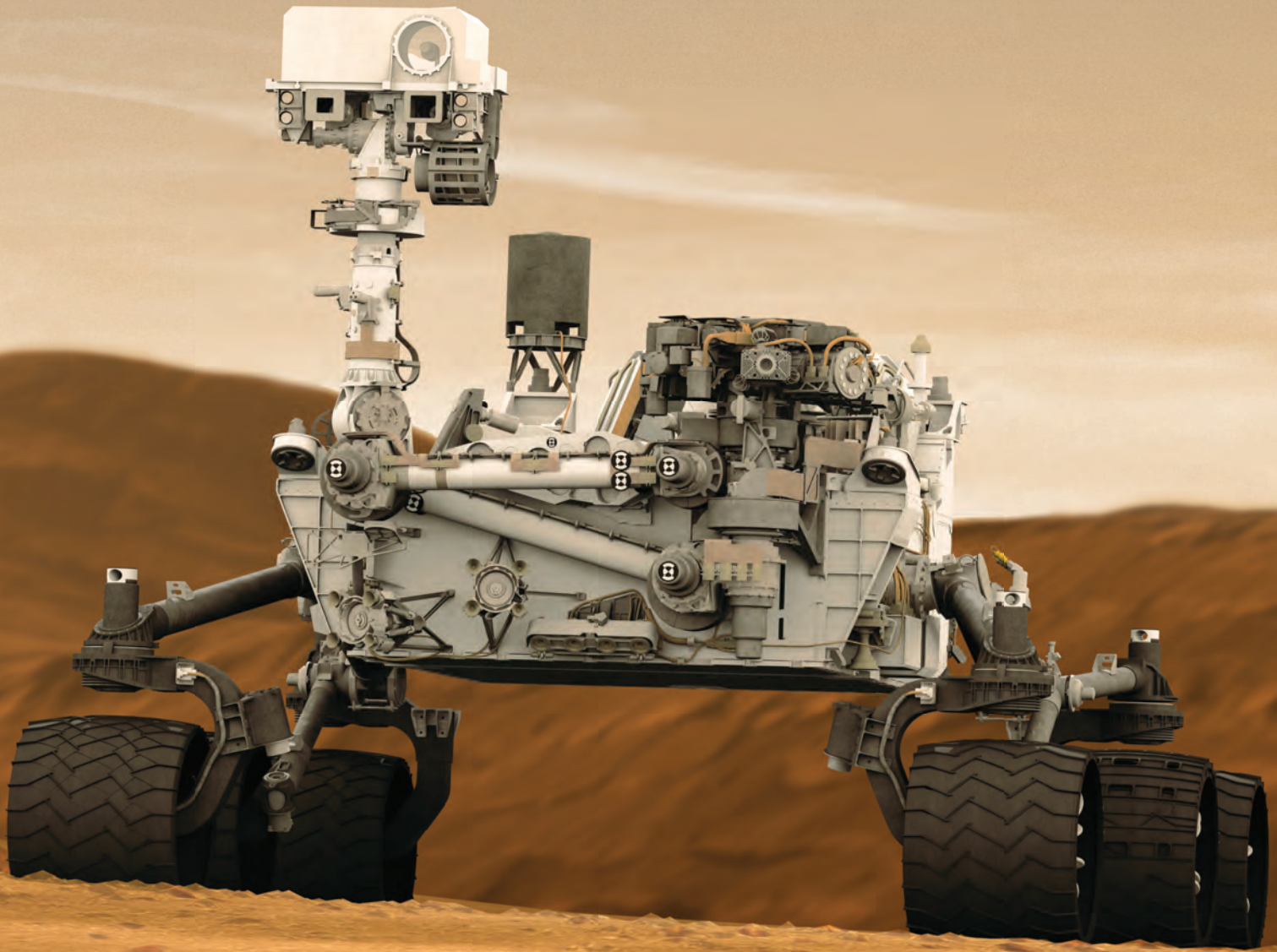


Reliability that's
out of this world



Micrium[®]
RTOS and Tools

Table of Contents

2	Mars Curiosity Rover
3	Owens Valley Radio Observatory
4	Micrium Kernels
12	Micrium Communication Components
16	Micrium Storage & Display Components
19	Micrium Tools
22	Micrium Licensing
24	Micrium Distributors

Mars Curiosity Rover



Micrium is pleased to be part of the ongoing success of the Mars Rover, Curiosity.

