

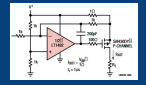
IC manage

Global Design Platform for FPGAs

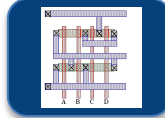
Digital

```
wire A_in;
reg B_out;
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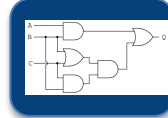
Analog



FPGA



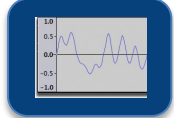
Gate-level



Firmware

```
MOV A,B
```

Stimulus



The IC Manage Global Design Platform (GDP) lets designers track, control, and distribute design, configuration, and IP property data. It enables swift and accurate derivations from existing IP, empowering your team to reuse existing assets across many concurrent projects.

IC Manage GDP stores and maintains your global organization's design, stimulus, results, bug tracking and documentation data - spanning digital, firmware and custom flows - in one common repository. All data that is authorized for sharing is rapidly accessible worldwide and secure.



GDP-XL – Latest Generation of Global Design Platform

- Develop, verify, publish internal or 3rd party IP
- Flexible IP import – 3rd party, revision control systems, corporate DB
- Flexible repository schema and design mapping to any file structure
- Bidirectional traceability of IP revisions and project usage
- Configurable properties to capture IP design intent
- Full property inheritance for hierarchical datasets
- Release management ensures traceability and repeatability
- Reduce IP cost - development, verification, integration, maintenance

GDP-XL publishes and tracks IP in 4 dimensions

- State - what is the state of an IP version?
- Time - how does IP change over time?
- Space - which versions used on which products or customers?
- Quality - which problems were found/fixes in which versions?

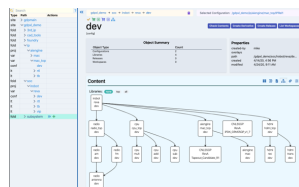
Bug Management, Data Management and Verification Linked

- Bug management links design data and defect states
- Atomic, change based architecture ensures exact datasets for bug resolution and fix verification
- IP version and project traceability enables all bug instances to be found and fixed
- Feature enhancements automatically propagated to active projects
- Greatly reduces risk of releasing known bugs into production
- Scalable repository enables global IP, SoC and FPGA collaboration

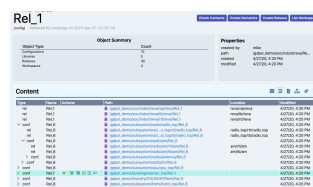
GDP links critical steps to find and eliminate IP bugs

- Verification failures link bugs to project or IP version
- Automatic bug/fix notification of IP owners, project managers
- Maintains bug state vs. all versions of IP, projects and variants
- TrueVariant™ enables precise fix propagation to all affected occurrences

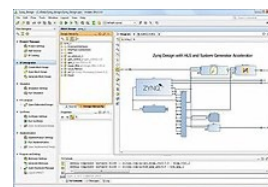
Configuration Management



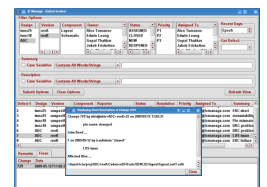
Release Management



FPGA Integration



Bug Management



Global Design Platform

Complete platform solution for IC/SoC/FPGA design data Development and Assembly

IP Asset Management

Complete design data platform solution for IP Development and Publishing

Tracks IP releases across projects

Integrates with PLM, manufacturing systems

IP Lifecycle

Import

Package

Publish

Find

Collaborate

Data Management

Revision Control

Configuration Management

Import any repository/data source

Bug Management

Find

Trace

Eliminate

Enterprise Scale

High availability

Disaster recovery

Automated content delivery

Load Balancing

Popular FPGA Tools

AMD Vivado

Intel® Quartus®

Use Perforce or Git

Perforce Helix

Git, GitHub, GitLab, Bitbucket

Save Time

Find IP and design data faster

Fast dataset population

Fast checkins

Low administration overhead

Reduce Cost

Save storage

Increase application

performance

No downtime

Improve Quality

Checklist driven

Role-based control

Secure access & distribution



IP Development and Reuse for FPGAs

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System Requirements

Client Software

Linux
Windows

Server

Linux
Hardware configuration dependent on user population and data under management

Cloud Enabled

AWS, Azure, GCP

Configuration and Release Management

- Easy to use – intuitive GUI or command line interface
- Create configurations and releases to manage complex design datasets
- Web UI and Web API eases integration with Web services and Cloud
