FLEXRAS TECHNOLOGIES

High Performance Partitioning

www.flexras.com
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Flexras Products and Services

- **CAD tools for FPGA-based Systems**
  - Wasga Compiler
  - Wasga Debug
  - Wasga Architect
- **IP**
  - High speed robust inter-chip communication IPs
  - IP for DUT debug
- **Service**
  - FPGA prototyping and verification
  - FPGA design
  - DO-254

Wasga Compiler

Timing-driven placement:

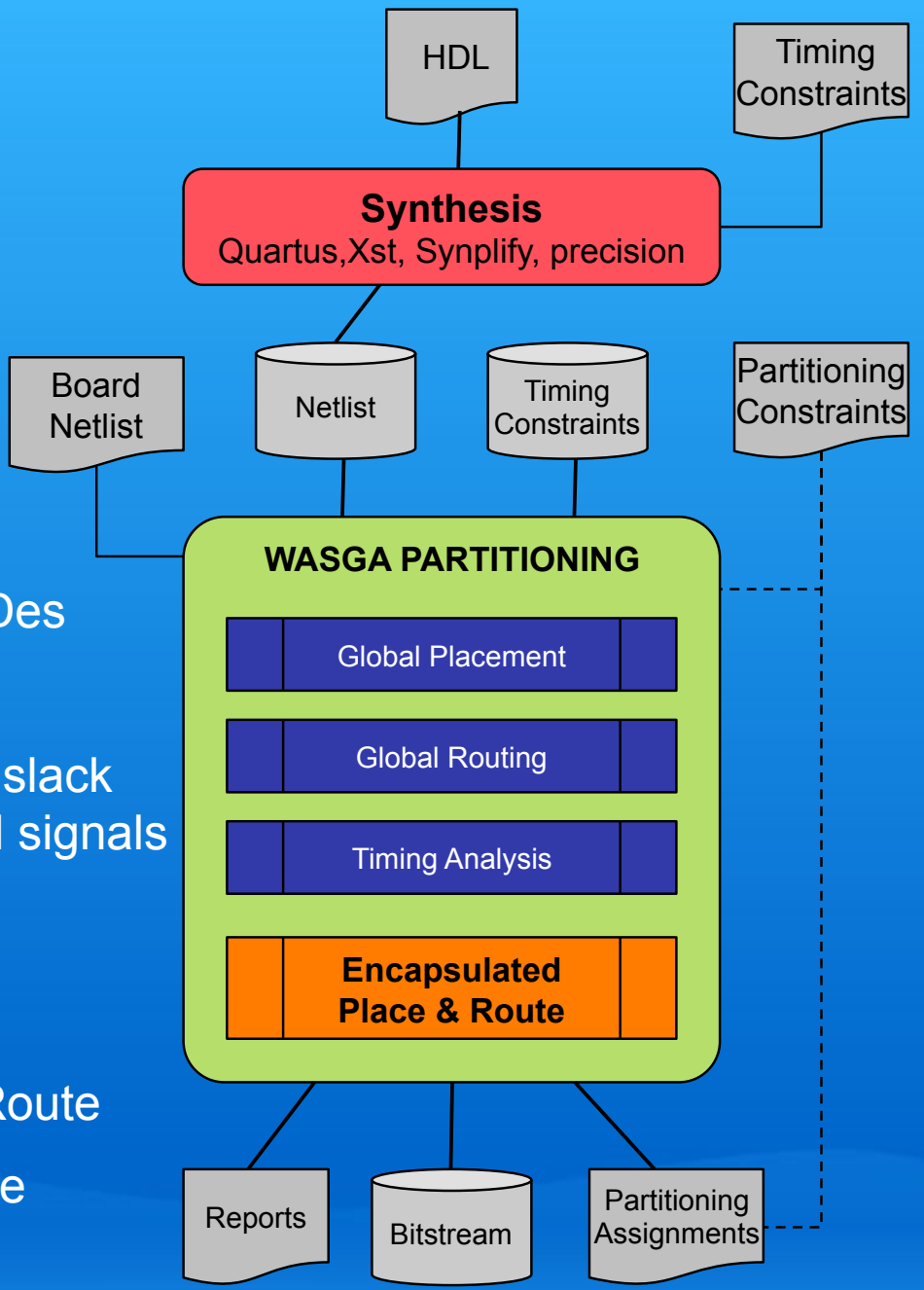
- clusters critical paths in FPGA
- optimizes critical paths crossing FPGA
- Manages clock domains

Timing-driven routing:

