

致尊敬的顾客

---

## 关于产品目录等资料中的旧公司名称

---

NEC电子公司与株式会社瑞萨科技于2010年4月1日进行业务整合（合并），整合后的新公司暨“瑞萨电子公司”继承两家公司的所有业务。因此，本资料中虽还保留有旧公司名称等标识，但是并不妨碍本资料的有效性，敬请谅解。

瑞萨电子公司网址：<http://www.renesas.com>

2010年4月1日  
瑞萨电子公司

【发行】瑞萨电子公司（<http://www.renesas.com>）

【业务咨询】<http://www.renesas.com/inquiry>

## Notice

1. All information included in this document is current as of the date this document is issued. Such information, however, is subject to change without any prior notice. Before purchasing or using any Renesas Electronics products listed herein, please confirm the latest product information with a Renesas Electronics sales office. Also, please pay regular and careful attention to additional and different information to be disclosed by Renesas Electronics such as that disclosed through our website.
2. Renesas Electronics does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Renesas Electronics products or technical information described in this document. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
3. You should not alter, modify, copy, or otherwise misappropriate any Renesas Electronics product, whether in whole or in part.
4. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation of these circuits, software, and information in the design of your equipment. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from the use of these circuits, software, or information.
5. When exporting the products or technology described in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations. You should not use Renesas Electronics products or the technology described in this document for any purpose relating to military applications or use by the military, including but not limited to the development of weapons of mass destruction. Renesas Electronics products and technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations.
6. Renesas Electronics has used reasonable care in preparing the information included in this document, but Renesas Electronics does not warrant that such information is error free. Renesas Electronics assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.
7. Renesas Electronics products are classified according to the following three quality grades: “Standard”, “High Quality”, and “Specific”. The recommended applications for each Renesas Electronics product depends on the product’s quality grade, as indicated below. You must check the quality grade of each Renesas Electronics product before using it in a particular application. You may not use any Renesas Electronics product for any application categorized as “Specific” without the prior written consent of Renesas Electronics. Further, you may not use any Renesas Electronics product for any application for which it is not intended without the prior written consent of Renesas Electronics. Renesas Electronics shall not be in any way liable for any damages or losses incurred by you or third parties arising from the use of any Renesas Electronics product for an application categorized as “Specific” or for which the product is not intended where you have failed to obtain the prior written consent of Renesas Electronics. The quality grade of each Renesas Electronics product is “Standard” unless otherwise expressly specified in a Renesas Electronics data sheets or data books, etc.
  - “Standard”: Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; and industrial robots.
  - “High Quality”: Transportation equipment (automobiles, trains, ships, etc.); traffic control systems; anti-disaster systems; anti-crime systems; safety equipment; and medical equipment not specifically designed for life support.
  - “Specific”: Aircraft; aerospace equipment; submersible repeaters; nuclear reactor control systems; medical equipment or systems for life support (e.g. artificial life support devices or systems), surgical implantations, or healthcare intervention (e.g. excision, etc.), and any other applications or purposes that pose a direct threat to human life.
8. You should use the Renesas Electronics products described in this document within the range specified by Renesas Electronics, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas Electronics shall have no liability for malfunctions or damages arising out of the use of Renesas Electronics products beyond such specified ranges.
9. Although Renesas Electronics endeavors to improve the quality and reliability of its products, semiconductor products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Further, Renesas Electronics products are not subject to radiation resistance design. Please be sure to implement safety measures to guard them against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas Electronics product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or system manufactured by you.
10. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. Please use Renesas Electronics products in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. Renesas Electronics assumes no liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
11. This document may not be reproduced or duplicated, in any form, in whole or in part, without prior written consent of Renesas Electronics.
12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products, or if you have any other inquiries.

(Note 1) “Renesas Electronics” as used in this document means Renesas Electronics Corporation and also includes its majority-owned subsidiaries.

(Note 2) “Renesas Electronics product(s)” means any product developed or manufactured by or for Renesas Electronics.