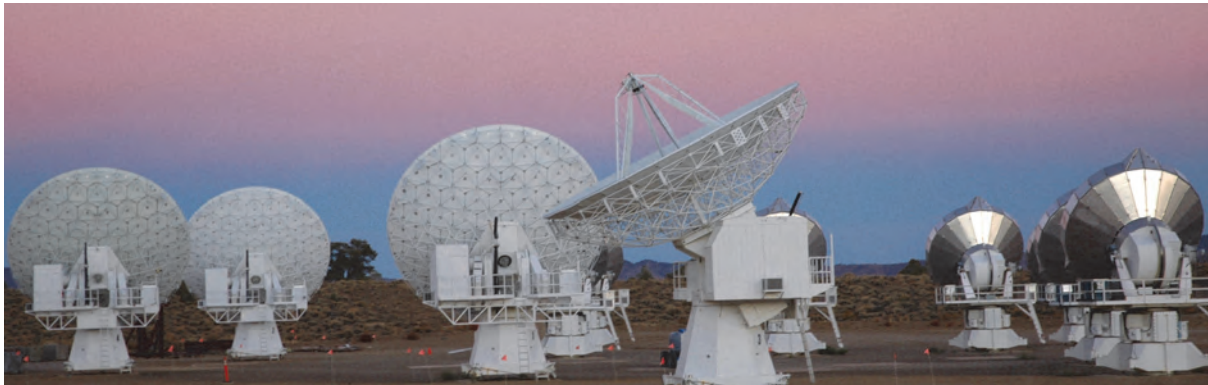
Micrium's μ C/OS-II was chosen to control one of the analytical labs aboard the Curiosity rover. The lab, called SAM (Sample Analysis at Mars) is designed to investigate the chemical and isotopic composition of the Martian atmosphere and soil. It conducts a sensitive search for organic compounds and measures the isotopic composition of carbonaceous material extracted from powdered solid surface samples. SAM's investigations support the mission goal of quantitatively assessing the habitability of Mars, an essential step in the search for past or present life on Mars, with investigations in Gale Crater.

"This is the first time that our RTOS kernel, μ C/OS-II has left the earth's gravity and been trusted with such an important mission," said Jean Labrosse Micrium's President and CEO. "We are proud that the reliability and stability of one of our key products has earned it a place in NASA's toolbox. We are confident that this quality is also a key selection criteria for embedded engineers making everyday products here on Earth."

Jean continued, "This is the first time that Micrium has left the Earth's gravity – but not the last."

For more information: <http://ssed.gsfc.nasa.gov/sam/>

Owens Valley Radio Observatory



Micrium's μ C/OS-II is an essential component of Caltech's Owens Valley Radio Observatory (OVRO).

OVRO is one of the largest university-operated radio observatories in the world. The observatory is located near Bishop, California, approximately 250 miles north of Los Angeles on the east side of the Sierra Nevada.

OVRO uses its telescopes and other instruments to refine the locations of radio sources in the sky, as well as to study hydrogen clouds within the Milky Way. The observatory is different from other national radio observatories because of its extensive work with graduate students, who can come to the observatory for long-term observation, benefitting not only the students, but also the observatory as it allows for more comprehensive projects to take place.

The correlator system is a major component of Caltech's Owens Valley Radio Observatory. The correlator system is used to digitize and process the radio-frequency (RF) signals from OVRO's six telescope radio interferometer.

Micrium μ C/OS-II is used in the OVRO radio telescopes. The radio telescope station runs on 120 DSPs each running μ C/OS-II. In other words, there are 120 processors running μ C/OS-II in this application.

For more information: <http://www.ovro.caltech.edu/>

Micrium Kernels



What is µC/OS-III?

µC/OS-III is a highly portable, ROMable, scalable, preemptive, real-time, deterministic, multitasking kernel for microprocessors, microcontrollers and DSPs.

What does it do?

Offering unprecedented ease-of-use, µC/OS-III is delivered with complete 100% ANSI C source code and in-depth documentation. µC/OS-III runs on the largest number of processor architectures, with ports available for download from the Micrium web site.

µC/OS-III manages an **unlimited number of application tasks**, constrained only by a processor's access to memory. µC/OS-III also supports an unlimited number of priority levels (typically configured for between 8 and 256 different priority levels).

µC/OS-III allows for unlimited tasks, semaphores, mutexes, event flags, message queues, timers and memory partitions. µC/OS-III provides features to allow stack growth of tasks to be monitored. While task size is not limited, they need to have a minimum size based on the CPU used.

µC/OS-III allows multiple tasks to run at the same priority level. When equal priority tasks are ready-to-run, µC/OS-III runs each for a user-specified amount of time. Each task can define its own time quanta and give up its time slice if it does not require the full time quanta.

µC/OS-III provides extensive range checking which can be disabled at compile time. µC/OS-III thus checks for NULL pointers passed in API calls, task level services from ISRs aren't called, arguments are within allowable range, and specified options are valid. Each API function provides an error code regarding the outcome of the function call.

µC/OS-III's footprint can be scaled to contain only the features required for a specific application (typically 6–24 KBytes of code space residing in memory).

Features

The features of μ C/OS-II include:

- Preemptive multitasking real-time kernel with optional round robin scheduling
- Delivered with complete, clean, consistent, 100% ANSI C source code with in-depth documentation.
- Mutual exclusion semaphores with built-in priority inheritance protocol to prevent priority inversions
- Timeouts on 'pend' calls to prevent deadlocks
- Unlimited number of tasks, priorities and kernel objects
- Highly scalable (6K to 24K bytes code space, 1K+ bytes data space)
- Very Low Interrupt Disable Time
- Extensive performance measurement metrics (configurable)
- Third party certifiable

Multi-threaded applications

μ C/OS-III allows developers to produce multi-threaded applications, vital to the development of safety-critical systems. Thanks to improved integration with IAR Embedded Workbench for ARM, developers can access all the inherent non-reentrant features of C/C++ in a thread-safe manner.

Application developers who write code for use in multi-threaded environments will find the support critical when protecting shared objects using system locks, file-stream locks, and thread-local storage (TLS) in multi-threaded environments.

