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LynxNXT Automation System

Delivers Higher Productivity and Predictability for IC Design

LynxNXT Automation System is a full-chip design environment that includes innovative flow automation and reporting capabilities to help implement and monitor designs

Overview

LynxNXT Automation System is a comprehensive next-generation automation environment that is an open system for flow automation configuration. Developed by chip designers for chip designers, LynxNXT Automation System is based on automating tool flows from the industry-leading Fusion Design Platform™ and can easily be configured to support any tool, any flow. It includes the Fusion Platform Methodology, a platform-based RTL-to-GDSII flow that can be leveraged to simplify and automate flows for many critical implementation and validation tasks, enabling engineers to focus on achieving the best out-of-the-box (OOTB) quality of results (QoR) for design performance and goals.

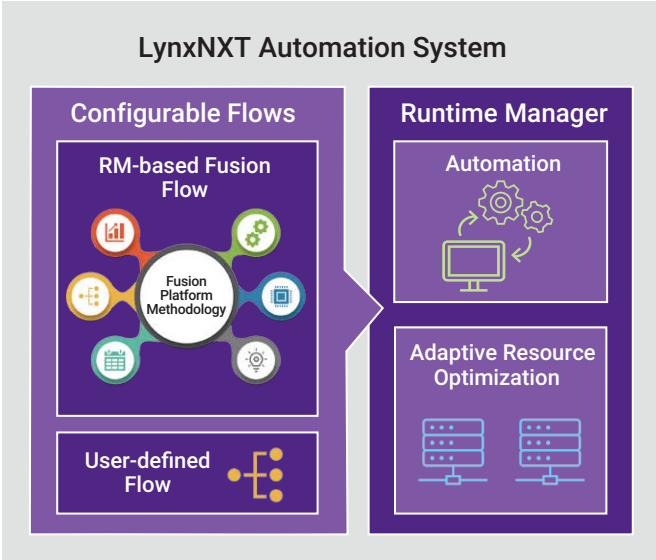

Figure 1: LynxNXT Automation System

Key Benefits

- Provide consistent design environment across any design discipline
- Visualization technology provides intuitive, easy-to-use flow creation, execution, job monitoring, and project reporting
- Build innovative and sophisticated automated system solutions such as circuit validation, correlation, and IP regression to improve productivity
- Fusion Platform Methodology builds on production-proven Fusion-based reference methodologies delivering fast and predictable results with best out-of-the-box QoR
- Adaptive Resource Optimization automates right-sizing of job queue submissions

Runtime Manager

The LynxNXT Automation System includes a patented GUI (Figure 2) that simplifies and automates flow creation, configuration, and maintenance to improve the productivity of the design team. Intuitive and easy-to-use, LynxNXT Automation's Runtime Manager provides the ability to graphically edit, execute and monitor customer flows as a design progresses from RTL to tape-out. Creating a new design flow or modifying existing flows is accomplished using intuitive edit operations. Flat or hierarchical design flows, for a single block or for an entire chip, are defined by connecting various tasks together based on their execution dependencies. Parallel task execution, design exploration involving multiple runs of the same task or experimenting with different parameters in the design flow are also easily accomplished within LynxNXT Automation System's Runtime Manager.

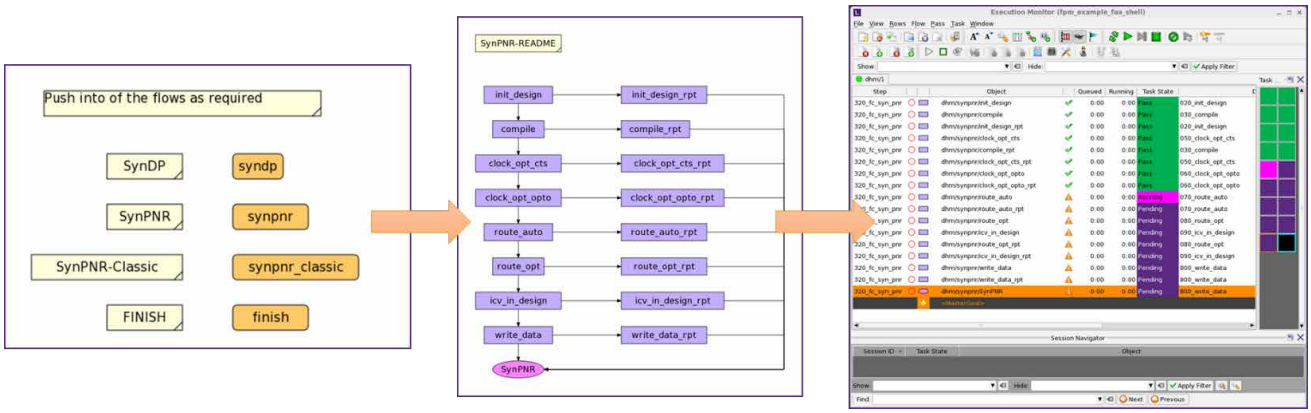

Figure 2: Patented GUI enables easy creation, configuration, and debug of design flows at multiple levels

Included with LynxNXT Automation System's Runtime Manager is a distributed high-performance computing (HPC) workload management optimization feature called Adaptive Resource Optimizer (ARO). ARO (Figure 3) monitors usage patterns of submitted jobs and determines a more optimal value to be used for reserving compute resources (e.g. memory, CPUs) of future job submissions based on historical use data.

