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Four “Most” and eight “More Wanted” numbers were factored on Page 82. From the wanted lists mailed with Update 2.C in August, 1998, Bob Silverman and CWI factored the “Most Wanted” numbers 2,587+ and 5,251+, and CWI factored the “Most Wanted” numbers 2,1186L and 2,1198L. From the wanted lists mailed with Update 2.D in May, 1999, Bob Silverman and CWI factored the “Most Wanted” number 5,257+, and NFSNET’ factored the “Most Wanted” number 2,617–. CWI factored the “More Wanted” numbers 7,211–, 11,172+ and 6,227+. NFSNET’ factored the “More Wanted” number 2,619–. All of the ten factorizations mentioned so far were done with the Number Field Sieve. The Elliptic Curve Method was used by T. Granlund of ECMNET to factor the “More Wanted” number 2,628+. The ECM left a C101 cofactor which Granlund finished with the general NFS. Granlund also factored the “More Wanted” number 2,1214L with ECM.

New wanted lists are enclosed on the Champions page.

Tables 3±, 5–, 6±, 7±, 11± and 12± have been completed up to the second edition limit. The 5+ table was added to this list on Page 82. Only five numbers remain from the higher base tables in the second edition. They include one and four numbers from Tables 10– and 10+, respectively.

CWI means Henk Boender, Stefania Cavallar, Walter Lioen, Peter Montgomery, Herman te Riele and Dik Winter at the Centrum voor Wiskunde en Informatica in Amsterdam. ECMNET means Paul Zimmermann, Torbjörn Granlund, Michel Quercia, Witold Grabysz, Vilmar Trevisan and many helpers who use Granlund’s GMP-ECM program. The Cabal includes Karen Aardal, Stefania Cavallar, Bruce Dodson, Jeff Gilchrist, Arjen Lenstra, Paul Leyland, Walter Lioen, Joel Marchand, Peter Montgomery, François Morain, Alec Muffett, Brian Murphy, Chris Putnam, Craig Putnam, Herman teRiele and Paul Zimmermann. NFSNET’ means CWI, Bob Silverman, Peter Montgomery, Alex Kruppa, Don Leclair, Ernst Mayer and the volunteer sievers Pierre Abbat, Ricardo Aguilera, Brian Briggs, Gary Clayton, David Crandell, Conrad Curry, Kelly Hall, Philip Heede, Jim Howell, Skip Key, Alex Kruppa, Samuli Larvala, Don Leclair, Ernst Mayer, Thomas Noekleby, Henrik Oluf Olsen, Marcio de Moraes Palmeira, Guillermo Ballester Valor and Paulo Vargas.

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 86-digit penultimate factor of 5,257+ by Bob Silverman and CWI set a new record (second place) for penultimate prime factor of a Cunningham number. A list of recent champions and the first holes in each table is given on another sheet.

The first holes done on Page 82 are in # 4349, # 4351, # 4357, # 4367, # 4369, # 4373, # 4375, # 4377, # 4389, # 4392, and # 4402. The second holes done on Page 82 are in # 4374, # 4378, and # 4383. The third holes done on Page 82 are in # 4368, # 4386, and # 4401. The fourth holes done on Page 82 are in # 4366 and # 4387. The only fifth hole done on Page 82 is in # 4348.

The smallest new factor reported on Page 82 has 29 digits. See # 4363. The largest number factored on Page 82 has 305 digits. See # 4381.

Nine factors $k \cdot 2^n + 1$ of Fermat numbers F_m were discovered since Update 2.D. They are listed on the champions page. See the URL <http://vamri.xray.ufl.edu/proths/fermat.html> for Wilfrid Keller’s list of all known Fermat factors.

Hajratwala, Woltman, Kurowski and GIMPS discovered the new Mersenne prime $2^{6972593} - 1$. See the URL <http://www.utm.edu/research/primes/largest.html> for Chris Caldwell’s list of all of the largest known Mersenne primes.

If your address changes, please tell me.

Keep the factors coming!

Sam Wagstaff