Available ports

The table below contains the currently available and supported list of CPU architecture for μ C/OS-III. A new port can easily be written or adapted to the customer specific needs either by the customer or Micrium. Please contact our sales department for more information about supported platforms or port developments.

Manufacturer	CPU
Altera	Nios II Cortex-A9 SoC (dual-core)
Analog Devices	Blackfin
ARM	ARM7 ARM9 ARM11 Cortex-A5 Cortex-A7 Cortex-A8 Cortex-A9 Cortex-A12 Cortex-A15 Cortex-A53 Cortex-A57 Cortex-R4 Cortex-M0 Cortex-M0+ Cortex-M1 Cortex-M3 Cortex-M4(F)
ATMEL	AVR AVR32
Freescale	ColdFire HCS12
IBM	PowerPC 405
Microchip	PIC24 PIC32
Microsoft	Win32
Renesas	78K0R RL78 RX100 RX200 RX600 SuperH-2A V850E/2/S
Texas Instruments	MSP430
Xilinx	MicroBlaze

Micrium Kernels



What is µC/OS-II?

µC/OS-II is a portable, ROMable, scalable, preemptive, real-time deterministic multitasking kernel for microprocessors, microcontrollers and DSPs.

What does it do?

Offering unprecedented ease-of-use, µC/OS-II is delivered with complete 100% ANSI C source code and in-depth documentation. µC/OS-II runs on the largest number of processor architectures, with ports available for download from the Micrium Web site.

µC/OS-II manages up to 250 application tasks. µC/OS-II includes: semaphores; event flags; mutual-exclusion semaphores that eliminate unbounded priority inversions; message mailboxes and queues; task, time and timer management; and fixed sized memory block management.

µC/OS-II's footprint can be scaled (between 5 Kbytes to 24 Kbytes) to only contain the features required for a specific application. The execution time for most services provided by µC/OS-II is both constant and deterministic; execution times do not depend on the number of tasks running in the application.

A validation suite provides all documentation necessary to support the use of µC/OS-II in safety-critical systems. Specifically, µC/OS-II is currently implemented in a wide array of high level of safety-critical devices, including:

- Those certified for Avionics DO-178B
- Medical FDA pre-market notification (510(k)) and pre-market approval (PMA) devices
- SIL3/SIL4 IEC for transportation and nuclear systems

Available ports

See the Micrium web site for our comprehensive list of ports for µC/OS-II.

µC/TimeSpaceOS™ *Time & Memory Managed Kernel*

What is µC/TimeSpaceOS?

µC/TimeSpaceOS manages both memory and time allocated to diverse applications and enables the cost-effective certification of complex systems.

What does it do?

µC/TimeSpaceOS makes it possible for several independent applications (with or without a real-time kernel) to be executed within the same environment on a single hardware device. µC/TimeSpaceOS guarantees that independent applications cannot influence or interfere with each other.

Features

- Memory protection so that multiple applications cannot influence, disturb or interact with each other
- Deterministic and run-time guaranteed
- Configurable so that virtual Dynamic Random Access Memory (DRAM) is optionally available.
- A small footprint for use in a wide-range of applications

Certification

Other processors and compiler environments can be quickly implemented as a result of the modular architecture. Don't hesitate to ask us about your environment – we have prepared additional processors for certification.

The source code of µC/TimeSpaceOS has been implemented with the same coding standards that are utilized with the µC/OS-II kernel.

DO178B and IEC61508 certifications have already been conducted multiple times.

Micrium Kernels



What is µC/OS-MPU?

µC/OS-MPU is an extension for Micrium's µC/OS-II that provides memory protection, and greater stability and safety for your applications.

What does it do?

The µC/OS-MPU extension prevents applications from accessing forbidden locations, thereby protecting against damage to safety-critical applications, such as medical devices and avionics.

This system facilitates integration of Micrium or third-party software such as:

- Protocol stacks
- Graphics modules
- File system libraries

Existing µC/OS-applications can be adapted with minimal effort. µC/OS-MPU is available for any microcontroller (MCU) containing a Memory Protection Unit (MPU). Third-party certification support is also available.

Features

µC/OS-MPU includes the following features:

- Prevents access of forbidden locations
- Appropriate for safety-critical applications
- Easy integration for protocol stacks, graphical modules, FS libraries
- Simplified debugging and error diagnosis
- Available for any microcontroller equipped with a hardware Memory Protection Unit (MPU).

Micrium Communication Components



What is μC/TCP-IP?

μC/TCP-IP is a compact, reliable, high-performance TCP/IP protocol stack, optimized for embedded systems.

What does it do?

Built from the ground up with Micrium quality, scalability and reliability, μC/TCP-IP enables the rapid configuration of required network options to minimize time-to-market.

μC/TCP-IP allows for adjustment of the memory footprint based upon design requirements. μC/TCP-IP can be configured to include only those network components necessary to the system. When a component is not used, it is not included in the build, saving valuable memory space.

The μC/TCP-IP design introduces a new concept: Large and small buffers. A large buffer is of the size required to transport a complete Ethernet frame. This is what other TCP/IP stacks do. But, in an embedded system, it is quite possible that the amount of information to transmit and receive does not require the use of a full Ethernet frame. In this case using buffers of the size of full Ethernet frames is a waste of RAM. μC/TCP-IP allows the designer to maximize the system performance by defining different quantities of small and large buffers.

