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N = 166 = 2*83

By the Ibukiyama-Kitayama dimension formula,
 dim(S_4(K(166))) = 75

By the Skoruppa-Zagier dimension formula and Jacobi restriction,
 the lift dimension of S_4(K(166))^+ is 29
 the nonlift dimension of S_4(K(166))^+ is heuristically 40
 dim(S_4(K(166))^+) thus is heuristically 69
 dim(S_4(K(166))^-) is heuristically 6

dim(J_{2,166}^{cusp}) = 2 (Skoruppa-Zagier), so need to span to within 1 dimension

q = 7 for TraceDown
After TD(Grit(J_{4,1162}^{cusp})) and (Grit(J_{2,166}^{cusp}))^2,
 spanned rank in S_4(K(166))^+ is 68
 spanned rank in S_4(K(166))^- is 0

Hecke operators applied: {{{2, 2}}, {{2, 2}, {2, 1}}}
After Hecke spreading,
 spanned rank in S_4(K(166))^- is 4

After Borcherds products,
 spanned rank in S_4(K(166))^- is 6

Final spanned rank in S_4(K(166))^+ is 68
Final spanned rank in S_4(K(166))^- is 6

--------------------------------------------------------------------------------

S_2(K(166))^+ is determined by Jacobi restriction and the H4Nd1(2,+) test
 (dim(H_4(166,2,1)^+) <= 2 and this is less than dim(J_{2,166}^{cusp})+1 = 3)
S_2(K(166))^- = 0 by Jacobi restriction and the H4Nd1(1,-) test
 (dim(H_4(166,1,1)^-) <= 1 and this is less than dim(J_{2,166}^{cusp}) = 2)

So S_2(K(166)) = Grit(J_{2,166}^{cusp}) (dimension 2)
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