```
void internal_reduction(int64_t *rop, int128 *op){

    uint64_t tmp_q[NB_COEFF];
    int128 tmp_zero[NB_COEFF];

    //~ computation of : op*neg_inv_ri_rep_coeff mod((X^n - c), mont_phi)
    tmp_q[0] = ((uint64_t)op[0] * 1440473124826664458 5UL) + ((((uint64_t)op[1] * 3286953480751773897UL) + ((uint64_t)op[2] * 540855710133117 1271UL) + ((uint64_t)op[3] * 6945810801382881972UL)) * 5);
    tmp_q[1] = ((uint64_t)op[0] * 6945810801382881972UL) + ((uint64_t)op[1] * 1440473124826664458 5UL) + ((((uint64_t)op[2] * 3286953480751773897UL) + ((uint64_t)op[3] * 540855710133117 1271UL)) * 5);
    tmp_q[2] = ((uint64_t)op[0] * 540855710133117 1271UL) + ((uint64_t)op[1] * 6945810801382881972UL) + ((uint64_t)op[2] * 1440473124826664458 5UL) + ((uint64_t)op[3] * 1643476740375886948 5UL);
    tmp_q[3] = ((uint64_t)op[0] * 3286953480751773897UL) + ((uint64_t)op[1] * 540855710133117 1271UL) + ((uint64_t)op[2] * 6945810801382881972UL) + ((uint64_t)op[3] * 1440473124826664458 5UL);

    //~ computation of : tmp_q*red_int_coeff mod(X^n - c)
    tmp_zero[0] = ((int128)tmp_q[0] * 128659502648371L) + ((((int128)tmp_q[1] * 954771519740 86L) + ((int128)tmp_q[2] * 955977583076 49L) + ((int128)tmp_q[3] * 999927871387 17L)) * 5);
    tmp_zero[1] = ((int128)tmp_q[0] * 999927871387 17L) + ((int128)tmp_q[1] * 128659502648371L) + ((((int128)tmp_q[2] * 954771519740 86L) + ((int128)tmp_q[3] * 955977583076 49L)) * 5);
    tmp_zero[2] = ((int128)tmp_q[0] * 955977583076 49L) + ((int128)tmp_q[1] * 999927871387 17L) + ((int128)tmp_q[2] * 128659502648371L) + ((int128)tmp_q[3] * 4773857598704 30L);
    tmp_zero[3] = ((int128)tmp_q[0] * 954771519740 86L) + ((int128)tmp_q[1] * 955977583076 49L) + ((int128)tmp_q[2] * 999927871387 17L) + ((int128)tmp_q[3] * 128659502648371L);

    //~ computation of : (op + tmp_zero)/mont_phi
    rop[0] = (op[0] + tmp_zero[0]) >> WORD_SIZE;
    rop[1] = (op[1] + tmp_zero[1]) >> WORD_SIZE;
    rop[2] = (op[2] + tmp_zero[2]) >> WORD_SIZE;
    rop[3] = (op[3] + tmp_zero[3]) >> WORD_SIZE;
}
```