

$$N = 201 = 3 \cdot 67$$

By the Ibukiyama-Kitayama dimension formula,
 $\dim(S_4(K(201))) = 97$

By the Skoruppa-Zagier dimension formula and Jacobi restriction,
the lift dimension of $S_4(K(201))^+$ is 37
the nonlift dimension of $S_4(K(201))^+$ is heuristically 54
 $\dim(S_4(K(201))^+)$ thus is heuristically 91
 $\dim(S_4(K(201))^-)$ is heuristically 6

The heuristic dimensions are correct by the spanning results to follow

$\dim(J_{\{2,201\}}^{\{\text{cusp}\}}) = 5$ (Skoruppa-Zagier), so need to span to within 4 dimensions

$q = 5$ for TraceDown

After TD($\text{Grit}(J_{\{4,1005\}}^{\{\text{cusp}\}})$) and $(\text{Grit}(J_{\{2,201\}}^{\{\text{cusp}\}}))^2$,
spanned rank in $S_4(K(201))^+$ is 91
spanned rank in $S_4(K(201))^-$ is 0

Hecke operators applied: $\{\{3, 2\}\}$

After Hecke spreading,
spanned rank in $S_4(K(201))^-$ is 4

After Borcherds products,
spanned rank in $S_4(K(201))^-$ is 6

Final spanned rank in $S_4(K(201))^+$ is 91

Final spanned rank in $S_4(K(201))^-$ is 6

$S_2(K(201))$ is determined by Jacobi restriction and the $H4Ndd(2,+)$ test
($H_4(201,2,2)^+ = 0$)

So $S_2(K(201)) = \text{Grit}(J_{\{2,201\}}^{\{\text{cusp}\}})$ (dimension 5)