

MAP-inSM and OpenAccess

Design Data Interface Scope

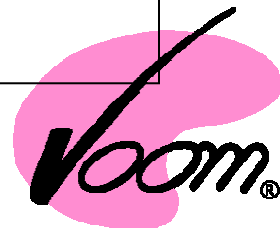
What Can You Access?

Synopsys 17th EDA Interoperability Developers Forum

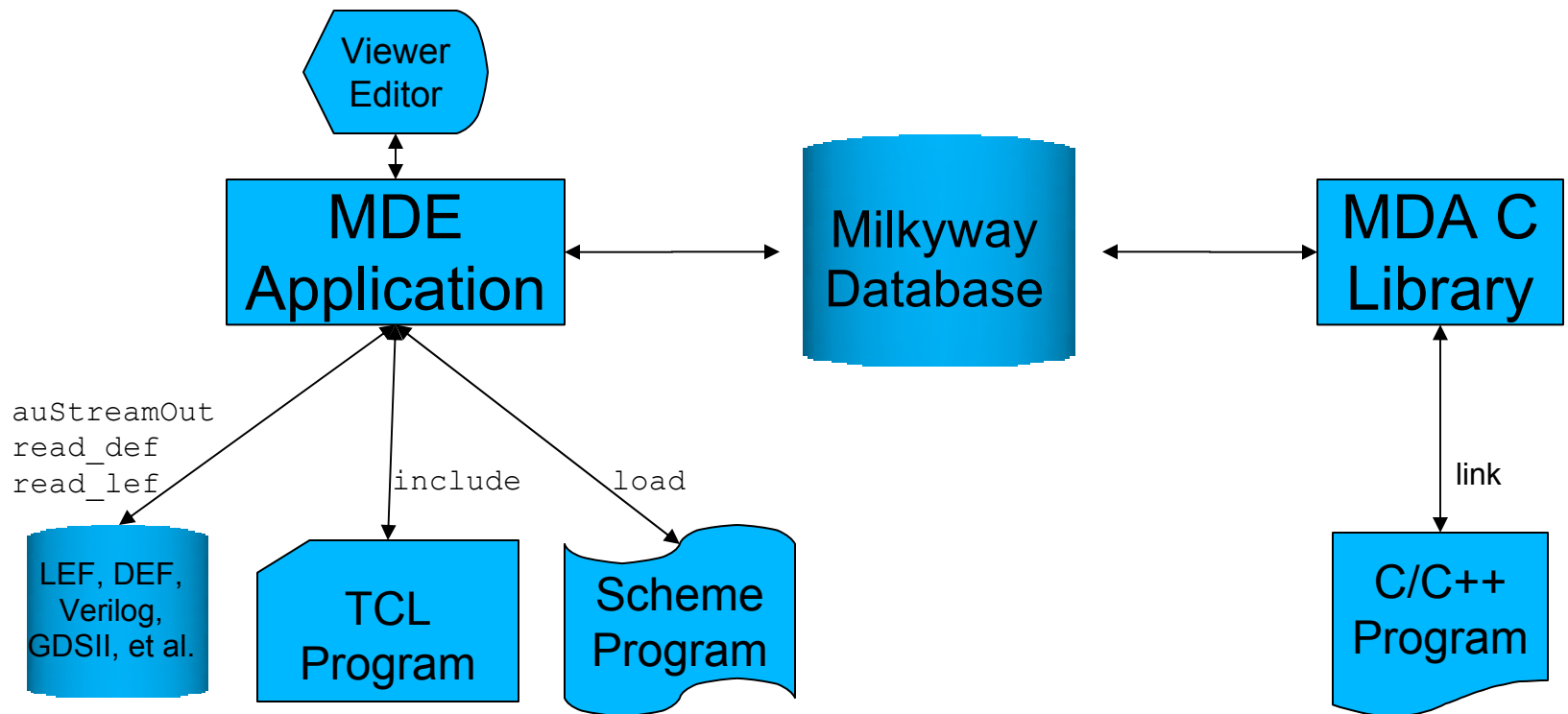
May 17, 2006

John McGehee, Voom, Inc.

