## Contents

Atmel FPGA Integrated Development System (IDS) contains the following items:

- IDS Installation Guide
- · CD-ROM containing all necessary software and online documents

## **Features**

- Support for Industry-standard PC and Workstation Tools
- Schematic, PLD, Verilog<sup>®</sup> and VHDL Design Entry Supported
- Macro Libraries for AT40K/AT40KAL and AT6000 FPGA Families
- Automatic Macro Generators for AT40K and AT6000
- HDL Planner for VHDL and Verilog Entry
- Hierarchy Browser
- User Library Management
- Technology Mapping
- Multi-chip Partitioning
- Floor Planning Capability
- Graphical Constraint Entry
- Incremental Design Change
- Timing Driven Design with Advanced Static Timing Analysis
- Automatic Place and Route
- Interactive Layout Editing
- Power Calculation
- Full Back-annotation for Functional and Post-layout Simulation
- Online Tutorials for New and Advanced Users
- Applications Support
- FPGA Applications Hotline (408) 436-4119 or fpga@atmel.com
- FAQ and Application Notes at http://www.atmel.com/atmel/products/prod3.htm
- Maintenance
- Software Support for One Month is Included

## Description

Atmel's Integrated Development System (IDS) lets designers create fast, predictable designs with AT40K/AT40KAL and AT6000 Series FPGAs.

Available for use with Windows<sup>®</sup> 98/2000, Windows NT<sup>®</sup> and Sun Solaris<sup>™</sup>/SunOS UNIX Workstation-based computers, IDS combines industry-standard software for design entry, synthesis and simulation with Atmel's proprietary software for component generation, automatic and interactive placement and routing, timing analysis and bitstream generation.

The IDS Desktop is shown in Figure 1. The Design Flow Bar provides push-button access to all the steps in the design flow. This includes opening schematic entry and synthesis tools and generating files for simulations automatically.

Figure 2 shows the HDL Planner tool which is used for VHDL and Verilog Design Entry. Figure 3 shows the Macro Generator used to generate standard components with optimal layout and performance.



Atmel FPGA Integrated Development System (IDS)







Figure 1. Integrated Development System

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FPGA IDS

## Figure 2. HDL Planner Tool

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## Figure 3. Macro Generator

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# **Ordering IDS and CAE Tools**

When IDS is shipped, the CD contains library support and interfaces to all the listed CAE tools, see on page 6.

A month evaluation copy of Exemplar LeonardoSpectrum<sup>®</sup> Synthesis tool is shipped on the CD.

For other CAE tools listed, the libraries and interface are supplied on the IDS CD. For the vendor software and licensing you should go directly to the third-party vendor. Atmel does not supply these systems. Many of the listed tools have evaluation copies available on their web sites.

## **Simulation Libraries**

A month evaluation copy of ModelSim<sup>®</sup> Simulator is shipped on the CD.

There are many other simulators available on the worldwide web. The IDS CD does include fully verified Verilog and VHDL VITAL<sup>®</sup> libraries. These can be compiled and used with any other simulation tool that is Verilog or VHDL compliant. IDS will export a Functional Netlist for pre-layout simulation and a Post-layout Netlist and SDF files for Postlayout Simulation.

The only difference with "Unsupported" tools is that there are not tutorials for these tools, and they are not fully integrated to IDS.

## **Annual Maintenance Agreements**

Annual maintenance agreements are available for each Package Option in the Integrated Development System (IDS). The first year of maintenance is included in the purchase price – renewal is optional. Maintenance agreements give the users direct access to Atmel's experienced technical support staff and cover software upgrades that keep engineers on the leading edge of Atmel's design tools.

# **System Requirements**

## **PC-based Systems**

For a single-user system, IDS requires a personal computer with a 80486 or greater micro-processor equipped as follows; or better.

- 3.5-inch 1.44 MB capacity high-density disk drive (recommended)
- CD-ROM drive
- 200 MB minimum hard drive (both IDS and Viewlogic)
- 48 MB extended memory minimum (64 MB recommended for larger designs using Timing and Mapping)
- Serial interface port
- Parallel interface port
- MS-DOS, release 5.0
- Microsoft Windows 95/98/2000, NT 3.51, or NT 4.0 or higher
- VGA graphics card and display monitor
- · Windows compatible mouse
- A permanent swap space of 64 MB: refer to the Windows documentation for details on its setup
- · Sufficient disk space for file archival and management

### **Sun-based Systems**

For a single-user system, IDS requires a Sun Sparcstation<sup>®</sup> workstation equipped as follows:

- CD-ROM drive (local or network)
- 200 MB (minimum) hard drive 50 MB hard disk space allocated as swap space
- 64 MB RAM
- SUNOS 4.1.2/Solaris 2.4 or higher
- X11R4/Motif 1.1.4, X11R5/Motif 1.2, or OpenWindows 3.x



