应用说明

RL78族
基于软件读出产品型号

要点

本篇应用说明介绍如何通过软件读取产品型号。产品型号是使用ASCII码编写的，被保存在数据内存空间的特定区域内。使用软件读取该区域，可以读出产品的型号。

对象MCU

RL78/G11
RL78/G12
RL78/G13
RL78/G14

本篇应用说明也适用于其他与上述所述的群具有相同SFR（特殊功能寄存器）定义的产品。关于产品功能的改进，请参看手册中的相关信息。在使用本篇应用说明的程序前，需进行详细的评价。

本篇应用说明不适用于CPU内核为RL78-S1内核的产品，如RL78/G10等。
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1. 基于软件读出产品型号

根据指令类型、时钟数目和性能，RL78 单片机可以分为三种类型：RL78-S1 内核、RL78-S2 内核和 RL78-S3 内核。本篇应用说明适用于 RL78-S2 内核和 RL78-S3 内核的产品。

RL78-S2 内核产品：RL78/G12、RL78/G13、RL78/G1A、RL78/G1E、RL78/G1C、RL78/I1A、RL78/L12、RL78/L13 等。

RL78-S3 内核产品：RL78/G11、RL78/G14 等。

RL78-S2 内核和 RL78-S3 内核产品的保留区域地址为 0xEFFD5~0xEFFDE。

表 1.1 中列出了 RL78/G13 “R5F100LE” 的产品型号。产品型号是用 ASCII 码编写的。

<table>
<thead>
<tr>
<th>地址</th>
<th>保存的信息</th>
<th>读出的数值</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xEFFD5</td>
<td>设备名的第一个字母</td>
<td>0x52 ‘R’</td>
</tr>
<tr>
<td>0xEFFD6</td>
<td>设备名的第二个字母</td>
<td>0x35 ‘5’</td>
</tr>
<tr>
<td>0xEFFD7</td>
<td>设备名的第三个字母</td>
<td>0x46 ‘F’</td>
</tr>
<tr>
<td>0xEFFD8</td>
<td>设备名的第四个字母</td>
<td>0x31 ‘1’</td>
</tr>
<tr>
<td>0xEFFD9</td>
<td>设备名的第五个字母</td>
<td>0x30 ‘0’</td>
</tr>
<tr>
<td>0xEFFDA</td>
<td>设备名的第六个字母</td>
<td>0x30 ‘0’</td>
</tr>
<tr>
<td>0xEFFDB</td>
<td>设备名的第七个字母</td>
<td>0x4C ‘L’</td>
</tr>
<tr>
<td>0xEFFDC</td>
<td>设备名的第八个字母</td>
<td>0x45 ‘E’</td>
</tr>
<tr>
<td>0xEFFDD</td>
<td>设备名的第九个字母</td>
<td>0x20 ‘ ’</td>
</tr>
<tr>
<td>0xEFFDE</td>
<td>设备名的第十个字母</td>
<td>0x20 ‘ ’</td>
</tr>
</tbody>
</table>

图 1.1 为读出产品型号的代码。执行该代码，可以读出用 ASCII 码编写的 RSF100LE 产品型号。被读出的产品型号保存在内部 RAM 中。

```c
unsigned char __far* ptr;
unsigned char sig[10];
unsigned char i;
ptr = (unsigned char __far*)0xEFFD5;
for (i = 0; i < 10; i++)
{
    sig[i] = *ptr;
    ptr++;
}
```

图 1.1 为读出产品型号的代码
2. 动作确认条件

本应用说明中使用的软件，是在下面的条件下进行动作确认的。

<table>
<thead>
<tr>
<th>项目</th>
<th>内容</th>
</tr>
</thead>
<tbody>
<tr>
<td>所用微控制器</td>
<td>RL78/G11: R5F1056A, R5F1058A</td>
</tr>
<tr>
<td></td>
<td>RL78/G12: R5F1026A</td>
</tr>
<tr>
<td></td>
<td>RL78/G13: R5F100LEA</td>
</tr>
<tr>
<td></td>
<td>RL78/G14: R5F104LEA</td>
</tr>
<tr>
<td>工作频率</td>
<td>RL78/G11: 24 MHz</td>
</tr>
<tr>
<td></td>
<td>RL78/G12: 24 MHz</td>
</tr>
<tr>
<td></td>
<td>RL78/G13: 32 MHz</td>
</tr>
<tr>
<td></td>
<td>RL78/G14: 32 MHz</td>
</tr>
<tr>
<td>工作电压</td>
<td>3.3 V</td>
</tr>
<tr>
<td>集成开发环境 (CS+)</td>
<td>CS+ V5.00.00 (瑞萨电子开发)</td>
</tr>
<tr>
<td>C 编译器 (CS+)</td>
<td>CC-RL V1.04.00 (瑞萨电子开发)</td>
</tr>
<tr>
<td>集成开发环境 (e² studio)</td>
<td>e² studio V5.1.0.022 (瑞萨电子开发)</td>
</tr>
<tr>
<td>C 编译器 (e² studio)</td>
<td>e² studio V1.04.00 (瑞萨电子开发)</td>
</tr>
</tbody>
</table>
3. 运行结果

图 3.1 所示为 RL78/G13 的运行结果。
4. 参考文献
RL78/G11 User's Manual: Hardware（R01UH0637E）
RL78/G12 用户手册 硬件篇（R01UH0200C）
RL78/G13 用户手册 硬件篇（R01UH0146C）
RL78/G14 用户手册 硬件篇（R01UH0186C）
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• http://www.renesas.com/zh-cn/

咨询
• https://www.renesas.com/zh-cn/support/contact.html
<table>
<thead>
<tr>
<th>Rev.</th>
<th>发行日</th>
<th>修订内容</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>2018.12</td>
<td>初版发行</td>
</tr>
</tbody>
</table>

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   【注意】将未使用的引脚按照正文的“未使用引脚的处理”进行处理。
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2. 通电时的处理
   【注意】通电时产品处于不定状态。
   通电时，LSI内部电路处于不确定状态，寄存器的设定和各引脚的状态不定。通过外部复位引脚对产品进行复位时，从通电到复位有效之前的期间，不能保证引脚的状态。
   同样，使用内部上电复位功能对产品进行复位时，从通电到达到复位产生的一定电压的期间，不能保证引脚的状态。

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   【注意】禁止存取保留地址（保留区）
   在地址区域中，有被分配将来用作功能扩展的保留地址（保留区）。因为无法保证存取这些地址时的运行，所以不能对保留地址（保留区）进行存取。

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   【注意】复位时，请在时钟稳定后解除复位。
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