

AndeSight™ / AndESLive™

Software Developer's Environment

General Description

AndeSight™ and AndESLive™ together construct an integrated environment of Andes CPU based SoC for software development. AndeSight™ is an Eclipse-based integrated development environment that provides an efficient way to develop embedded applications of the target systems.

Features

▪ AndeSight™

- ▶ Eclipse-based IDE
- ▶ Project management
- ▶ Profiler
- ▶ Scripting support
- ▶ Target management
 - ✧ Virtual Evaluation Platform
 - ✧ Real evaluation platform
 - ✧ ICE
- ▶ Utilities
 - ✧ RTOS awareness
 - ✧ In System Programming

▪ Toolchains

- ▶ Compiler
- ▶ Libraries
 - ✧ newlib
 - ✧ glibc
 - ✧ uClibc
- ▶ Assembler
- ▶ Linker
- ▶ Debugger

▪ AndESLive™

- ▶ Core simulator (ISS)
- ▶ Pre-defined SoC models of AndeShape™
- ▶ Virtual SoC Builder

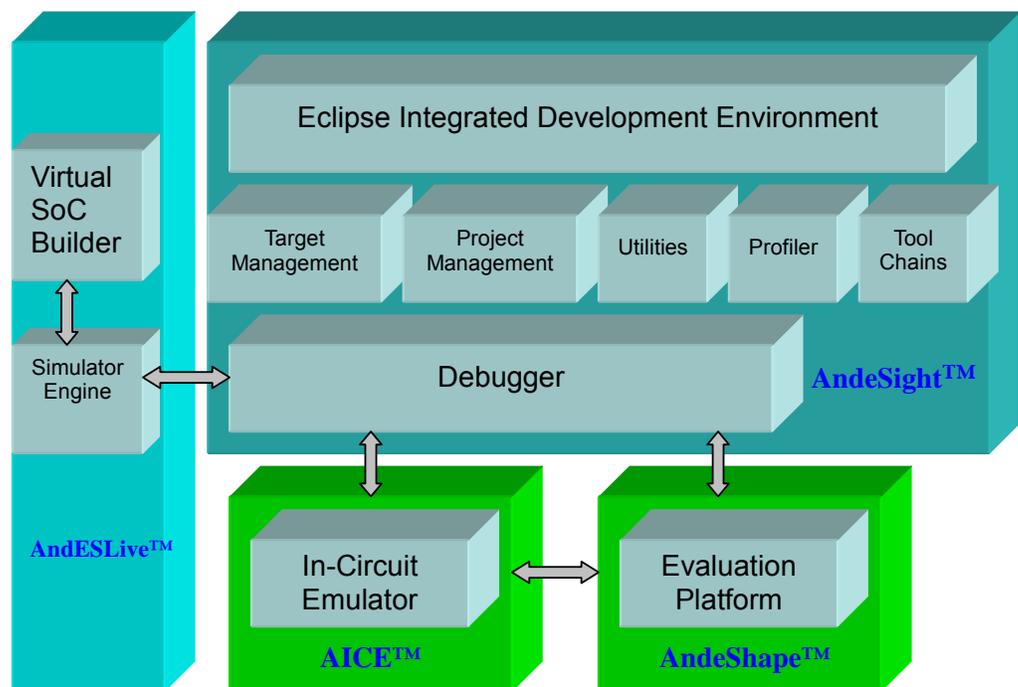
▪ Support AICE™

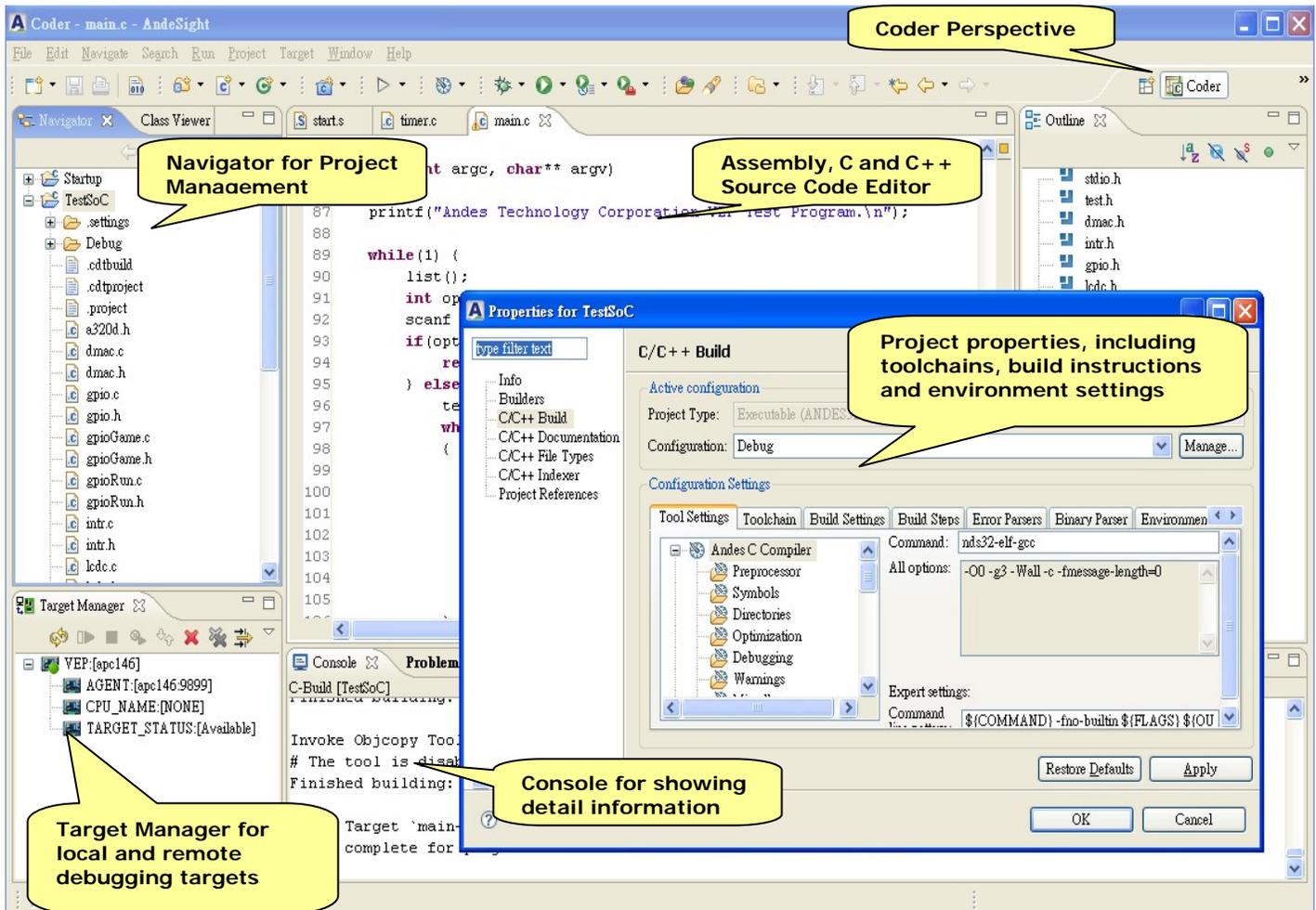
Supported Platform

- ▶ Windows XP Professional (SP2/SP3)
- ▶ Red Hat Enterprise Linux ES release 4
- ▶ CentOS 4.6/5.2

