

# The FMCOS file system should pay attention to the reasonable planning of file identifiers

According to the description in the FMCOS 2.0 manual, there are two ways to use the SELECT command, which is to select by file identifier (P1=00) ; directory name (P1=04).

P1=00, the basic file or subdirectory file in the current directory is selected. P1=04, you can select the sibling directory and subdirectory of the current dir

In actual development, the author has observed that when the SELECT command P1=00, there will be some abnormal reactions that are not describe the manual.

Now take the FM1208-10 (7K+1K M1) card as an example, and the file structure in the card is as follows:

```
1  3F00 (MF)
2
3      L1000 (一级DF), 目录名01 10 00 FF FF
4          L1000 (二进制) (无法选择, 无法读取)
5          L2000 (二级DF), 目录名02 20 00 FF FF (正常选择)
6
7      L1001 (一级DF), 目录名01 10 01 FF FF
8          L1000 (二级DF), 目录名02 10 00 FF FF (正常选择)
9          L0020 (二进制) (正常选择, 正常读取)
10         L1100 (二进制) (正常选择, 正常读取)
11
12     L1100 (一级DF), 目录名01 11 00 FF FF
13         L1100 (二级DF), 目录名02 11 00 FF FF (只能用目录名选择)
14             L0010 (二进制) (正常选择, 正常读取)
15
16     L1111 (二进制) (正常选择, 正常读取)
```

## Symptom 1: The SELECT command unconditionally selects the current DF instance

In 3F00\1000, if you run select 1000, 3F00\1000 itself will be selected, but 3F00\1000\1000 (binary) will not be selected.

In 3F00\1001, run the select 1001 command to select 3F00\1001 and not return the status code 6A82 (file not found).

In 3F00\1100, if you run select 1100, 3F00\1100 itself is selected, but 3F00\1100\1100 (secondary DF) is not selected.

## Symptom 2: If there is no file in the current DF, the SELECT command selects other DFs of the same level as the current DF

If you run select 1001 in 3F00\1000, 3F00\1001 will be selected and the 6A82 (file not found) status code will not be returned.

If you run select 1000 in 3F00\1100, 3F00\1000 will be selected and the 6A82 (file not found) status code will not be returned.

In 3F00\1001, if select 1100 is executed, 3F00\1001\1100 (binary) will be selected, which is normal and meets the expected performance.

## Symptom 3 (normal): The SELECT command will not select other EFs of the same level as the current DF

In 3F00\1100, if select 1111 is executed, the status code 6A82 (file not found) is returned.

Supplement:

1. The file identifier of the subdirectory is the same as that of the parent directory, and the subdirectory can be selected by the directory name. The pre that the directory name of the subdirectory is different from that of the parent directory;

Note that this feature is only available on a subset of cards, and is not supported on existing cards - this means that the subdirectory has the same file id as the parent directory, and the subdirectory can never be selected.

2. EF has the same file identifier as the parent directory, and EF cannot be selected.

Therefore, when designing the structure of FMCOS files, attention should be paid to the reasonable planning of file identifiers. In particular, you should avoid using the file identifier of the parent directory, the file identifier of the parent directory sibling.

When creating a DF, make sure that the directory name is a meaningful name, and the directory name of all DFs must not be the same.