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## **Data I/O Checksum Calculation Methods**

### **Application Note**

(Chinese translation follows this English text.)

## **General Description and Scope**

This document describes common checksum calculation methods for devices that we support in TaskLink.

## **When Would I Use 8/16/32-bit Checksum?**

The 8-bit, 16-bit and 32-bit checksum methods just add up the data—they do not consider data location like the CRC checksum method does. Therefore, with the 8-bit, 16-bit and 32-bit checksum methods, whole block swaps don't affect the checksum. And with the 8-bit checksum method, even byte swaps don't affect the checksum.

On the **File I/O** tab, byte swap can be selected by checking the Odd/Even Byte Swap checkbox. It transposes odd and even order bytes within the data file, but it will only affect devices with 16-bit and 32-bit data width. The byte swap will have no effect on 8-bit devices. For 16-bit devices it will transpose odd and even order WORDs within the data file. For 32-bit devices it will transpose odd and even order DWORDs within the data file.



## Selecting Checksum Methods in TaskLink

To select a checksum method in TaskLink, in the **Edit Task** dialog, click the **Data** tab. Then use the dropdown arrow to view the selections. Refer to Figure 2 below.

The method labeled Device Width Checksum autoselects the checksum method based on the device width. For example: an 8-bit device will use the 8-bit checksum method, and a 32-bit device will use the 32-bit checksum method.

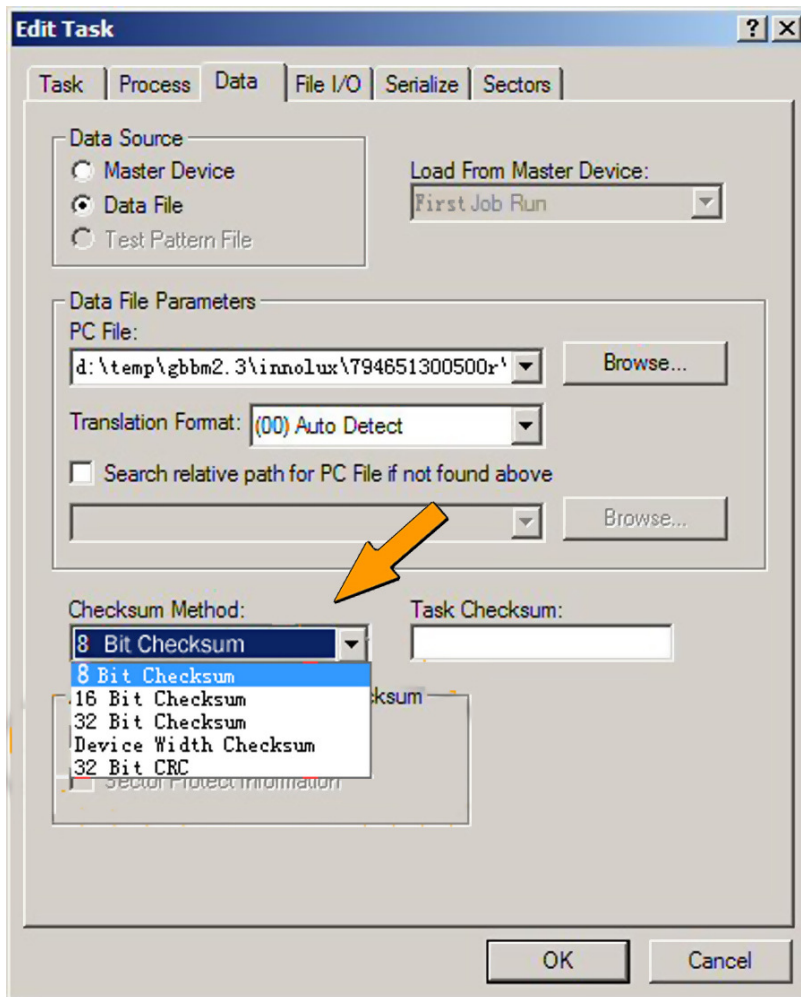


Figure 2: The *Checksum Method* dropdown expands to show the list of methods available.

## Special Data and Sector Protection

If your target device has special data sectors and/or sector-protection features, this information can be included in the checksum by checking the boxes as available. Selected items will be added to the checksum. See Figure 3 below.

