$$
H_{32} \quad = \quad \left[\begin{array}{cccccccc}
-2\,h-6\,\mu+U & t & \sqrt{2}\,t & 0 & 0 & 0 & 0 & 0 \\
t & -2\,h-6\,\mu+U & 0 & t & 0 & 0 & 2\,t & -t \\
\sqrt{2}\,t & 0 & -2\,h-6\,\mu+2\,U & 0 & 0 & 0 & -\left(\sqrt{2}\,t\right) & \sqrt{2}\,t \\
0 & t & 0 & -2\,h-6\,\mu+2\,U & -2\,t & -\left(\sqrt{2}\,t\right) & 0 & 0 \\
0 & 0 & 0 & -2\,t & -2\,h-6\,\mu+2\,U & 0 & 0 & 2\,t \\
0 & 0 & 0 & -\left(\sqrt{2}\,t\right) & 0 & -2\,h-6\,\mu+2\,U & -\left(\sqrt{2}\,t\right) & 0 \\
0 & 2\,t & -\left(\sqrt{2}\,t\right) & 0 & 0 & -\left(\sqrt{2}\,t\right) & -2\,h-6\,\mu+U & 0 \\
0 & -t & \sqrt{2}\,t & 0 & 2\,t & 0 & 0 & -2\,h-6\,\mu+U
\end{array} \right]
$$