Dediware
Checksum Calculation Methods

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Important notice:

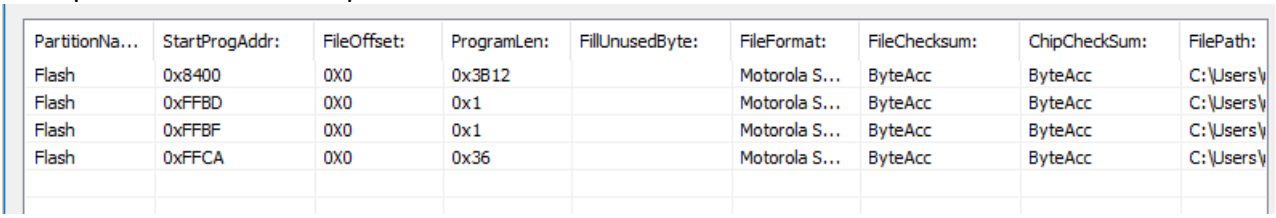
This document describes how to calculate the Checksum in Dediware for verification. What are the differences between the Chip Checksum, the File Checksum, and the Option Checksum? Please refer to the followings:

File Checksum :

Calculation method:
After the file has been
File Checksum is for a single file Checksum. First, analyze the file to Binary, and accumulate the effective data. Most of Intel Hex (*.hex, *.h16, *.h20), Motorola Hex(*.mot , *.s19, *.abs, *.mhx, *.srec) and Binary(*.bin, *.rom), TI TXT are all using this method. Use byte sum method for other kinds of files.

The effective data in each partition.

Example 1. There are four partitions of the accumulated data in the below chart.

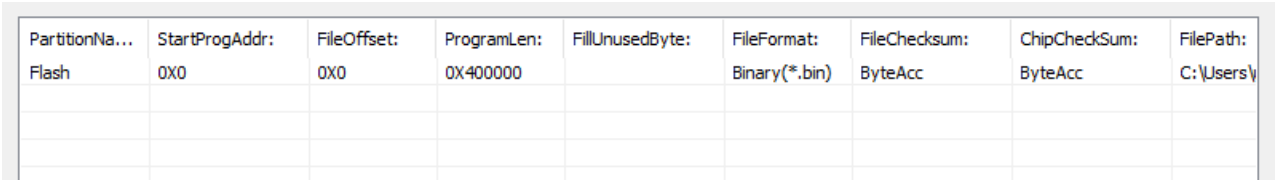


PartitionNa...	StartProgAddr:	FileOffset:	ProgramLen:	FillUnusedByte:	FileFormat:	FileChecksum:	ChipCheckSum:	FilePath:
Flash	0x8400	0X0	0x3B12		Motorola S...	ByteAcc	ByteAcc	C:\Users\
Flash	0xFFBD	0X0	0x1		Motorola S...	ByteAcc	ByteAcc	C:\Users\
Flash	0xFFBF	0X0	0x1		Motorola S...	ByteAcc	ByteAcc	C:\Users\
Flash	0xFFCA	0X0	0x36		Motorola S...	ByteAcc	ByteAcc	C:\Users\

Then the File checksum calculation method will be

First Partition Address 0x8400 ~ 0x8400 + 0x3B12 – 0x1
+ Second Partition Address 0xFFBD
+ Third Partition Address 0xFFBF
+ Forth Partition Address 0xFFCA ~ 0xFFCA + 0x36 – 0x1

Example 2. There is only one partition in this chart.



PartitionNa...	StartProgAddr:	FileOffset:	ProgramLen:	FillUnusedByte:	FileFormat:	FileChecksum:	ChipCheckSum:	FilePath:
Flash	0X0	0X0	0X400000		Binary(*.bin)	ByteAcc	ByteAcc	C:\Users\

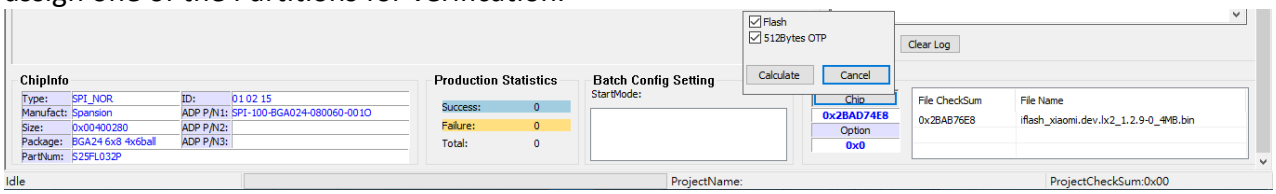
The File Checksum Calculation method will be accumulating the data of the address of 0~0x3FFFFF.

Chip Checksum:

Chip Check sum is the sums of the IC memory contents. Some ICs have two Partitions, then Chip Checksum will be the sums of these two partitions.

Chip Checksum = Byte Sum. The accumulative sums of the content from each Partition.

Example 1: S25FL032P has two Partitions, Flash, and 512 Bytes OTP, then the Checksum will be the sums of Flash + 512 Bytes OTP. In order to let the user verify easily, Dediware can also assign one of the Partitions for verification.

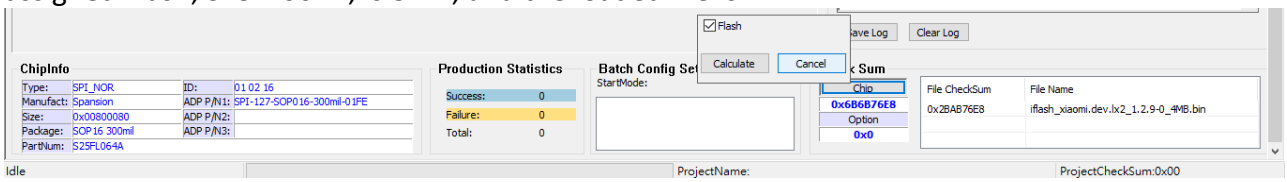


In this case, a Flash same as a 4MB file was loaded. Since 512 Bytes OTP did not load the content, so all of them are 0xFF, then the Chip Checksum calculation will be Flash + 512Bytes OTP.

Flash is 0x2BAB76E8
512Bytes OTP is 0xFF x 0x200 = 1FE00

Chip Checksum = 0x2BAB76E8 + 1FE00 = **2BAD74E8**

Example 2. How to calculate when the file size is smaller than the IC volume? In this case, the assigned Flash, S25FL064A, is 8MB, and the loaded file is 4MB.



This Chip Checksum calculation will be 4MB file (0x2BAB76E8) + 4MB of blank (0xFF).
Chip Checksum = 0x2BAB76E8 + 0x400000 x 0xFF = 6B6B76E8

Option Checksum :

This Checksum verification is only designed for the IC that has the Option. There is no certain method to calculate; it depends on the address of each IC when it was designed. In production, other than comparing the Chip Checksum and the File Checksum, please also check if the IC that has the Option and if it is correct or not.

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