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Embedded in Life

An **IXYS** Company

eZ80Acclaim!™ Product Family

Zilog Developer Studio II

Product Brief

PRELIMINARY

Zilog Developer Studio II

Introduction

The Zilog Developer Studio II (ZDSII) Integrated Development Environment is a complete standalone system that provides a state-of-the-art development environment. Based on a standard Windows user interface, ZDSII integrates a language-sensitive editor, project manager, C-Compiler, assembler, linker, librarian, and source-level symbolic debugger to provide a development solution specifically tailored to the eZ80® and eZ80Acclaim!™ microcontroller product lines.

Zilog Developer Studio II also integrates Zilog's Real-Time Kernel and Full-Featured TCP/IP software suites for ease of use and faster time to market for web services and multitasking requirements. For more information see the product briefs for the Zilog Full-Feature

TCP/IP Software Suite (PB0154) and Zilog Real-Time Kernel (PB0155).

ZDS II Products Integrated for the eZ80

Assembler	ez80asm
Compiler	ez80cc
Linker	ez80link
Librarian	ez80lib
Simulator	ez80sim
Flash Loader	Yes
Host Communications	RS-232, USB, Ethernet
Zilog Standard Library	Zilog Real-Time Kernel (RZK)
Zilog Full -Feature TCP/IP Software Suite (ZTP)	

A typical display interface showing many of the features of ZDSII is shown in Figure 1.
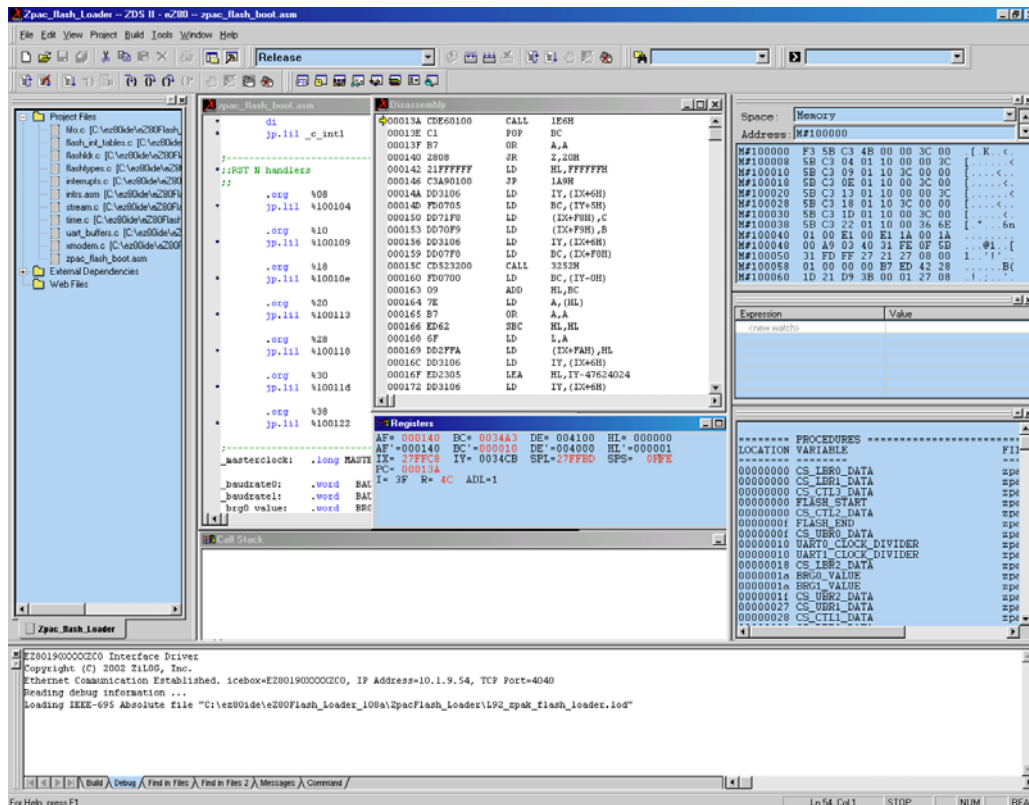

Figure 1. ZDSII's Easy-To-Use Interface

Easy-To-Use Interface

ZDS II provides a standard user interface with intuitive, easy-to-use controls commonly found in Windows-based environments. The system contains an integrated set of windows, document views, menus, and toolbars to create, test, and refine applications without having to alternate between different systems.

