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To: hash-function@nist.gov
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Subject: OFFICIAL COMMENT: CubeHash

At the First SHA-3 Candidate Conference, NIST asked whether submissions would be secure if they were tuned to be as fast as SHA-2 on the NIST reference platform, a Core 2 Duo.

My original recommendations for CubeHash parameters weighted security much more highly than speed. In light of NIST's comments I have written a document "CubeHash parameter tweak: 16 times faster" issuing new recommendations for the CubeHash parameters, reaching speeds between 11.47 cycles/byte and 14.07 cycles/byte on various Core 2 Duo CPUs in both 32-bit mode and 64-bit mode:

<http://cubehash.cr.yp.to/submission/tweak.pdf>

The CubeHash algorithm itself is unchanged, and cryptanalysts are faced with the same spectrum of reduced-security targets as challenges. If CubeHash is allowed into the second round then I would like this tweak to be considered as part of the submission.

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