

Customized EDA and Design solutions for Programmable Platforms

Programmable Platforms include FPGAs, Structured ASICs and hybrid IC forms of traditional ASIC and FPGA technologies offering some degree of programmability / configurability. Programmable platforms have specialized architectural elements, such as configurable logic-blocks, on-chip RAM, special computational units, embedded processor, special clock networks, I/Os and so on. One of the key success factors for any Programmable Platform vendor is making available a customized development toolkit to their users to optimally implement the design onto the programmable platform. The toolkit should include a robust and integrated custom design flow (from System level/RTL to bit-stream), pre-verified IP libraries and domain specific reference applications designed for the Programmable Platform.

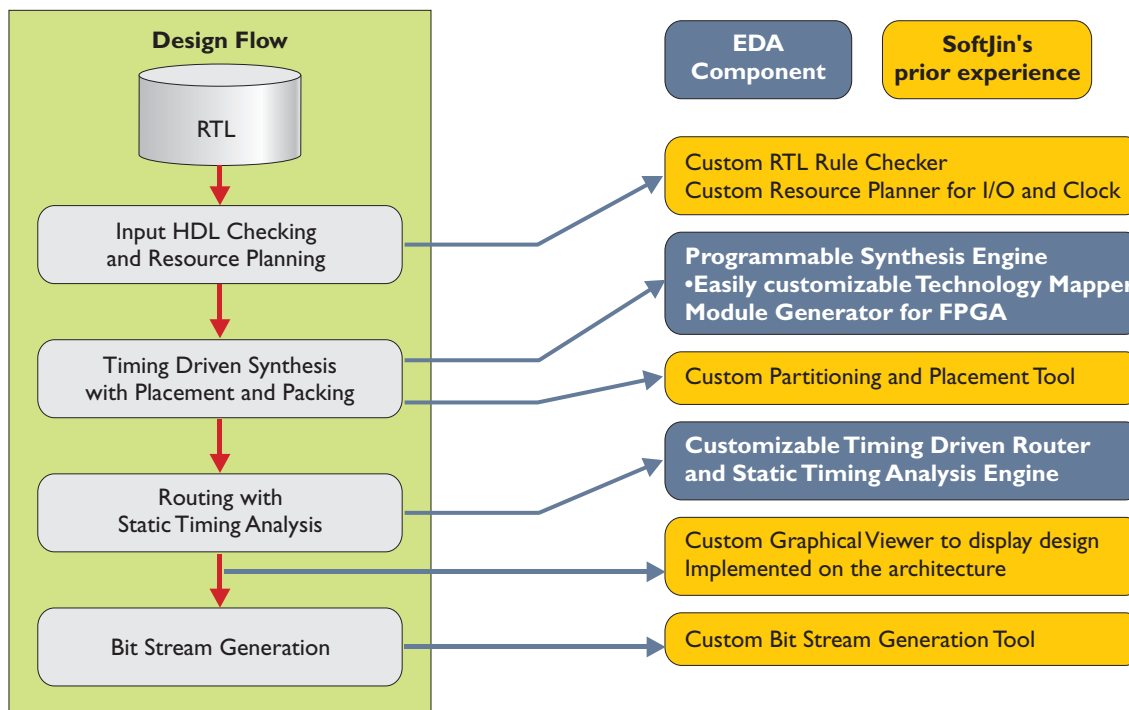
As a customized EDA and Design Solutions provider, SoftJin is uniquely positioned to help Programmable Platform vendors build such design kits. SoftJin has long history of successfully engaging with several Programmable Platform Companies and enabling them reach to market faster by providing best-in-class solutions in the following areas:

- Customized EDA solutions using a combination of SoftJin's EDA building blocks and custom EDA software development services
- Customized IP solutions using our existing IPs and IP customization services.
- Reference Design and Application Development
- Reference Board Development and Testing

Key Benefits for Programmable Platform Vendors

- **Get Optimized EDA and Design Solutions, Faster and Better** – SoftJin's unique business model of re-using its Building Blocks along with customization services ensure that you get customized EDA and IP solutions that are targeted for your architecture. Re-use of our existing Building Blocks enables faster time to market and lower cost as compared developing these customized solutions from scratch.
- **Focus on your core expertise** – By partnering with SoftJin for your key EDA, IP and Reference Design needs, you can focus on architecture design and your other core R&D activities.

EDA Solutions



SoftJin can also develop System Level design and debugging environments including:

- Parallel graphical debugger (relevant for coarse grain re-configurable architectures)
- Parallel profiler to analyze and estimate the run-time performance of application
- Customized IDE (to provide a common Front End for the entire tool chain)
- Customized Hardware – Software Co-Simulation tools

IP Solutions

IP Development

Softjin has developed IPs in various domains like DSP (FFT/ IFFT, FIR, DCT), Image processing (PAL-NTSC Encoder, Image Arithmetic, edge detection, convolution) and Interfaces (I2C, RS232, LCD controller, SPI master); both at algorithmic level using C, C++ and SystemC and also at RTL level using Verilog/VHDL. These IPs are modular in nature and can be easily customized to derive best results from the underlying platform architecture.

IP Customization

Softjin can customize RTL modules for developed/ procured IPs to map it more effectively with the building blocks of the programmable platforms like LUT, SRAM, embedded processors, arithmetical units etc. We can also implement the IPs through customer tool flow and verify the IP on customer's prototype board.

IP Verification and Qualification

Softjin can evaluate IP, benchmark the IP performance, generate QoR reports, document IP functionality, develop additional test benches for IP verification.

Reference Design and Application Development

Softjin has experience in developing reference design and production quality applications on various programmable platforms targeted for various vertical markets.

As part of our Reference Design and Application development services, Softjin offers design services from System (algorithm) level all way to implementation on Programmable Platform.

System Design

- Design and Optimization of the Algorithm
- Virtual Prototyping, architectural exploration using SystemC, C/ C++ modelling
- Hardware-Software partitioning
- Co-simulation and co-verification

RTL Design

- Block and sub-system level partitioning of the design
- RTL Modelling

- Evaluation, customization and integration of third party IPs

Implementation on Programmable Platforms

- Partitioning of the design in multiple programmable platforms if needed
- Mapping and optimizing the design for special elements of the architecture to enhance application performance
- Implementation of the design in the reference board(s)
- Interfacing the board with external system like PCs, LCD Display etc.

Reference Board Development

- PCB Design and Optimization
- Prototype board development and testing
- Development of software, driver for the reference board

Software Lifecycle Services

Softjin provides unique software lifecycle management services to enable continuous improvement of the Quality of the customized design tools and the entire design flow. Our quality assurance service includes

- Creation and ongoing enhancement of Test suite
- Use of the test environment to detect and diagnose problems and benchmark performance

Automated Test and Regression Environment

Softjin offers customizable Infrastructure for Quality Improvement of EDA Tools and Tool Flow that automates commonly performed manual steps in Regression Set up and Execution. The Environment includes modules for

- Easy Addition of tools and test cases to infrastructure
- Quick and versatile Regression Run with desired test set and tool flow
- Automatically generate meaningful analysis reports
- Easily leverage high performance computing resources



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