Table 1. Area and Delay of SPFPM KA with Vedic using FA and Multiplexers (existing and proposed)

|  |  |  |  |
| --- | --- | --- | --- |
| **Single Precision Floating Point Multiplication** | **No.of 4-input LUTs** | **No.of Slices** | **Delay (ns)** |
|   Karatsuba AlgorithmWith Vedic using Mux/ FA | Modified 2 2x1 MUX | 839 | 477 | 34.57 |
| Modified 1 2x1 MUX | 854 | 483 | 55.32 |
| 4x1 MUX (existing) | 819 | 465 | 55.86 |
| Full-Adder (existing) | 840 | 476 | 54.27 |

Table 2. Area and Delay of SPFPM using Compressors

|  |  |  |  |
| --- | --- | --- | --- |
| Single Precision Floating Point Multiplication | No.of 4-input LUTs | No.of Slices | Delay (ns) |
| Karatsuba Algorithm using Vedic with 3:2 and 4:2 compressors | 3:2 compressor using XOR-MUX (existing) |  919 | 497 | 56.99 |
| 3:2 compressor using XOR-XNOR-MUX (existing) | 955 | 540 | 56.98 |
| 4:2 compressor using XOR-MUX (proposed) | 630 | 322 | 16.85 |
| 4:2 compressor using XOR-XNOR-MUX (proposed)  | 642 | 364 | 18.61 |
| Conventional 4:2 (existing) | 677 | 342 | 23.34 |

Table 3. Area and Delay comparison of SP-Floating Point Multiplier with KA using proposed models

|  |  |  |  |
| --- | --- | --- | --- |
| Single Precision Floating Point Multiplication | No.of 4-input LUTs | No.of Slices | Delay (ns) |
| KA with Modified 2 2x1 Mux |  839 | 477 | 34.57 |
| KA with 4:2 compressor with XOR-MUX logic | 630 | 322 | 16.85 |
| KA with 4:2 Compressor with XNOR-MUX logic | 642 | 364 | 18.61 |
| Ref [7] | 1073 | 977 | 16.18 |
|  Jain[20] |  2270 |  1269 |  18.78 |