Organization(s): **EDAptive Computing, Inc.; University of Kansas; and University of Cincinnati**

MTO **Composite CAD**

Title: Systems On a Chip Created using Extended Requirements language (SOCCER)

Duration of Effort: December 1998 - March 2001, (Phase II STTR)

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Objectives:

The primary goal of the SOCCER program is to enable reuse of Intellectual Property (IP) in the mixed-technology electronic systems domain through rapid retrieval of IP based upon parameters or formal specifications.

Major Accomplishments:

To accomplish our objectives, we have developed a unique and commercially viable initial Phase II product and demonstration by researching, developing, adapting, and integrating the following technologies:

- Formal specification language, namely Rosetta, to capture the requirements and intended functions of mixed-technology electronic systems and System-On-Chip (SOC);
- Multi-Tiered specification-based and parameter-based search & retrieval tool suite; and
- Database of analog components for search & retrieval with our tool suite.

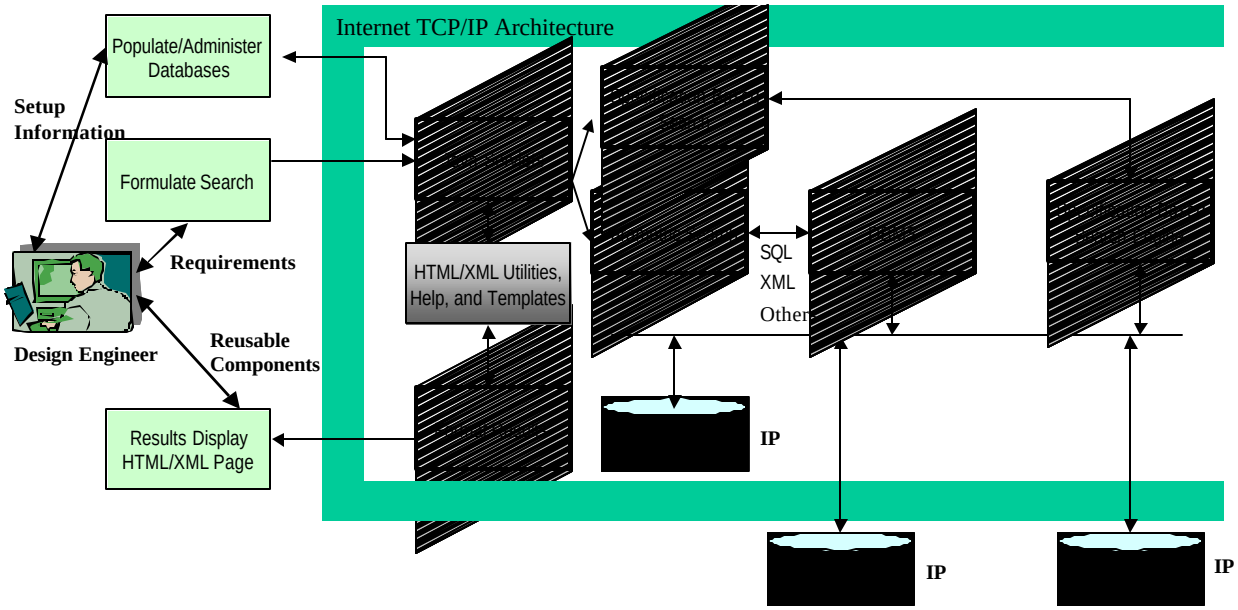
DOD Impact:

- With SOCCER tools, both DoD and commercial mixed-technology system designers will be able to readily specify mixed-technology design requirements, and search for reusable assets within a user-friendly, browser-based environment. The requirements specification language, IP search-and-retrieval capability, and analog database will facilitate many DARPA Composite CAD program requirements.

Technology Transfer/Products:

- As a result of SOCCER research & development, EDAptive has released a commercial product, namely eIPMTM, through its web site (http://www.edaptive.com/products/eIPM/index.htm). eIPMTM is a web server extension that permits IP managers to insert and hierarchically organize information in JDBC compliant database(s) using a web browser interface. Users are then able to use a web browser interface to retrieve relevant information based upon parametric properties or formal specification. Further, eIPMTM permits administrators to add/delete users and their access privileges.
- In addition, EDAptive has customized eIPMTM for a commercial customer to enable intuitive, rapid search & retrieval of ATM components by designers of ATM networks. Further, we formed a partnership with Wind River Systems to create a specification-based retrieval capability in their popular MATRIXx tool suite to enable reuse of existing embedded control software.
- We are continuing to enhance and develop eIPMTM. We are researching its possible use with an RF tool suite and model database to create a virtual test environment for RF engineers. Further, under NASA sponsorship, we are extending its functionality to not only retrieve but adapt found software components to meet the specified requirements, thereby leading to synthesis of software systems through retrieval and adaptation of software components.

Figure 1 –SOCCER Features/Architecture



Key Features

- Browser-based Graphical User Interface
- Parametric and Specification-based Search and Retrieval
- Platform-Independent Design
- Works with most relational databases
- Fast & Accurate search
- Easily Integrates with Third-Party Tool Environments
- Works with heterogeneous and distributed databases
- Ability to save searches between sessions
- Secure authentication system
- Customized viewing of results
- Customized display preferences

Key Benefits

- Enables Design Reuse
- Enables IP Management & Exploitation
- Supports Mixed-Technology Designs
- Facilitates Collaborative Design
- Enables Distributed Design
- Enables Correct-By-Construction Systems
- Supports Architecture-Based Design
- Supports Specification-Based System Synthesis
- Complete IP Management Suite