CHIPWRIGHTS

Software Development Kit

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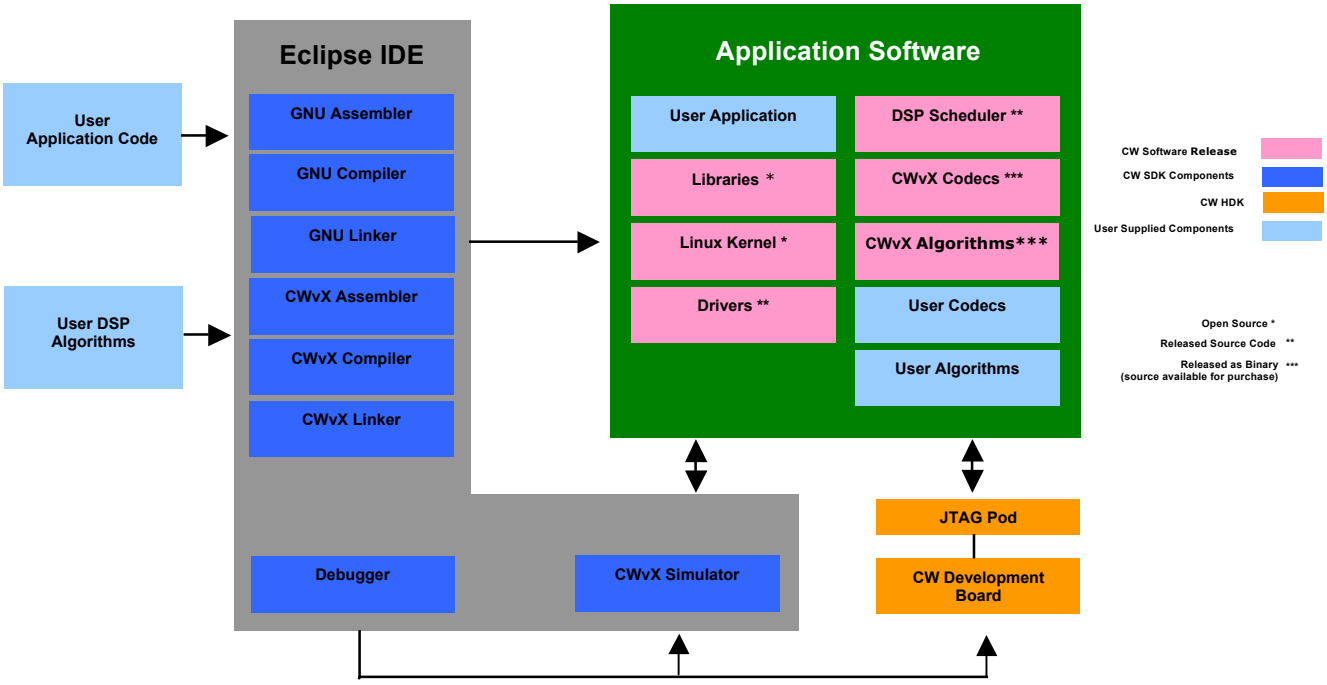
ChipWrights' Software Development Kit (SDK) is a complete development platform that supports rapid development of hardware and application software based on ChipWrights' programmable CW5631 System on Chip (SoC). The CW5631 SoC is widely used in multimedia applications, such as DVRs and IPTVs, digital signage, IP cameras and video analytics.

The SDK—based on the Eclipse™ IDE—provides a unified and flexible environment where developers can create, build, and debug software for the CW5631 SoC's embedded DSP and ARM® processors, execution platforms, and target processors. The linked applications can run on the CWvX Simulator, a ChipWrights hardware board, or a custom CW5631 target.

Key Features

- Integrates with ChipWrights' HDK, a proven hardware platform that provides a solid baseline
- Facilitates rapid prototyping, debug and design
- Easy-to-use GUI, accessible from Eclipse or command line
- Low level code and libraries maximize efficiency and enable real time application development
- Sample applications reduce development time
- Provides debugging capabilities on the CW5631 SoC



CHIPWRIGHTS
Visual Signal Processors

Development Environment

The SDK includes the Eclipse basic platform, which is an industry-standard open-source, extensible environment structured around the concept of plug-ins. You can build new plug-ins to extend the system. Specific plug-ins for building and debugging CWvX programs are included. You can access the SDK through the Eclipse GUI or from the command line.

CWvX Tools

- **C/C++ Compiler**: ANSI®-compliant, custom C/C++ functions for CWvX projects; translate source code into object code to run on CWvX targets; performs automatic vectorization; generates applications and libraries.
- **Assembler**: Stand-alone assembler uses CAS. Translates CAS code into machine language.
- **Linker**: Generates program files; links object code; generates executable files or libraries; extended functions for code organization and execution control.
- **Archiver**: Creates a library (libXXX.a form) from compiled objects; easily links into executable projects.
- **Simulator**: External launch tool; runs application code; emulates the SoC in software; fetches and decodes instructions; simulates original instructions; models stalls; reports non-operational instruction cycles; models the I-Cache. Lock areas of memory so that time-critical instructions execute from I-Cache. Models interrupt behavior; calculates the stalls that handle the interrupt.
- **Profiler**: Reports on application execution; HTML file lists the CWvX instructions generated; analyzes source code, includes times executed, execution cycles, disassembly, and stalls. Explains how to interpret the report and correct the stalls.

ARM SDK Tools

- C Compiler
- C++ Assembler
- Linker
- Makefile facilities
- ARM GNU Debugger
- OpenOCD/Olimex
- Eclipse GNUARM plug-in

Tool Chains

- CWvX: Produces code for CWvX/SAP cores
- CodeSourcery GNU: Produces code for the ARM core [runs ChipWrights-supplied version of Linux]
- OpenEmbedded GNU: Produces low-level code to run native on the ARM core

GNU Debuggers

Two standard, full implementation GNU debuggers provide GDB functionality including single step, continue, conditional breakpoints, stack trace, memory and register inspection. Connects to the simulator or development board, either on which it debugs software; communicates with the target board through the JTAG port or an Ethernet connection.

- CWvX debug:
  - Eclipse connects to the Board Interface Module, which drives the JTAG connection to the CWvX processors.
  - Eclipse connects to the GDB server running on the ARM processor through GDB via an Ethernet connection.
- ARM debug:
  - Eclipse connects to the OpenOCD application, which either drives the JTAG connection to the ARM core through GDB, or connects to the GDB server through an Ethernet connection.

System Requirements

- PC; OS: Microsoft® Windows® 2000, Windows XP
- 2GB RAM
- 3GHz CPU
- 30GB disk space
- CD-ROM drive
- Parallel or USB port to connect to JTAG targets

www.chipwrights.com

19 Crosby Drive, Suite 300, Bedford, MA 01730 | Tel: (781) 271-4100 | FAX: (781) 271-4199 | Email: inquiries@chipwrights.com