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April 1st, 2010
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The revision list can be viewed directly by clicking the title page.

The revision list summarizes the locations of revisions and additions. Details should always be checked by referring to the relevant text.

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Hardware Manual

Renesas 16-Bit Single-Chip Microcomputer H8 Family/H8/300H Tiny Series

H8/36057	HD64F36057, HD64F36057G HD64336057, HD64336057G
H8/36054	HD64F36054, HD64F36054G HD64336054, HD64336054G
H8/36037	HD64F36037, HD64F36037G HD64336037, HD64336037G
H8/36036	HD64336036, HD64336036G
H8/36035	HD64336035, HD64336035G
H8/36034	HD64F36034, HD64F36034G HD64336034, HD64336034G
H8/36033	HD64336033, HD64336033G
H8/36032	HD64336032, HD64336032G

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General Precautions on Handling of Product

1. Treatment of NC Pins

Note: Do not connect anything to the NC pins.

The NC (not connected) pins are either not connected to any of the internal circuitry or are used as test pins or to reduce noise. If something is connected to the NC pins, the operation of the LSI is not guaranteed.

2. Treatment of Unused Input Pins

Note: Fix all unused input pins to high or low level.

Generally, the input pins of CMOS products are high-impedance input pins. If unused pins are in their open states, intermediate levels are induced by noise in the vicinity, a pass-through current flows internally, and a malfunction may occur.

3. Processing before Initialization

Note: When power is first supplied, the product's state is undefined.

The states of internal circuits are undefined until full power is supplied throughout the chip and a low level is input on the reset pin. During the period where the states are undefined, the register settings and the output state of each pin are also undefined. Design your system so that it does not malfunction because of processing while it is in this undefined state. For those products which have a reset function, reset the LSI immediately after the power supply has been turned on.

4. Prohibition of Access to Undefined or Reserved Addresses

Note: Access to undefined or reserved addresses is prohibited.

The undefined or reserved addresses may be used to expand functions, or test registers may have been allocated to these addresses. Do not access these registers; the system's operation is not guaranteed if they are accessed.

Configuration of This Manual

This manual comprises the following items:

1. General Precautions on Handling of Product
2. Configuration of This Manual
3. Preface
4. Contents
5. Overview
6. Description of Functional Modules

- CPU and System-Control Modules
- On-Chip Peripheral Modules

The configuration of the functional description of each module differs according to the module. However, the generic style includes the following items:

- i) Feature
- ii) Input/Output Pin
- iii) Register Description
- iv) Operation
- v) Usage Note

When designing an application system that includes this LSI, take notes into account. Each section includes notes in relation to the descriptions given, and usage notes are given, as required, as the final part of each section.

7. List of Registers
8. Electrical Characteristics
9. Appendix
10. Main Revisions and Additions in this Edition (only for revised versions)

The list of revisions is a summary of points that have been revised or added to earlier versions. This does not include all of the revised contents. For details, see the actual locations in this manual.

11. Index

Preface

The H8/36057 Group and H8/36037 Group are single-chip microcomputers made up of the high-speed H8/300H CPU employing Renesas Technology-original architecture as their cores, and the peripheral functions required to configure a system. The H8/300H CPU has an instruction set that is compatible with the H8/300 CPU.

Target Users: This manual was written for users who will be using the H8/36057 Group and H8/36037 Group in the design of application systems. Target users are expected to understand the fundamentals of electrical circuits, logical circuits, and microcomputers.

Objective: This manual was written to explain the hardware functions and electrical characteristics of the H8/36057 Group and H8/36037 Group to the target users. Refer to the H8/300H Series Software Manual for a detailed description of the instruction set.

Notes on reading this manual:

- In order to understand the overall functions of the chip
Read the manual according to the contents. This manual can be roughly categorized into parts on the CPU, system control functions, peripheral functions, and electrical characteristics.
- In order to understand the details of the CPU's functions
Read the H8/300H Series Software Manual.
- In order to understand the details of a register when its name is known
Read the index that is the final part of the manual to find the page number of the entry on the register. The addresses, bits, and initial values of the registers are summarized in section 21, List of Registers.

Example:	Register name:	The following notation is used for cases when the same or a similar function, e.g. serial communication interface, is implemented on more than one channel: XXX_N (XXX is the register name and N is the channel number)
	Bit order:	The MSB is on the left and the LSB is on the right.

Notes:

When using an on-chip emulator (E7, E8) for H8/36057 and H8/36037 program development and debugging, the following restrictions must be noted.

1. The $\overline{\text{NMI}}$ pin is reserved for the E7 or E8, and cannot be used.
2. Pins P85, P86, and P87 cannot be used. In order to use these pins, additional hardware must be provided on the user board.
3. Area H'D000 to H'DFFF is used by the E7 or E8, and is not available to the user.
4. Area H'F780 to H'FB7F must on no account be accessed.
5. When the E7 or E8 is used, address breaks can be set as either available to the user or for use by the E7 or E8. If address breaks are set as being used by the E7 or E8, the address break control registers must not be accessed.
6. When the E7 or E8 is used, $\overline{\text{NMI}}$ is an input/output pin (open-drain in output mode), P85 and P87 are input pins, and P86 is an output pin.
7. In on-board programming mode by boot mode, channel 1 (P21/RXD and P22/TXD) for SCI3 is used.

Related Manuals: The latest versions of all related manuals are available from our web site. Please ensure you have the latest versions of all documents you require.
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H8/36057 Group and H8/36037 Group manuals:

Document Title	Document No.
H8/36057 Group, H8/36037 Group Hardware Manual	This manual
H8/300H Series Software Manual	REJ09B0213

User's manuals for development tools:

Document Title	Document No.
H8S, H8/300 Series C/C++ Compiler, Assembler, Optimizing Linkage Editor User's Manual	REJ10B0058
H8S, H8/300 Series Simulator/Debugger User's Manual	REJ10B0211
H8S, H8/300 Series High-Performance Embedded Workshop 3 Tutorial	REJ10B0024
H8S, H8/300 Series High-Performance Embedded Workshop 3 User's Manual	REJ10B0026

Application notes:

Document Title	Document No.
H8S, H8/300 Series C/C++ Compiler Package Application Note	REJ05B0464
Single Power Supply F-ZTAT™ On-Board Programming	REJ05B0520

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