$$H_{128} = \begin{bmatrix} 2\,h-6\,\mu+U & t & \sqrt{3}\,t & 0 & 0 & 0 & 0 & -t \\ t & 2\,h-6\,\mu+U & 0 & -2\,t & -2\,t & 0 & 0 & 0 \\ \sqrt{3}\,t & 0 & 2\,h-6\,\mu+2\,U & -\left(\sqrt{3}\,t\right) & 0 & 0 & t & 0 \\ 0 & -2\,t & -\left(\sqrt{3}\,t\right) & 2\,h-6\,\mu+2\,U & 0 & t & 0 & -2\,t \\ 0 & -2\,t & 0 & 0 & 2\,h-6\,\mu & 0 & 0 & 0 \\ 0 & 0 & 0 & t & 0 & 2\,h-6\,\mu+U & -\left(\sqrt{3}\,t\right) & 0 \\ 0 & 0 & t & 0 & 0 & -\left(\sqrt{3}\,t\right) & 2\,h-6\,\mu+2\,U & 0 \\ -t & 0 & 0 & -2\,t & 0 & 0 & 0 & 2\,h-6\,\mu+U \end{bmatrix}$$