

UniSTAC II™ SH7046/47 In-Circuit Emulator



- Supports Renesas Technology SH7046/148, SH7047/48/49, SH7144/45 microcontroller
- Sophia special connector provides On-chip debugging
- Supports Renesas H-UDI, AUD connectors
- Supports MCU clock speed up to 50 MHz
- View/modify internal peripheral
- 4 hardware breakpoints, unlimited software breakpoints
- Download to external Flash memory
- Programming to internal Flash
- Max 4 Mbytes emulation memory can be allocated
- Branch trace capability
- Real-time bus trace capability
- Software Performance measurement
- USB and LAN host interfaces supported for high-speed communication with host computer
- Watchpoint®, a powerful high-level language debugger for Windows®, provides common user interface for all Sophia Systems emulators (USB:Windows98/Me/2000/XP) (TCP/IP)Window98/Me/NT/2000/XP
- Supports C++(Renesas SHC), Green Hills, GAIO C compiler

Specifications

Target CPU	SH7046, SH7148, SH7047, SH7048, SH7049 SH7144(Flash/Mask), SH7145(Flash/Mask)
Package	QFP-80, QFP-100, QFP-112, QFP144 as an option
PU Clock	Maximum 50 MHz
Target Vcc	+3 VDC ~ +5 VDC
Memory and I/O	Entire space is available to user
Interrupts	Both internal and external interrupts are available for real-time CPU execution
Breakpoints and Break options	Execution address break options <ul style="list-style-type: none"> • 4 hardware breakpoints • Unlimited software breakpoints (Not valid for ROM) Other break options <ul style="list-style-type: none"> • Forced break from Debug Monitor • Write-protect error • Trace End
ICE Environment Settings	Enable/disable bus cycle time-out Enable/disable target control signals: NMI, WAIT, STANBY, BREQ
Reset	Reset the MCU during program execution
Flash Memory	Download to flash memory on the target system
Coverage Performance Analyzer	The following measurements can be performed Coverage: Records the executed instruction addresses or data access addresses within specified memory ranges Performance: Measures the execution time between two points of the program; shows actual, minimum, maximum, and average values

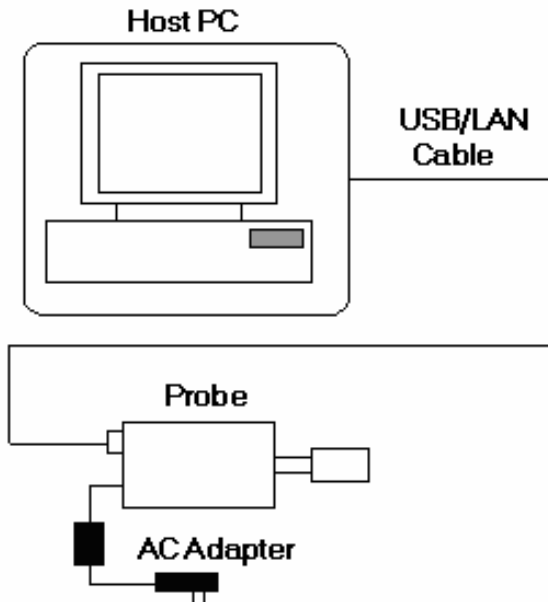
Emulation Memory	1 Mbytes internal ROM and 4MBytes emulation memory as standard
Real-time Trace	-64K step storage capacity. -Store trace address, data, status, external control signal, time stamp. Real-time Trace Modes: Free run- Continuously records Trace data Points Max. 5 points Or- Triggers when one of the points is satisfied And- Triggers when all of the points are satisfied (any sequence) Sequential- Triggers on sequential levels Sampling- Records specific trigger cycles Trigger Point Conditions: Address: Specifies a trigger address (MASKable) Data: Specifies a trigger data value (MASKable) Status: Specify CPU signals, external trigger
Real-time RAM Monitor	Optional real-time RAM Monitor is available. View write-data during program execution. 4 areas setting capability
Branch Trace	Records Branch instruction Free run and all trigger can be specified.
Flash memory	Download to the Flash memory in the target system
RAM monitor (Only available on AUD connection)	Monitoring or tuning of internal RAM monitor Optional RAM monitor can operate on Full ICE mode

Configuration

The UniSTAC II is the latest state of the art emulator, which connects directly to your PC/AT or notebook computer and provides a high level of software debugging for embedded system development.

Hardware

The UniSTAC II SH7046/47 Emulation System consists of the UniSTAC II SH7046/47 Probe Set with USB host interface and LAN interface.



UniSTAC II SH7046/47 ICE

Software

Watchpoint®, a high-level language debugger for Windows®, is included with the SH7046/47 Probe Set.

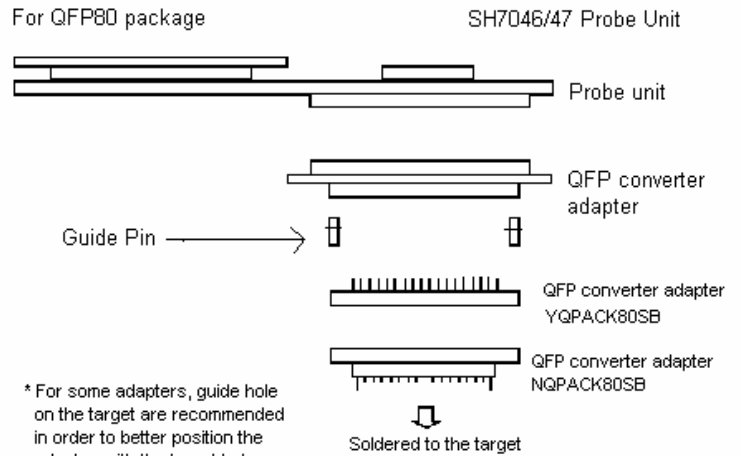
Media:
CD-ROM

Supported Tool Chains:

Watchpoint supports the following compilers and real-time operating systems:

- Renesas SH series C compiler
- Green Hills C compiler
- GAIO C compiler

Target Connections



* For some adapters, guide hole on the target are recommended in order to better position the adapter with the target to be soldered.

Ordering Information

Part No.	Description
UT40010E	Probe Set, UniSTAC II SH7046/47 with USB or LAN interface, and Watchpoint® SH7046/47 debugger
CS2247	Extension cable SH705X(Option)

Probe End Adapters

CPU	Package	Probe End Adapter Set
SH7046 SH7048 SH7148	QFP80	CS2743D SH7046-PB-QFP80-AD, YQPACK80SB, NQPACK80SB
		CS2740A QFP80(SH7046), IC149-080-017-B5
SH7047 SH7049	QFP100	CS2743Z SH7047-PB-QFP100-AD, YQPACK100SD, NQPACK100SD
		CS2740Z QFP100(SH7047), IC149-100-025-B5
SH7144	QFP112	CS2743V SH7144-PB-QFP112-AD, YQPACK112SB, NQPACK112SB
SH7145	QFP144	CS2743Q SH7145-PB-QFP144-AD, YQPACK144SD, NQPACK144SD

Minimum Host System requirements for UniSTAC with Watchpoint Debugger:

OS: <USB>Windows98/Me/2000/XP <TCP/IP>Windows98/Me/NT/2000/XP
Memory: 32 MB (64 MB recommended)
Hard Disk: 20MB

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