The source code for μC/TCP-IP is an extremely robust and highly reliable TCP/IP solution. μC/TCP-IP is designed to be certifiable for use in avionics, compliant for use in FDA-certified devices, and in other safety-critical products.

μC/TCP-IP requires the presence of an RTOS for task scheduling and mutual exclusion. To meet this requirement, Micrium provides source code to allow network applications to readily accommodate μC/OS-II and μC/OS-III.

Note: Based on the component's extensible kernel interface, other non-Micrium kernels can also be adapted to μC/TCP-IP, but are not supported.

Features

The features of μ C/TCP-IP include:

- Delivered with complete 100% ANSI C source code and in-depth documentation.
- Scalable to contain only required features and minimize memory footprint.
- Zero copy buffer management.
- Flexibility to select large and small buffers.
- High performance.
- Supports multiple interfaces.
- Support for any real-time kernel available. Micrium's μ C/OS-III or μ C/OS-II is recommended. Sold separately.
- Built in SSL (Secure Sockets Layer) API. Supports most SSL stacks. Contact Micrium to learn more about the μ C/SSL module developed with our partner Mocana Inc.

Device controller driver

μ C/TCP-IP features a hardware abstraction layer allowing quick porting to any new Ethernet device controllers (and addition to Micrium's list of supported devices).

Micrium offers a large selection of Ethernet device controller drivers. Additional drivers are added on a regular basis.

If your desired Ethernet device controller driver is not listed, you can consult the μ C/TCP-IP user manual, which contains a chapter on driver development. You can also ask Micrium to develop the driver for you. Please call us for a quote.

Stack compliance

Micrium uses Ixia's IxANVL to validate the compliance of the stack with the networking RFCs. IxANVL is used by developers and manufacturers of networking equipment and Internet devices to validate protocol compliance and interoperability.

Micrium Communication Components



What is μC/USB-Device?

μC/USB-Device is a compact, reliable, high-performance stack for embedded systems equipped with a USB device controller.

What does it do?

μC/USB-Device reduces development time to embed USB support. Thanks to a hardware abstraction layer, you can easily port μC/USB-Device to any new USB device controllers.

μC/USB-Device uses a modular architecture with three software layers between the application and the hardware:

- The Device Controller Driver layer interfaces with the device controller to process interrupts, notify the device core of bus events, and receive/transmit packets.
- The Device Core layer responds to host requests during enumeration and controls packet reception / transmission.
- The Class layer provides functionality to the host using one or more class drivers.

Features

The features of μC/USB include:

- Delivered with complete 100% ANSI C source code and in-depth documentation.
- Configurable memory footprint.
- Support three speeds: low-speed (1.5 Mbit/s), full-speed (12 Mbit/s) and high-speed (480 Mbit/s).
- Use with commercial or proprietary RTOS
- Support for Composite devices.
- Support for Control, Bulk, Interrupt, and Isochronous transfers.
- Support for multiple classes, including: Audio, CDC ACM, HID, MSC, PDHC and Vendor classes.

Micrium Communication Components



What is μC/USB Host?

μC/USB Host is a real-time USB Host software stack for embedded systems equipped with a USB Host or OTG controller.

What does it do?

μC/USB Host is a full-featured, high performance, small footprint USB host software stack. It includes many class drivers (MSC, HID and CDC ACM). The stack requires a kernel.

μC/USB Host uses a modular architecture with three software layers between the application and the hardware.

- The Class Driver layer provides class-specific services to the application. For example, the Mass Storage Class (MSC) Driver includes interface functions for reading and writing sectors from a storage device.
- The Host core layer enumerates the device, loads a matching class driver, and provides the mechanism for data transfers.
- The Host Controller Driver interfaces with the host controller hardware to enable data transfers and detect devices.

Features

μC/USB Host include the following features:

- Small footprint
- High performance
- ROMable and scalable (to reduce footprint)
- Use with commercial or proprietary RTOS
- Easy-to-use API

Micrium Communication Components



What is μC/CAN?

μC/CAN is a CAN protocol framework that enables easy and clean implementation of CAN communication paths. μC/CAN is a source code library optimized for speed, flexibility and size and built with high portability and clean documentation in mind.

What does it do?

μC/CAN reduces development time to embed CAN. You need only an understanding of signals, messages and bus configurations.

μC/CAN can communicate via one or more CAN buses simultaneously. An embedded target can also have multiple, different CAN controllers.

A validation suite provides all documentation necessary to support the use of μC/CAN in safety-critical systems.

Features

The features of μC/CAN include:

- Hardware independent
- Signal Scalability – Between 1 bit to 4 bytes
- Sufficiently robust to meet rigorous safety-critical system requirements

Protocols

μC/CAN supports the following protocols:

- CANopen Stack
- CANopen Sensor Slave
- CANopen Slave
- CANopen Config

Micrium Communication Components



What is µC/Modbus?

µC/CAN is a protocol framework that enables easy and clean implementation of Modbus serial communications protocol.

What does it do?

µC/CAN reduces development time to embed Modbus.

