



## Software Data Sheet

### Unison RTOS version 5.3

Ultra tiny embedded Linux™ or POSIX™ compatible RTOS

for

**Renesas**

**RXxxx (RXv1/RXv2)  
RZ/A (Cortex-A9)**

## Features

- Ultra tiny embedded Linux™ or POSIX™ compatible RTOS
- Open Standards
- Open Source
- RXv1 and RXv2 cores (RXxxx)
- ARM Cortex-A9 core (RZ/A)
- Easy to
  - Use
  - Understand
  - Configure
  - Operational with extensive I/O in just 10 minutes
- Complete integrated development using:
  - IAR Embedded Workbench;
  - High-performance Embedded Workshop (HEW);
  - e2studio;
- Seamless integration of target components
- POSIX Nano Kernel
  - Fast
  - Tiny
  - Compliance tested
- Total Integrated POSIX I/O
  - Web server / Web files
  - Networking options: Internet TCP v4/v6 with IPSec and IP Filtering
  - Networking Servers: HTTP, telnet, TFTP, DHCP, PPP, SNMP, SMTP, DNS, Zeroconf, mDNS
  - Serial I/O
  - File Systems: fsys and FAT, NAND / NOR / μSD / USB
  - Posix Shell
  - Bus Support
  - Touch Screen and Graphics
  - Wireless Options: Bluetooth, Wi-Fi, 6LoWPAN, Zigbee, UHF, GPRS/3G/LTE
  - USB Options: device, host, OTG
  - Motor Control
  - Power Supply and LED Control
  - Remedy Tools

- Security Options
  - IPSec/VPN
  - HTTPS
  - Packet Filter
  - SNMP v3
  - SSL/TLS
  - Secure boot
  - SSH
  - SFTP
- Internet of Things
  - Machine to Machine Communications (M2M)
  - MQTT
  - HTTP/REST/JSON
  - CoAP
- Tiny footprint software components
- Off the shelf evaluation board support
- Single click install
- Complete documentation including:
  - Index and Release Notes
  - Tutorial Guide for Unison 5.3
  - Programmer's Guide for Unison 5.3
  - Reference Guide for Unison 5.3
  - Quickstart Guide featuring 100+ demos
- Small volume option
- Royalty FREE option
- FREE DIY Option

## Benefits

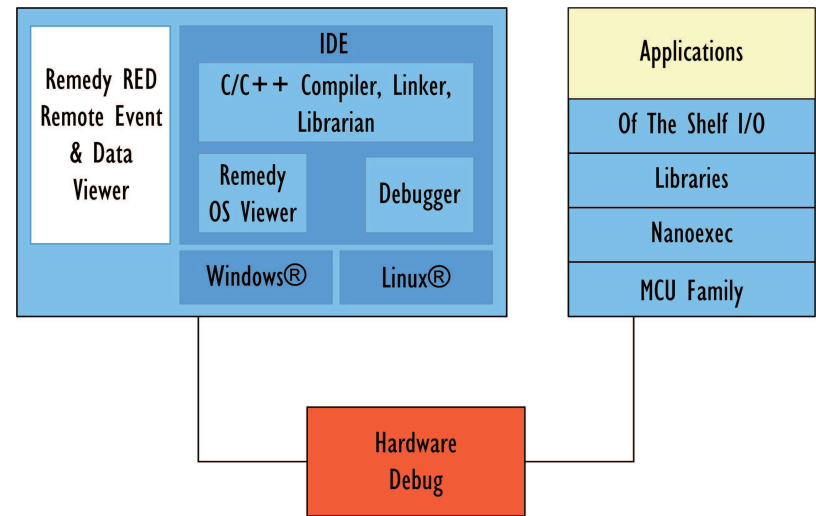
The key benefits from this approach are significant for developers.

1. Unison is an ultra tiny Linux or POSIX compatible RTOS with complete System on Chip (SoC) support for 32 bit processors. It eliminates training and supports standards based development on tiny processors where other Linux variants or larger RTOS solutions don't run.
2. Unison 5 is extremely easy to configure and use compared to Linux or any other RTOS. Six simple primitives, a nano-kernel architecture and intuitive device driver structures make optimized driver development simple and fast.
3. Unison provides integrated support for evaluation modules, and a range of IDEs. Users can create and execute a new project in minutes without errors or configuration issues. It is fast and easy both to learn and to use!
4. Integrated software components with complete I/O can save significant time in OEM application development. Today, all systems are connected and the integration of Unison along with networking support, serial support and various out-of-the-box applications will allow you to build whatever you need quickly.
5. A single click install on Windows® or Linux makes Unison simple to deploy. Our no-nonsense **Quickstart Guides** – a comprehensive (yet surprisingly concise) collection of some 100 step-by-step demos – will have you up and running with a solution in sight in no time. Get your project team started without the usual barrage of questions and early difficulties.
6. With extensive documentation, the Rowebots approach walks the user through the system with minimum distraction or delay. From a conceptual understanding of it through to actual hands on operation on standard hardware, users come up to speed quickly and develop confidence with the system before encountering more challenging problems.
7. Interface compatibility with other Linux, embedded Linux, POSIX compatible RTOS means Unison provides seamless upgrade and downgrade paths to more or less powerful processors without source code changes.

## Feature Mapping

Hardware Feature	Software Support	High Level Software Support
Timer	OS timers, real-time clock	
Serial Ports	tty_server, busywait I/O	ppp (asynch & HDLC) with NAT, iolib, stdio, GPRS/3G/LTE, SAT, Bluetooth, Zigbee
Ethernet MAC/PHY	udp only, tcp/udp/ip, IPv4/IPv6	ftptd, telnetd, dhcpcd, thttpd, iolib, SNMP, SMTP, SSL/TLS, HTTP, DNS, ftp, Zeroconfig, mDNS, SSH, SFTP, MQTT, CoAP, REST
SD & SPI Interface	fsys file system, fat file system, NAND/NOR flash file system, Bluetooth, Zigbee, WiFi and more	SQLite
Bus Support	driver support, CAN, wireless	tcp multiple networks, IPv6/6loWPAN, Zigbee, WiFi, Bluetooth
USB	USB embedded host, device & OTG	MCS, Serial, HID, Kybd, WiFi*, Bluetooth*
Color Touch Panel	graphics library	
PWM, ADC, QEI	motor control, power control, vendor drivers	
NOR Flash	Bootloader, Diagnostics	Downloader
Reset	Power On Self Test (POST)	
Security	IPsec*, SSL/TLS, AES, SSH, SFTP, Secure boot, Filtering	ftptd, telnetd, dhcpcd, thttpd, iolib, SNMP, SMTP, SSL/TLS, HTTP, DNS, ftp, Zeroconfig, mDNS
Unmapped	power management	neural networks
<i>*consult factory</i>		

## Unison Operating System Architecture



## Additional Information

Other separately available RoweBots files for Unison OS:

- File Systems
- System Security
- Wireless
- USB
- IoT or M2M Communication
- Internet Protocols
- Remedytools

**Supported Hosts**

- Windows XP™
- Windows Vista™
- Windows System 7™
- Windows System 8™
- Windows System 10™

**Supported Processors**

- RXxxx
- RZ/A

**Software Version**

- Unison 5.3

**Integrated Development Environments**

- IAR
- HEW
- e2studio

**Availability**

- Shipping NOW

**UNISON**

**RTOS**

version 5.3



Contact: [sales@rowebots.com](mailto:sales@rowebots.com)  
 +1 519 279 46 00

