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General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Handling of Unused Pins
   Handle unused pins in accordance with the directions given under Handling of Unused Pins in the manual.
   — The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible. Unused pins should be handled as described under Handling of Unused Pins in the manual.

2. Processing at Power-on
   The state of the product is undefined at the moment when power is supplied.
   — The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the moment when power is supplied.
   In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the moment when power is supplied until the reset process is completed.
   In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the moment when power is supplied until the power reaches the level at which resetting has been specified.

3. Prohibition of Access to Reserved Addresses
   Access to reserved addresses is prohibited.
   — The reserved addresses are provided for the possible future expansion of functions. Do not access these addresses; the correct operation of LSI is not guaranteed if they are accessed.

4. Clock Signals
   After applying a reset, only release the reset line after the operating clock signal has become stable. When switching the clock signal during program execution, wait until the target clock signal has stabilized.
   — When the clock signal is generated with an external resonator (or from an external oscillator) during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Moreover, when switching to a clock signal produced with an external resonator (or by an external oscillator) while program execution is in progress, wait until the target clock signal is stable.

5. Differences between Products
   Before changing from one product to another, i.e. to a product with a different part number, confirm that the change will not lead to problems.
   — The characteristics of Microprocessing unit or Microcontroller unit products in the same group but having a different part number may differ in terms of the internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.
"R-Car_Gen3 Starterkit"

H3:RTP0RC77951SKBX010SA00

Rev.1.2

P01: TITLE
P02: R-CarH3_SD/QSPI
P03: R-CarH3_DU/LBSC
P04: R-CarH3_USB/HDMI
P05: R-CarH3_POW1
P06: R-CarH3_POW2
P07: R-CarH3_LPDDR_POW
P08: HDMI_OUT/USB2.0/SD
P09: MMC0
P10: EtherAVB(GbPHY)
P11: Audio
P12: DEBUG_SCIF/LED/TactSW
P13: R-CarH3_Mode_SETTING
P14: R-CarH3_Module_I/F
P15: POWER PMIC
Ethernet AVB GbPHY and PHY Connector

Following pin has pull-down resistors at the initial state.
- A21: TX, TXE (1.5kΩ), A15: RXD, A11: RXC
- A9: TXEN, A8: RXEN, A5: TXEN1
- A2: PHY, A1: PHY

Controls LEDs in the RJ45 connector

Gigabit Ethernet Transceiver with RRAM Support

Differential Impedance Table

Local Regulator for KSZ8031 RNX, PHY Connector

Wrapping Options for KSZ8031 RNX

For EtherCAT Express version.

Note: To make SDIN connection to EtherCAT, change below component mounting location.

Component | Mount | Change value
--- | --- | ---
C864 | | +100nF +220nF
C865 | | +100nF +220nF
C866 | | +100nF +220nF
C867 | | +100nF +220nF
C868 | | +100nF +220nF
C869 | | +100nF +220nF
C870 | | +100nF +220nF
C871 | | +100nF +220nF
C872 | | +100nF +220nF
C874 | | +100nF +220nF
R875 | |