µC/Modbus supports both ASCII frames and a Remote Terminal Unit (RTU) frames. You can use either mode, at the same time if you have multiple serial interfaces. µC/Modbus supports any number of communications channels.

µC/Modbus-S is a Modbus Slave (server) software component enabling an embedded system to communicate to a Modbus Master (client).

µC/Modbus-M is a Modbus Master (client) component that enables communication to a Modbus Slave.

Features

The features of µC/Modbus include:

- Multiple RS-232C and/or RS-485 ports on the same target (limited only by the number of serial ports available)
- The baud rate for each port is independently adjustable.
- Select Modbus ASCII or RTU on a per-channel basis.
- Easily assign nearly any application variable to any Modbus holding register (up to 65536), input register (up to 65536), coil (up to 65536) or input status (up to 65536).
- Scalable from 6K to 15K bytes. Compile only the function codes necessary for the target.
- Works with any CPU (8-, 16-, 32-, 64-bit or DSP)
- Works with or without an RTOS kernel

Micrium Storage & Display Components

µC/GUI™ *Embedded Graphical User Interface*

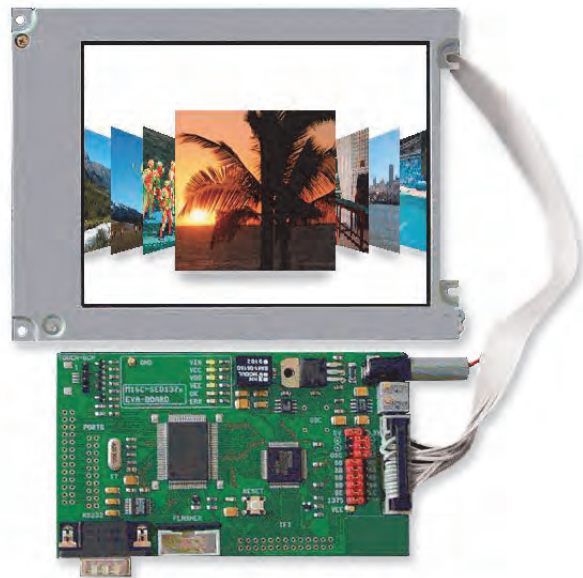
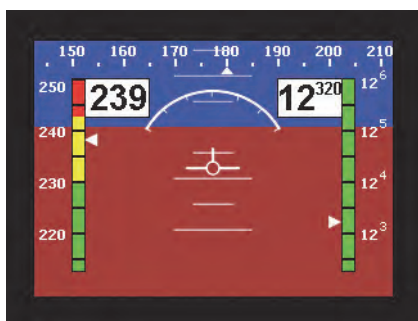
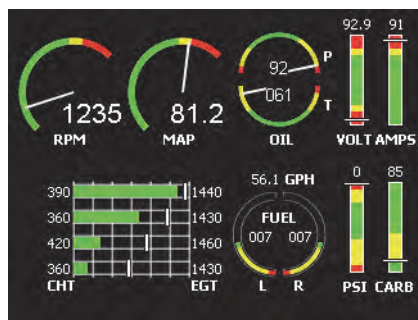
What is µC/GUI?

µC/GUI allows you to provide dynamic user interfaces for any embedded application using an LCD display.

What does it do?

With µC/GUI, you can create rich graphical user interfaces for your embedded applications, from simple 2D monochrome graphics to smartphone displays with 32 bits per pixel color and Alpha blending. With touch screen support activated, µC/GUI can help you design fantastic user interfaces for your product.

µC/GUI is both processor-independent and LCD controller-independent. It is compatible with single-task and multitask environments, and works with any commercial RTOS or your proprietary operating system.



Features

The features of μ C/GUI include:

Support for any type of LCD	Bitmap Converter included
Font Converter included	GUIBuilder application
Live preview	Foreign language support
Anti-aliasing	Dialog boxes
Multiple frame buffering	Support for multiple displays and multiple layers
Support for input devices	Variety of fonts included
Color management	Run the GUI as a Windows EXE for testing
User interface skinning	Virtual screens larger than the physical display
VNC Server included	Wide variety of widgets and controls

Highlights

- Optimized for small size and high performance.
- Supports any 8/16/32-bit CPU
- Supports any type of LCD, with any controller
- Configurable display size.
- Virtual display support; the virtual display can be larger than the actual display.
- Characters and bitmaps may be written at any point on the LCD, not just on even-numbered byte addresses.
- Supports caching the display in memory, for even more performance.
- Compile time switches allow for different optimizations.
- Includes μ C/GUI-View for detailed view of all layers in the PC simulation.
- Configuration macros for any interface supported.

Micrium Storage & Display Components



What is µC/FS?

µC/FS is a compact, reliable, high-performance and thread-safe file system for microprocessors, microcontrollers and DSPs.

What does it do?

µC/FS can access multiple storage media through a clean, simple API. It supports the FAT file system for interoperability with all major operating systems. An optional journaling component provides fail-safe operation, while maintaining FAT compatibility.

The memory footprint of µC/FS can be adjusted at compile time based on required features and the desired level of run-time argument checking.

Device drivers are available for all common media types.

