



SHARCNET used to verify the discovery of world's largest known prime number

FOR IMMEDIATE RELEASE

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Josh Findley, of a Mersenne.org research project called the Great Internet Mersenne Prime Search (GIMPS), has discovered the world's largest known prime number.

The record breaking number was found in mid-May but an official verification, using SHARCNET systems, was completed on May 28th.

A prime number is a number that can only be divided by 1 and itself. (The number 3 is prime because there is nothing to divide it except 1 and itself). In order for a new prime number to become official, it has to be verified by a third party using different software on a different computer architecture. If the results match, it is officially recognized as a prime number.

Large prime numbers have applications in a wide-range of fields, including data security. It is expected that finding new prime numbers will help advance the field of cryptography and the development of encryption algorithms.

This new record-breaking number, expressed as 2 to the 24,036,583th power minus 1, has nearly 7.3 million decimal digits. The previous record was 6.3 million digits.

The number belongs to a special class of rare prime numbers called Mersenne primes. The discovery marks only the 41st known Mersenne prime, named after Marin Mersenne, a 17th century French monk who first studied the rare numbers 300 years ago. The new prime was independently verified by Tony Reix of Grenoble, France on an HP Itanium II 1.3 GHz system for five days and by Jeff Gilchrist, a graduate student at Carleton University in Ottawa, Canada, using eleven days of time and 4 CPU's on an HP Itanium II 1.5 GHz server at SHARCNET.

"I used SHARCNET systems because I needed a fast computer system in order to do the verification in a reasonable amount of time," confirms Gilchrist, also an IT security specialist at Ottawa's Elytra Enterprises Inc. "On my home computer it would have taken a little less than a month to verify that the number was prime. Using the multi-CPU clusters at SHARCNET, I was able to verify the number in only 11 days. SHARCNET gives researchers access to computing power they would not normally be able to afford."



CONTACTS

For more information on this discovery, contacts at Mersenne.org or Mersenne primes, please visit: <http://www.mersenne.org/24036583.htm>.

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ABOUT SHARCNET

SHARCNET is a multi-institutional High Performance Computing network that spans 11 leading academic institutions in South Central Ontario. SHARCNET's mission is to provide leading edge computational resources to accelerate the production of world-leading research results. The SHARCNET consortium is lead by the University of Western Ontario, and includes the Universities of Guelph, McMaster, Wilfrid Laurier, Windsor, York, Brock, Waterloo and Ontario Institute of Technology, and colleges Fanshawe and Sheridan. SHARCNET supports some of Canada's preeminent academics (over 200 research groups). Ground-breaking research currently being conducted at SHARCNET institutions includes modeling outbreaks of foot and mouth disease; investigating diseases such as SARS; investigating new materials for electronic devices; and developing new models to manage financial risk. SHARCNET is a preferred pre-market testing site for products by HP, Nortel Networks, and Platform Computing.