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Eight "Most Wanted" numbers from the wanted lists issued with Page 112 were factored on Page 113. NFS@Home factored 2,863−, 2,851+, 2,853+ and 2,856+, Batalov and Dodson factored 10,244+ and 11,233−, CWI factored 7,293+ and Edwards factored 11,229−, all by the Special Number Field Sieve.

Twelve "More Wanted" numbers from the wanted lists issued with Page 112 were factored on Page 113. NFS@Home factored 2,859+, 2,1678L, 3,538+, 5,361−, 7,307+, 12,233−, 12,239− and 12,232+, and Batalov and Dodson factored 2,1646L and 2,1654L, and NFSNET″ factored 7,304+, all by the Special Number Field Sieve. Dodson found a small factor of 6,334+ by the Elliptic Curve Method and NFS@Home finished the remaining cofactor with SNFS.

No "Smaller-but-Needed" numbers were factored on Page 113.

The factorization of 11,229− in # 5771 was the last of the numbers $b^n \pm 1 < 10^{240}$, that is, the last number with SNFS difficulty below 10^{240}.

New wanted lists are enclosed.

CWI means Peter Montgomery, Herman te Riele, Willemien Ekkelkamp and Andrey Timofeev at the Centrum Wiskunde & 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), Jeroen Demeyer (U Gent) and Greg Childers (Cal State Fullerton), as well as the contributions of a number of additional volunteer sievers. See their URL `http://www.nfsnet.org` . NFS@Home is a group led by Greg Childers.

There was one new champion for factoring Cunningham numbers on this page. Recall that a champion is one of the best two records in its class. The C274 of 5,398+ split in # 5787 (and # 5788) was a new champion (second place) for Special Number Field Sieve by SNFS Difficulty. (This C274 was slightly smaller than the second place champion C274 for Special Number Field Sieve by Size of Number Factored.) A list of recent champions is enclosed.

The first holes done on Page 113 are in # 5764, # 5765, # 5767, # 5770, # 5771, # 5773, # 5774, # 5776, # 5778, # 5779, # 5780, # 5781, # 5782, # 5786, # 5789, # 5791 and # 5793. The second holes done on Page 113 are in # 5768 and # 5777. No third holes were done on Page 113. The fourth holes done on Page 113 are in # 5766 and # 5790. The fifth holes done on Page 113 are in # 5772 and # 5783.

The smallest new factor reported on Page 113 has 55 digits. See # 5775. The largest number factored on Page 113 has 274 digits. See # 5787 (and # 5788).

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

No new Mersenne primes have been found since the last page. The current largest known prime is $2^{43112609} - 1$. See the URL `http://primes.utm.edu/primes/` for Chris Caldwell's database of the largest known primes (updated hourly).

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