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Architecture  
Design By  
Constraints

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Afshin Sepehri

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Shahrooz  
Shahparnia

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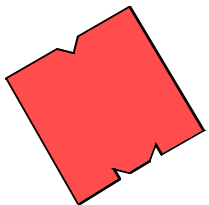
University of  
Maryland

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# Architecture Design By Constraint

**Afshin Sepehri, Shahrooz Shahparnia**

**Electrical and Computer Engineering  
University of Maryland, College Park**



# Problem Definition/Motivation and Solution

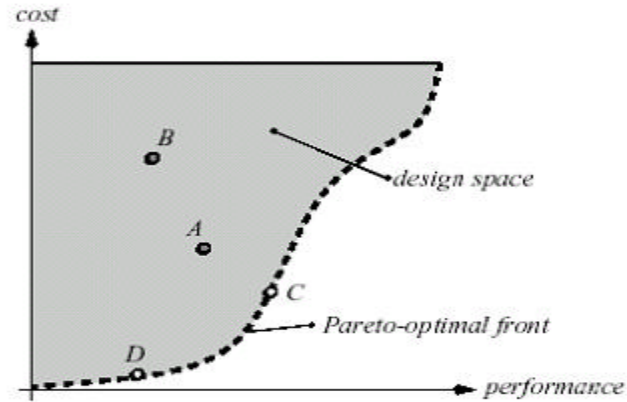
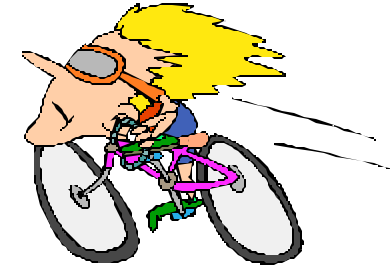
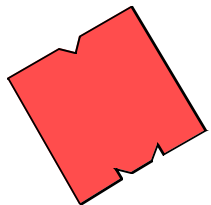
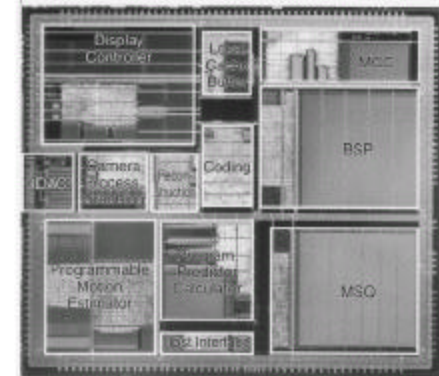
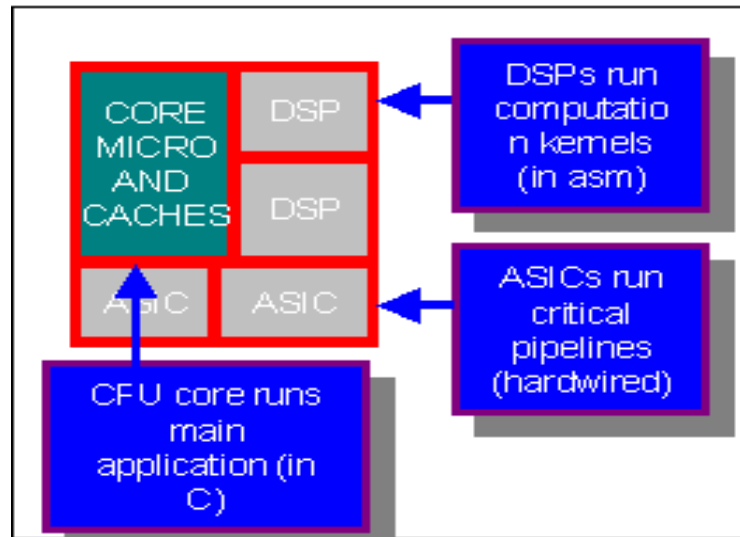


Illustration of the concept of Pareto optimality.

