Department of Computer Sciences
Purdue University
West Lafayette, IN 47907
July 23, 1998

Many "Wanted" numbers were factored on Page 79. From the wanted lists mailed with Update 2.B in February, the group CWI factored the "Most Wanted" numbers 7,208+ and 10,173− with the Number Field Sieve and 2,589− with the Elliptic Curve Method. The group CWI factored the "More Wanted" number 2,1118L by NFS and the "More Wanted" number 3,358+ by ECM. Paul Zimmermann of ECMNET factored the "More Wanted" numbers 2,589+, 2,1154M and 5,248+ by ECM. CWI found a factor of the "More Wanted" number 2,1186M by ECM, leaving a c110 cofactor. Zimmermann factored the latter, also by ECM. Torbjörn Granlund factored the "More Wanted" number 10,199+ by ECM.

New wanted lists appear on the Champions page. Note that the first holes 2,1138L and 5,242+ are missing from these lists because their factorizations are in progress. Note also that the "More Wanted" number 7,211+ has been partially factored on Page 80.

On Page 79, Table 7+ joined Tables 3−, 5−, 6±, 7−, 11± and 12± in being completed up to the second edition limit.

CWI means Henk Boender, Stefania Cavallar, Marije Elkenbracht-Huizing, 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.

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 46-digit factor of 2,589−, found by CWI with P. Montgomery's FFT ECM program, was briefly the second largest ECM Cunningham factor found. Then P. Zimmermann found a 49-digit factor of 2,1071+, setting a new record for factoring a Cunningham number by ECM. The 75-digit penultimate factor of 2,1118L found by CWI is almost as large as the 75-digit penultimate factor of 12,167+. A list of recent champions and the first holes in each table is given on another sheet.

Tables 3−, 5+, 7+ and 11+ were extended in May to insure that every table has at least five holes.

The first holes done on Page 79 are in # 4178, # 4179, # 4188, # 4192, # 4197, # 4200, # 4211, # 4218, # 4219 and # 4228. The second holes done on Page 79 are in # 4184, # 4185, # 4194 and # 4203. The only third hole done on Page 79 is in # 4176. The fourth holes done on Page 79 are in # 4171, # 4174, # 4189, # 4193, # 4202, # 4207 and # 4221. The fifth holes done on Page 79 are in # 4191 and # 4201.

The smallest new factor reported on Page 79 has 29 digits. See # 4195. The largest number factored on Page 79 has 329 digits. See # 4216.

In May, Tadashi Taura reported these new Fermat factors to me: $5940341195 \cdot 2^{79} + 1$ divides F_{77}, $21341 \cdot 2^{5323} + 1$ divides F_{5320}, $1211 \cdot 2^{9551} + 1$ divides F_{9549} and $1173 \cdot 2^{14254} + 1$ divides F_{14252}.

If your address changes, please tell me.

Keep the factors coming!

Sam Wagstaff