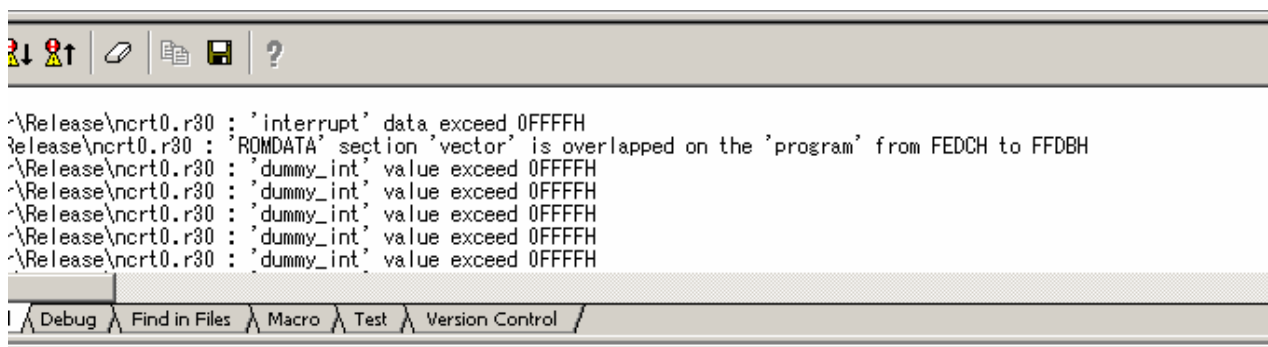
### R8C/2X 系列编译和 ROM 访问

#### 适用范围:

文档适用于 Renesas R8C/2X 系列微控制器。

#### 问题:

当使用 R8C/2X 系列 ROM 大于 48K 微控制器设计程序时，客户发现当编译后目标代码大于或接近 48k 时，程序编译出错或者运行不正常，错误信息如下图所示；同时，当使用 ROM 大于 64k 微控制器设计程序时，用 `const` 类型定义的数组放到 64k 地址空间以外的 ROM 区域，客户想办法发过去以后却出现访问出错。



```

-\\Release\\ncrt0.r30 : 'interrupt' data exceed 0FFFFH
-\\Release\\ncrt0.r30 : 'ROMDATA' section 'vector' is overlapped on the 'program' from FEDCH to FFDBH
-\\Release\\ncrt0.r30 : 'dummy_int' value exceed 0FFFFH
-\\Release\\ncrt0.r30 : 'dummy_int' value exceed 0FFFFH
-\\Release\\ncrt0.r30 : 'dummy_int' value exceed 0FFFFH
-\\Release\\ncrt0.r30 : 'dummy_int' value exceed 0FFFFH
-\\Release\\ncrt0.r30 : 'dummy_int' value exceed 0FFFFH
-\\Release\\ncrt0.r30 : 'dummy_int' value exceed 0FFFFH
  
```

编译错误信息

#### 分析:

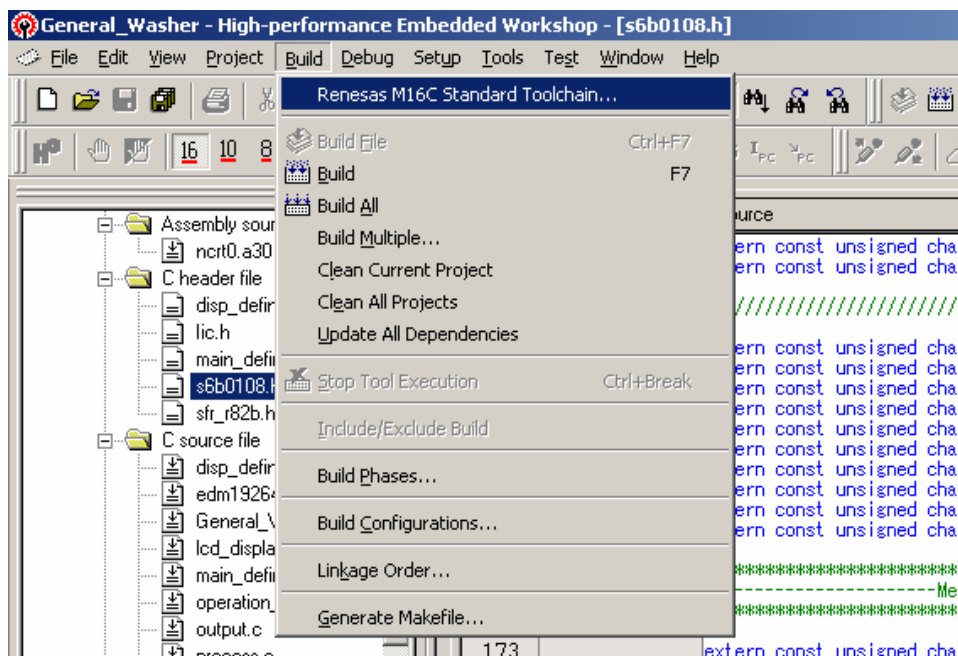
针对这种情况，问题大都是因为客户没有在 HEW 里面对 Renesas M16C Standard Toolchain 进行针对 R8C/2X 系列 MCU 设定造成的；而对大于 64k 地址空间的 `const` 数组访问，需要在编写 C 语言程序是对访问数组的指针进行 `far` 类型声明。

