Questionnaire on RTOS Use Trends and ITRON Project

1. Please enter your name, company, position, address, telephone number, email address.

    (1-1) Name   [   ]

    (1-2) Company and position   [   ]

    (1-3) Address   [   ]

    (1-4) Telephone number   [   ]

    (1-5) Email address   [   ]

2. What kind of work do you do? Please choose one of the following. If more than one of the
    following apply, please choose your primary work.
    - (   )   Planning, management
    - (   )   Design, development
    - (   )   Inspection, quality control
    - (   )   Sales engineering, sales support
    - (   )   Other [   ]

3. We would like to know about at most three recent embedded systems projects you (or your
    company) have developed recently. For the first project, please answer the following five
    questions by entering your answers under System 1.   If you are answering about more
    than one system, enter responses for the second and third system under System 2 and
    System 3 respectively.
    -   * If more than one microcontrollers or microprocessors are used in one project, answer
        for one of them, or answer for each of them considering each one as a separate
        project.

(3-1) What is the application field?
    -   * For the application fields, please see the separate table on the last page.

System 1	System 2	System 3	
( )	( )	( )	Home appliance
( )	( )	( )	Audio/visual equipment
( )	( )	( )	Entertainment, education
( )	( )	( )	Personal information appliance
( )	( )	( )	Personal computer peripheral, office equipment
( )	( )	( )	Communication equipment (terminal)
( )	( )	( )	Communication equipment (network equipment)
( )	( )	( )	Transportation-related
( )	( )	( )	Industrial control, factory automation
( )	( )	( )	Electric equipment
( )	( )	( )	Medical equipment
( )	( )	( )	Misc. commercial systems
( )	( )	( )	Misc. instruments
( )	( )	( )	Other [ ]

(3-2) What is the type of the microcontroller or microprocessor used?

System 1	System 2	System 3	
( )	( )	( )	4-bit
( )	( )	( )	8-bit
( )	( )	( )	16-bit
( )	( )	( )	32-bit
( )	( )	( )	64-bit
( )	( )	( )	DSP and other special-purpose processors

(3-3) What is the approximate size of the software program?

System 1	System 2	System 3	
( )	( )	( )	less than 64KB (exclusive)
( )	( )	( )	64KB (inclusive) to 256KB (exclusive)
( )	( )	( )	256KB (inclusive) to 1MB (exclusive)
( )	( )	( )	1MB (inclusive) or more

(3-4) What programming languages are used? Please mark the primary language as "1". If there are some other programming languages used, mark at most two of them as "2" and "3", in order of usage.

System 1	System 2	System 3	
( )	( )	( )	Assembly language
( )	( )	( )	C language
( )	( )	( )	C++ language (including Embedded C++)
( )	( )	( )	Java language
( )	( )	( )	Other [ ]

(3-5) What OS is used?

* Please classify an ITRON-specification OS as a commercial ITRON OS even if it was developed by your own company, so long as it is sold outside your firm.

System 1	System 2	System 3	
( )	( )	( )	Commercial ITRON-specification OS
( )	( )	( )	In-house ITRON-specification OS
( )	( )	( )	CTRON-specification OS
( )	( )	( )	OSEK/VDX-specification OS
( )	( )	( )	Accelerated Technology OS (Nucleus Plus, etc.)
( )	( )	( )	Integrated Systems (ISI) OS (pSOS, etc.)
( )	( )	( )	Microtec/Mentor OS (VRTX, etc.)
( )	( )	( )	Microware Systems OS (OS-9, etc.)
( )	( )	( )	MS-DOS or DOS-compatible OS
( )	( )	( )	Windows OS (including NT and CE)
( )	( )	( )	Wind Rivers Systems OS (VxWorks, etc.)
( )	( )	( )	Other UNIX-family OS [ ]
( )	( )	( )	Other commercial OS [ ]
( )	( )	( )	In-house original OS
( )	( )	( )	OS not used because of a problem
( )	( )	( )	OS not used because it is not necessary

4. What are the problems you (or your company) face in using a real-time embedded OS? Please mark the biggest problem as "1". If there are some other problems, mark at most two of them as "2" and "3", in order of importance.

( ) An absence or shortage of staff familiar with the technology.
( ) Major differences in OS specifications, making it hard to switch.
( ) Performance and functions do not meet our requirements.
( ) OS size or resources used are too large.
( ) Lack of a development environment and tools.
( ) Cost is too high.
( ) Inadequate vendor support.
( ) Lack of software components.
( ) Other. [   ]
( ) No problem exists.

If you chose "Lack of a development environment and tools", please answer what specific tools are lacking?

[   ]

5. What are the criteria you (or your company) use in choosing a real-time OS? Mark the highest priority criterion as "1". If there are some other criteria, mark at most two of them as "2" and "3", in order of priority.

( ) Is widely used in the industry.
( ) Has a proven track record in our company.
( ) Supports a wide range of chips.
( ) Performance and functions match our requirements.
( ) Small OS size and resource use.
( ) Good development environment and tool support.
( ) Low cost.
( ) Good vendor support.
( ) High reliability.
( ) Good supply of software components.
( ) Other. [   ]

6. Which of the following best expresses your familiarity with ITRON? Please select one only.

( ) Have used or developed an ITRON-specification OS.
( ) Have never used or developed an ITRON-specification OS, but have investigated or considered its use.
( ) Have heard about ITRON, but have never investigated or considered its use.
( ) Was not aware of ITRON until now.

