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68HC05 iceMASTER-AC™ In-Circuit Emulators



PRODUCT DESCRIPTION

The **iceMASTER-68HC05** Model 200/400 emulator represents a culmination of 7 years of focused engineering to create the world's most affordable and portable full-featured emulators.

The **iceMASTER-68HC05** emulators offer real-time and transparent emulation at up to 4MHz for a number of derivative devices through the use of interchangeable probe cards. Powerful breakpoint systems allow an engineer to stop a program at any time and examine all states and conditions. Trace memory provides a history of each event that has occurred, including source-level information, address, data, status, searching and external logic events. The best performance analyzer capability in the industry allows a thorough evaluation of the program to decide which areas are taking the most time and require improved performance.

The **iceMASTER-68HC05** emulators support symbolic and source-level debugging for the most popular 68HC05 Cross Assemblers and 'C' Compilers. These capabilities allow the designer to debug their system the way it was designed, at the symbolic or source-level. This methodology increases productivity while decreasing cost and time-to-market.

The ice**MASTER-68HC05** emulators provide pull-down and pop-up menus, function/hot keys, and context-sensitive hyperlinked help. The advanced windowed user interface emphasizes ease of use. Each window can be sized, moved, scrolled, highlighted, color-controlled, added or removed completely. The contents of any memory space may be perused and altered directly from the appropriate window, with multiple memory spaces displayable simultaneously.

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KEY CHARACTERISTICS

- ❑ Full-Featured, Real-time & Transparent Emulator
- ❑ Supports 68HC05 family devices up to 4MHz
- ❑ Interchangeable Probe Cards
- ❑ Hosted on any 386 or better PC or compatible, including Laptops, Notebooks, or Micro Channel
- ❑ 115K baud serial link using a standard comm port
- ❑ Unlimited user support

HARDWARE CAPABILITIES

- ❑ 32K Memory
- ❑ 4K frame trace buffer
- ❑ Advanced trace search ability
- ❑ 32K hardware breakpoints
- ❑ 32K Trace ON/OFF triggers
- ❑ Dual Performance Analyzers

SYSTEM FEATURES

- ❑ Efficient, powerful, easy to learn
- ❑ User control of window size, content & color
- ❑ Supports third party Assemblers & Compilers
- ❑ Full Symbolic & Source-Level debug
- ❑ Complete system - includes Emulator, RS-232 cable & power supply

MetaLink Corporation

iceMASTER-68HC05 Model 200/400 Development Systems

MetaLink specializes in enhancing the emulation technology required by EMBEDDED SYSTEMS DESIGNERS. MetaLink has consistently led the industry in emulation technology: The first PC-based 8051 emulator; the first 8052 emulator; the first to offer support for all the unique features of the 68HC05 family components, such as watchdog-timer, idle modes and power down mode.

MetaLink is a full-service emulation company. We support our customers over the long term with services such as repair, discounted upgrades, rental units, 10-day trial purchase periods, and free technical support for applications problems. A network of world-wide sales and service representatives is augmented by a well-trained telemarketing staff at headquarters.

❑ HOST SPECIFICATIONS

Host IBM 386, 486, PS/2, Laptop, Notebook or compatible system, 640K bytes of RAM, Hard Disk Drive, Monochrome or Color/Graphic Display, with a Standard RS-232 Serial Port. Operating System DOS 3.1 or greater

❑ EMULATOR SOFTWARE SPECIFICATIONS

File Formats Supported with Symbolic or Source-Level Debugging:
- Avocet, Byte Craft, BSO/ Tasking, Intel OMF, Introl, Microtec Research, Motorola 'S' records and Intel HEX

Source/Symbol Support:
- Assembler and C Languages

Symbolic or Source-Level Debug:
- Setting of Breakpoints
- Setting of Trace ON/OFF
- Viewing the Trace Buffer
- Viewing of Source Window Display
- Viewing of Performance Analyzer
- Assembly/Disassembly of Code

HLL Structure/Content Display of:
- Modules
- Line Numbers
- Scopes
- Program Variables

