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Product Profile

MCUdebug™ Source Level Debugger and Integrated Development Environment

MCUdebug consists of a Source Level Debugger (SLD) and Integrated Development Environment (IDE). MCUdebug supports 8-bit MCUs on both the high performance Motorola Modular Development Systems (MMDS) and the cost effective Motorola Modular Evaluation System (MMEVS). Target platforms that have a Background Debug Mode (BDM) connector are also supported.

MCUdebug operates under 32-bit windows and supports source-level debugging for both assembly and C programming languages. The IDE is compatible with MCUasm™ and can be configured to work with other assemblers, compilers and editors. MCUdebug provides the same look-and-feel when used with an emulator, an evaluation system, or when in stand-alone operation. It is not necessary to learn new commands or syntax to move from an evaluation system to an emulator. A user can edit source code, assemble or compile that code, link and download the executable files, and then debug the application without leaving MCUdebug.

Features include:

- Common graphical user interface on a variety of target platforms
- Source-level debugging using popular debugging formats, such as the Common Object File Format (COFF) and P&E Microcomputer's Mapfile
- Integrated Development Environment
- Built-in assembler and disassembler
- Project definition and support aid application creation, development and maintenance.
- Short-cut Command Language Interface
- Ability to log and save commands
- Script files which can be used to automate set-up or testing
- Customization of the GUI including, colors, fonts and window layout
- User controlled definition of the editor, compiler and assembler
- Full access to emulator features, including real-time breakpoints and real-time trace buffer
- Automatic detection and configuration of the emulated MCU when working with the MMDS
- Command aliasing capability allows customizing command language.
- Capability to save and restore the current set-up
- On-line help

Command Summary

MCUdebug provides a wide variety of commands to assist a user in developing and in debugging applications. **Table 1** contains a complete list of command mnemonics and a brief functional description of each command. Commands can be accessed either through a graphical user interface (GUI) or by means of a command line interface. The GUI is simple, easy to learn, and easy to use — the user simply points and clicks with a mouse.

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Table 1 Command Summary

A	Set Accumulator
ADDASM	Add an asm source file to project
ALIAS	Alias an existing command
ARCH	Define the project architecture
ASM	Assemble instructions
BAUD	Set communications baud rate
BD	Disable breakpoints
BELL	Sound bell
BINPATH	Set project binary path
BP	Set breakpoint
BUILD	Build the project
CCL	Clear command log
CCOPT	Set C compiler options
CF	Execute command file
CLEARMAP	Remove symbols
CLRSYM	Remove symbols
COMPILE	Compile/assemble source file
DELETE	Delete source file from project
EDITPROJ	Pop the project dialog
EXIT	Terminate host session
GO	Begin program execution
H	Set/clear H bit of CCR
HREG	Set H register(HC08)
INCPTH	Set project include path
LC	Set project locator
LD	Set project linker
LF	Open log file
LIBPATH	Set project library path
LOADMAP	Load a object file
LOG	Set logging options
MM	Memory modify
NEWPROJ	Start a new project
NOLF	Close log file
OPENPROJ	Open an existing project file
PALIAS	Display command alias
QUIT	Terminate host session
REBUILD	Rebuild all project components
REM	Add comment to script file
RESETIN	Reset input enable
RM	Register modify
SAVE	Save current project
SCANALL	Scan all source file dependencies
SETMEM	Customize memory map
STEP	Single step (trace)
STEPTIL	Single step to address
SYSINFO	Display system information
UNALIAS	Remove alias
V	Set/clear V bit of CCR
VER	Display software version
WAIT	Pause command processing
X	Set X register
Z	Set/clear Z bit of CCR

