The objective of this study is to estimate genetics parameter of six pepper (Capsicum annuum L.) inbred lines by full diallel crosses. The experiment was conducted from October 2005 to March 2006 at IPB Experiment Field, Cikabayan, Darmaga. Randomized Complete Block Design was used with three replications. Data from F1 generation and parents were analyzed using the Hayman Method. Results indicated that neither epistasis effects was significant for all the traits assessed. Additive genetic effects were larger than dominan effects for yield per plant, fruit length, and fruit diameter traits. Dominant genetic effects were larger than aditif effects for fruit weight traits. Narrow-sense and broad-sense heritabilities were high for all the traits assessed. Employing pedigree breeding should be successful in developing high productivity lines in this population.