#### 解决:

基于上述分析，我们需要对 Renesas M16C Standard Toolchain 进行设定并处理访问 64k 地址空间以外数组的指针，具体做法如下：

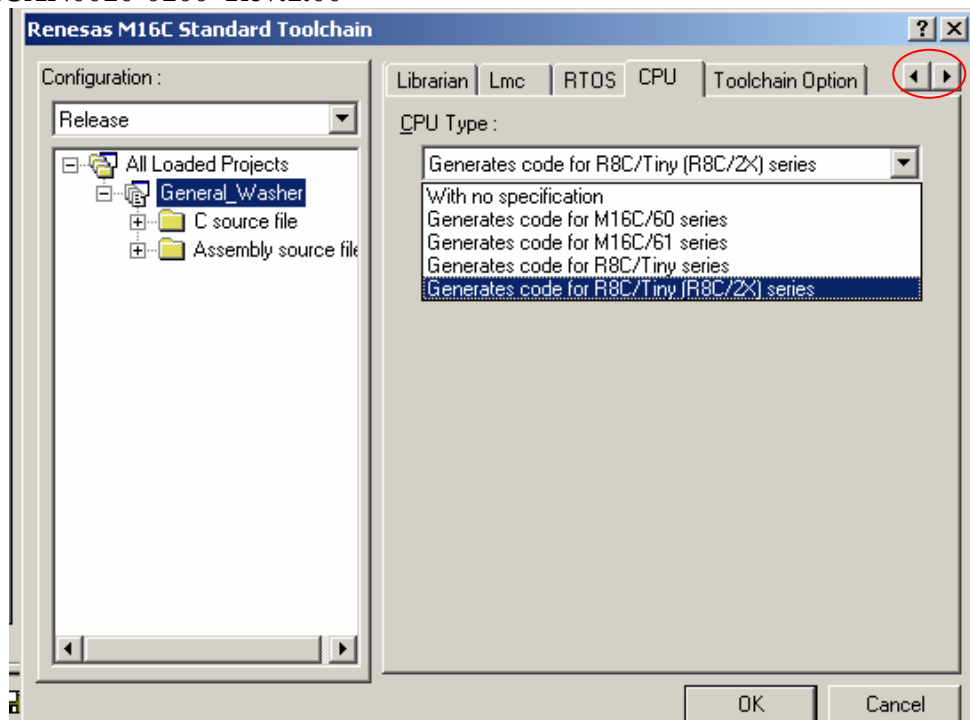
### RTSHCMCAN0010-0100 Rev.1.00

1， 在 HEW workspace 的菜单栏鼠标左键点击 “Build”， 然后选择 “Renesas M16C Standard Toolchain...” 进入 Toolchain 设定菜单；



2， 选择 “CPU” 设定菜单， 下拉 CPU 类型选择列表， 然后选择 “Generates code for R8C/Tiny (R8C/2X) series”， 确定后重新编译即可。此时， const 类型的数组会自动放到 64k 以后的地址空间存放， 并且先前的编译错误信息消失。

### RTSHCMCAN0010-0100 Rev.1.00



3, 针对 64k 以外地址空间 const 类型数组的访问处理如下（对指向数组指针进行 farl 类型声明）：

```

unsigned char extra_access(unsigned char far *, unsigned char);

const unsigned char sample_table[16] =
{
    0x70,0xF8,0x88,0x88,0x88,0xF8,0xF0,0x00,
    0x00,0x10,0x10,0x10,0x18,0x0F,0x07,0x00
};

unsigned char a;
unsigned char b;

void main(void)
{
    b = 8;
    a = extra_access (sample_table, b);
    while(1);
}

unsigned char extra_access(unsigned char far * table_adr, unsigned char num)
{
    unsigned char c;

    c = table_adr[num];
    return c;
}

```



## Trouble Shoot Document

**RTSHCMCAN0010-0100 Rev.1.00**