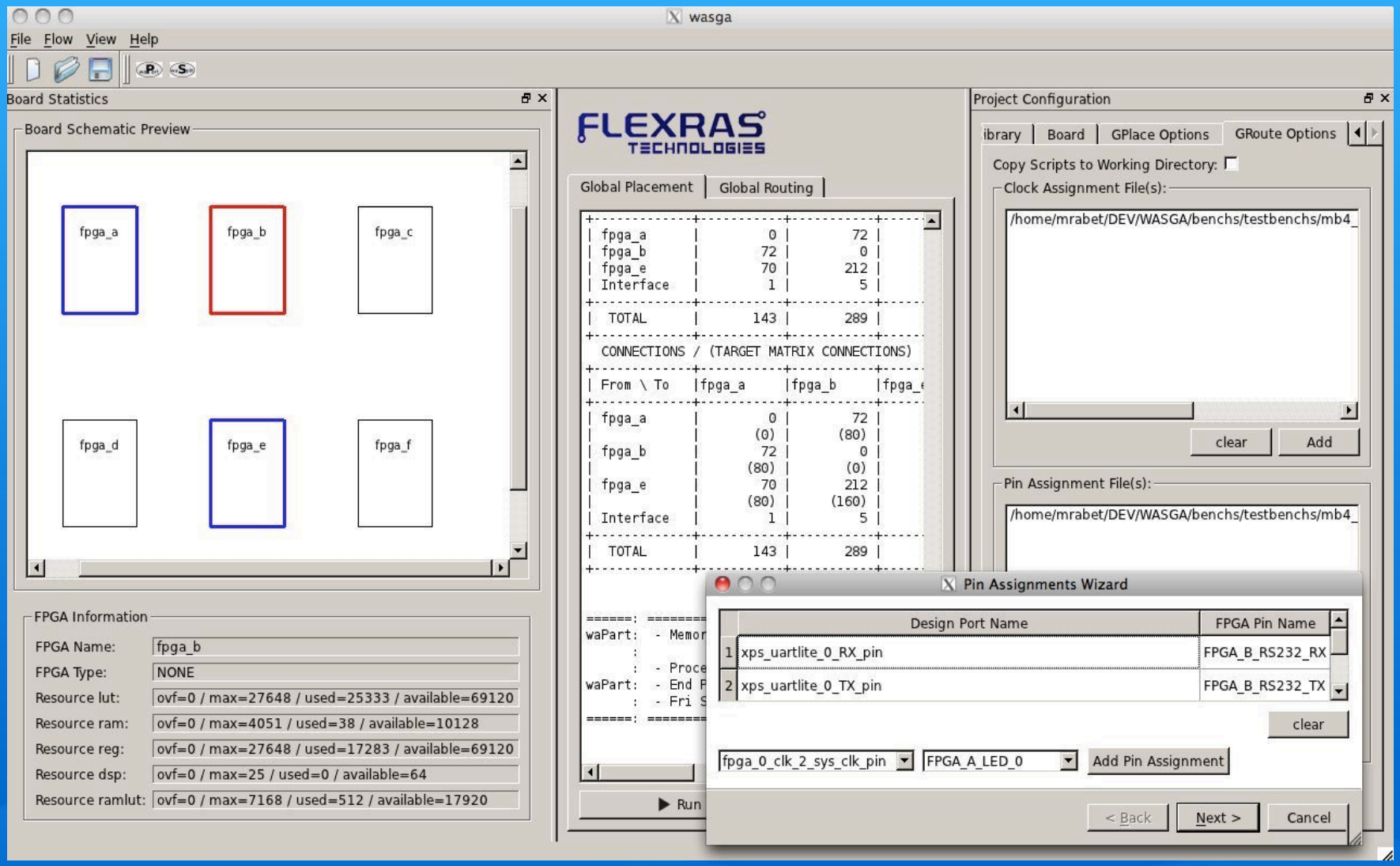
- Source-synchronous LVDS DDR and SerDes
- Critical signals are not multiplexed
- Pin multiplexing even optimized based on slack and automatically inserted on least critical signals

Timing Analysis:

- STA, critical paths before FPGAs Place&Route
- Accurate STA after all FPGAs Place&Route



Wasga Ease-of-Use



Automatic Pin Multiplexing (APM)