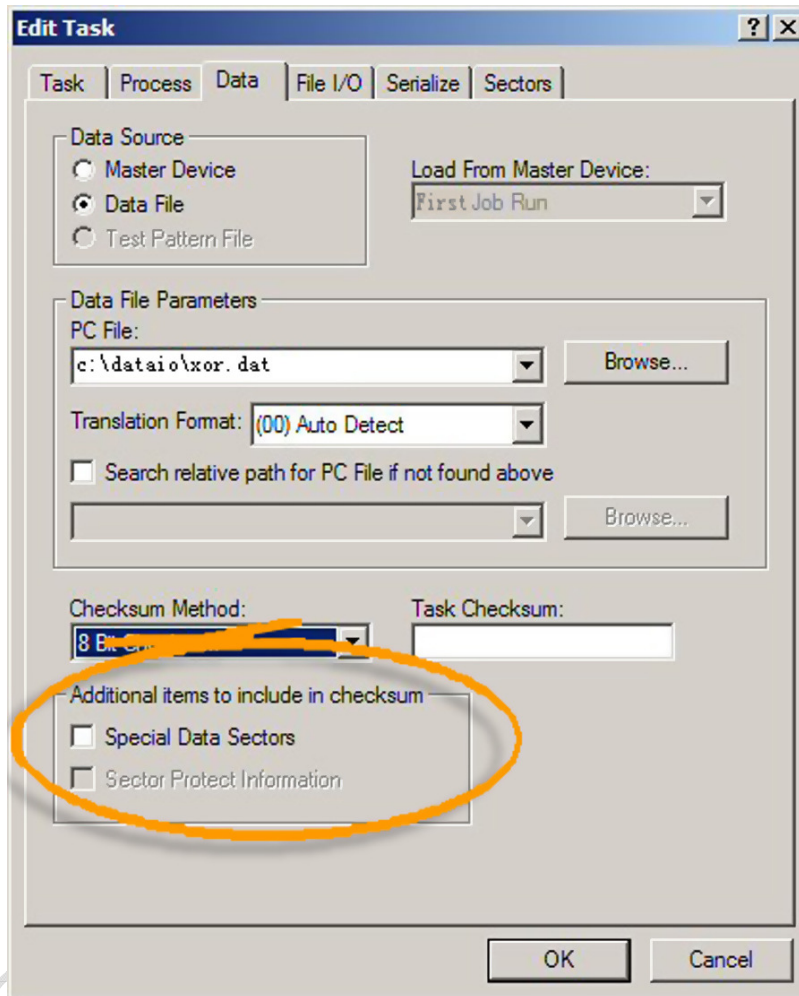


Figure 3: Additional items will be included in the checksum when the available boxes are checked.

### Revision History:

V1.0 July 7, 2010 Winston

V1.1 Aug 13, 2010 Roger, Edwin, Roxanne

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## Data I/O Checksum 计算方法

### 简介和使用范围:

本文描述了 TaskLink 计算 Checksum(以下简称 CS)的方法。

### 8/16/32-bit CS 应用场合:

8-bit,16-bit 和 32-bit CS 的计算只是简单的累加数据,与数据的位置无关,这一点与 CRC 计算不同。因此,整个区块数据的交换并不会影响 8-bit,16-bit 和 32-bit CS 的值。同样的,奇偶字节的交换也不会影响 8-bit CS 的值。

在 **File I/O** 这个选项卡中,您可以使用 **Odd/Even Byte Swap** 选项来交换奇偶字节中的数据,注意这个选项对 8-bit 的芯片无效。而对于 32-bit 的芯片,它也是只交换奇偶字节中数据,而不是奇偶字中的数据。



## 在 TaskLink 中选择计算方法：

您可以在 TaskLink 的 **Edit Task** 对话框中的 **Data** 选项卡中的 Checksum Method 下拉框中选择您需要的计算方式，如图 2 所示。

Device Width Checksum 这个选项将自动选择和芯片位数一致的 CS 计算方法。也就是说，8-bit 芯片使用 8-bit CS，16-bit 芯片使用 16-bit CS，32-bit 芯片使用 32-bit CS。