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The MAP-in Package



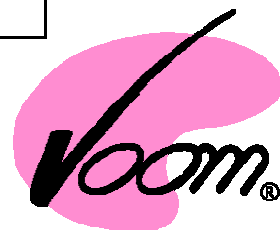
Netlist Domain

Netlist	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Cell	✓	✓	✓	✓	✓
Cell Instance	✓	✓	✓	✓	✓
Instance Port	✓	✓	✓	✓	✓
Net	✓	✓	✓	✓	✓
Port	✓	✓	✓	✓	✓
Bus, Bundle			✓	✓	✓
Logical Hierarchy	✓		✓	✓	✓



Geometry

Topology	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Arc			✓	✓	✓
Donut			✓	✓	✓
Dot			✓	✓	✓
Ellipse			✓	✓	✓
Line			✓	✓	✓
Path	✓	✓	✓	✓	✓
Path Variable End Extension			✓	✓	✓
Wire Segment	✓	✓	✓	✓	✓
Polygon	✓	✓	✓	✓	✓
Rectangle	✓	✓	✓	✓	✓
Text	✓	✓	✓	✓	✓
Parameterized Text			✓	✓	✓
Error Marker	✓	✓	✓	✓	✓



Timing

Timing	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
LRC Parasitics			✓	✓	✓
Timing Constraints			Beta		
Timing Graph			Silicon Navigator		



Place and Route

Place and Route	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Multi-Segment Route			✓	✓	✓
Route Type	▲	▲, Astro▼	✓	✓	✓
Global Route	x		✓	✓	✓
Cell Placement Region	✓	✓	✓	✓	✓
Placement Blockage	✓	✓	✓	✓	✓
Routing Blockage	✓	✓	All routeTopologies or none		
Variable Route Rule		Astro	✓	✓	✓

- Desperadoes can use the MDE `geModify` GUI to set the Milkyway routeType
- Global route functions are present in `mda_proto.h`, but not public in `MDA.a`



Floorplan

Floorplan	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Base Array	▲	✓	✓	✓	✓
Base Array Site/Tile	▲	✓	✓	✓	✓
Cell Site/Tile Pattern	▲	✓	✓	✓	✓
Row	✓	✓	✓	✓	✓
Routing Tracks	▲	Astro	✓	✓	✓

- Regardless, to make a *real* Milkyway floorplan, you must use *Astro/Jupiter axgPlanner*



Technology

Technology	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Layers	▲	▲	✓	✓	✓
Design Rules			✓	✓	✓
Custom Via			✓	✓	✓
Standard Via	▲	▲	✓	✓	✓



Design Management

Design Management	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Library	✓	✓	✓	✓	✓
Reference Library	✓	✓	✓	✓	✓
Cell	✓	✓	✓	✓	✓
Attached File	✓	✓	✓	✓	✓



Other Domains

Other Domains	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Pcells			Cadence	Cadence	CiraNova
Wafer			✓	✓	✓

- Cadence also has SKILL PCells, of course
- Synopsys Cosmos has PCells



Database Extensions

Database Extensions	Milkyway		OpenAccess		
	C	Scheme TCL	C++	TCL	Python
Property	✓	✓	✓	✓	✓
Add Field to Object			✓	✓	✓
Add Object			✓	✓	✓
Observer			✓	✓	✓

- *oaAppDef* and *oaAppObjectDef* allow persistent extensions whose performance match native OA attributes and objects



Translators

Translators	Milkyway	OpenAccess
GDSII	✓	✓
LEF Tech	≈	✓
LEF Cells	✓	✓
DEF	✗	✓
Verilog Structural	✓	✓
Verilog Behavioral		Silicon Navigator
VHDL	✓	
EDIF	✓	
SPEF		✓
Milkyway		Voom

- Milkyway DEF works okay for netlist and placement



Platforms

Platforms	Milkyway	OpenAccess
AMD64 RHEL 3	✓	✓
AMD64 SuSE 9	✓	Silicon Navigator
x86 RHEL 3	x	✓
x86 SuSE 9	✓	Silicon Navigator
Itanium RHEL 2.1	✓	✓
SPARC 32 Solaris 8	✓	✓
SPARC 64 Solaris 8	✓	✓
HPPA HP-UX 11	✓	✓
AIX 5.1		✓
Windows 2000/XP		✓
Mac OS X		Tim Burks

- Milkyway 2005.09 on x86 crashes with segmentation violation upon `C++ throw`



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