# Pre-Encoded Multipliers Based on Non-Redundant Radix-4 Signed-Digit Encoding

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# Abstract:

In this paper, we introduce an architecture of pre-encoded multipliers for digital signal processing applications based on off-line encoding of coefficients. To this extend, the Non-Redundant radix-4 Signed-Digit (NR4SD) encoding technique, which uses the digit values , is proposed leading to a multiplier design with less complex partial products implementation. Extensive experimental analysis verifies that the proposed pre-encoded NR4SD multipliers, including the coefficients memory, are more area and power efficient than the conventional Modified Booth scheme.

**Tools used:**

**Xilinx 13.2**