PrimeGrid's
Cullen Prime Search

On 20 Apr 2009 0:52:45 UTC, PrimeGrid's Cullen Prime Search found a world record Cullen Mega Prime:

$$6328548*2^{6328548}+1$$

The prime is PrimeGrid's largest to date. It is 1,905,090 digits long and will enter Chris Caldwell's "The Largest Known Primes Database" (http://primes.utm.edu/primes) ranked 14th overall. It is the largest Cullen prime found and the largest found Mega Prime using LLR.

The discovery was made by Dennis R. Gesker of the United States using an Intel Xeon E5420 @ 2.50GHz with 8 GB RAM running Windows Server 2008. This computer took about 32 hours 28 minutes to complete the primality test.

The prime was verified on 20 Apr 2009 16:24:29 UTC, by Jeff Morales of the United States using an Intel Pentium 4 @ 2.80GHz with 512 MB RAM running Windows XP Professional. This computer took about 71 hours 55 minutes to complete the primality test. Jeff is a member of the SETI.USA team.

The credits for the discovery are as follows:

1. Dennis R. Gesker (United States), discoverer
2. PrimeGrid, et al.
3. MultiSieve, sieving program developed by Mark Rodenkirch
4. GCWsieve, sieving program developed by Geoff Reynolds
5. LLR, primality program developed by Jean Penné

Entry in "The Largest Know Primes Database" can be found here: http://primes.utm.edu/primes/page.php?id=87775

This is only the 15th Cullen Prime found and PrimeGrid's first. Cullen numbers were first studied by Reverend James Cullen in 1905. A Cullen prime is any prime of the form $C_n=n*2^n+1$. C_n is prime for n = 1, 141, 4713, 5795, 6611, 18496, 32292, 32469, 59656, 90825, 262419, 361275, 481899, 1354828, 6328548.

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.

PrimeGrid's Cullen Prime Search will continue to search for 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, 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 distributed Client/Server application, developed by Mark Rodenkirch, which can be used to manage and perform primality and probable prime tests on a list of candidate numbers. The PRPNet Client uses LLR, Phrot, or PFGW to perform these tests.

For more information and a list of the all available prime search projects, please visit PrimeGrid: http://www.primegrid.com