

## PrimeGrid's Woodall Prime Search

On 21 March 2018, 22:13:39 UTC, PrimeGrid's Woodall Prime Search found the Woodall mega prime:

$$17016602 \cdot 2^{17016602} - 1$$

*Woodall numbers are of the form:  $W_n = n \cdot 2^n - 1$ . Woodall numbers that are prime are called Woodall primes. For more information, please see "Woodall prime" in The Prime Glossary (<http://primes.utm.edu/glossary>).*

The prime is 5,122,515 digits long and enters Chris Caldwell's "The Largest Known Primes Database" (<http://primes.utm.edu/primes>) ranked 1<sup>st</sup> for Woodall primes and 16<sup>th</sup> overall. This is the 4<sup>th</sup> largest prime found by PrimeGrid, the 4<sup>th</sup> Woodall prime found by PrimeGrid, and the first Woodall prime found since December, 2007.

The discovery was made by Diego Bertolotti of Italy using an Intel(R) Core(TM) i7-2600 CPU at 3.40GHz with 8GB RAM, running Microsoft Windows 10. This computer took about 4 days 6 hours 14 minutes to complete the primality test. Diego is a member of the Boinc @ Italy team.

The credits for the discovery are as follows:

1. Diego Bertolotti (Italy), discoverer
2. PrimeGrid, et al.
3. LLR, primality program developed by Jean Penné
4. gcwsieve, sieve program developed by Geoff Reynolds
5. MultiSieve, sieve program developed by Mark Rodenkirch

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

<http://primes.utm.edu/primes/page.php?id=124539>

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 Woodall 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 and currently managed by Iain Bethune, 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, www, 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](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>