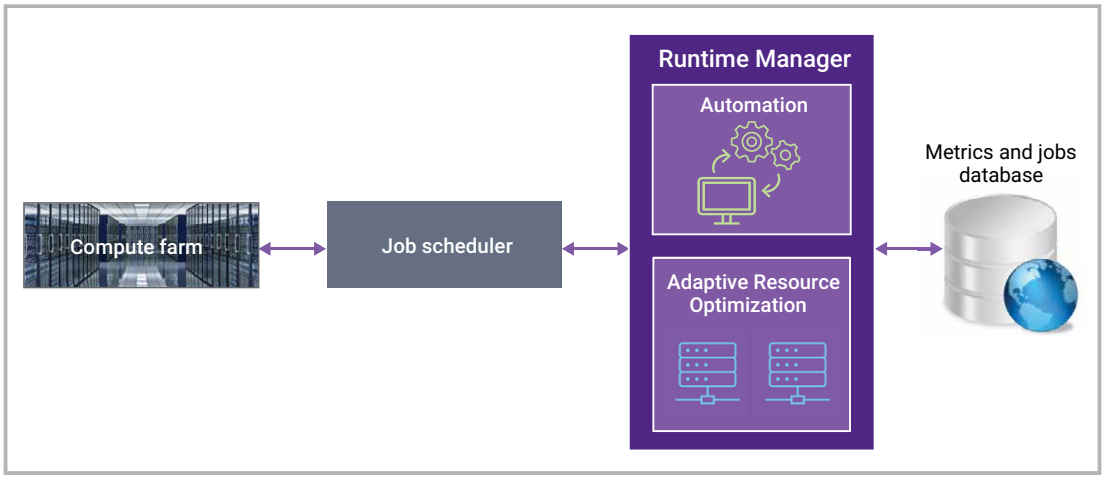

Figure 3: Adaptive Resource Analyzer

ARO can substantially reduce job pending time, the time a job sits in queue waiting for a resource and improve compute resource utilization by ensuring that jobs are assigned to the best queue/machine combination. The busier the HPC environment, the greater the benefit realized from ARO compared to traditional fixed resource management practices. Improvements of 10% or more in each job's turnaround time, the time it takes from job submission to getting results, can be achieved using ARO. When aggregated across thousands of jobs, ARO significantly improves the productivity of the design team.

ARO currently supports LSF, SGE and UGE, but can be adapted for proprietary environments as well.

Any Tool, Any Flow

LynxNXT Automation System can be leveraged to create and automate flows for many critical implementation, validation, regression, and correlation tasks; enabling engineers to focus on achieving project goals. It allows designers to start with the integrated Fusion Platform Methodology, or customize tool capabilities and methodologies based on project-specific requirements by integrating third-party tools as needed.

The Fusion Platform Manager flow is tuned to deliver superior quality of results with the tools from the Synopsys Fusion Design Platform. Built on silicon-proven Fusion-based reference methodologies, The Fusion Platform Methodology can easily be used for rapid Fusion-based tool flow deployment and adoption.

Figure 4: The Benefits of Fusion Platform Methodology

With the Fusion Platform Manager, flow configuration can include Synopsys tools such as Fusion Compiler, Design Compiler®NXT, TestMAX™ DFT, PrimeTime®, IC Compiler II, IC Validator, SpyGlass, Formality, and StarRC™. This hierarchical, RTL-to-GDSII implementation flow includes the following features:

- Built-in methodologies for design optimization, including optimizations for low power, area, performance, and manufacturability
- Full-chip hierarchical RTL-to-GDSII support
- Design environment support for job distribution, job submission optimization, revision control and data management
- Project-based deployment model enabling multi-site and multi-user support
- Full technical support and regular updates to the latest tools and methodologies

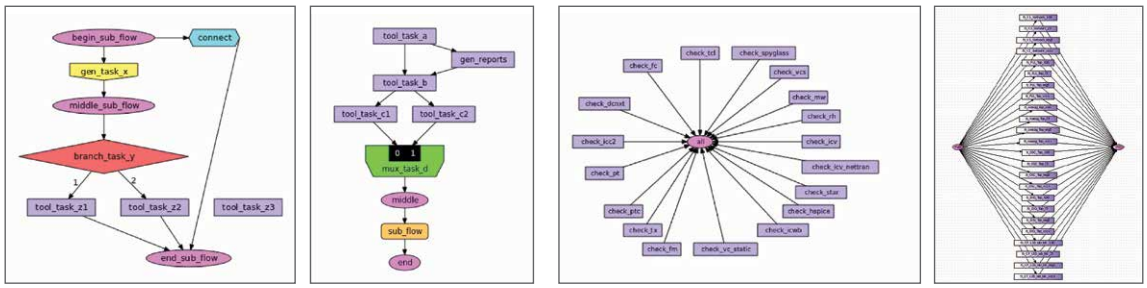

Figure 5: Sample flow templates included with LynxNXT

While the LynxNXT Automation System flow is tuned to deliver superior quality of results with the Synopsys Fusion Design Platform, other custom or third-party tools can be readily incorporated into the design flow by updating standards-based and well understood TCL scripts. Such customized flows can include flows for regression, correlation- library QA, multi-node IP verification. Sample flow structure templates are included as shown in Figure 5.

For more information about Synopsys products, support services or training, visit us on the web at: synopsys.com, contact your local sales representative or call 650.584.5000.

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