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To the Press

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[Press Release]

The Ubiquitous ID Center authorized RFID chips of Hitachi ULSI Systems as standard ucode tags.

The Ubiquitous ID Center (Shinagawa, Tokyo; current number of member companies: 470; Chairman: Ken Sakamura, Professor at The University of Tokyo /Director of the YRP Ubiquitous Networking Laboratory) has been advancing establishment of the core technology to enable automatic identification of “physical objects” and research & development and standardization aiming at realization of a ubiquitous computing environment. Today, regarding activities of the Ubiquitous ID Center, we would like to make an announcement on the following items.

The Ubiquitous ID Center authorized two types of chips made by Hitachi ULSI Systems, Co., Ltd. – the MWD6502 chip and MWD6503 chip - as Ubiquitous ID Center standard ucode tags (Interface Category 1(\*1), Security Class 1(\*2)). They are ID tag chips used in the UHF band (2.45GHz band) that supports Ubiquitous ID technology.

- Ubiquitous IDs operated by the Ubiquitous ID Center will be given to these ucode tags and will be used to automatically identify physical objects in a ubiquitous environment. Please note that the ucode implementation specification corresponds to the implementation specification defined by the Ubiquitous ID Center.
- The MWD6503 chip and the MWD6502 chip support interfaces that comply with the contactless IC tag international standards, the ISO/IEC18000part4(\*3) and the ISO/IEC18000part4CD(committee Draft) respectively.
- The MWD6502 chip and the MWD6503 chip are equipped with a 128 byte EEPROM (\*4) and have a function to protect data in order to prevent unauthorized data change.
- We have started development of common interface devices that enable access to these authorized chips and portable terminals with these interface devices built-in.

[Inquiries regarding this issue]

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[List of authorized tags (As of December 2004)]

Table 1 List of Tags Authorized by the Ubiquitous ID Center

Date of Authorization	Authorization Number	Interface Category	Security Class	Tag Name/Type	Vender Name
June 2003	01-001	Category 1	Class 1	$\mu$ chip	Hitachi
June 2003	01-002	Category 1	Class 1	T-Junction	Toppan Printing
June 2003	04-001	Category 1	Class 4	eTRON /16-AE45X	YRP UNL(*5) University of Tokyo Renesas Technology
Nov.2003	00-001	Category 0	Class 0	Bar code	Sato
Nov.2003	00-002	Category 0	Class 0	Bar code	Toppan Printing
Dec. 2003	00-003	Category 0	Class 0	Bar code	Dai Nippon Printing
Mar. 2004	01-003	Category 1	Class 1	MB89R116	Fujitsu
Mar. 2004	01-004	Category 1	Class 1	MB89R118	Fujitsu
Dec. 2004	01-005	Category 1	Class 1	MWD6502	Hitachi ULSI Systems
Dec. 2004	01-006	Category 1	Class 1	MWD6503	Hitachi ULSI Systems

[Terms and Notes]

\*1 Physical Layer Category

The Ubiquitous ID Center defines categories according to physical layer interfaces for ucode tag communications as shown in Table 2.

Table 2 ucode Tag Interface Categories

Category	Description
Category 0	Printed tags (bar codes, two-dimensional bar codes)
Category 1	RF tags (RFIDs and contactless IC cards with contactless IFs)
Category 2	Active RF tags (ID tags and sensor nodes that have batteries and communicate using RF).
Category 3	Active infrared tags (ID tags and sensor nodes that have batteries and communicate using infrared light).

\*2 Security Class

The Ubiquitous ID Center defines security classes according to security levels that each ucode tag should satisfy as shown in Table 3.

Table 3 ucode Tag Security Classes

Class	Provided security-related features
Class 0	Data defect detection (Damage caused in a part of data due to disturbance or physical defects in optical tags can be detected).
Class 1	Physical reproduction resistance/Physical forgery resistance (Creating data which is physically identical or similar is difficult)
Class 2	Identification prevention (Identification of communication status, contents and methods is prevented)
Class 3	Tamper resistance, access control management by resource (Information stored in tags cannot be read physically or logically. Also, controls accesses for each stored resource according to authority class of access of logical resource resistance)
Class 4	Secure communications with unknown nodes (A secure data communication path can be established even for an unidentified node that did not share a private key previously when exchanging tag data via a network).
Class 5	Time-dependent resource management (Time-limit management for carrier's data, security information and tag feature operation can be conducted, such as setting up a data validity period and stopping an operation after a certain period of time).
Class 6	Internal program/security information update (Maintenance function that enables maintenance of the optimum security status for how it is used, such as updating firmware and applying a security patch).

\*3 ISO/IEC18000

This is an international standard for contactless IC tags and has seven parts from part 1 to part 7. Common communication parameters for all frequency bands are defined in part 1 and communication protocols are defined for each frequency band used for an interface for a reader/writer in part 2 to 7. These ucode tag chips comply with a protocol for the 2.45GHz frequency band defined in part 4.

\*4 EEPROM (Electrically Erasable and Programmable Read Only Memory)

Nonvolatile memory whose contents can be electronically changed. For these ucode tags, 110 bytes out of 128 bytes can be changed by the users.

\*5 YRP UNL

YRP Ubiquitous Networking Laboratory