PrimeGrid's
Primorial Prime Search

On 27 July 2024, 09:18:10 UTC, PrimeGrid's Primorial Prime Search found the Primorial Prime:

$$4328927\# +1$$

The prime is 1,878,843 digits long and will enter "The Largest Known Primes Database" (https://t5k.org/primes) ranked 1st for Primorial primes and 373rd overall.

The discovery was made by Kai Presler of Antarctica using an Intel(R) Xeon(R) CPU E7-8890 v4 @ 2.20GHz with 256GB RAM, running Linux Mint 21.1. This computer took about 6 hours, 53 minutes to complete the probable prime (PRP) test using PRST. Kai Presler is a member of the [H]ard|OCP team.

The PRP was confirmed prime on 29 July 2024 by an AMD Ryzen 9 7950X3D @ 4.20GHz with 128GB RAM, running Debian 12.5. This computer took about 2 days, 3 hours, 38 minutes to complete the primality test using PFGW with 4 threads.

The credits for the discovery are as follows:

1. Kai Presler (Antarctica), discoverer
2. PrimeGrid, et al.
3. mtsieve, sieve program developed by Mark Rodenkirch
4. PRST, probable prime program developed by Pavel Atnashev
5. OpenPFGW, a primality program developed by Chris Nash & Jim Fougeron with maintenance and improvements by Mark Rodenkirch

Entry in "The Largest Known Primes Database" can be found here:
https://t5k.org/primes/page.php?id=138350

Using a single PC would have taken years to find this prime. So this timely discovery would not have been possible without the hundreds of volunteers who contributed their spare CPU cycles. A special thanks to everyone who offered their advice and/or computing power to the search - especially Mark Rodenkirch and Geoff Reynolds who were major forces in moving the project forward. Also, thank you to all the sievers and PRPNet'ers who contributed to this effort.

The Primorial Prime Search will continue to seek even larger primes. 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 Tyler Bredl, Scott Brown, Michael Goetz, Darren Li, Dao Heng Liu, Reginald McLean, Rytis Slatkevičius, Roman Trunov, and Christian Wallbaum.

PrimeGrid utilizes BOINC 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/

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