$ac \cdot 10^n + [(a+b)(c+d) - (ac+bd)] \cdot 10^{\frac{n}{2}} + bd$

$3157624897154208 \cdot 1342796457403786$

$n = 16$

$a = 31576248, b = 97154208, c = 13427964, d = 57403786$

Calculate ac

$n = 8$

$ac = 31576248 \cdot 13427964$

$e = 3157, f = 6248, g = 1342, h = 7964$

$eg = 3157 \cdot 1342 = 4236694$

$fh = 6248 \cdot 7964 = 49759072$

$(e+f)(g+h) = (9405)(9306) = 87522930$

$eg + fh = 4236694 + 49759072 = 53995766$

$(e+f)(g+h) - (eg+fh) = 87522930 - 53995766 = 33527164$

$ac = 4236694 \cdot 10^8 + 33527164 \cdot 10^4 + 49759072 = 424004721399072$

Calculate bd

$n = 8$

$bd = 97154208 \cdot 57403786$

$i = 9715, j = 4208, k = 5740, l = 3786$

$ik = 9715 \cdot 5740 = 55764100$

$jl = 4208 \cdot 3786 = 15931488$

$(i+j)(k+l) = (13923)(9526) = 132630498$

$ik + jl = 55764100 + 15931488 = 71695588$

$(i+j)(k+l) - (ik+jl) = 132630498 - 71695588 = 60934910$

$bd = 55764100 \cdot 10^8 + 60934910 \cdot 10^4 + 15931488 = 5577019365031488$

Calculate $(\boldsymbol{a+b})(\boldsymbol{c+d})-(\boldsymbol{ac+bd})$

$n = 8$

$(a+b)(c+d) = (31576248 + 97154208)(13427964 + 57403786) = (128730456)(70831750)$

$m = 12873, n = 0456, o = 7083, p = 1750$

$mo = (12873)(7083) = 91179459$

$np = (0456)(1750) = 798000$

$(m+n)(o+p) = (13329)(8833) = 117735057$

$mo + np = 91179459 + 798000 = 91977459$

$(m+n)(o+p) - (mo+np) = 117735057 - 91977459 = 25757598$

$(a+b)(c+d) = 91179459 \cdot 10^8 + 25757598 \cdot 10^4 + 798000 = 9118203476778000$

$ac + bd = 424004721399072 + 5577019365031488 = 6001024086430560$

$(a+b)(c+d) - (ac+bd) = 9118203476778000 - 6001024086430560 = 3117179390347440$

Calculate Final Answer

$n = 16$

$ac \cdot 10^{16} + [(a+b)(c+d) - (ac+bd)] \cdot 10^8 + bd$

$= 424004721399072 \cdot 10^{16} + 3117179390347440 \cdot 10^8 + 5577019365031488$

$= 424004752570966461176336503 1488$