Features

The features of µC/FS include:

- Delivered with complete 100% ANSI C source code and in-depth documentation.
- Portable to virtually any platform.
- Scalable to contain only required features.
- Optional buffered file I/O and volume level caching.
- Full FAT support including FAT12/16/32 and long file names (VFAT).
- Optional journaling component for failsafe FAT operations.
- Supports multiple languages with Unicode encoding.
- Thread safe operations on multiple volumes and devices.
- Can be used with a real-time kernel or stand-alone.

What is µC/Probe?

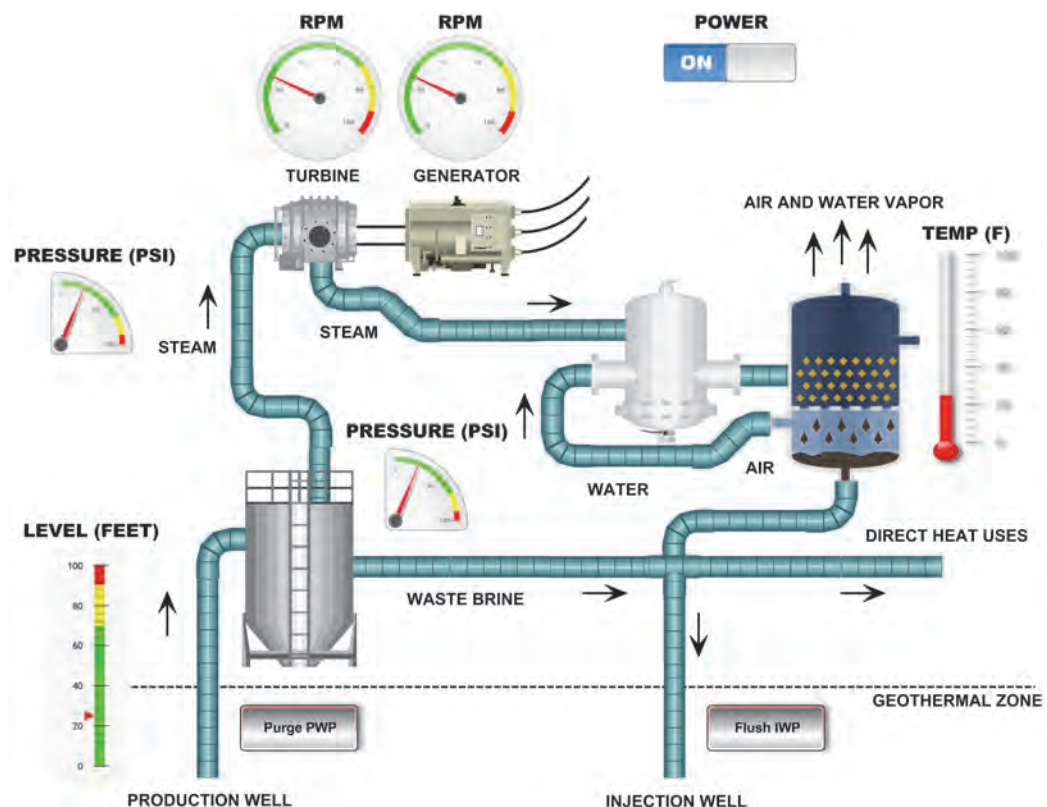
µC/Probe makes it possible to graphically visualize the internals of an embedded system with just a few mouse clicks.

What does it do?

Micrium's µC/Probe is a Windows application that allows you to read and write the memory of any embedded target processor during run-time, and map those values to a set of virtual controls and indicators placed on a graphical dashboard. Absolutely no programming is required – simply drag and drop the graphic components into place, and watch them go.

µC/Probe works with a wide variety of embedded processors, and supports communication via USB, TCP/IP, RS-232, or Segger J-Link.

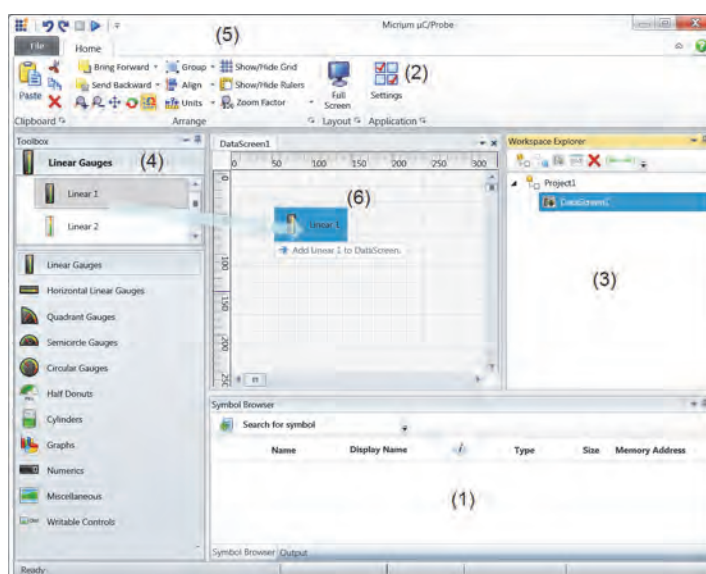
You can also use µC/Probe to extend the capabilities of your debugging software by running both at the same time. µC/Probe allows you to have instant control over your global variables in a real-time and non-intrusive way.



