

$N = 183 = 3 \cdot 61$

By the Ibukiyama-Kitayama dimension formula,
 $\dim(S_4(K(183))) = 80$

By the Skoruppa-Zagier dimension formula and Jacobi restriction,
the lift dimension of $S_4(K(183))^+$ is 32
the nonlift dimension of $S_4(K(183))^+$ is heuristically 38
 $\dim(S_4(K(183))^+)$ thus is heuristically 70
 $\dim(S_4(K(183))^-)$ is heuristically 10

The heuristic dimensions are correct by the spanning results to follow

$\dim(J_{\{2,183\}}^{\{\text{cusp}\}}) = 3$ (Skoruppa-Zagier), so need to span to within 2 dimensions

$q = 5$ for TraceDown

After TD($\text{Grit}(J_{\{4,915\}}^{\{\text{cusp}\}})$) and $(\text{Grit}(J_{\{2,183\}}^{\{\text{cusp}\}}))^2$,
spanned rank in $S_4(K(183))^+$ is 70
spanned rank in $S_4(K(183))^-$ is 0

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

After Hecke spreading,
spanned rank in $S_4(K(183))^-$ is 5

After Borcherds products,
spanned rank in $S_4(K(183))^-$ is 10

Final spanned rank in $S_4(K(183))^+$ is 70

Final spanned rank in $S_4(K(183))^-$ is 10

$S_2(K(183))$ is determined by Jacobi restriction and the $H4Ndd(2,+)$ test
 $(H_4(183,2,2))^+ = 0$

So $S_2(K(183)) = \text{Grit}(J_{\{2,183\}}^{\{\text{cusp}\}})$ (dimension 3)