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Two "Most Wanted" numbers from the wanted lists issued with Page 127 were factored on Page 128. Propper factored 10,292+ and 3,604+ by the Special Number Field Sieve.

Four "More Wanted" numbers from the wanted lists issued with Page 127 were factored on Page 128. Propper factored 2,1894M, 2,1898L, 2,1898M and 2,1906M by SNFS.

Three "Smaller-but-Needed" numbers were factored on Page 128, all by the General Number Field Sieve. Mkrtychyan factored 3,664+ and Bai and Wagstaff factored 2,2110M and 6,469−.

New wanted lists are enclosed.

A Base 2 extension has been added to the regular tables.

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. NFS@Home is a group led by Greg Childers.

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. The P134 of 2,1906M in #6249 was a new champion (second place) for largest penultimate factor. The C216 of 3,766+ split in # 6269 was a new champion (first place) for the General Number Field Sieve. A list of recent champions is enclosed.

The first holes factored on Page 128 are in # 6241, # 6242, # 6245, # 6246, # 6249, # 6260 and # 6261. No second holes were factored on Page 128. The third holes factored on Page 128 are in # 6256 and # 6271. The only fourth hole factored on Page 128 is in # 6247. The only fifth hole factored on Page 128 is in # 6253.

The smallest new factor reported on Page 128 has 61 digits. See # 6263. The largest number factored on Page 128 has 274 digits. See # 6249.

See the URL http://www.prothsearch.net/fermat.html for Wilfrid Keller's list of all known Fermat factors. Several new factors were found recently.

No new Mersenne primes have been found since the last page. The current largest known prime is $2^{57885161} - 1$. See the URL http://primes.utm.edu/primes/ for Chris Caldwell's database of the largest known primes (updated hourly). However, there was progress on some closely related numbers also listed on the URL above. They are full Aurifeuillian factors in base 2 and 3. The numbers $2^{2j-1} \pm 2^j + 1$ are Gaussian Mersenne norms and the numbers $3^{2j-1} \pm 3^j + 1$ are Eisenstein Mersenne norms. They are interesting, for example, because they occur as the size of certain elliptic curves over finite fields. Their special form facilitates an easy proof that they are prime. In April, 2014, Batalov found the prime Gaussian Mersenne norm $2^{4792057} - 2^{2396029} + 1$. Also in 2014, he found the prime Eisenstein Mersenne norm $3^{2237561} + 3^{1118781} + 1$. Both primes have more than 10^6 digits. These numbers are currently the forty-first and sixty-sixth largest known primes.

See the URL http://homes.cerias.purdue.edu/˜ssw/cun/index.html for the online Cunningham book. The full text is available as an ebook at: http://www.ams.org/publications/ebooks/ebooks .

Please send me any address changes.

Keep the factors coming!

Sam Wagstaff