❖ Co-design of Hardware and Software

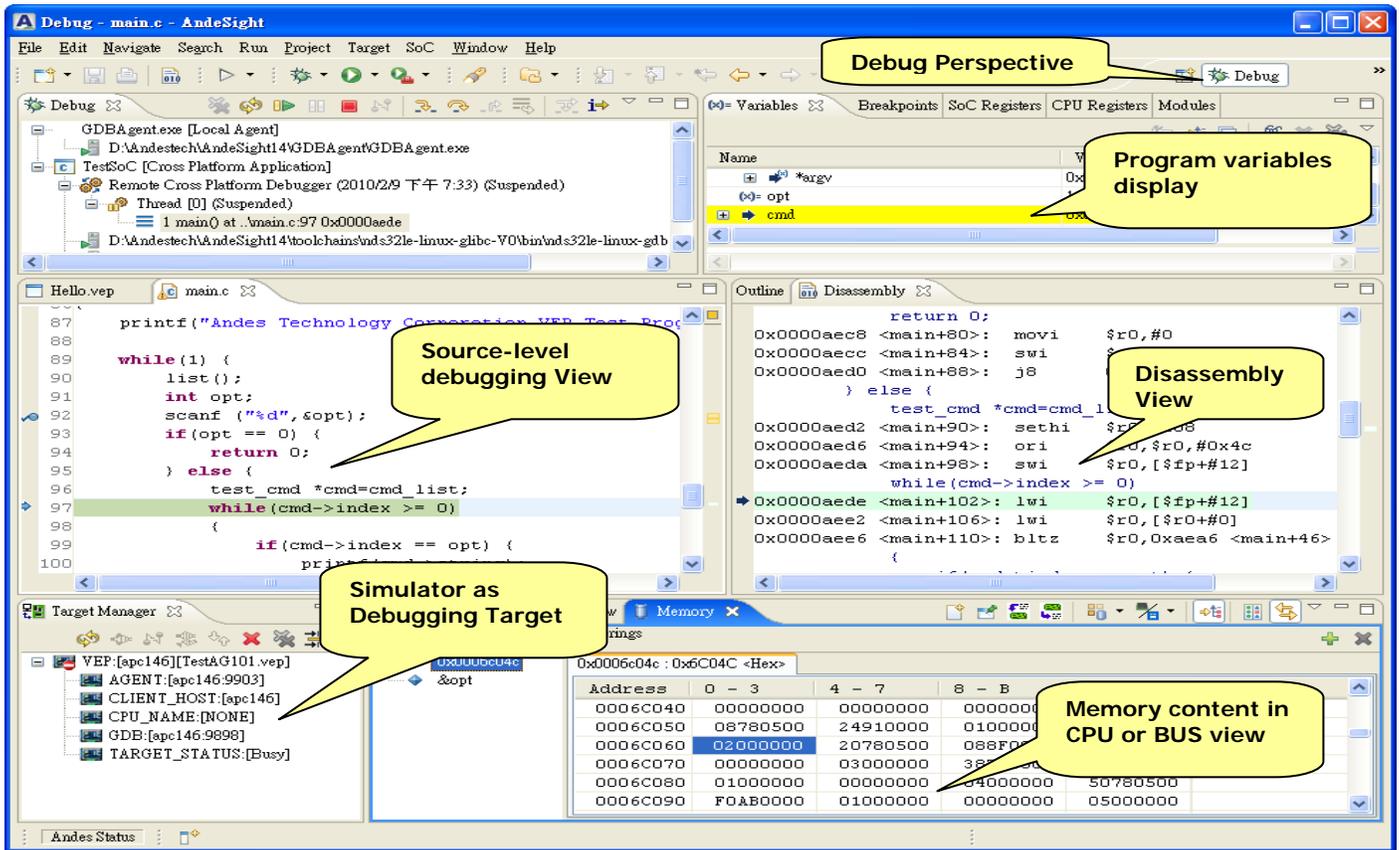
With the rapidly convergence of the embedded products, to pursuit an easy and flexible design environment and to save efforts of hardware designers and software programmers, AndeSight™ integrates environments of hardware and software to provide a complete development solution.