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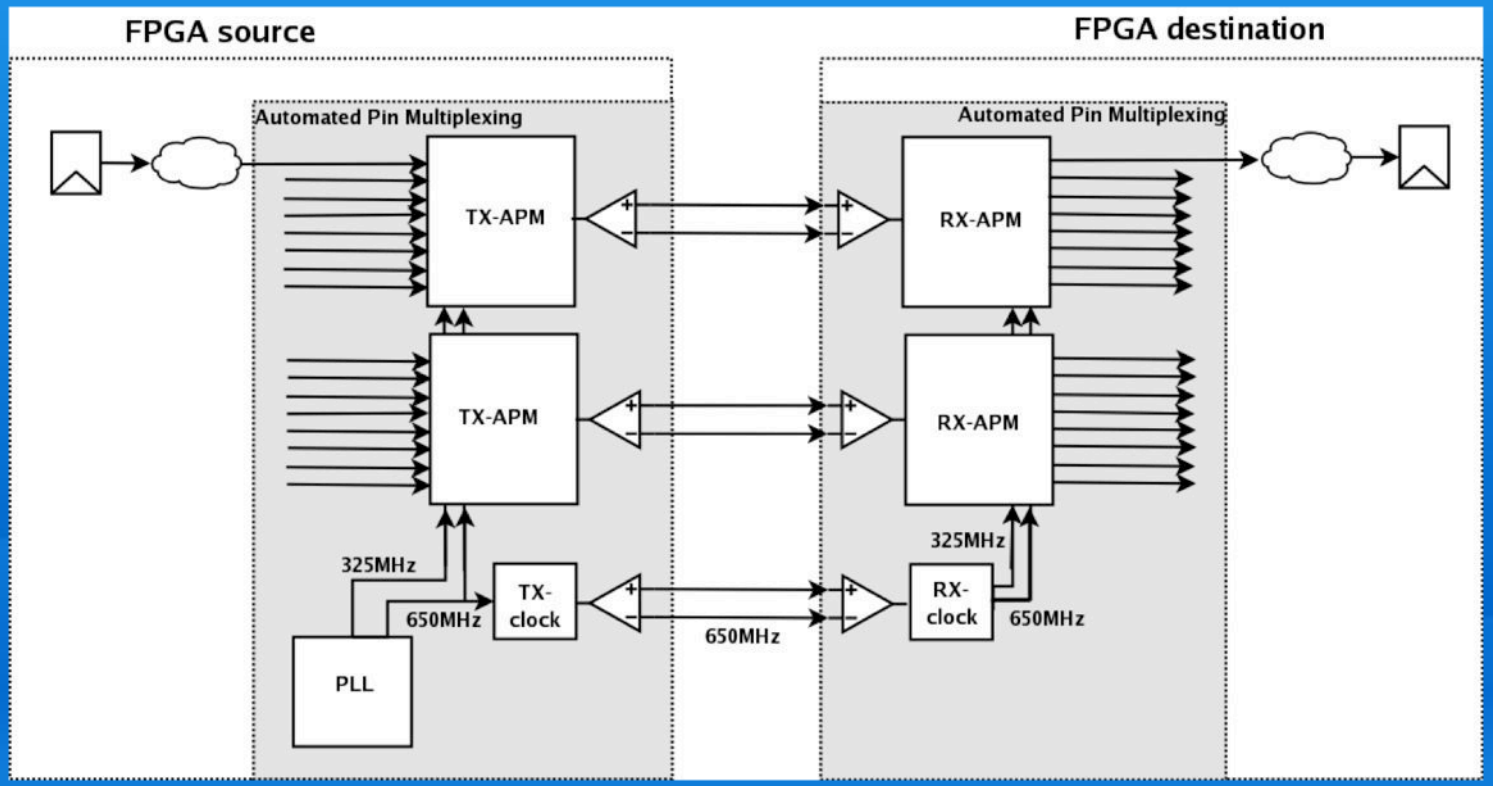
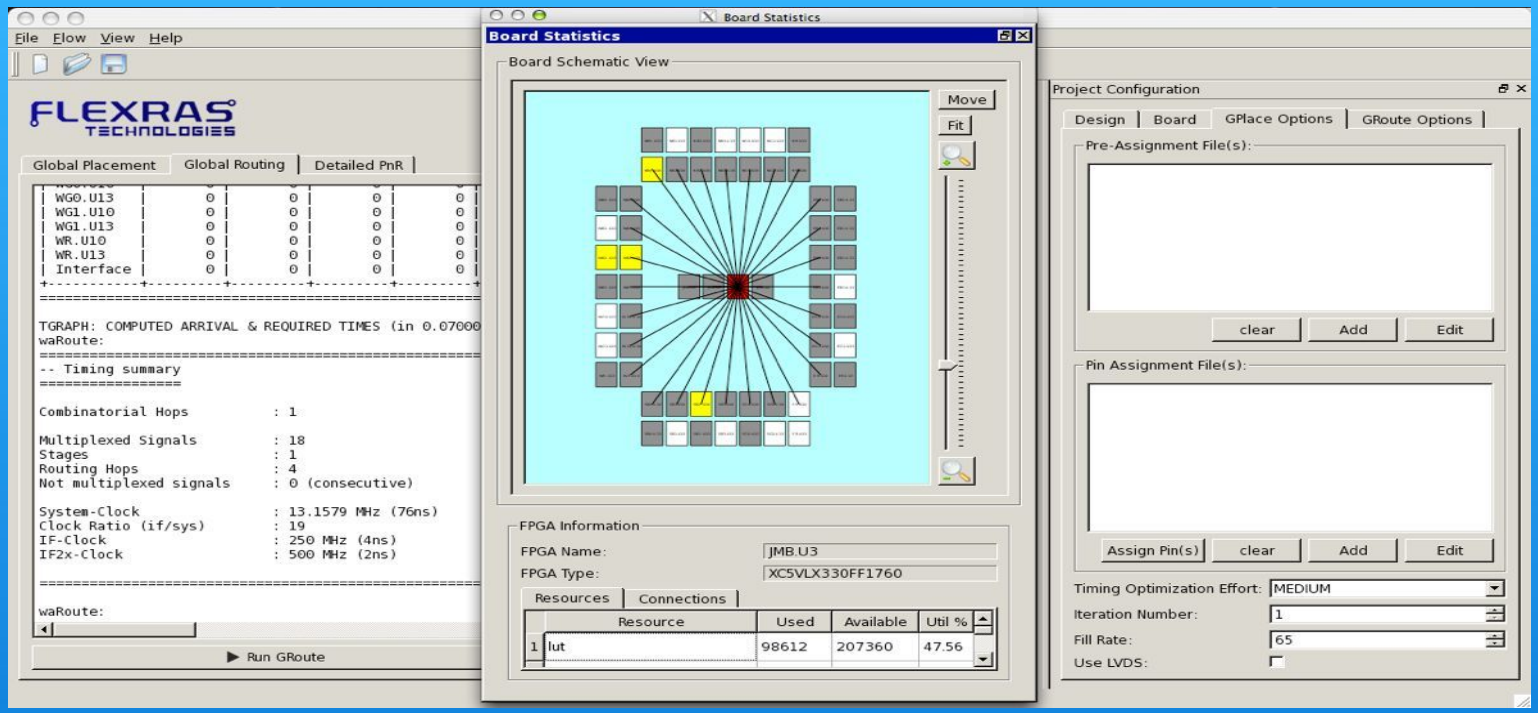
High Speed Tx/Rx IP modules