Flexible and Adaptable Design Capabilities

Designed to use the multithreading capability of the host operating system, multiple operations can be performed efficiently and easily with ZDS II. Working in this type of multitasking environment allows file editing while simultaneously compiling code.

Save Valuable Time

The basic components of ZDS II are an assembler, C-Compiler, linker, debugger, and editor. Each of these modules plays an important role in helping a developer compile a product in record time.

Incorporating auto-completion and auto-insert for braces and quotes, the Intelligent Editor allows users to read and write code faster, navigate intelligently and identify and correct mistakes.

Combining a simple interface and flexible design elements results in full command of design applications and quick time-to-market.

Features

- Integrated Project Management – create, add, or remove project files
- Intelligent Editor Support that allows you to read and write code faster, navigate intelligently and identify and correct mistakes
- Color configuration per syntax style
- *Find/Find in Files/Replace* capabilities
- Optimizing ANSI C-Compiler
- Compile, Build, and Rebuild All capabilities
- Download, Execute, Debug, and Analyze
- Language-sensitive editor
- Symbolic source-level debugging for C and assembly languages
- Online Help
- Full-featured assembler and linker

- Interleaved source and disassembly
- Makefile generation
- Scripting language
- Web file-to-C converter
- Zilog Standard Library (ZSL) with support for multi-threading applications
- Zilog Real-Time Kernel (RZK)
- Zilog TCP/IP Software Suite (ZTP)
- In-Circuit Debugger and Flash Programmer

Specifications

- Zilog Developer Studio (ZDS II)
- Configurable settings for:

CPU	Target
Compiler	Debugger
Assembler	Simulator
Linker	Workspace
Zilog Standard Library (ZSL)	Zilog Real-time Kernel (RZK)
Editor options	

- Debugger:
  – Source level, symbolic assembly debugging
  – eZ80 C-Compiler
- Supported Zilog processor family: eZ80Acclaim!™
- Host operating system: Windows 2000, Windows XP Pro (32 bit), Windows Vista
- Supported hardware: Zilog Development Kits – eZ80190XXXXZCO, eZ80L92XXXXZCO, eZ80F9xXXXXZCO

IDE Window Details

Zilog ZDS II features several windows that allow viewing various aspects of ZDS II tools while working with a project.

Project Workspace Window

The Project Workspace window displays project files. It uses a graphical hierarchy to display a project's source, dependency, and object files. This graphic tree displays separate folders for source, web, and dependency files. These files display in the Project Workspace window when the project is first opened.

Editor Window

The Editor window allows viewing and editing of the files in a project. It includes a chroma-code language-sensitive editor that displays instructions, comments, and assembler directives in different colors. It also includes built-in search capabilities. Double-click on an error message in the output window to find the line containing the error.

Output Windows

Use the Output windows to view comments and errors when building or compiling a project. Output windows contain tabs for Build, Debug and Find, Message, and Command Output functions. The Build tab displays the results of the assembler/linker process. The Debug tab displays error messages during the Debug and Build processes. The two Find files hold the results of the Find in Files Command, depending on which Find in Files tab the user chooses. The Messages Output window displays informational messages intended for the user. The Command Output window displays all text messages and output generated by the ZDSII IDE as it executes commands.

Status Bar

The Status Bar displays the current status of program execution. Status messages include STOP, STEP, and RUN. STOP mode halts the program. STEP mode allows Step Into, Step Over, and Step Out commands.

Debug Windows

ZDSII features several specialized windows that allow viewing information that helps to debug applications. These windows are only available when running in Debug mode. Select the Debug Windows submenu and the name of the Debug window or click on the appropriate Debug window's icon in the toolbar. Figure 2 illustrates the Debug Window.

