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Invention Title	DESIGN SPACE EXPLORATION SYSTEM AND METHOD THEREOF USING ABACTERIAL FORAGING OPTIMIZATION MECHANISM
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Abstract:

An apparatus and method for automatically exploring a design space of an untimed CDFGduring HLS, using a bacterial foraging optimization (BFO) mechanism, for designing or obtaining an application-specific processor (ASP) or Hardware Accelerator or Intellectual Property Core is disclosed. The apparatus comprises of one or more processing unit(s) configured to: initialize bacterium position corresponding to resource configuration, wherein said bacterium are uniformly distributed over said design space;perform a chemotactic movement of said bacterium, by means of a specialized chemotaxis mechanism of said BFO, to enable change in position of bacterium from original or past position to new or present position; anddisperse said new or present position, by means of a specialized dispersal mechanism of said BFO, to explore automatically said design space based on new or present position, if found optimal, obtain said ASP or Hardware Accelerator or Intellectual Property Core.

Complete Specification

DESC:TECHNICAL FIELD

The present subject matter described herein, in general, relates to design space exploration (DSE), and more particularly to method and system for design space exploration in high level synthesis using bacterial foraging optimization mechanism for designing or obtaining an application-specific processor (ASP) or Hardware Accelerator or Intellectual Property Core.

BACKGROUND

The process of high level synthesis (HLS) converts a behavioral description of an application into its register transfer level (RTL) counterpart which involves an automated process to explore a set of alternative candidate architectures of assorted nature but equivalent functionality called ‘design space exploration (DSE). The DSE process includes a number of complicated decision making steps such as simultaneously maximizing the quality of final solution (or solutions) obtained and minimizing the exploration time as well as clinically managing orthogonal metrics such as hardware area and execution time during exploration of pareto-points.

There are various techniques proposed and present in prior-art for the above mentioned process. Using nature (or bio) mimicry techniques such as genetic algorithm (GA) and particle swarm optimization (PSO) to solve the above problem are available in the prior-art, but no prior art uses bacterial foraging optimization algorithm

View Application Status

Department of Industrial Policy and Promotion
Government of India