- Source synchronous system Lvds/Serdes
- Configurable multiplexing ratio
- Training counter to automatically configure input delay
- Checksum to verify correctness of communication data



Wasga Results



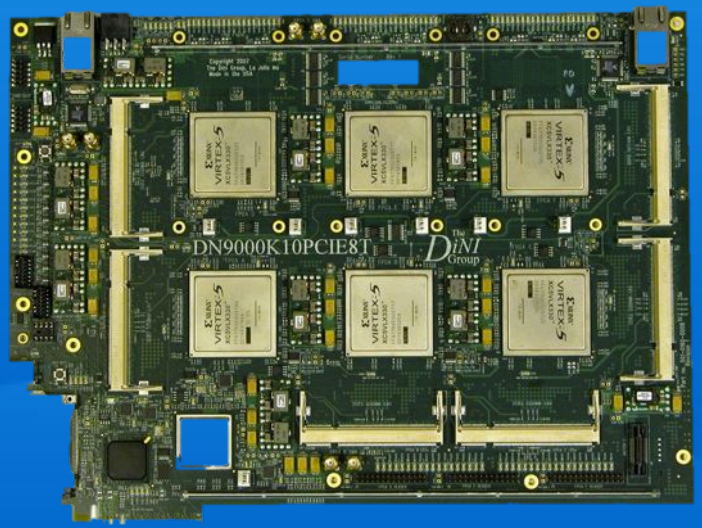
Hierarchical : 64 FPGA in multi-boards, LVDS
Heteregeneous : Both Virtex-5 and Virtex-6

	FPGAs Used	FPGA Utilization	Partitioning Runtime	Memory Usage	Multiplexing ratio	System Clock Frequency
Design 1	45	47 %	70 min	12 GB	104	7 MHz
Design 2	12	60 %	15 min	5 GB	16	32 MHz