Developers can use the following commands and tools:

- Go, Break, Reset, Step Into, Step Over, Step Out, and Set Next Instruction commands
- Run or Jump to Cursor commands
- Downloading code to Zilog emulators
- Inserting or removing breakpoints
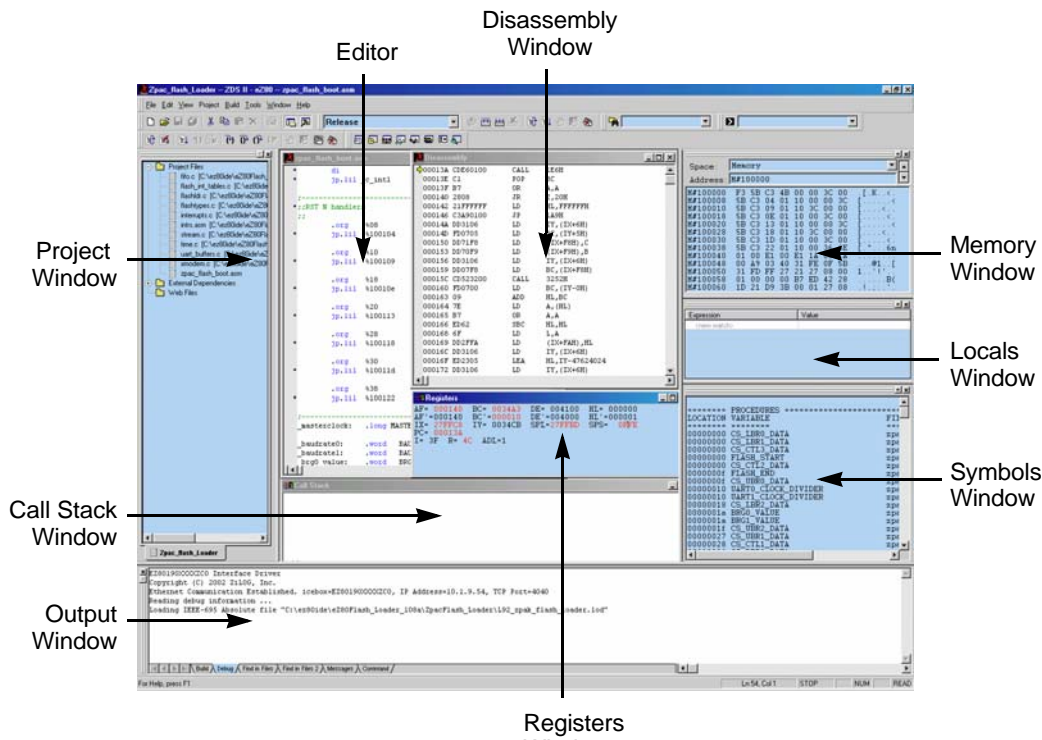- Enable/Disable (All) breakpoints

Figure 2. Debug Windows—Preliminary Example

Zilog Developer Studio II – eZ80Acclaim!™ Product Family

Table 1 lists the Debug windows and functions.

Table 1. Functions of the Debug Window

Debug Window	Function
Registers	Displays the contents of all registers.
Memory	Displays data located in program memory.
Watch	Displays all the variables and their values defined using the WATCH command. If the variable is not in scope, the variable is not displayed.
Locals	Displays all local variables that are currently in scope.
Call Stack	Displays the functions whose frames have been pushed onto the stack.
Symbols	Displays the address for each symbol in the program.
Disassembly	Displays the assembly code associated with the code displayed in the Code window. For each line in this window, the address location, the machine code, the assembly instruction and its operands display.
Special Function Registers	Displays the contents of the special function registers for the selected target.

eZ80 C-Compiler

Introduction

The eZ80 C-Compiler is an optimizing ANSI C-Compiler. The eZ80 C-Compiler meets ANSI's definition of a *freestanding implementation* (code can be developed for another machine; also, it is not assumed that operating system services will be available at run time), with the exception that doubles (object types) are 32 bits. In accordance with the definition of a freestanding implementation, the compiler accepts programs which confine the use of the features of the ANSI standard library to the contents of the standard headers: `<float.h>`, `<limits.h>` and `<stddef.h>`. This release supports more of the standard library than is required of a freestanding implementation.

The compiler runs on the Windows 2000, Windows XP Pro (32-bit) or Windows Vista operating systems and can be invoked either through the command line or within the Zilog Developer Studio Integrated Development Environment. There are several language extensions supported in this version of the compiler, including interrupt support and syntax for placing variables at specific addresses.

Figure 3 illustrates an example of the eZ80 C-Compiler development flow.

