RoweBots Limited

Software Data Sheet

Unison RTOS version 5.3

Ultra tiny embedded Linux™ or POSIX™ compatible RTOS

Remedytools

Overview

Remedytools is a collection of tools derived from the Remedy Debugger and IDE. They include all the ancillary tools necessary for cross development of microcontroller (MCU) and microprocessor (MPU) embedded devices. These tools included:

- Third party Integrated Development Environments (IDEs) called Remedy IDE
- Remedy Bootloader for remote downloading and reflashing devices in the field.
- Remedy Power On Self Test (POST) a collection of custom modules to test the processor and memory at initialization. This involves custom development.
- Remedy OS Viewer is a tool to display Unison objects in the Remedy IDE environment.
- Remedy Remote Event and Data Analyzer or Remedy RED provides a time based display, data display and report generation capabilities to users.
- Remedy Checking tools provide the ability to measure stack usage and performance at runtime.
- Remedy Diagnostics are collection of custom components to provide diagnostics using a bespoke model.

Remedy IDE

Remedy IDE is a general reference to all the third party IDEs used with the Unison Operating System. This includes the following IDEs today:

- MPLAB and MPLABX
- HEW and E2Studio
- Code Composer Studio

- IAR Embedded Workbench
- Sourcery Codebench
- Keil RealView
- Microsemi Softconsole
- Xilinx Platform Studio

Collectively, these will be referred to as the Remedy IDE. All versions except for HEW and RealView have an optional Remedy OS Viewer.

Remedy Bootloader

The Remedytools environment has two types of flash environments. One comes with the Remedy IDE and may include an emulator. These solutions provide the ability to flash parts during development. The Remedy Bootloader does some of the same things but is focused on remote field service and upgrades.

The Remedy bootloader uses a two stage mechanism to provide field service upgrades. The first step is transferring a new image in S-record or Hex format to the target system. The second step involves flashing and booting the new image, and reverting to the previous image if this new image fails.

The transfer mechanisms are many and varied. They include all types of media and options. Some more obvious options are:

- WiFi transfer using TCP and either tFTP or FTP
- Wireline transfer from a web server as a file, tFTP, FTP, USB/xmodem
- USB data stick transfer
- SD or uSD transfer
- Bluetooth transfer using networking options
- Proprietary protocols

Remedy POST and Diagnostics

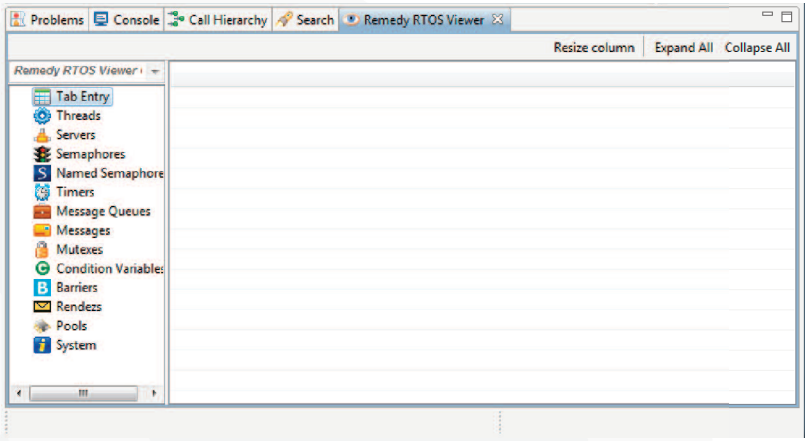
As a bespoke service, POST and Diagnostics may be quickly generated using a set of standard modules. These modules include basic processor checking, memory checking, external communication testing and more. Please consult the factory for details.

