

PrimeGrid's AP26 Search

On 12 Apr 2010 20:03:44 UTC, PrimeGrid's AP26 Search (Arithmetic Progression of 26 primes) found the first ever AP26:

$$43142746595714191+23681770*23\#*n \text{ for } n=0..25$$

The discovery was made by Benoît Perichon of France using a PS3 running Linux. For Cell/BE processing, it takes 1 SPE about 81 minutes to process a WU (each WU tests 9 progression differences). The PS3 can do 6 WU's in parallel. David is a member of the L'Alliance Francophone team.

The AP26 will be listed in Jens Kruse Andersen's Primes in Arithmetic Progression Records page (<http://users.cybercity.dk/~dsl522332/math/aprecords.htm>) under the section(s):

- The largest known AP-k
- Smallest AP-k with minimal difference
- Smallest AP-k with minimal start
- AP-k with minimal end
- All known AP24 and AP25 and now AP26 :)

Credits for the discovery are as follows:

Finder: Benoît Perichon
Project: PrimeGrid
Program: AP26

AP26 was written by Jaroslaw Wroblewski and adapted to BOINC by Geoff Reynolds. A special thanks to all the programmers (and testers) who ported AP26 making it the most accessible project at PrimeGrid.

- Bryan Little: PS3/Cell Blade App: "AP26 port to Cell/B.E. Linux platform"
- Bryan Little: Linux,Windows Apps: "Vectorized cpu-intensive scalar code and built applications with Intel(R) optimizing compiler"
- Gerrit Slomma: Solaris build
- Gerrit Slomma & Bryan Little: CUDA23 App
- Iain Bethune & Bryan Little: Mac CUDA23 App

Using a single core PC would have taken decades to find this progression. 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.

This concludes PrimeGrid's AP26 search. Congratulations to everyone who participated in the AP26 Search. It has been a very challenging and rewarding project.

PrimeGrid's AP26 Search

The 26 terms of the AP26

43142746595714191+23681770*23#*n for n=0..25

23#=2*3*5*7*11*13*17*19*23=223092870

43142746595714191+23681770*223092870*0=43142746595714191
43142746595714191+23681770*223092870*1=48425980631694091
43142746595714191+23681770*223092870*2=53709214667673991
43142746595714191+23681770*223092870*3=58992448703653891
43142746595714191+23681770*223092870*4=64275682739633791
43142746595714191+23681770*223092870*5=69558916775613691
43142746595714191+23681770*223092870*6=74842150811593591
43142746595714191+23681770*223092870*7=80125384847573491
43142746595714191+23681770*223092870*8=85408618883553391
43142746595714191+23681770*223092870*9=90691852919533291
43142746595714191+23681770*223092870*10=95975086955513191
43142746595714191+23681770*223092870*11=101258320991493091
43142746595714191+23681770*223092870*12=106541555027472991
43142746595714191+23681770*223092870*13=111824789063452891
43142746595714191+23681770*223092870*14=117108023099432791
43142746595714191+23681770*223092870*15=122391257135412691
43142746595714191+23681770*223092870*16=127674491171392591
43142746595714191+23681770*223092870*17=132957725207372491
43142746595714191+23681770*223092870*18=138240959243352391
43142746595714191+23681770*223092870*19=143524193279332291
43142746595714191+23681770*223092870*20=148807427315312191
43142746595714191+23681770*223092870*21=154090661351292091
43142746595714191+23681770*223092870*22=159373895387271991
43142746595714191+23681770*223092870*23=164657129423251891
43142746595714191+23681770*223092870*24=169940363459231791
43142746595714191+23681770*223092870*25=175223597495211691

PrimeGrid's AP26 Search

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 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, 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>