PrimeGrid's
Sierpinski/Riesel Base 5 Problem

On 23 June 2019, 14:39:48 UTC, PrimeGrid's Sierpinski/Riesel Base 5 Problem project eliminated k=322498 by finding the mega prime:

$$322498*5^{2800819}-1$$

The prime is 1,957,694 digits long and will enter Chris Caldwell's "The Largest Known Primes Database" (http://primes.utm.edu/primes) ranked 63rd overall. This is the largest known base 5 mega prime. 67 k's now remain in the Riesel Base 5 Problem.

The discovery was made by Jordan Romaidis of the United States using an Intel(R) Xeon(R) Gold 5120 CPU @ 2.20GHz with 96GB RAM running Microsoft Windows 10. This computer took about 25 hours 28 minutes to complete the primality test using LLR. Jordan is a member of the San Francisco team.

The prime was verified on 24 June 2019, 20:59:33 UTC by Scott Brown of the United States using an AMD FX(tm)-8350 Eight-Core Processor with 16GB RAM running Microsoft Windows 10. This computer took about 53 hours 51 minutes to complete the primality test using LLR. Scott is a member of the Aggie the Pew team.

Credits for the discovery are as follows:

1. Jordan Romaidis (United States), 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 Know Primes Database" can be found her
https://primes.utm.edu/primes/page.php?id=126585

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 Sierpinski/Riesel Base 5 Problem will continue to search for more 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 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: 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