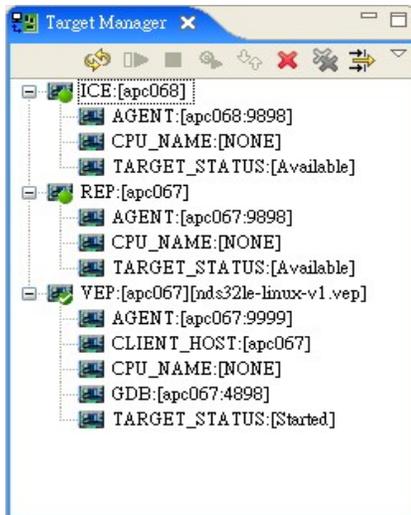
Coder Perspective

A fully functional Andes Assembly, C and C++ integrated development environment with various perspective views help users on multiple project management. The coder perspective houses Project Explorer View, Code Editor, Target Manager and Console View. Users can create, delete, and change project configurations and manage build system in Project Explorer View. On the Project Properties window, any project build related options, including toolchain selections, assembler, compiler, linker and debugger options and environment settings can be done through self-explanatory graphical user interfaces. The source code editor comes with syntax highlighting, code folding and auto-complete features which can help users edit the imported or newly created source code. The build process detail information on Console view can ease the troubleshooting process in case anything goes wrong during project build process.



Debug Perspective

The Debug Perspective consists of the Code Editor, Target Manager and Debug Views that aid users in diagnosing each step in the program execution. The rich diagnosing features help users monitor system information during debugging process, such as execution stack outlining and active threads for each target on Debug Views and source-level debugging status in Code Editor. The Memory View provides users memory content display and modification functions with user specific addresses. On the Disassembly View, users can see both high-level source code and its associated assembler code and identify issues in instruction level during debugging process even the program is written in high level programming languages.



Target Manager

A debugging target system to AndeSight™ may be a Virtual Evaluation Platform (VEP configuration file for SoC simulator), a Real Evaluation Platform (AndeShape™ EVBs), or an AICE™ ICE connecting to a Real Evaluation Platform. The Target Manager provides an easy-to-use interface to let users manage multiple targets, such as start, stop, restart and connect various debugging targets.

The Profiler Perspective consists of three main windows:

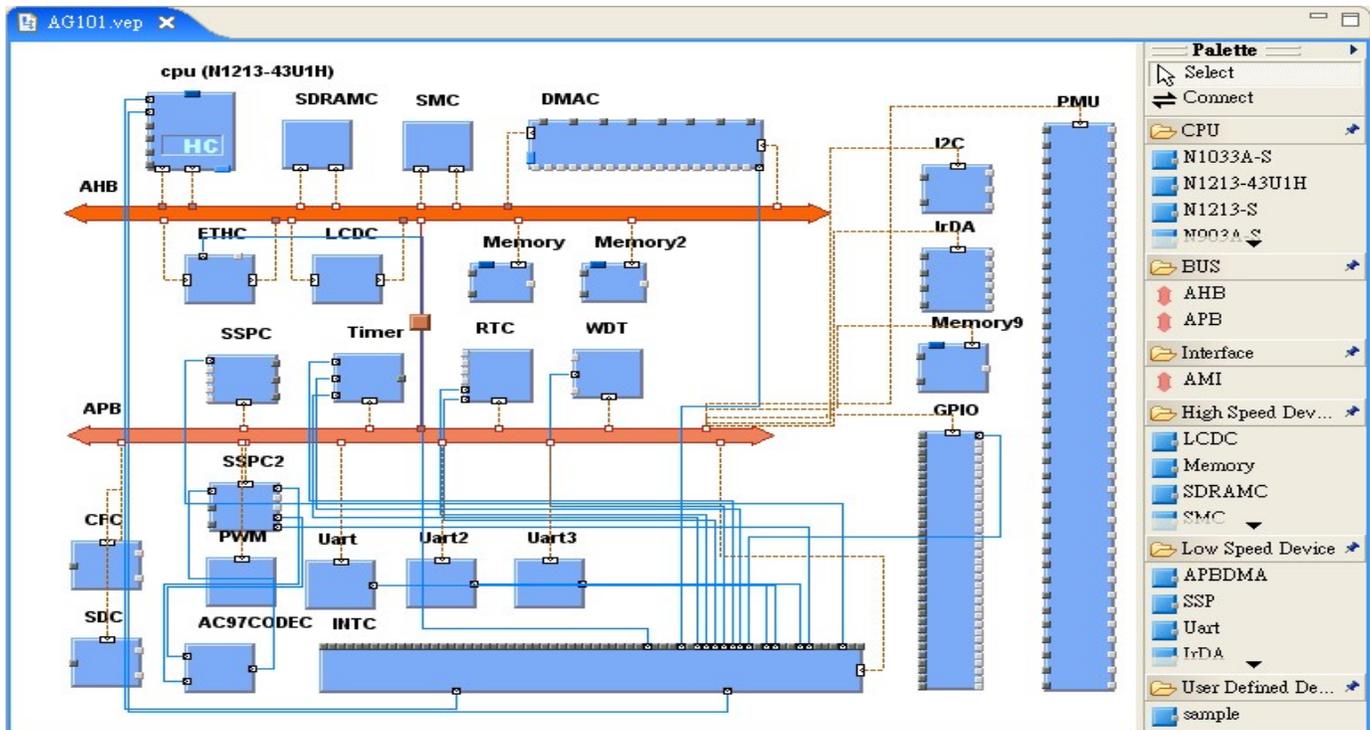
- Assembly Code:** Shows assembly instructions with addresses from 1385 to 1415. A callout bubble points to instruction 1394: `amfar $r26, $shft_ct10`, stating "Jump directly into instruction level for profiling analysis".
- Performance Meter:** A table showing performance metrics for each instruction. A callout bubble points to the first row, stating "Profiling data for each step".