Features

The features of μ C/Probe include:

- You can display – at run-time – the live value of variables on the target using graphical representations such as gauges, meters, graphs, plots, numeric indicators, and bitmaps. And you can change the value of any variable on the fly.
- μ C/Probe is fully integrated with IAR Systems Embedded Workbench, without any special code running in the target.
- Run-time data can be automatically inserted into Microsoft Excel, where it can be manipulated and be displayed using bar graphs, pie charts, and other advanced methods.
- Scripting Control allows you to take control of your system. Write a script in C to download config data to your target. Change the behavior of your system on the fly. Change filter coefficients, PID loop parameters, and a wide range of other values.
- μ C/Probe provides a terminal interface for your target without requiring an RS232C port.
- μ C/Probe also includes kernel awareness for μ C/OS-III, which allows you to display a variety of statistics, including: stack usage and CPU usage per task, whether a task is running, whether a task is waiting for an event to occur, and much more.
- μ C/Probe integrates with μ C/Trace, an advanced runtime diagnostics tool. This allows μ C/Probe to control what triggers will initiate data collection of RTOS events.



Micrium Licensing

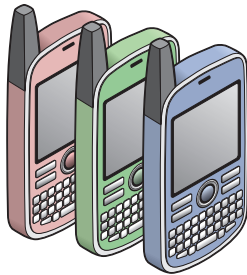
Single Product License



A Single Product License allows you to embed a Micrium software component into one end-customer product.

This license is perpetual for the life of your product, and is without limitation in production quantity. This license is specific to the processor used and the specific name and model of the customer end product.

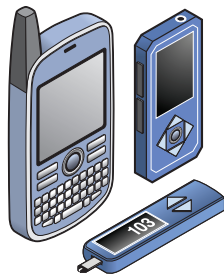
Product Line License



A Product Line License allows you to embed a Micrium component into any number of end-customer products within a product family.

This license allows you to manufacture an unlimited number of units of each of these products for the life of the end product within the product family.

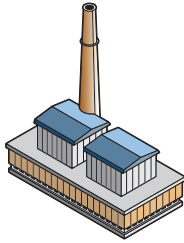
CPU-Type (Platform) License



A CPU-Type License allows you to embed a Micrium component into any number of end-customer products using a single and specific processor type.

You may manufacture an unlimited number of units of each of these products for the life of the end-customer product.

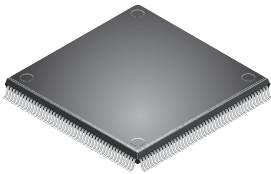
Site License



A Site License allows you to embed a Micrium component into any end-customer product that uses any CPU, as long as the products are designed from a single site.

You are able to manufacture an unlimited number of units from any location worldwide.

Dedicated Chip License



A Dedicated Chip License is exclusive to chip manufacturers.

This license allows you to embed Micrium software components in one type of chip, and sell that chip to an unlimited number of customers. It includes an instruction manual that engineers can use to get up and going in hours, with minimal risk.

How Micrium products are sold

Micrium embedded components are priced as individual modules or as bundled solutions. Please contact Micrium or your local distributor for complete pricing information to meet your particular requirements.

Common to all Micrium licenses

All licenses are perpetual for the life of the customer's product.

All Micrium licenses are royalty free – you can build unlimited quantities of your product.

One year maintenance is included with each new software component purchase.

Phone 1-954-217-2036
FAX 1-954-217-2037
Email: sales@Micrium.com

Micrium Distributors

Corporate Office and Direct Sales

Micrium

1290 Weston Road, Suite 306
Weston, FL 33326
Tel: +1 954 217 2036
Fax: +1 954 217 2037
www.Micrium.com
sales@Micrium.com

North America

United States

Arrow Electronics

50 Marcus Drive
Melville, New York
11747-4210
Tel: +1 800 777 2776
www.arrow.com

Avnet

2211 South 47th Street
Phoenix, AZ 85034
Tel.: (480) 643-2000
www.avnet.com

Digi-Key Corporation

701 Brooks Avenue South
Thief River Falls, MN 56701
Tel: 1-800-344-4539
www.digikey.com

Future Electronics

237 Hymus Boulevard
Pointe Claire, Quebec
Canada H9R 5C7
Tel.: (514) 694-7710
www.futureelectronics.com

IAR Systems Software

2 Mount Royal Ave.
Suite 420
Marlborough, MA 01752
Tel: +1 508 281-6680
www.iar.com

IAR Systems Software

Century Plaza
1065 E. Hillsdale Blvd.
Foster City, CA 94404
Tel: +1 650 287 4250
www.iar.com

Mouser Electronics

1000 North Main Street
Mansfield, TX 76063
Tel: (800) 346-6873
Tel: (817) 804-3888
www.mouser.com/Micrium

Newark

P.O. Box 94151
Palatine, IL, USA.
60094-4151
Tel: +1 800 463 9275
www.newark.com
www.element14.com/knode

South & Central America

All Central America

IAR Systems Software

Century Plaza
1065 E. Hillsdale Blvd.
Foster City, CA 94404
Tel: +1 650 287 4250
www.iar.com

All South America

IAR Systems Software

Rua Clemente Pereira
148-São Paulo
Brazil
Tel: +55 11 4368-2945
www.iar.com

Europe

Austria

Embedded Office

August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

Belgium

Embedded Office

August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

France

NeoMore

ZA Ste Apolline
23 rue des Poiriers
78370 Plaisir
France
Tel: +33 (0) 1 3064 1581
www.neomore.com

IAR Systems Ltd.