❑ EMULATOR HARDWARE SPECIFICATIONS

iceMASTER-68HC05 Models:
- 200 Basic Emulator
- 400 Enhanced Emulator with:
  - 4K Trace Buffer
  - 2 Performance Analyzers
  - Full Watchdog Timer Support

Operating Mode:
- Single-Chip

Interchangeable Probe Card
- Used to support the functional derivatives of each microcontroller family. Contact MetaLink for the latest information on any device supported

❑ OPERATING CHARACTERISTICS

Clock frequency user-selectable between external target crystal/clock or internal crystal source
Electrically and Operationally Transparent
Real-time: 1MHz - 4MHz

❑ USER INTERFACE

Keyboard or Mouse Control
Pull-down & Pop-up menus with fill-in boxes
Available Main Screen Windows:
- Registers and PSW bits
- Stack data displayed in HEX &/or ASCII
- Up to 5 Memory Windows displayed in HEX &/or ASCII
- Source Program displayed in Code, HLL Source or Mixed
- Watch window for variable data
- System Status data displayed in HEX

Main Screen Window Display Controls:
- Movable
- Selectable (On/Off)
- Sizable
- Color selection
- Scrollable
- Highlighting of key data

Function/Hot Key Access:
- User-assignable for commands
- User-displayable for quick reference

❑ MEMORY OPERATIONS

Emulation Memory:
- 32K Memory

Memory:
- Single Line Assembler (full instruction set support)
- Disassemble in Code or Source/Code mode
- Disassembly may be written to a disk file
- Fill of a block of memory with data
- Copy a block of data to another area
- Change a single address data content
- Compare any two blocks of addressed data
- Displayed data may be written to a file

Registers/SFRs/Memory:
- Examine or Modify

Program Variables:
- Examine or Modify

❑ EMULATION CONTROLS

Reset from Emulator and Go
Reset from Target and Go
Reset Processor
Go from current Program Counter
Go From a new Program Counter
Go Until a Program Counter/Label
Slow Motion (Repetitive Step commands)
Step by machine instruction
Step by Line Number
Step Over
Step To next function or procedure

❑ HARDWARE BREAKPOINTS

32K real-time Program Addresses
32K write access
32K write protect
Set directly in Source window or Pull-down menu

❑ TRIGGER CONDITIONS

PC address & range of addresses
Opcode Value
Opcode Class
SFRs/Registers
Direct byte address & range of addresses
Immediate operand value
Register address modes
Read/Write to Register address
Logical AND/OR of any of the above
Pass Count Overflow
External (CLIP) Break Input
External (CLIP) Trigger Output

❑ TRACE (Model 400)

4K-Frame Trace Buffer
Start, Center, End & Variable Trace Trigger settings
32K Trace ON/OFF triggers for trace filtering
Trace Contents consist of:
- 15-bits Address Bus
- 8-bits Data Bus
- 7-bits External Clips

Trace Display Modes:
- Raw Hex
- Symbolic
- HLL Source
- Mixed

External Clips display format:
- Binary data
- HEX data
- Digital waveform

Trace Buffer Operations:
- Write trace buffer to a disk file
- Search trace buffer for labels & addresses

❑ PERFORMANCE ANALYZERS (Model 400)

Real-time Program profiling capability
5.4µ-sec sampling period
7 year duration
Display options:
- Bar Graph
- Frequency Count

Display Modes:
- Raw
- Symbolic
- Mixed
- HLL Source Lines

Up to 999 Bin capacity
User-controlled Bin set-up:
- By Address
- By Symbol
- By Module
- By Line Number
- Automatic

❑ HELP

On-Line
Context sensitive
Hypertext/Hyperlinked

❑ MACRO

Repetitive routines
User-created and callable

❑ ELECTRICAL SPECIFICATIONS

Input Power (maximum):
- 1.5 A @ +5 VDC +/-5%

❑ MECHANICAL SPECIFICATIONS

Emulator Dimensions:
- 7.0" x 5.5" x 1.0"
- 17.8cm x 14cm x 2.54cm

Emulator weight:
- 2.0lbs 0.9kg

❑ ANNUNCIATORS

Power, Reset, Break, and Active LEDs
Power ON/OFF, Reset, Break switches

❑ WARRANTY

One (1) year limited warranty, parts and labor



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