Annex One:
ID Alignment Details

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一、Alignment

The valid ID for the standard frame is bit 11, and bit 29 for the extended frame. When it comes to store ID by using 32-bit unsigned integer, there might be two storage methods: Right-aligned method (Direct ID mode) and left-aligned method (SJA1000 / register mode). *Alignment methods involved with the interface function library of this USBCAN device are compatible with the interface function library of USBCAN ZLG Series device.*

1.1 Right-aligned method

Right-aligned method, that is, ID.0 as the least significant bit of ID is aligned with Bit.0. As the following table shown:

unsigned int (bit31～bit0)																													
high																												low	Bit
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Bit
																					10	9	8	7	6	5	4	3	2	1	0	Standard
			28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Extended

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1.2 Left-aligned method

Left-aligned method, that is, ID.10 (standard frame) as the most significant bit of ID and ID.28 (extended frame) are aligned with Bit.31. As the following table shown:

unsigned int (bit31～bit0)																															
high																														low	Bit
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Bit
10	9	8	7	6	5	4	3	2	1	0																						Standard
28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0				Extended

二、ID Right-aligned Method（Direct ID Method）

CAN message ID is represented by unsigned int in the interface function library with a total of 32 bits. Among of which, the valid ID of the standard frame is 11 bit, and 29 bit for extended frame with right-aligned method (direct ID method), that is, ID.0 as the least significant bit is aligned with Bit.0. As the following table shown:

ID(bit31～bit0)																													
high																												low	Bit
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Bit
																					10	9	8	7	6	5	4	3	2	1	0	Standard
			28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Extended

Note: In the table, the bit in dark background cell represents valid bit of the ID, ID.0 as the least significant bit of ID is aligned with Bit.0.

E.g.：

1. Standard frame ID：Standard frame ID is 00 00 01 23(HEX)，11 bit is the valid，actual ID value is 00 00 01 23H.

2. Extended frame ID：Extended frame ID is1F 01 02 03(HEX)，29 bit is the valid，actual ID value is1F 01 02 03H.

三、AccCode/AccMask Left-aligned Method（Register Mode）

AccCode (filtering acceptance yards) / AccMask (filter mask) is represented in the interface function library with unsigned integer with a total of 32 bits, including standard frame with valid ID is bit 11, and the extended frame bit 29 by using the left-aligned method (register mode), that is, ID.10 (standard frame) as the most significant bit of the ID and ID.28 (extended frame) are aligned with Bit.31. As the following table shown:

AccCode/AccMask (bit31～bit0)																															
high																														low	Bit
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Bit
10	9	8	7	6	5	4	3	2	1	0																						Standard
28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0				Extended

Note: In the table, the bit in dark background cell represents valid bit of the ID, the most significant bit of ID is aligned with Bit31.

E.g.:

1.Standard frame ID：Standard frame ID is 00 00 01 23(HEX)，11 bit is the valid，so the actual value should be shifted to the left by 21 bits, obtaining AccCode/AccMask value 24 60 00 00H.

2. Extended frame ID：Extended frame ID is 1F 01 02 03(HEX)，29 bit is the valid，so the actual value should be shifted to the left by 3 bits, obtaining AccCode/AccMask value F8 08 10 18H.