7. Please answer the following if you selected either "have used or developed" or "have investigated or studied ITRON" in the previous question.

(7-1) When you used/developed/investigated/studied ITRON, what did you consider the biggest advantages? Mark the most important as "1". If there are some other advantages, mark at most two of them as "2" and "3", in order of importance.

- (   )   The specifications are easy to understand.
- (   )   Supports a wide range of chips.
- (   )   High performance.
- (   )   Wealth of functions.
- (   )   Small OS size and resource use.
- (   )   Good development environment and tools.
- (   )   Many engineers are familiar with it.
- (   )   Low cost.
- (   )   Good support.
- (   )   Good supply of software components.
- (   )   Other. [   ]
- (   )   No clear advantages.

(7-2) What do you consider the main disadvantages of the ITRON OS? Mark the most important as "1". If there are some other disadvantages, mark at most two of them as "2" and "3", in order of importance.

- (   )   The specifications are difficult to understand.
- (   )   Too many implementation-dependent parts making it hard to port.
- (   )   Not enough chips are supported.
- (   )   Inadequate performance.
- (   )   Inadequate functions.
- (   )   OS size and resource use are too big.
- (   )   Lack of a development environment and tools.
- (   )   Lack of engineers familiar with it.
- (   )   High cost.
- (   )   Poor support.
- (   )   Lack of software components.
- (   )   Other. [   ]
- (   )   No outstanding disadvantages.

8. Please select all of the following ITRON-related activities that you are aware of.

(8-1) ITRON-related publicity activities

- (   )   Booths or presentations at trade shows and exhibitions
- (   )   ITRON Open Seminar
- (   )   ITRON Web site
- (   )   ITRON Newsletter
- (   )   None of the above

(8-2) ITRON-related committee and study group activities

( ) ITRON Technical Committee
( ) ITRON Hard Real-Time Support Study Group
( ) Embedded TCP/IP Technical Committee
( ) RTOS Automotive Application Technical Committee
( ) Java on ITRON Technical Committee
( ) None of the above

(8-3) Others

( ) µITRON3.0 specification
( ) µITRON3.0 compatibility check sheets
( ) Registration System for ITRON-specification Products
( ) TRON Project International Symposium
( ) TRONSHOW
( ) TRONWARE
( ) ITRON Club mailing list
( ) None of the above

9. What are the areas where you would like the ITRON project to become involved. Mark the most important area as "1". If there are some other areas, mark at most two of them as "2" and "3", in order of importance.

( ) Interface standards for software components
( ) Standardization of interfaces with development environments (esp. debuggers)
( ) C++ and JAVA language binding standards
( ) Standardization geared to certain applications
( ) Network support
( ) Multiprocessor support
( ) Hard real-time support
( ) Fault tolerance support
( ) Free ITRON-specification OS
( ) Application design guidelines
( ) Holding training seminars
( ) Other [   ]
( ) None of the above

If you chose "Standardization for a specific application field", please answer what specific application field would you like the ITRON project to become involved. are lacking?

[   ]

10. Please indicate any other opinions or wishes you have regarding ITRON activities.

11. The results of this questionnaire will be posted on the ITRON Home Page (http://tron.um.u-tokyo.ac.jp/TRON/ITRON/). We will also send the results to those requesting them. Would you like us to send you the results?

    (   )   Send by email.
    (   )   Send by regular mail.
    (   )   Do not send.

12. Would you like us to send you notices of the ITRON Open Seminar and other events?

    (   )   Send by email.
    (   )   Send by regular mail.
    (   )   Do not send.

Thank you very much for your joining our survey.

Application Fields

Home appliance	Microwave oven, rice cooker, refrigerator, washing machine, drier, air-conditioner, etc.
Audio/visual equipment	TV, VCR, digital camera, audio gear, set-top box, etc.
Entertainment, education	Game gear, child's computer, game toy, electronic musical instrument, karaoke, etc.
Personal information appliance	PDA (Personal Digital Assistant), personal organizer, car navigation system, etc.
Personal computer peripheral, office equipment	Printer, scanner, disk drive, CD-ROM drive, copier, FAX, word processor, etc.
Communication equipment (terminal)	Telephone, answerphone, cellular phone, PCS terminal, etc.
Communication equipment (network equipment)	Switching system, PBX, network router, network hub, ATM switch, etc.
Transportation-related	Automobile (engine, airbag), traffic signal, railway car/control, aviation equipment, maritime system, etc.
Industrial control, factory automation	Plant control, factory automation, industrial robot, etc.
Electric equipment	Building lighting system, building air-conditioning system, building electric power system, elevator, etc.
Medical equipment	Sphygmomanometer, electrocardiograph, X-ray machine, CT scanner, pacemaker, wheelchair, etc.
Misc. commercial systems	Commercial data terminal, cash register, cash dispenser, vending machine, automatic turnstile, etc.
Misc. instruments	Syncroscope, IC tester, electric meter, gas meter, sensors, etc.
Other	

* TRON is an abbreviation of "The Real-time Operating system Nucleus."
* ITRON is an abbreviation of "Industrial TRON."
* TRON and ITRON are names of concepts and projects aimed at developing a new computer system and environment; they do not refer to any specific product or products.
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