Mode	InsC	I\$ Miss	D\$ Miss	BTB Miss	CycC	Source Code
	1	0	0	0	1	slshl\$13, \$r18, \$r12
	1	0	0	0	1	cmovw\$12, \$r18, \$r13
	1	0	0	0	1	slshl\$13, \$r12, \$r19
	1	0	0	0	1	cmovw\$12, \$r19, \$r13
	1	0	0	0	1	slshl\$12, \$r12, 6
	1	0	0	0	1	swi bshl2, \$r1, 8
	1	0	0	0	1	addl\$20, \$r20, -1
	1	0	0	0	1	bnez\$20, PQMF_POST_LOOPA
	1	0	0	0	2	amfar \$r26, \$shft_ct10
	1	0	0	0	1	sethi \$r27, 0xffff
	1	0	0	0	1	ori \$r27, \$r27, 0x7fe
	1	0	0	0	1	and \$r26, \$r26, \$r27
	1	0	0	0	1	amtar \$r26, \$shft_ct10
- Profiling Statistics:** A table showing statistics for each function. A callout bubble points to the first row, stating "Profiling statistic for each function of the program".

Name	Calls	Self InsC	Self CycC	CPI	Time Percentage
PQMF_POST_ASM	22,824	31,109,112	32,455,732	1.04	21.0%
III	1,268	22,259,263	20,791,273	1.34	20.1%
III	1,268	20,342,724	21,949,760	1.08	19.4%
D	15,246,432	15,908,339	15,908,339	1.04	19.3%
III	1,268	3,604,585	5,243,018	1.45	8.42%
III	1,268	1,877,806	3,982,156	2.12	2.60%
m	1,719	2,891,403	3,852,073	1.33	2.52%
III	2,824	2,008,512	3,651,840	1.82	2.39%
III	1,268	2,778,400	3,147,702	1.13	2.06%
m	544	2,197,216	2,512,192	1.14	1.64%
III	8,835	1,674,678	2,248,101	1.34	1.47%
III	917	701,220	1,204,293	1.83	0.94%
III	1,268	420,534	641,078	1.52	0.42%
III	317	232,370	465,152	2.00	0.30%
getl	5,086	188,182	244,128	1.30	0.16%
MP3_frame_sync	319	118,527	181,110	1.53	0.12%

In program profiling, informative profiling statistics is summarized and can be rendered instantaneously whenever program execution is suspended, either encountering a break point or stops after single stepping. The Profiler Perspective contains Performance Meter, Profiling Statistics for comprehensive performance analysis.

Profiler Perspective



SoC builder

Andes ESL environment for core simulator engine and peripherals of ADP-AG101



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