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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | PROJECT: SINGLIX Operating System   Issue: 2    Revision: 14    Date: 07/01/2018  OWNER: ERDOĞAN TAN / Istanbul / Turkiye | | | | | | |  | | | | | | | **FILE DESCRIPTION TABLE Format of  SINGLIX FS1, FS2 file systems** | | | | | | |  | | | | | | | **Offset** | **Item** | **DATA** | **Type** | **Size** | **Description of Item** | | 0 | FDT Sign | ‘FDT’ | Char | 3 byte | TR-SINGLIX File Description Table | | 3 | Reserved | XXh | Byte | 1 byte | Must be 0 for Current/This FDT Version | | 4 | Sector Size | XXXXh | Word | 2 byte | Bytes per Sector (FS1=512, FS2=2048) | | 6 | FDT Number | XXXXh | Word | 2 byte | FDT (Sequence) Number of This File | | 8 | File Number | XXXXXXXXh | Dword | 4 byte | The 1st FDT Address of This File (Offset) | | 12 | Next FDT Number | XXXXXXXXh | Dword | 4 byte | FDT Address of the Next Section (Offset) | | 16 | Sector Count | XXXXXXXXh | Dword | 4 byte | Number of Sectors in this section | | 20 | Parent Dir Number | XXXXXXXXh | Dword | 4 byte | The Parent DDT Addr. of This File (Offset) | | 24 | Parent Dir Serial | XXXXXXXXh | Dword | 4 byte | The Parent Dir’s Serial No. (Tick Count) | | 28 | File Size | XXXXXXXXh | Dword | 4 byte | The lower 4 bytes of 6 byte File Size. | | 32 | File Size High | XXXXh | Word | 2 byte | The higher 2 bytes of 6 byte File Size. | | 34 | Attributes | 1 byte | Byte | 1 byte | (Dos type) Directory Attributes (0,0,A,D,V,S,H,R) | | 35 | Extended Attributes | 1 byte | Byte | 1 byte | User, Group, Others Permission Flags | | 36\* | Owner code | 4 bytes | Dword | 4 byte | Owner Description Table address (TR-MULTIX) | | 40\* | Group code | 4 bytes | Dword | 4 byte | Group Description Table address (TR-MULTIX) | | 44 | File Name Type | XXh | Byte | 1 byte | 0 = Default, 12 = Msdos, 14 =Unix, 64 = Singlix | | 45 | Long Name Length | XXh | Byte | 1 byte | Length of unicode directory name if available | | 46 | Country | XXh | Byte | 1 byte | Language, Date, Text Format (default = 0) | | 47 | Time Zone | XXh | Byte | 1 byte | -11 to +12  (GMT = 0, default = 0) | | 48 | Creating Century | XXh | Byte | 1 byte | Century in Binary Coded Decimal (BCD) (20) | | 49 | Creating Year | XXh | Byte | 1 byte | Year in Binary Coded Decimal (BCD) (18) | | 50 | Creating Month | XXh | Bute | 1 byte | Month in Binary Coded Decimal (BCD) | | 51 | Creating Day | XXh | Byte | 1 byte | Day in Binary Coded Decimal (BCD) | | 52 | Creating Hour | XXh | Byte | 1 byte | Hour in Binary Coded Decimal (BCD) | | 53 | Creating Minute | XXh | Byte | 1 byte | Minute in Binary Coded Decimal (BCD) | | 54 | Creating Second | XXh | Byte | 1 byte | Second in Binary Coded Decimal (BCD) | | 55 | C. Time Mode | XXh | Byte | 1 byte | 0 = Standard Time, 1 = Daylight Saving | | 56 | Last Modif. Date | XXXXXXXXh | Dword | 4 byte | The Last Modification/Write Date (BCD) | | 60 | Last Modif. Time | XXXXXXh | Byte | 3 byte | The Last Modification/Write Time (BCD) | | 63 | L. M. Time Mode | XXh | Byte | 1 byte | 0 = Standard, 1 = Daylight Saving Time | | 64 | File Name | <FileName> | Char | 64 byte | 64 byte full or zero terminated File Name | | 128 | Reserved | ? | Char | 128 byte | Reserved for future versions | | 256 | Unicode File Name | <Long File Name> | Byte | 256 byte | Unicode Directory Name if Offset 45 > 0 | | 512\*\* | Reserved | ? | Byte | 1536 byte | Optional/Reserved Area for FS2 Files | | \* Used by TR-MULTIX (Multiuser, Multitasking) Operation System, only!  \*\* 1536 byte extra description for 2048 bytes per sector File System (FS2), only ! Optional !    NOTE: Erased/Deleted File Sign: ‘FDE’, ‘E’ at offset 2 instead of ‘T’. (Parent Dir’s Entry: FFFFFFFFh is erased entry, 0 is end of directory entries. Other 32 bit dir. entry numbers are the 1st FDT addresses.)    Parent Dir. Serial used for that purpose: When a dir or file is deleted, it will be removed from parent directory entries by replacing child directory or file number to FFFFFFFFh = deleted entry sign. And, it will be located in UNDELETE Directory as a new deleted file entry. When user want to undelete this file/dir, if parent directory serial number same with in the parent directory descriptor table (as number) declared in child directory descriptor table, the deleted directory or file will be restored in the parent directory. Directory serial number is just a tick count which always different by the computer’s timer ticks. (as like as volume serial number.)    For the First FDT (FDT0) of every file, this 1 sector FDT structure is completely valid and used. If a file has multiple FDTs (has more than one data section on the disk), except FDT 0, next and other FDTs use or carry the first 20 bytes of FDT structure as valid. Remain items are not used or not valid. So, the first FDT (FileNumber, Offset 8) is only reference to full FDT structure for file recovery or reverse/trace procedures. (Offset 8 points the FDT 0 address , Offset 6 has the current FDT sequence number.)  By using only FDT0 parameters (except the first 20 bytes of FDTs),  all of FDT contents after file create, move, update (file name, path and size changes etc.) procedures are kept true/correct for all FDTs.  FDT1 and other FDTs (>0) must have valid 20 bytes on to Offset 20, then, must have ZERO bytes.  (If a file is in a single data section, only FDT0 –the 1st FDT- is used and Offset 12 of FDT0 has ZERO.) | | | | | | |