# CAE Tools Supported by IDS

Vendor	Tool	Version	Туре	Platform	AT40K AT40KAL	AT6000	Software Ordering Code	Maintenance Ordering Code
c · · c · ®	ViewDraw <sup>™</sup>	1.1+	Schematic	PC	x	x		See Viewlogic Table for Ordering
eProduct Designer®	Digital Fusion <sup>™</sup>	1.1+	Simulation	PC	x	x	On a Minuda air	
	ViewDraw <sup>™</sup>	5.3.1 - 6.0+	Schematic	Sun	x	x	<ul> <li>See Viewlogic</li> <li>Table for</li> <li>Ordering</li> </ul>	
Viewlogic <sup>®</sup> Powerview <sup>™</sup>	ViewSim <sup>™</sup>	5.3.1 - 6.0+	Simulation	Sun	x	x		
	ViewSynthesis <sup>™</sup>	5.3.1 - 6.0+	Synthesis	Sun	x	x	-	
	Express <sup>®</sup> /Capture <sup>®</sup>	9.1+	Schematic	PC	x	x		ATDM2100PC
Orcad <sup>®</sup>	Express <sup>®</sup> /Capture <sup>®</sup>	9.1+	Simulation	PC	x	x	ATDS2100PC	
	Express <sup>®</sup> /Capture <sup>®</sup>	9.1+	Synthesis	PC	x	x	-	
Synplicity®	Synplify <sup>™</sup>	5.1.2+	Synthesis	PC/Sun	x		ATDS2100PC	ATDM2100PC
т тм	ModelSim <sup>™</sup>	4.7b+	Simulation	PC	x	x	ATDS2100PC	ATDM2100PC
Model Technology <sup>™</sup>	ModelSim <sup>™</sup>	5.1+	Simulation	Sun	x	x	ATDS2100SN	ATDM2100SN
	LeonardoSpectrum <sup>™</sup>	3+	Synthesis	PC	x	x	ATDS2100PC	ATDM2100PC
Exemplar™	Galileo Extreme <sup>™</sup>	4.1+	Synthesis	PC/Sun	x	x		ATDM2100SN
	Leonardo Extreme <sup>™</sup>	4.1+	Synthesis	PC/Sun	x	x	ATDS2100SN	
	FPGA Express <sup>™</sup>	2.1+	Synthesis	PC	x	x	ATDS2100PC	ATDM2100PC
	FPGA Compiler <sup>™</sup>	3.2+	Synthesis	Sun	x	x	ATDS2100SN	
Synopsys®	Design Compiler <sup>™</sup>	3.2+	Synthesis	Sun	x	x		ATDM2100SN
	VSS VHDL Simulator™	3.2+	Simulation	Sun	x	х		

# AT6000 Only

Vendor	ΤοοΙ	Version	Туре	Platform	AT6000	Software Ordering Code	Maintenance Ordering Code
	Design Architect <sup>™</sup>	8.2 - 8.4	Schematic	Sun	х		ATDM2100SN
	Quicksim <sup>™</sup>	8.2 - 8.4	Simulation	Sun	x		
Mentor Idea Station	ENWrite <sup>™</sup>	8.2 - 8.4		Sun	x	ATDS2100SN	
	ENRead <sup>™</sup>	8.2 - 8.4		Sun	x		
	SG	8.2 - 8.4	Schematic Gen	Sun	x		
	Concept <sup>™</sup>	1.6 - p4+	Schematic	Sun	x	_	ATDM2100SN
Cadence 9504 or	Verilog-XL <sup>™</sup>	2.3.14+	Simulation	Sun	x		
Higher	SDF Annotator	2.0.5		Sun	x	ATDS2100SN	
	SDF Interface	5.0.5		Sun	x		

# FPGA IDS

# Design Hardware

ATDH40M	AT40K Series FPGA Prototyping Kit (One Daughterboard included - Specify)			
ATDH40D84	Daughter Board Attachment - 84PLCC			
ATDH40D100R Daughter Board Attachment - 100RQFP				
ATDH40D100	IDH40D100         Daughter Board Attachment - 100VQFP			
ATDH40D144	Daughter Board Attachment - 144TQFP			
ATDH40D160	Daughter Board Attachment - 160PQFP			
ATDH40D208	Daughter Board Attachment - 208PQFP			
ATDH40D240	Daughter Board Attachment - 240PQFP			
ATDH2000	AT6000 Series FPGA Demonstration Board			
ATDH2080	AT6000 Series FPGA Prototyping Kit			
ATDH2200E	AT17 Series Configurator Programming Kit (Enhanced)			
ATDH2221	20-pin SOIC Adapter for ATDH2200			
ATDH2222	20-pin PLCC Adapter for ATDH2200			
ATDH2223	8-lead SOIC Adapter for ATDH2200			
ATDH2224	44-lead TQFP Adapter for ATDH2200			
ATDH2226	32-lead TQFP Adapter for ATDH2200			
ATDH2227	44-lead PLCC Adapter for ATDH2200			
ATDH2225	Standalone In-System Programming Cable			





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#### FAQ

Accessible on web site

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