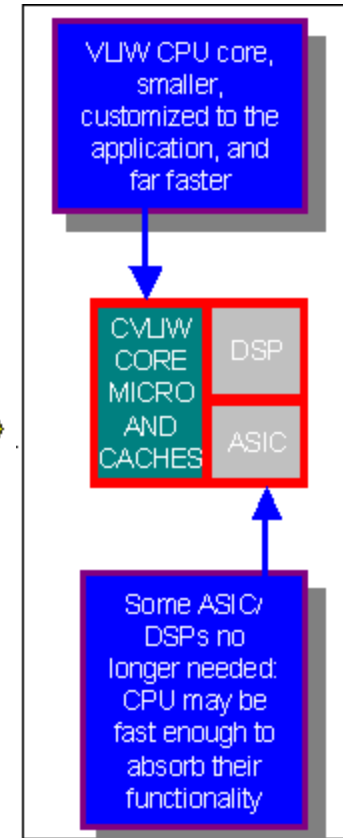


# Applications

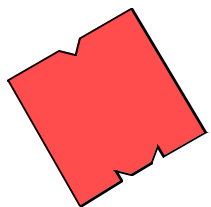
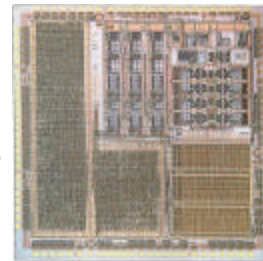
## Systems-On-Chip Today



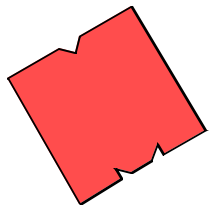
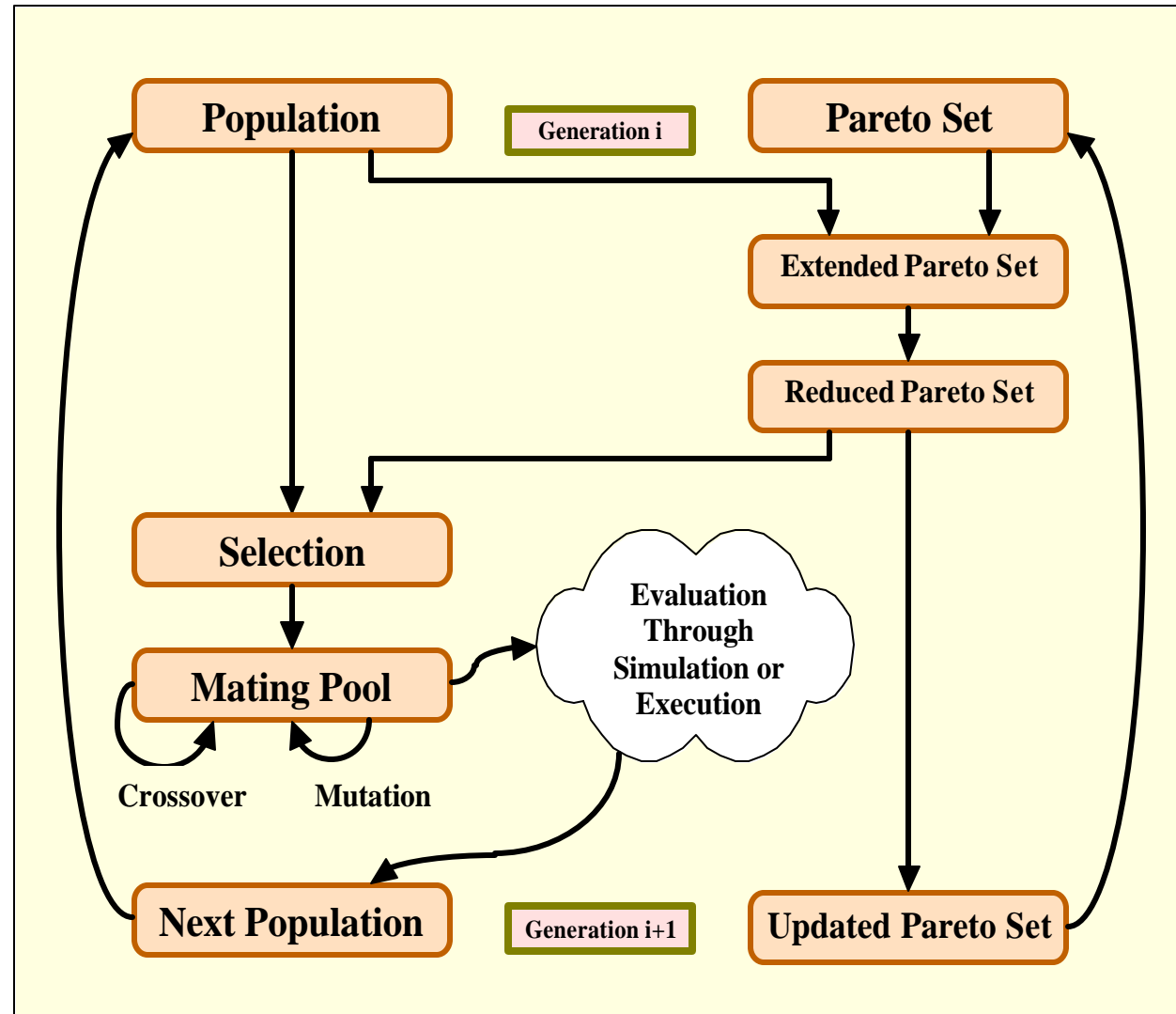
CFP



