

ITRON Newsletter No.7

ITRON Technical Committee, TRON Association
 Katsuta Building 5F, 3-39, Mita 1-chome, Minato-ku, Tokyo 108, JAPAN
 TEL: (03) 3454-3191 FAX: (03) 3454-3224

The ITRON Registration System for Products and Applications

The product listed in another page was newly registered in the period from January 1 through March 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, 5 and 6.

ITRON-related Publications

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

The latest version of μ ITRON3.0 is now Ver 3.01.00. Changes made since the μ ITRON3.0 Standard Handbook was released (Ver 3.00.00) are noted in Newsletter No.5.

New Products

Hitachi's HI-SH7 OS, recently registered in the ITRON Registration System for Products and Applications, is introduced here.

HI-SH7

Hitachi, Ltd.

HI-SH7 is a μ ITRON-specification real-time OS kernel for use with Hitachi's new SH7000 high-performance RISC microcontroller series.

Product configuration

- Kernel
- Sample file for system definition

- Timer driver (provided as source file) for use with the ITU incorporated in the SH7032 and SH7034 Series
- Simple console driver (provided as source file) for use with the SCI incorporated in the SH7032 and SH7034 Series
- Various other sample programs (system initialization handler, etc.)

Features

1. Conforms to μ ITRON Specification Ver.2.02

The HI-SH7 conforms to version 2.02 of the μ ITRON specification, and supports additional functions for dynamic creation and deletion of tasks and for system clock adjustment.

2. Advanced real-time performance

When the HI-SH7 is used with an SH7000 Series microcontroller and makes use of the on-chip ROM/RAM, it realizes a maximum interrupt masking time of 8 μ s and task wakeup time of 16 μ s (time for processing a `wup_tsk` system call) at 20MHz operation.

3. Compact design requiring only a small amount of memory

A common stack function and optimized kernel table size are among the design features that minimize the amount of RAM used by this OS kernel. Moreover, users may select out just the functions actually needed in a particular application system, realizing a compact kernel size of as little as 2.5KB (maximum 11KB).

4. C language support

Hitachi offers a system call interface library for use with Hitachi's C compiler. This compiler supports an extended function for writing HI-SH7 interrupt handlers, enabling even handlers to be written in C language.

† This newsletter is reprinted from TRONWARE vol.26 and TRON PROJECT BIMONTHLY No.31.

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

Specification	Product Name	Supported Processor	Company
μ ITRON2.0	HI-SH7	SH7000 Series	Hitachi, Ltd.

ITRON-related Publications

Name	Type	Price	Publisher	ISBN No.
ITRON- μ ITRON Standard Handbook	Specification (Japanese)	4,800Yen	Personal Media Co.	4-89362-079-7
μ ITRON3.0 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
μ ITRON 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	–

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 also distributed free of charge on the Internet. The method for downloading is explained in Newsletter No.2.

5. Multi-task debugging

An HI-SH7 multi-task debugger is available as optional software with Hitachi's E7000 emulator. This software allows tasks, semaphores and other kernel information to be referenced from the emulator, which can also issue system calls. An event trace function can be used to keep records of system call execution. A list of the multi-task debugger commands is given in a feature article on the HI-SH7 elsewhere in this issue.

Recent Works on ITRON

TRONWARE is a regular magazine on the TRON Project put out by Personal Media Corporation (in Japanese). Issue No.26 carries a transcript of a panel discussion conducted by ITRON Technical Committee members and others at the 10th TRON Project Symposium, held last December. The theme of the discussion was, "To Be Standardized or Not To Be Standardized – Loose Standardization in the ITRON Specifications." The panel members discussed the advantages of the policy of *loose standardization* adopted in the ITRON specification design, and also talked about some of the issues needing careful attention as a result of this policy, drawing on actual examples.