To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

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Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

HITACHI SEMICONDUCTOR TECHNICAL UPDATE

Classification of Production	Microprocessor			No	TN-SH7-466A/E	Rev	1
THEME	Supplement of programming manuals regarding SH-4 Pipeline Operation	Classification of Information	1. Spec change ②. Supplement of Documents 3. Limitation of Use 4. Change of Mask 5. Change of Production Line				

PRODUCT NAME	SH-4	Lot No. ALL	Reference Documents	SH-4 Programming Manual (ADE-602-156D)	Effective Date Eternity

This is the supplementary explanation regarding Pipeline operation and the number of Ick cycles.

The number of states (Ick cycles) which needs for the pipeline stages containing external memory accesses, is basically the number of states which is set by Bus State Controller (BSC) for the external memory.
But, there is the possibility that idle cycles are added to the pipeline stages containing external memory accesses.

Namely, there is the possibility that

      1) the data transmission between Logical Address Bus and Physical Address Bus

and

      2) the data transmission between different clock frequency Buses

become the cause to occur the idle cycles.

The pipeline stages containing external memory accesses, are a part of Instruction Fetch (I), and a part of Memory Access (MA).