ITRON Newsletter No.9

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The ITRON Registration System for Products and Applications

The products listed in another page were newly registered in the period from March 1 through July 1, 1994. Details of the product registration system, and an updated list of registered products, can be obtained by contacting the TRON Association. Previously registered products are also listed in ITRON Newsletter Nos.1 to 3 and 5 to 7.

ITRON-related Publications

Listed in another page are the publications prepared and issued by the ITRON Technical Committee as of June 1, 1994. The ITRON-μITRON Standard Handbook is a one-volume compilation of μITRON (Ver 2.0) and ITRON2 specifications. Each of the publications can be obtained directly from the sources indicated.

The latest version of μITRON3.0 is now Ver 3.01.00. Changes made since the μITRON3.0 Standard Handbook was released (Ver 3.00.00) are noted in Newsletter No.5.

The ITRON Standard Guidebook '92-'93 still applies to users of μITRON (Ver 2.0) and ITRON2 specifications, even though the dates in its title are now past. When a new edition of the ITRON Standard Guidebook is issued it will be targeted primarily at the μITRON3.0 specification.

Awards Given to Commemorate Tenth Anniversary of TRON Project

This year marks the beginning of the second decade of the TRON Project, which was launched in 1984. As one way of commemorating this milestone, an awards ceremony was held on May 30 in Tokyo to honor a few of those individuals and companies who have made outstanding contributions to the project.

In the ITRON subproject, Hiroaki Takada of the University of Tokyo received an award for his "contributions to the development and spread of ITRON specifications." Roland Corporation was given an application product development award for its electronic musical instruments using an ITRON-specification OS kernel.

Mr. Takada has played an active part in the discussions during ITRON specification design, especially for the latest μITRON3.0 kernel specification, working to improve the quality of the final results. He is also involved in efforts to promote the ITRON specifications, serving as a lecturer and panel member at ITRON seminars and the TRON Project Symposium, as well as preparing publicity materials. As a researcher, he has played an on-going role in the basic discussions on ITRON-MP specification design. The award recognizes the breadth of Mr. Takada's contributions to the ITRON subproject overall.

Roland Corporation makes and sells synthesizers and other electronic musical instruments. Lately it has applied a μITRON-specification kernel to its products. Many other manufacturers have also developed and used ITRON-specification kernels in their products, but few of them have publicized the fact. One reason Roland was chosen for this award is the positive way the company has introduced its application products through TRONNOW and other means.

Consideration is now being given to continuing this awards program on an annual basis. The ITRON Technical Committee would like to promote the giving of these awards not only to those who have contributed inside the subproject, but also to those who have developed application products and support tools for ITRON-based systems.

New Products

The two products recently registered in the ITRON Registration System for Products and Applications are introduced here.

† This newsletter is reprinted from TRONWARE vol.28 and TRON PROJECT BIMONTHLY No.33.

Newly Registered Products (Mar. 1, 1994 – Jul. 1, 1994)

Specification	Product Name	Supported Processor	Company
μITRON2.0	MR1600	M16	Mitsubishi Electric Semiconductor Software
	MR3800	3800 Series	Mitsubishi Electric Semiconductor Software

ITRON-related Publications

Name	Type	Price	Publisher	ISBN No.
ITRON-μITRON Standard Handbook	Specification (Japanese)	4,800Yen	Personal Media Co.	4-89362-079-7
μITRON3.0 Standard Handbook	Specification (Japanese)	4,000Yen	Personal Media Co.	4-89362-106-8
ITRON/FILE Standard Handbook	Specification (Japanese)	3,000Yen	Personal Media Co.	4-89362-092-4
ITRON Standard Guidebook '92-'93	Textbook (Japanese)	3,500Yen	Personal Media Co.	4-89362-197-6
μITRON Specification Ver 2.01.00.00	Specification (English)	12,000Yen	TRON Association	–
ITRON2 Specification Ver 2.02.00.10	Specification (English)	15,000Yen	TRON Association	–
μITRON3.0 Specification Ver 3.00.00	Specification (English)	–	TRON Association	–

NOTES:
- Prices do not include consumption tax.
- The documents issued by the TRON Association are available to Association members at a special discount rate.
- English-language specifications are distributed free of charge on the Internet as explained in Newsletter No.8.

MR1600

Mitsubishi Electric Semiconductor Software Corp.

Overview

MR1600 is a real-time OS implementing Ver.2.0 of the μITRON specification, for Mitsubishi's M16 single-chip microcontroller.

- Tasks (max.)	10,000
- Task priorities	1 to 255
- Eventflags (max.)	10,000
- Eventflag width	32bits
- Semaphores (max.)	10,000
- Max. semaphore count	65,536
- Mailboxes (max.)	10,000
- Memory pools (max.)	10,000
- Memory blocks (max.)	32 per memory pool
- No. of System calls	52
- Kernel code size	Approx. 3KB to 12KB
- RAM used by kernel	117bytes (min.) (29bytes per task)
- Task switching time	Approx. 47μs

(at 20MHz operation, 16-bit bus, no-wait memory)

Features

- Conforms to Ver.2.0 of μITRON specification

  Applications written for this OS have wide applicability to other systems, since the OS implements the industry-standard μITRON specification.

- Allows applications to be written in C language

  A C language interface is provided enabling application programs to be developed using C language.

- A compact OS

  The kernel code size is approximately 3KB to 12KB. Since the MR1600 kernel object is provided in library format, an optimal code size can be achieved by linking only the functions actually needed in the application.

- Comes with a "configurator" tool for system initialization

  System initialization, for installing tasks and designating the maximum number of priorities, etc., can be performed easily using C-like statements.

Development Environment

Application programs can be developed on the following system.

Host machine	Host OS
SPARCstation	SunOS 4.1.1

MR3800

Mitsubishi Electric Semiconductor Software Corp.

Overview

MR3800 is a compact real-time OS implementing Ver.2.0 of the μITRON specification for Mitsubishi's 38000 Series of single-chip microcontrollers.

- Tasks (max.)	32
- Task priorities	1 to 32
- Semaphores (max.)	32
- Max. semaphore count	127
- No. of System calls	19
- Kernel code size	Approx. 0.6KB to 2KB
- RAM used by kernel	13bytes (min.) (9bytes per task)
- Task switching time (at 8MHz operation, no-wait memory)	Approx. 61μs

Features

- Conforms to Ver.2.0 of μITRON specification

  Applications written for this OS have wide applicability to other systems, since the OS implements the industry-standard μITRON specification.

- A highly compact OS

  The kernel code size is approximately 0.6KB to 2KB. Since the MR3800 kernel object is provided in library format, an optimal code size can be achieved by linking only the functions actually needed in the application.

- Comes with a "configurator" tool for system initialization

  System initialization, for installing tasks and designating the maximum number of priorities, etc., can be performed easily using C-like statements.

Development Environment

Application programs can be developed on the following systems.

Host machine	Host OS
SPARCstation	SunOS 4.1.x Solaris 2.x
HP9000 700	HP-UX 9.x
HP9000 300/400	HP-UX 7.x
PC-9801 and compatibles	MS-DOS Ver.3.1 or later
IBM PC/AT compatibles	DOS/V Ver.5.0

Notes:

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