PrimeGrid's
Sierpiński/Riesel Base 5 Problem

On 26 April 2019, 13:27:42 UTC, PrimeGrid's Sierpiński/Riesel Base 5 Problem project eliminated k=138514 by finding the mega prime:

$$138514*5^{2771922}+1$$

The prime is 1,937,496 digits long and enters Chris Caldwell's "The Largest Known Primes Database" (https://primes.utm.edu/primes) ranked 63rd overall and is the largest known base 5 prime. 31 k's now remain in the Sierpiński Base 5 Problem.

The discovery was made by Ken Ito of Japan using an Intel(R) Core(TM) i9-9820X CPU @ 3.30GHz with 32 GB of RAM, running Microsoft Windows 10 Professional x64 Edition. This computer took 2 hours and 46 minutes to complete the primality test using multithreaded LLR. Ken is a member of Team 2ch.

The prime was verified on 27 April 2019, 07:28:26 UTC by Dmitry Domanov of Russia using an Intel(R) Core(TM) i5-2310 CPU @ 2.90GHz with 3 GB of RAM, running Microsoft Windows XP Professional x86 Edition. This computer took about 23 hours and 24 minutes to complete the primality test using LLR. Dmitry is a member of the Russia team.

The credits for the discovery are as follows:

1. Ken Ito (Japan), discoverer
2. PrimeGrid, et al.
3. Srsieve, sieving program developed by Geoff Reynolds
4. LLR, primality program developed by Jean Penné

Entry in "The Largest Known Primes Database" can be found here:

https://primes.utm.edu/primes/page.php?id=126425

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 to all the sievers who work behind the scenes to make a find like this possible.

PrimeGrid's Sierpiński/Riesel Base 5 Problem will continue seeking primes for other primeless bases. To join the search please visit PrimeGrid: https://www.primegrid.com/

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About PrimeGrid

PrimeGrid is a distributed computing project, developed by Rytis Slatkevičius and currently managed by James Breslin, Scott Brown, Ulrich Fries, Michael Goetz, Roger Karpin, Rytis Slatkevičius, and Van Zimmerman.

PrimeGrid utilizes BOINC and PRPNet to search for primes with the primary goal of bringing 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: https://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: https://www.primegrid.com/forum_thread.php?id=1215

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