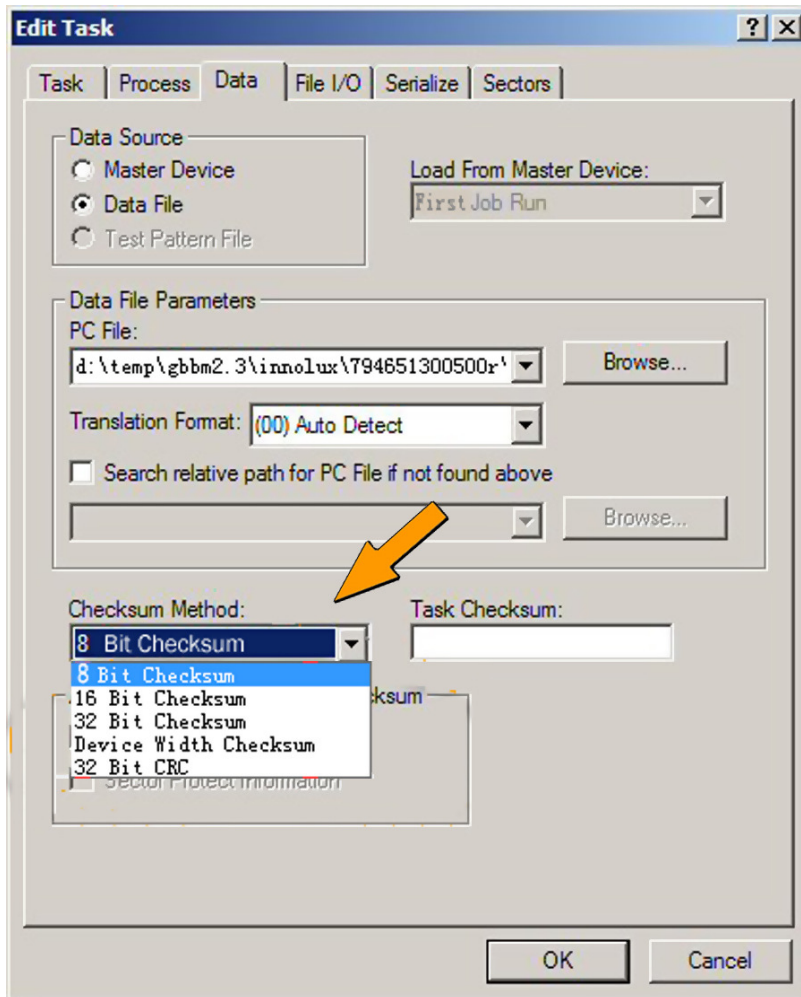


图 5: CS 计算方法下拉列表。

## 特殊数据和扇区保护:

如果您使用的芯片有特别数据扇区（如 OTP）和扇区保护功能，在您选中了图三中的单选框后，这些信息也会计算到 CS 中。

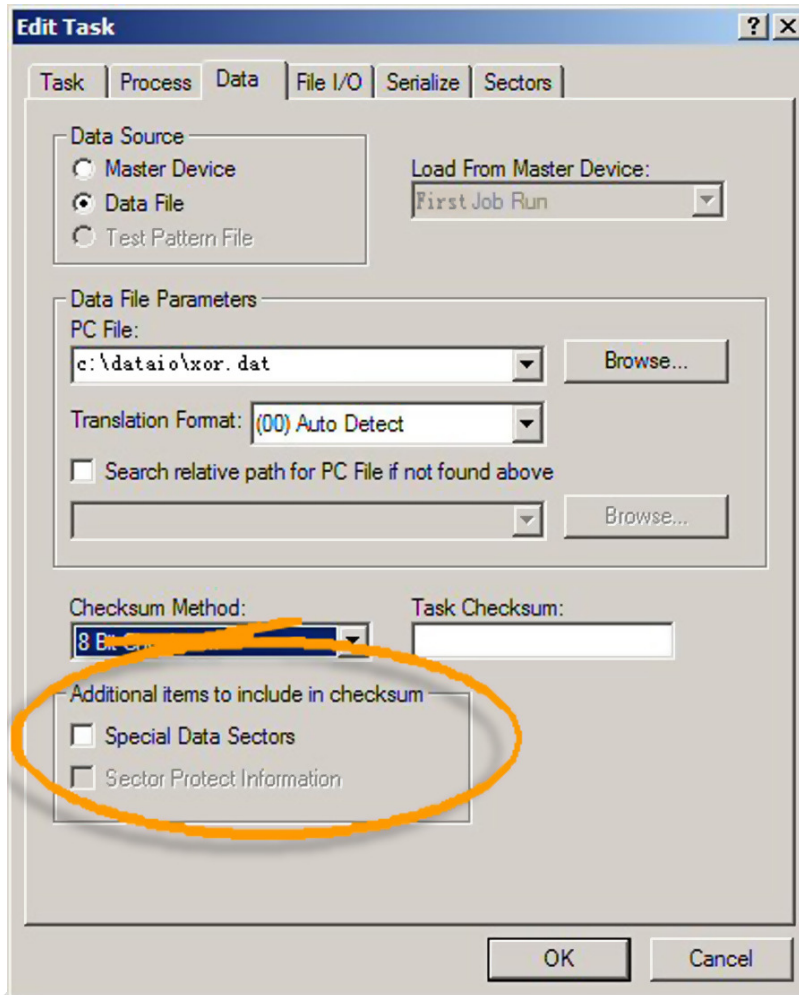


图 6:加入其他信息到 CS 的单选框.

### ***Revision History:***

V1.0 July 7, 2010 Winston

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