Competitive performance of Kenyan food processing small and medium enterprises (SMEs) is important for ensuring that they effectively stabilize agricultural production, create jobs and reduce poverty as the government expects of them. Analysis and establishment of the determinants of their competitive performance would facilitate the provision of cost effective support for making them fulfill their expected roles. Reviewed literature widely cited that formal education and training, enterprise training, inter-firm, linkages/collaborations and policy framework affect competitive performance of SMEs. This study explored the extent to which these factors affected the competitive performance of food processing SMEs selected from three food processing sub-sectors in Nairobi Province. The selected sub-sectors were the horticulture, the dairy and the milling respectively. The study operationalized formal education and training, enterprise training, SMEs linkages and policy framework as independent variables and SMEs competitive performance as the dependent variable. Weak competitive stand of Kenyan food processing SMEs was evidenced from observed rivalry these SMEs face from cheap imported products from regional markets. The study used qualitative and explorative techniques to collect and analyze data from 30 SMEs selected from the already stated food processing sub-sectors. Four hypotheses were tested to verify if (formal education and training, enterprise training, SMEs linkages and policy framework) were significant determinants of competitive performance of SMEs. Multiple regression analysis facilitated the presentation of significant relationships between independent variables and the dependent variable collectively and individually. Descriptive statistics were used to present the results and discussion of the analysis. Estimate results of $R^2 = 72.7\%$ and adjusted value of $R^2 = 68.3\%$ indicated that all the independent variables tested were significant determinants of competitive performance of food processing SMEs. The four null hypotheses were rejected and the alternative hypotheses accepted. The t-test was used to establish the magnitude of relationship between individual independent variables and the dependent variable. The study found that formal education and training arc essential for providing basic skills and competencies. Enterprise training is important for quality production but Kenya has many business development services that lack coordination and hence most processing skills are learned through on-the-job training with challenges of standardized quality. The SMEs had limited linkages and collaborations hence limited overall volume turnover. It was further found that imported technologies used lowered the profit margins due to increased unit cost of production. There was lack of sector specific policies to address specific and special needs of food processing SMEs. It was concluded that since all the investigated independent variables were significant determinants of food processing SMEs competitive performance, future interventions should strengthen them with focus on SMEs sector. Future research should use larger samples and explore more variables as means of verification of the findings.