Software Features
- Highly optimized ANSI C-Compiler

- ANSI C run time library
  - String manipulation
  - Character classification and conversion
  - Buffer manipulation
  - Data conversion
  - Floating point and trigonometric functions
- Single precision IEEE floating point support
- Extensions for interrupt service routines
- Support for in-line assembly
- Intrinsic functions that are in-line expanded
- Copies initialized data from ROM to RAM
- The compiler, assembler, linker, and librarian can be used within ZDS or individually on the command line
- Optimizations:
  - Constant folding
  - Constant propagation
  - Copy propagation
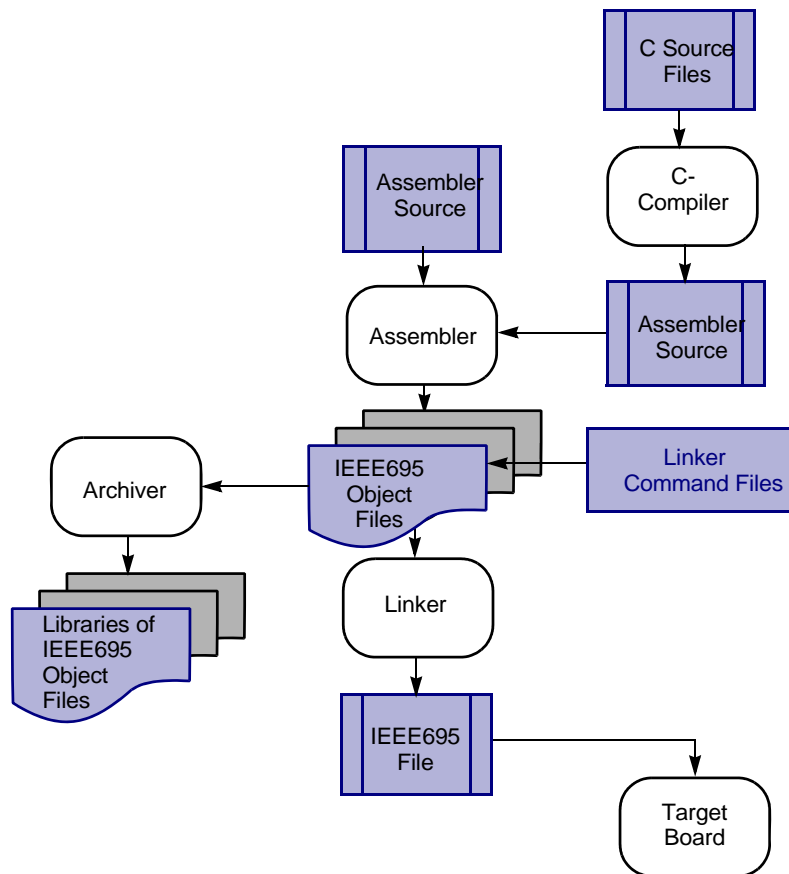 - Common sub-expression elimination

Figure 3. C-Compiler Development Flow

Suggested Requirements

- Windows XP Professional SP3 or later
- Pentium IV 2.2GHz processor or higher
- 1024MB RAM or higher
- 135MB hard disk space available
- Super VGA Video Adapter
- CD-ROM for installation
- RS-232 communication ports
- USB high-speed port (when using USB Smart Cable)
- Ethernet port (when using Ethernet Smart Cable)
- Internet browser (Internet Explorer or Netscape)
- CD-ROM for installation

Minimum Requirements

- Windows XP Professional SP3
- Pentium IV 1.2GHz processor or higher
- 512MB RAM
- 25MB hard disk space (not including documentation)
- Super VGA Video Adapter
- CD-ROM for installation
- Ethernet port (when using Ethernet Smart Cable)
- One or more RS-232 communications ports
- USB high-speed port (when using USB Smart Cable)
- Internet browser (Internet Explorer or Netscape)

Supported Zilog Processor Families

- Zilog eZ80® MPU

Technical Support

- http://support.zilog.com/
- Toll-free telephone, U.S.: 1.877.945.6427
- International telephone: 512.306.4067
- Facsimile: 512.306.4072

Distribution Contents

- C-Compiler
- Assembler, linker and archive executables
- Header files
- Libraries
- Sample files and/or projects
- C-Compiler user manual in PDF format
- Release documentation with change logs
- ZDS configuration files
- ZTP and RZK binaries

Supporting Documentation

- Zilog Real-Time Kernel Reference Manual (RM0006)
- Zilog Real-Time Kernel User Manual (UM0075)
- Zilog File System User Manual (UM0179)
- Zilog Full-Feature TCP/IP Software Suite Product Brief (PB0154)
- Zilog Real-Time Kernel Product Brief (PB0155)

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