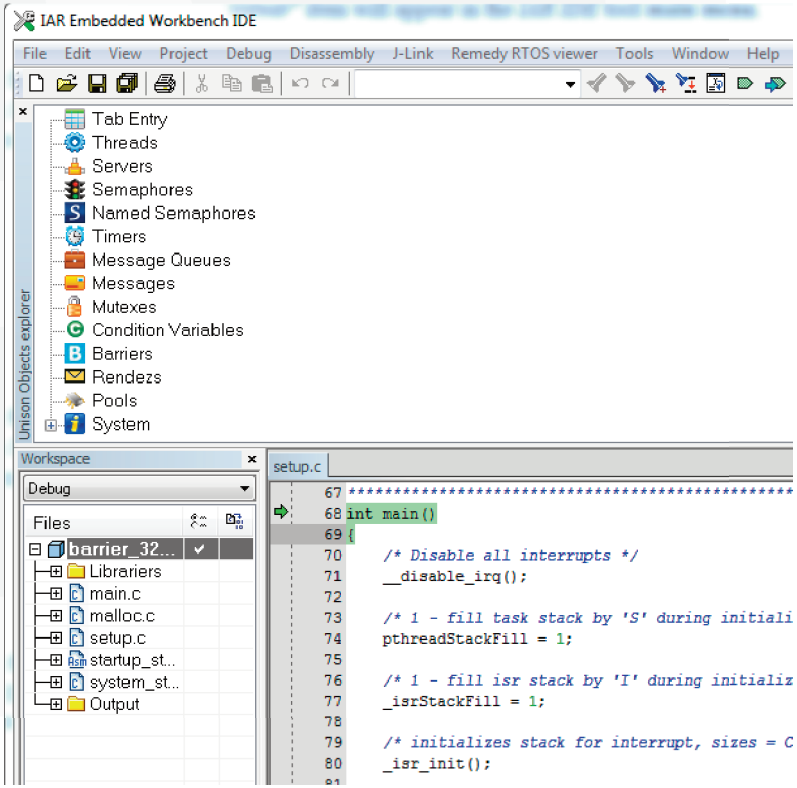
Remedy POST and Diagnostics

The Remedy OS Viewer is integrated into the Remedy IDE and provides updated information on operating system objects and system state information at each breakpoint. This includes information on the following objects:

- Threads
- Semaphores
- Mutexes
- Message queues
- Messages
- Condition variables
- Barriers
- Rendezvous states
- Timers and timeouts
- Servers
- Environment variables

Remedy OS Viewer is seamlessly integrated into the Remedy IDE, appearing as a plug in for the various environments as shown below for Eclipse and for IAR.

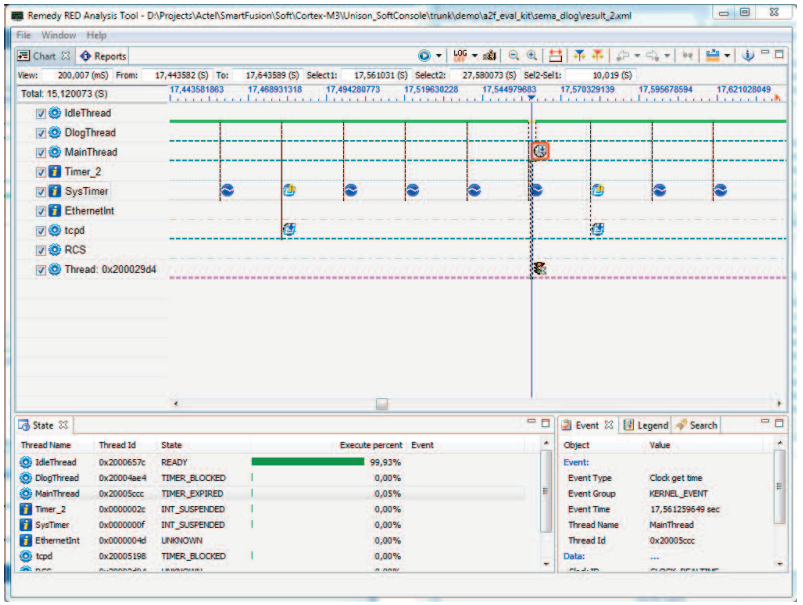


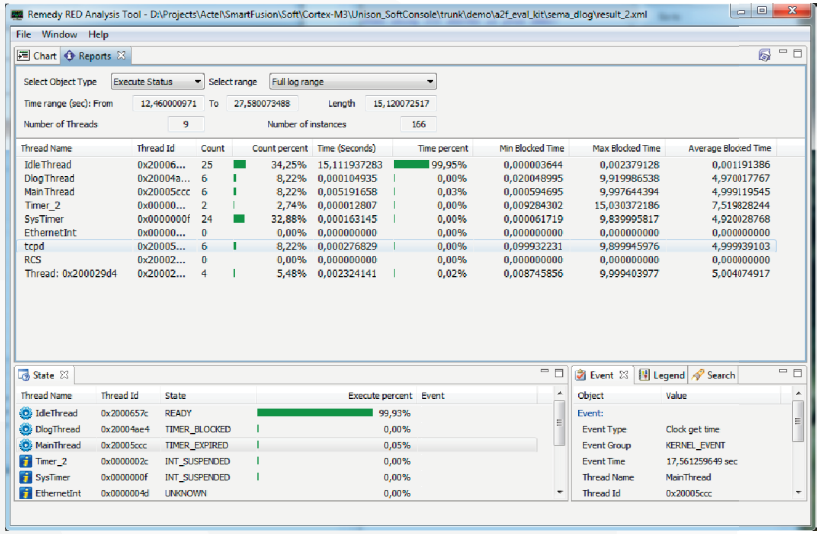


Remedy RED Analyzer

The Remedy RED Analyzer runs in real time from network data provided by the target system or from a log file. It provides a time based display of target system logged data.

This data collection is dynamically selectable using the remote control features of Remedy RED allowing the tool to be installed as part of a system build and then enabled as required.An example of a time based display is shown below. Specific system call events are being tracked along with memory usage, stack utilization and processor utilization using the Remedy Checking Tools (see below). Reports are available – an example is shown at right.





Remedy Checking Tools

The Remedy Checking Tools are available at run time to check the stack high water mark and processor utilization. Demonstration examples are included with the standard kernel release along with the tools.

Additional Information

Other seperately available RoweBots files for Unison OS:

- File Systems
- System Security
- Wireless
- USB
- IoT or M2M Communication
- Internet Protocols
- Unison for Specific Processor Families

Software Version • Unison 5.3

Availability • Now

UNISON

RTOS

version 5.3

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