High Performance – High Capacity – Fast Runtime

Wasga Partitioning is Proven

- Wasga Partitioning OEM by world leading FPGA emulation vendor
  - In production since 2010
  - Used daily throughout the world
  - Routinely handles designs up to 1 billion gates
- Benchmarks and silicon validation
  - Using DINI DN9000K10PCI with 6 Xilinx XC5VLX110s
  - Using DINI DNV6F6PCIe with 6 Xilinx XC6VLX365T



Partners

Atmel

- Wasga is compatible with Atmel FPGA
- Access to the latest FPGA technology

Xilinx

- Alliance Program Member
- Access to the latest FPGA technology
- Wasga supports all Xilinx FPGA
- Wasga interface with ISE and Vivado Xilinx software

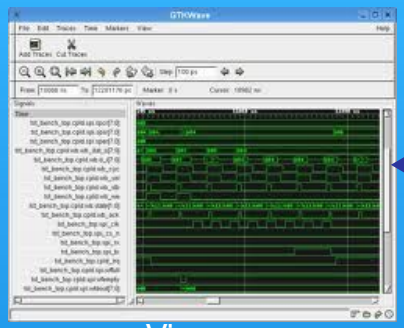
Dini Group

- Access to the latest boards technology
- Wasga supports all Dini boards
- Same distributor in Europe: EuropeLaunch

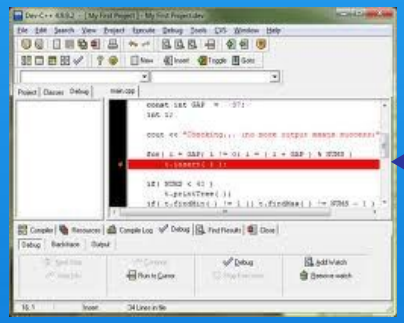
Reflex-Ces

- Partner in PPR european project
- Develop jointly prototyping board with 3 Virtex-7

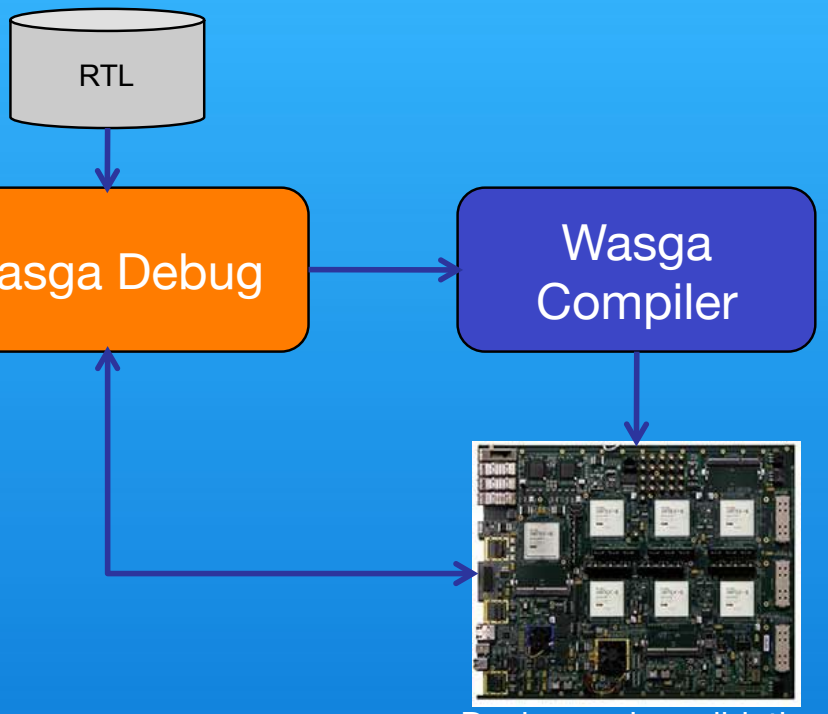
Wasga Debug



Viewer



Software Debugger



Design under validation

Debug environment for hardware/software validation:

- Fast and easy capture probe insertion in FPGAs
- GUI interface to select signals in the RTL or Netlist
- Compact signals capture architecture
- Manages many FPGAs
- Minimizes recompilation
- Simulator-style view

Wasga Architect

- Board synthesis tool
  - Generates custome FPGA board from RTL
  - Simplify multi-FPGA custom board design
    - Partition SoC design
    - Define the number of FPGA
    - Define traces between FPGAs
    - Estimate board performances
- Inputs
  - RTL
  - Timing constraints
  - FPGA vendor & family
- Outputs
  - Board netlist
  - Board floorplan