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Journal Name:	<u>British Journal of Mathematics & Computer Science</u>
Manuscript Number:	Ms_BJMCS_19903
Title of the Manuscript:	Computational Algorithms for Syndrome Based Single Error Correction in Residue Number Systems
Type of the Article	Original Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	After reading the manuscript, the following comments should be revised. 1. The main contribution lies in the computational algorithms for syndrome computation in SEC-RNS is proposed. Therefore, the computational complexity should be analyzed or compared for demonstrating the advantages of the proposed method. 2. Several algorithms are proposed in the manuscript, a scenario for these differences is required to clearly indicate the merits of the paper. 3. Because (22) is the main computational algorithm of the proposed manuscript, the equivalence of this equation should be further analyzed. 4. Line 424: What is the definition of $(Mk)^{-1}$? 5. Why the proposed algorithm in Section 4 for SEC-MED in RRNS is superfast? What is the quantitative measure?	The author has the following reply to these comments: 1. The main advantage of the algorithms described here lies in the use of a single syndrome (Line 214) instead of multiple syndromes used previously. So if previously the algorithms used $(n-k)$ syndromes now they only use 1. This reduces the computational complexity by a factor of $1/(n-k)$. However This is achieved at the expense of an increase in the size of the syndrome integer. I also would like to bring Lines 92-99 to the reviewer's attention in this regard. 2. Each of the algorithms is useful depending on the error control technique used. Algorithms in Section 3.1 deal with Single Error Correction (SEC) in Redundant Residue Number Systems (RRNS) while algorithm in Section 3.2 deals with simultaneous SEC and MED (Multiple Error Correction) in RRNS. Algorithm in Section 4 uses an additional redundant moduli to simplify the computations in SEC-MED algorithm for RRNS.



SDI Review Form 1.6

		3. This is really the crux of the matter. We are saying that instead of computing $(n-k)$ separate syndrome values, compute just one that is equivalent to computing the $(n-k)$ separate syndrome values. However the error control algorithms must also be amended accordingly. Further the superfast algorithm in Section 4 for SEC-MED in RRNS is a first as reported here. The earlier work dealt only with SEC. 4. $(M_K)^{-1}$ is defined mod M_R in line 424. Thus it is multiplicative inverse of M_K mod M_R. For example, If $M_K = 2$ & $M_R = 5$ then $(M_K)^{-1} = 3$ as $2 \cdot 3 \bmod 5 = 1$. 5. We have called it superfast as it avoids computation of large integer $\tilde{Y}$ in Line 702 using conventional expression for Chinese Remainder Theorem. Instead it uses a simplified version to compute $\hat{Y}$ in Line 707.
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		