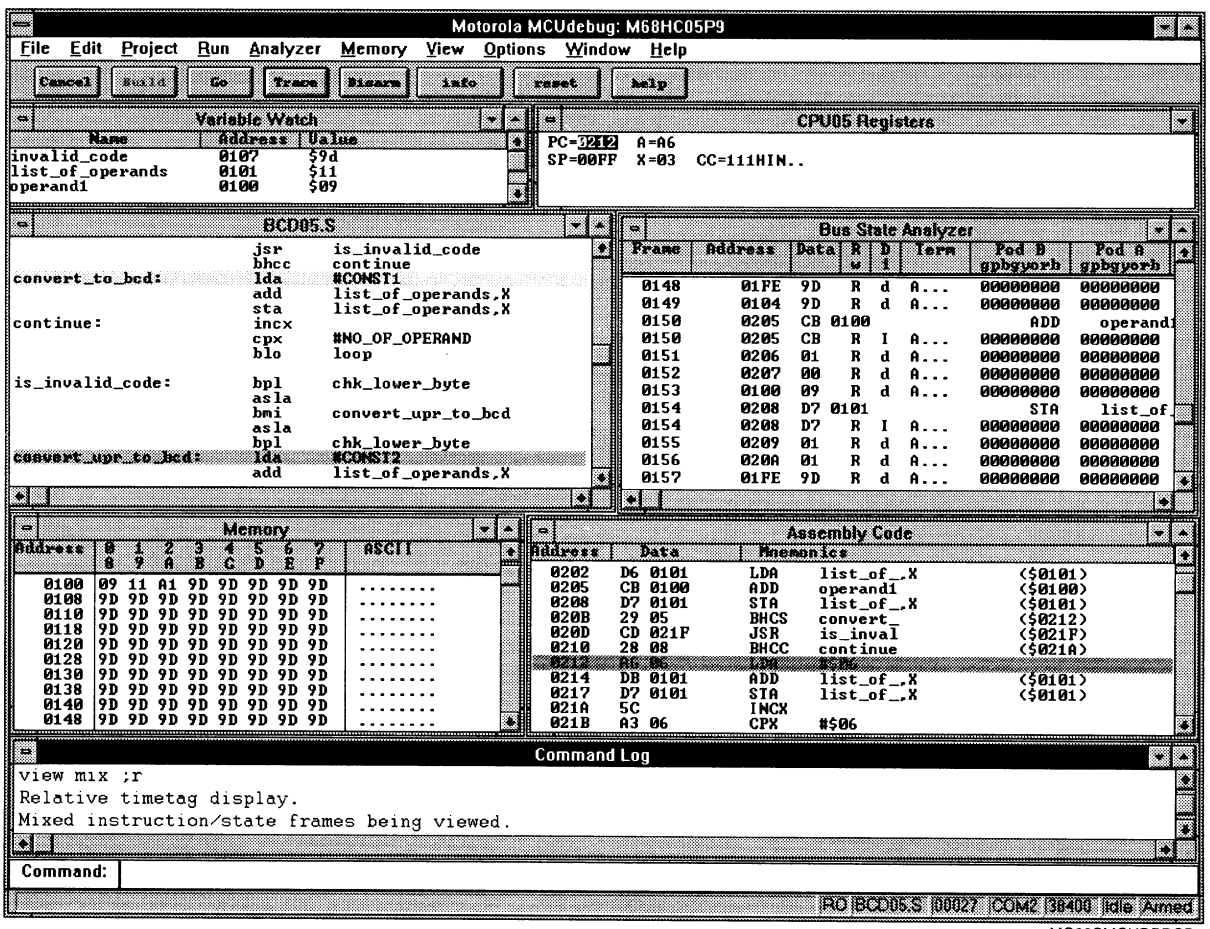
ACC	Set Accumulator
ADDC	Add a C source file to project
ANIMATE	Single step forever
AS	Set the project assembler
ASMOPT	Set assembler options
BC	Clear breakpoints
BE	Enable breakpoints
BF	Block fill memory range
BL	List breakpoints
BR	Set breakpoint
C	Set/clear the C bit of CCR
CCOM	Set project C compiler
CCR	Set condition code register
CHIPINFO	Chip help information
CLOSEPOJ	Close current project
COLORS	Set screen colors
DASM	Disassemble instructions
DIFF	Compare two files
EVAL	Evaluate argument
G	Begin program execution
GOTIL	Execute program until address
HELP	Display help information
I	Set/clear I bit of CCR
INFO	Information about source line
LCOPT	Set project locator options
LDOPT	Set project linker options
LIB	Define project libraries
LOAD	Load object file
LOADMEM	Load memory map
MD	Memory display
N	Set/clear N bit of CCR
NOBR	Clear breakpoints
OBJ	Define project object file
OSC	Set emulator clock frequency
PC	Set/clear program counter
RD	Register display
REG	Register display
RESET	Reset target processor
RESETOUT	Reset output enable
S	Stop the program execution
SAVEAS	Rename and save project
SCRIPT	Execute script file
SHOWMEM	Display memory map
STEPFOR	Step forever
STOP	Stop program execution
T	Single step (trace)
UNVAR	Remove variable from watch
VAR	Display variable
VERSION	Display software version
WHEREIS	Display symbol value
XREG	Set X register

tware

Evaluation boards provide a basic level of debugging support. For more difficult debugging tasks, more sophisticated debugging support can significantly reduce product cycle time. In-circuit emulators, such as the Motorola MMDS05, provide these features. MCUdebug provides the additional features listed in **Table 2** when connected to an emulator. **Figure 1** shows the GUI in emulator mode.

Table 2 Additional MMDS Commands

ARM	Arm bus state analyzer	**CT**	Clear triggers
DARM	Disarm bus state analyzer	**ENDBSA**	Go to end of trace buffer
GE	Go to analyzer event	**GF**	Go to analyzer frame
GP	Go to analyzer pattern	**HOMEBSA**	Go to start of trace buffer
LOADTRIGGERS	Load a BSA trigger setup	**LT**	Log trace buffer
NEXTA-E	Go to next A-E event in trace buffer	**RTMEM**	Set real-time memory block
RTVAR	Display real-time variable	**SETMUX**	Set BSA multiplexor
SQ	Set analyzer sequencer	**ST**	Set trigger specifications
SXB	Set BSA multiplexor B	**TIMETAG**	Time tag clock source
VIEW	Select analyzer view	**WAIT4RESET**	Wait for target reset



MC68SMCUDBDSD

Figure 1 MCUdebug Emulator Interface

debug is part of the MCUasm toolset. It is intended for use on IBM PCs and 100% atible machines which contain an 80486-type (or later) microprocessor running MS-DOS™ version 5.0 or later and Microsoft Windows™ version 3.1 or later. 8 MB of RAM is required, and 20 MB of disk storage are needed to install the complete toolset.

Contents

The MCUdebug package includes:

- Users Manual
- License Agreement
- 3.5 inch DSHD disk (1.44Mb)

The Users Manual includes telephone and facsimile numbers and an Internet address for technical support.

Technical Support Information

- Telephone Support: 512-891-6276
- FAX Number: 512-891-2720
- Internet Address: masm@lemond.sps.mot.com

Ordering Information

MCUdebug comes bundled with MMDS05, MMDS08, MMEVS05, MMEVS08 development systems and MCUasm. These products can be ordered through Motorola and participating authorized distributors. For information about a sales office or distributor near you, please call (800) 765-7795, Extension 910.