



Generative User Intent Design of Electronics (GUIDE)

Jim Kuszewski & Dan D'Orlando (PI/PM, NGMS) Jonathan Bachrach & Duncan Haldane (PI, JITX)

THE VALUE OF PERFORMANCE.

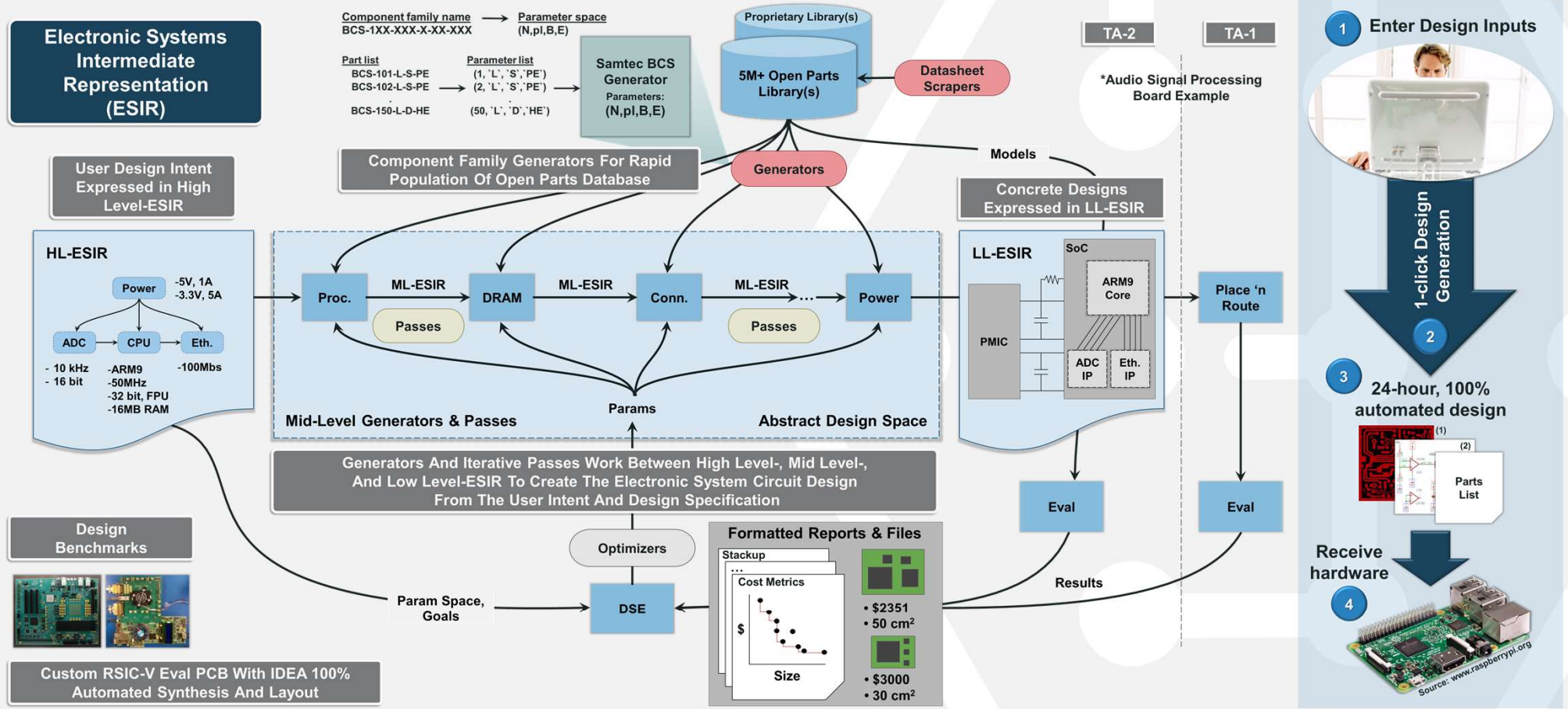
NORTHROP GRUMMAN



Designs Thrust: Intelligent Design of Electronic Assets (IDEA)

Current state of the art circuit design process is too lengthy, costly, and 100% manual, with no real ability for abstraction or reuse. This is not sustainable for highly complex designs.

High impact benefits for DoD include reduced NRE cost and schedule, increased system performance and capability due to customized and optimized electronics, advanced quick react capability, and system composability.



A unified intermediate representation (IR) enables 24-hour intent-driven design using open and modular software, with 100% automated design for SoCs, SiPs, and PCBs.

Innovations include (1) formal, checkable, machine-readable unified data structure (ESIR) (2) flexible type system for COTS library (3) modular generators to translate goals to concrete schematics (4) SWaP+CR optimization framework.

Source: 1) https://scottyspectrumanalyzer.us/slim_PDM.html 2) <https://learn.sparkfun.com>

This research was developed with funding from the Defense Advanced Research Projects Agency (DARPA). The views, opinions and/or findings expressed are those of the author and should not be interpreted as representing the official views or policies of the Department of Defense or the U.S. Government.