Department of Computer Sciences
Purdue University
West Lafayette, IN 47907
August 9, 2007

Two "Most Wanted" numbers from the wanted lists issued with Page 104 were factored on Page 105. Using the Special Number Field Sieve, NFSNET″ factored 2,772+ and 10,229+.

All four "Smaller-but-Needed" numbers were factored on Page 105. S. Irvine used the General Number Field Sieve to factor 6,786M, 7,707L, 2,1658L and 2,2370M.

Since only two wanted numbers have been factored, no new wanted lists have been issued. However, the "Smaller-but-Needed" lists have been updated.

CWI means Peter Montgomery, Herman te Riele and Willemien Ekkelkamp at the Centrum voor Wiskunde en Informatica in Amsterdam. ECMNET means Paul Zimmermann, Alex Kruppa, Torbjörn Granlund, Michel Quercia, Witold Grabysz, Vilmar Trevisan and many helpers who use the GMP-ECM program of Kruppa and Zimmermann. NFSNET″ is a group of factorers lead by Richard Wackerbarth and Paul Leyland. They are supported in the sieving effort by Bruce Dodson (Lehigh U) and Jeroen Demeyer (U Gent), as well as the contributions of a number of additional volunteer sievers. See their URL `http://www.nfsnet.org` .

There were two new champions for factoring Cunningham numbers on this page. Recall that a champion is one of the best two records in its class. K. Aoki, J. Franke, T. Kleinjung, A. K. Lenstra and D. A. Osvik factored the 307-digit number 2,1039− by the Special Number Field Sieve, setting a new record for both size and SNFS difficulty. A list of recent champions is enclosed.

The first holes done on Page 105 are in # 5484 and # 5512. No second or fourth holes were done on Page 105. The only third hole done on Page 105 is in # 5523. The only fifth hole done on Page 105 is in # 5499.

The smallest new factor reported on Page 105 has 46 digits. See # 5497. The largest number factored on Page 105 has 344 digits. See # 5483.

See the URL `http://www.prothsearch.net/fermat.html` for Wilfrid Keller's list of all known Fermat factors.

See the URL `http://www.utm.edu/research/primes/largest.html` for Chris Caldwell's list of all of the largest known Mersenne primes. No new Mersenne primes have been found since $2^{32,582,657} - 1$.

See the URL `http://www.cerias.purdue.edu/homes/ssw/cun/index.html` for the online Cunningham book. The full text is available at the AMS web site: `http://www.ams.org/online_bks/conm22` .

Please send me any address changes.

Keep the factors coming!

Sam Wagstaff