canada using an Intel(R) Core(TM)2 Duo CPU E7600 @ 3.06GHz with 4 GB RAM running OS X 10.11.6. This computer, using LLR, took approximately 1 hour 37 minutes to complete the primality tests of both primes. Don is a member of the Team Canada team.

Credits for the discovery are as follows:

1. Tom Greer
2. PrimeGrid, et al.
3. TwinGen, sieving program developed by David Underbakke
4. LLR, primality program developed by Jean Penné

Entry in "The Largest Known Primes Database" can be found here:
http://primes.utm.edu/primes/page.php?id=122214 twin (p+2)
http://primes.utm.edu/primes/page.php?id=122213 twin (p)

Twin Primes are pairs of primes which differ by two. The first twin primes are {3,5}, {5,7}, {11,13} and {17,19}. It has been conjectured (but never proven) that there are infinitely many twin primes.

This is PrimeGrid's 4th World Record twin primes (including one found in cooperation with the TPS project).

The search effort would have taken hundreds of years on a fast single core PC. Therefore, 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 David Underbakke who was instrumental with advice and research. Additional thanks goes to Lennart Vogel for doing the tedious sieve work.

The Sophie Germain Prime Search will continue to search the remainder of the sieved search space to hopefully find a Sophie Germain Prime. 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, 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