EXTENDED ATTRIBUTES byte:

Bit 0 = Owner’s Read Only Flag [ 0 = Writable file, 1 = Read only file ]

Bit 1 = Owner’s Executable File Flag (1 = executable file -in multitasking mode-)

Bit 2 = Group User’s Invisible Flag (0=No, 1=Yes) [ 1 = This file is not visible except the owner ]

Bit 3 = Group User’s Read Only Flag (0=No, 1=Yes)  [ The result can be 'Writable' if Bit 0 is 0 ]

Bit 4 = Group User’s Executable File Flag (1= executable by group user if also Bit 1 is 1)

Bit 5 = Other User’s Invisible Flag (0=No, 1=Yes) [ 1 = This file is not visible except the group ]

Bit 6 = Other User’s Read Only Flag (0=No, 1=Yes) [ The result can be 'Writable' if Bit 0 & Bit 3 is 0 ]

Bit 7 = Other User’s Executable File Flag (1= executable by other users if also Bit 1 & Bit 4 is 1)

(DOS) BASIC ATTRIBUTES byte:

Bit 0 = Read Only Flag (R)

Bit 1 = Hidden (Invisible) Flag (H)

Bit 2 = System File Flag (S)

Bit 3 = Volume Flag (V)

Bit 4 = Directory Flag (D)

Bit 5 = Archive Flag (A)

Bit 6 = Reserved (0)

Bit 7 = Reserved (0)