15, Avenue de Norvege
91978 COURTABOEUF Cedex
France
Tel: +33 1 6092 3872
iar.se

Germany

Embedded Office

August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

IAR Systems GmbH

Messe Campus
Werner-Eckert-Strasse 9
D-81829 Muenchen
Germany
Tel: +49 89 88 98 90 0
iar.de

Italy

Embedded Office

August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

Farnell

Canal Road
Leeds, United Kingdom
LS12 2TU
Tel: +44 (0) 8447 11 11 11
www.farnell.com
www.element14.com/knode

Netherlands

Embedded Office

August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

Scandinavia

IAR Systems AB

P.O. Box 23051
SE-750 23 Uppsala, Sweden
Tel: +46 18 16 78 00
iarsys.se

Embedded Office

August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

Spain

Embedded Office

August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

Switzerland

Embedded Office
August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

United Kingdom

Farnell
Canal Road
Leeds, United Kingdom
LS12 2TU
Tel: +44 (0) 8447 11 11 11
www.farnell.com
www.element14.com/knode

IAR Systems Ltd.
Suite 4, Hampden House,
Monument Park, Chalgrove
Oxfordshire, OX44 7RW
United Kingdom
Tel: +44 1865 893266
www.iar.com

Middle East

Israel

Sightsys Ltd.
7 Imber St.
Kiryat Arie, P.O.B. 10267
Petach-Tikva 49002 Israel
Tel: 972 3 9222771
www.sightsys.com

Other Middle East

Tektronik
Mahatma Gandhi Cad, No 68A/2
G.O Pasa 06700 Ankara
Turkey
Phone: 90-312-437-3000
www.tektronik.com.tr

Eastern Europe

Russia and other Eastern Europe

Farnell
Canal Road
Leeds, United Kingdom
LS12 2TU
Tel: +44 (0) 8447 11 11 11
www.farnell.com
www.element14.com/knode

Embedded Office
August-Braun-Str.1
88239 Wangen, Germany
Tel: +49 (0) 7522 970008-0
www.embedded-office.de

Tektronik
Mahatma Gandhi Cad, No 68A/2
G.O Pasa 06700 Ankara
Turkey
Phone: 90-312-437-3000
www.tektronik.com.tr

Asia/Pacific

Australia

Macro Dynamics Pty
Suite 7
322 Mountain Highway
Wantirna, Victoria, 3152
Australia
Tel: +61 3 9720 2399
www.macrodynamics.com.au

China

BMRTech
Beijing Office Headquarters
Rm 204, XinShiDai Building
No.7 Huayuan Road
Haidian District
100088 Beijing
China
Tel: +86 10 6297 5900

BMRTech
element14
element14 Pte. Ltd.
15 Tai Seng Drive,
#05-01, Singapore 535220
Tel: +65 6788 0200
cn.element14.com
www.element14.com/knode

IAR Systems China
Room 2510, Central Plaza
No. 227, North Huangpi Road
200003 Shanghai
China
Tel: +86 21 6375 8658
www.iar.cn

Japan

IAR Systems K.K.
C-5 Bldg. 5F
1-21-5 Kandasuda-cho,
Chiyoda-ku
Tokyo 101-0041
Japan
Tel: +81 3 5298-4800
www.iar.com

South Korea

IAR Systems Korea
#1408 Kolon Science Valley
2-Cha
811 Guro-dong, Guro-gu
Seoul 152-728
South Korea
Tel: +82 2 2025 4803
www.iar.com/kr/

Taiwan

Micetek International Inc.
8F, 184, Sec. 1, Chung-Cheng
Road
Taipei 111, Taiwan, R.O.C.
Tel: 886 2 28386826
www.micetek.com

Microtime Computer
4F, No. 222, Sec. 4, Cheng-De
Road
Taipei, 11167, Taiwan, R.O.C.
Tel: 886 2 28811791
www.microtime.com.tw

Singapore, Southeast Asia, and Australia

element14
element14 Pte. Ltd.
15 Tai Seng Drive,
#05-01, Singapore 535220
Tel: +65 6788 0200
sg.element14.com
www.element14.com/knode

Testech Electronics Pte Ltd
Blk 118, #05-110, Aljunied Ave 2
Singapore 380118
Tel: +65-67492162
www.testech-elect.com

India

India

IAR Systems Ltd.
Suite 4, Hampden House,
Monument Park, Chalgrove
Oxfordshire, OX44 7RW
United Kingdom
Tel: +44 1865 893266
www.iar.com

Ruby Embedded Technologies
HIG, B-550, New Avas Vikas
Civil Lines
Rampur, Uttar Pradesh
244901
India
Tel: +919760003203
www.rubyemtech.com

2014

Micrium is a global RTOS leader and a top choice of embedded engineers building microprocessor, microcontroller, and DSP-based devices.

Our commercial RTOS components are the preferred solution over open source and competitive alternatives.

Micrium, Inc.
1290 Weston Road, Suite 306
Weston, FL 33326
USA
+1 954 217 2036

www.micrium.com