- Integrates all data types (RTL source, scripts, schematic, layout, GDSII)
- High performance – tag-free architecture ensures fast operation
- Flexible release management enables concurrent development
- Incremental releases reduce data storage and delivers updates rapidly
- Hierarchical configurations and graph database enable flexible design reuse
- Atomic change architecture enables “what if” exploration and rollbacks

Revision Control

- Fastest revision control for all data types – analog, digital, firmware
- Easy to use, customized GUI's tailored for specific user roles
- Powerful. Unix-like command line interface

Collaboration and Insulation

- Producer-consumer insulation prevents workspace corruption
- Role-based security enables authorized operations and data access
- Design assets delivered globally with 100% consistent data
- Data status is continuously updated to ensure up to date design data

Data Source Integration and Analysis

- Provides unified state of all project related data in a single system
- Integrates multiple data sources
 - External databases (corporate SQL DB's, ERP/M)
 - External source code repositories
 - Web content
- Flexible analytics interface provides
 - Current IP, project status
 - Historical trends
 - Risk assessment/product quality trending analysis
 - IP reuse efficiency

Enterprise Data Delivery

- High availability servers provide 24x7 operation
- Disaster recovery servers business continuity
- Proxy and SuperProxy Caches reduce bandwidth and latency impact
- Load-balancing provides high-throughput for 1000's of users, build farms
- Sync Engine propagates targeted data when and where it is needed
- PeerCache reduces storage cost, improves application performance
- Hybrid Cloud bursting through PeerCache Holodeck technology

Key Capability	Unique Benefit for FPGA Users
Configuration Management	Very fast, tag-free configuration and release management that efficiently creates datasets to enable reliable handoffs, engineering collaboration and integration of mixed data types
Manages Complex Git Environments	Capacity to integrate and assemble design and firmware source stored across 1000's of git repos. Integrates with native git and popular commercial tools like GitHub, GitLab and Bitbucket
IP Sharing	IP composite datasets can be created without tags and flexibly grouped using configurations and releases, searched with regular expressions and selected for project use and population into project work areas
IP Delivery and Traceability	IP is delivered to users or customers - all derivations and modifications are tracked such that changes and improvements can be bi-directionally propagated to any IP or project on any design branch
IP Analysis and Import	3 rd party IP can be analyzed and mapped into GDP-XL for distribution to design teams. Incremental updates can be analyzed for differences and changes imported & propagated incrementally
Process-driven Flow	Allows IP, project staging and enforces status and promotion checks to prevent wasted time and process errors
Bug Traceability Across Projects	Individual bugs can affect many projects – GDP-XL enables fast and reliable identification of design dependencies, bugs and projects at risk
Guarantee Data Consistency	Eliminates risk of working on stale data or assembling incorrect datasets
Derivatives	Automated creation of derivative designs with full traceability for 1000's of design objects.
Functional Safety	All data and metadata changes recorded and can be recovered at any time. Advance snapshots can recover configuration data and metadata quickly. Includes difference analysis to compare snapshots, snapshot vs. live
Seamless, Multiple Repository/Depot Client Support	Allows global teams to gain performance benefit of local data management and transparent access to remote repository data
Minimize Bandwidth & Latency	Advanced caching and replication enables targeted data to be propagated as it changes around the clock and around the globe leveraging available bandwidth 24x7
IP Security	Prevents security breaches and unintentional data modification through role-based security which controls visibility and manipulation of data at all levels of repository across groups, users