**Dynamically  
Reconfigurable  
FPGA and  
Processors**



# Search Method and Multi objective Optimization - SPEA



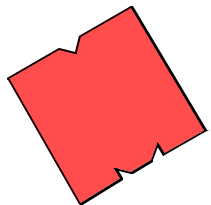
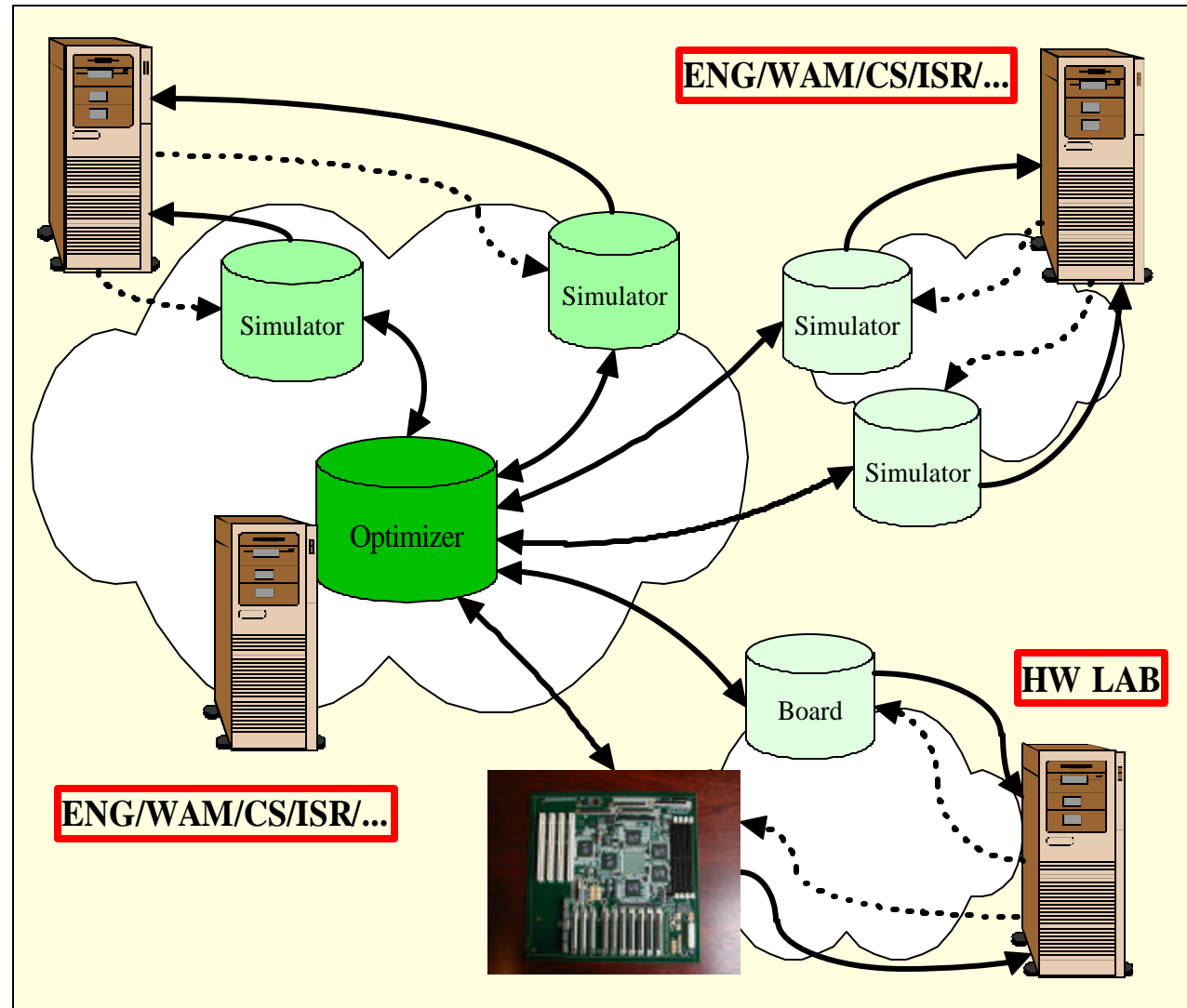
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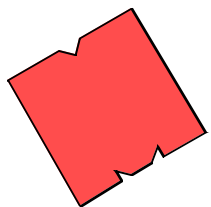
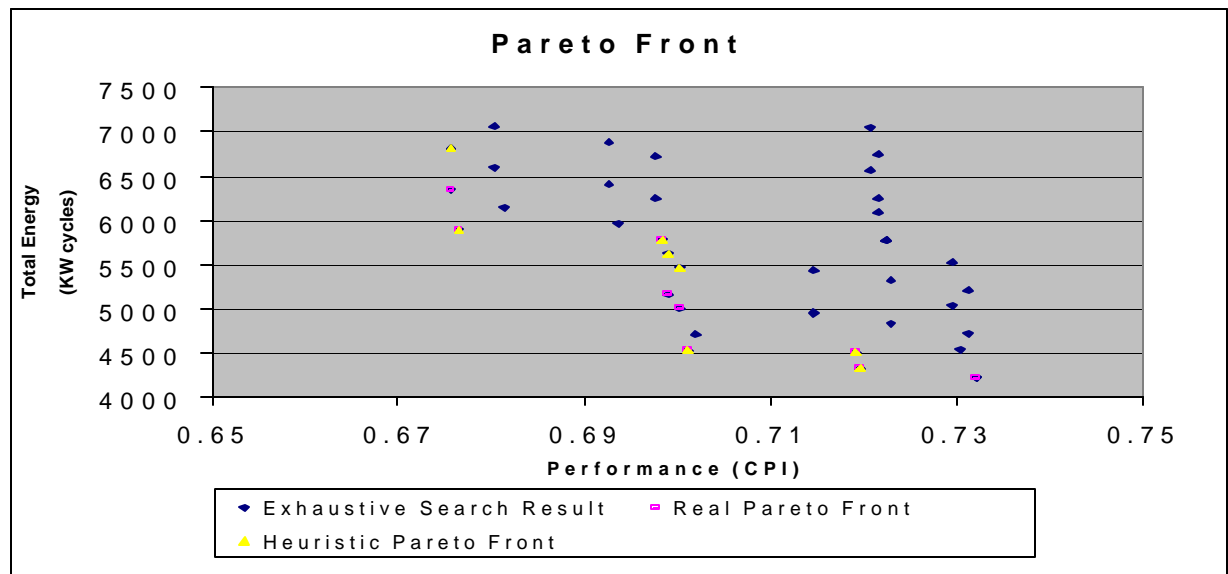
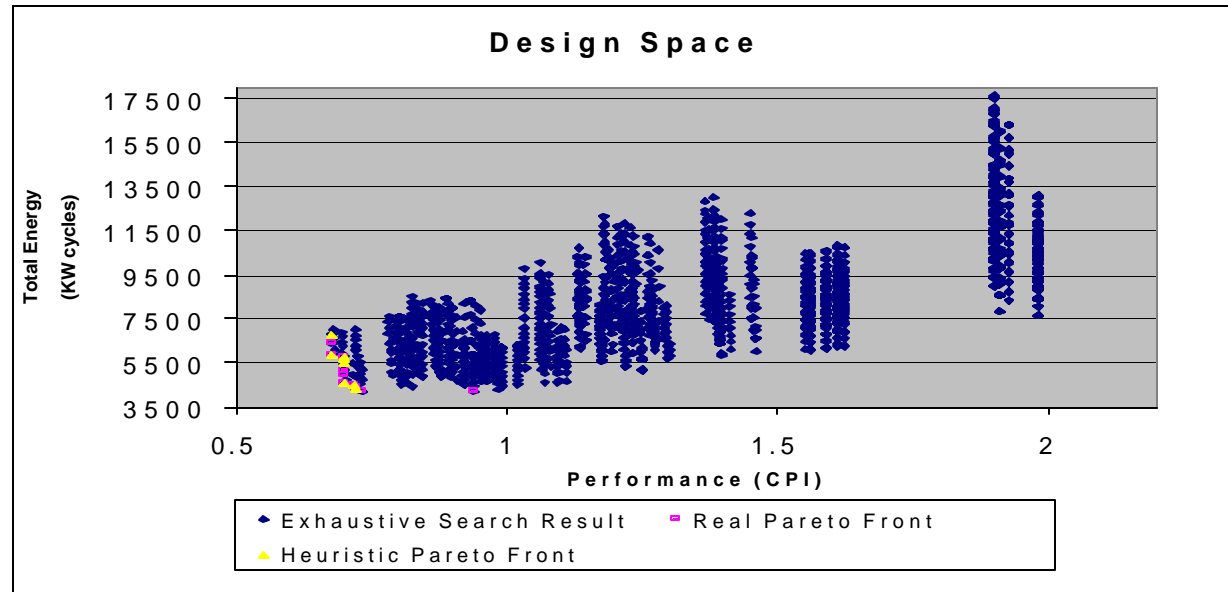
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# Implementation



# Results



## References:

1- Custom Fit Processor,

<http://www.hpl.hp.com/cambridge/projects/cfp/index.htm>

2- Dynamically Reconfigurable Processor,

<http://www.cag.lcs.mit.edu/raw/>

3- SimpleScalar Home Page, <http://www.simplescalar.com>

4- Wattch Home Page, <http://www.ee.princeton.edu/>

5- Timothy J. Stanley, Trevor Mudge, Systematic Objective-driven Computer Architecture Optimization, Advanced Computer Architecture Laboratory, University of Michigan, Ann Arbor

6- Multiobjective Evolutionary Algorithms: A Comparative Case Study and the Strength Pareto Approach, Computer Engineering and Networks Laboratory Swiss Federal Institute of Technology Zurich Gloriastrasse 35, 8092, Zurich, Switzerland

