```
void guessp_16(__m512 dl, __m512 ul, __m512 pl, __m512 cl,
               __m512 dr, __m512 ur, __m512 pr, __m512 cr,
               __m512 *pm)
{
    __m512 two, half, cup, ppv, pmin, pmax, qmax, pq, um, ptl, ptr, gel, ger, pqcr;
    __mmask16 cond_pvrs, cond_ppv, ncond_ppv;

    two = SET1(2.0);
    half = SET1(0.5);
    cup = MUL(SET1(0.25), MUL(ADD(dl, dr), ADD(cl, cr)));
    ppv = MUL(half, FMADD(SUB(ul, ur), cup, ADD(pl, pr)));
    ppv = MAX(ppv, z);
    pmin = MIN(pl, pr);
    pmax = MAX(pl, pr);
    qmax = DIV(pmax, pmin);

    // Conditions.
    cond_pvrs = CMP(qmax, two, _MM_CMPINT_LE)
              && CMP(pmin, ppv, _MM_CMPINT_LE)
              && CMP(ppv, pmax, _MM_CMPINT_LE);
    cond_ppv = _mm512_mask_cmp_ps_mask(~cond_pvrs, ppv, pmin, _MM_CMPINT_LT);
    ncond_ppv = ~cond_pvrs & ~cond_ppv;

    // The first branch.
    *pm = _mm512_mask_mov_ps(*pm, cond_pvrs, ppv);

    // The second branch.
    if (cond_ppv != 0x0)
    {
        pq = _mm512_mask_pow_ps(z, cond_ppv,
                                _mm512_mask_div_ps(z, cond_ppv, pl, pr), g1);
        pqcr = MUL(pq, cr);
        um = _mm512_mask_div_ps(z, cond_ppv,
                                FMADD(FMADD(SUB(pqcr, cr), g4, ur), cl, MUL(pqcr, ul)),
                                ADD(pqcr, cl));
        ptl = FMADD(_mm512_mask_div_ps(z, cond_ppv, SUB(ul, um), cl), g7, one);
        ptr = FMADD(_mm512_mask_div_ps(z, cond_ppv, SUB(um, ur), cr), g7, one);
        *pm = _mm512_mask_mul_ps(*pm, cond_ppv, half,
                                 ADD(_mm512_mask_pow_ps(z, cond_ppv, MUL(pl, ptl), g3),
                                     _mm512_mask_pow_ps(z, cond_ppv, MUL(pr, ptr), g3)));
    }

    // The third branch.
    if (ncond_ppv != 0x0)
    {
        gel = SQRT(_mm512_mask_div_ps(z, ncond_ppv, g5, MUL(FMADD(g6, pl, ppv), dl)));
        ger = SQRT(_mm512_mask_div_ps(z, ncond_ppv, g5, MUL(FMADD(g6, pr, ppv), dr)));
        *pm = _mm512_mask_div_ps(*pm, ncond_ppv,
                                 FMADD(gel, pl, FMADD(ger, pr, SUB(ul, ur))),
                                 ADD(gel, ger));
    }
}
```