Standard Header (COMX <-> PC)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Address** | **Bytes** | **Address Description** | **Value** | **Value Description** | | |
| 0h | 1 | Command type | 0 | None | | |
| 1 | Save | | |
| 2 | Load | | |
| 3 | Get first CAT content | | |
| 4 | Get next CAT content | | |
| 5 | CD - Change directory | | |
| 6 | MKDIR | | |
| 7 | RMDIR | | |
| 8 | DEL | | |
| 9 | Fetch time & date | | |
| 12h, 14h, 16h, 1Ah | Used in image header | | |
| 18h | COMP, Compare files | | |
| 19h | URL | | |
| 42h | DLOAD | | |
| 81h | Save and overwrite existing file | | |
| 82h | Load continue | | |
| FFh | Cancel command | | |
| 1h | 18 | Program or directory name |  | Name in ASCII characters | | |
| 13h | 1 | Result | 0 | File found | | |
| ADh, AEh, AFh | Used in image header | | |
| F3h | URL not found | | |
| F4h | No more data found | | |
| F5h | Server error | | |
| F6h | Network error | | |
| F7h | File open | | |
| F8h | File error | | |
| F9h | File size > 8K | | |
| FAh | File size > 64K | | |
| FBh | File size < 8K | | |
| FCh | File size < 64K | | |
| FDh | File type error | | |
| FEh | Address error | | |
| FFh | File NOT found | | |
| 14h | 2 | Actual file length (excl. header) |  |  | | |
| 16h | 1 | Program type | 1 | .comx machine code | | |
| 2 | .comx ‘old’ regular save/load (for backward compatibility reasons only) | | |
| 3 | .comx F&M basic save/load | | |
| 4 | .comx ‘old’ and incorrect regular data load (for backward compatibility reasons only) | | |
| 5 | .comx regular data save/load | | |
| 6 | .comx regular save/load | | |
| 7h to 9h | reserved for .comx format | | |
| 10h | .bin | | |
| 11h | .txt (memory dump) | | |
| 12h | .img | | |
| 13h | .ram | | |
| 14h | .bin, .txt, img, .ram, .comx | | |
| 20h | .comx.bak | | |
| 21h | NVSAVE / nvram.bin | | |
| 22h | SYSSAVE / system.bin | | |
| 23h | NVSYNC | | |
| 24h | URL | | |
| 25h | URL INPUT | | |
| 30h | .bin.bak | | |
| 31h | .txt.bak | | |
| 32h | .img.bak | | |
| 33h | .ram.bak | | |
| 34h | .bin.bak, .txt.bak, img.bak, .ram.bak, .comx.bak | | |
| b7 = 1 | BLOAD/BSAVE active | | |
| 17h | 2 | Start address |  | **Basic** | **Machine code** | **Data** |
| DEFUS | Start | String |
| 19h | 2 | End address |  | EOP | End-1 | Array |
| 1Bh | 2 | Exec address |  | String/Array/EOD | Exec | EOD |
| 1Ch | 18 | Filename 2 |  | Name in ASCII characters (used for USB COMP) | | |
| 2Fh | 1 | Category |  | Not used | | |
| 30h | 1 | Case type | 1 | Standard COMX characters (upper case ‘default’) | | |
| 2 | Lower case ‘default’ standard COMX characters on ‘SHIFT’ | | |
| 3 | Upper case ‘default’ and lower case characters on ‘SHIFT’ | | |
| 4 | Lower case ‘default’ and upper case characters on ‘SHIFT’ | | |
| 31h | 1 | High byte start load |  |  | | |
| 32h | 1 | BLOAD/BSAVE type | 30h | One RAM Bank x | | |
| 31h | RAM Banks 8 to 15 | | |
| 32h | RAM Banks 8 to 15 Continue | | |
| 33h | 2 | BLOAD/BSAVE length | 2 |  | | |
| 35h | 3 | FW build number |  | FW build (3 ascii values) | | |

CD Header (PC -> COMX)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Address** | **Bytes** | **Address Description** | **Value** | **Value Description** |
| 0h | 1 | Result | FFh | Directory not found |
| 1h | 126 | Full path |  | Path name in ASCII characters |
| Last byte | 1 | End code | 0 |  |

URL,”url” Header (COMX -> PC)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Address** | **Bytes** | **Address Description** | **Value** | **Value Description** |
| 0h | 1 | Command type | 19h | USB URL |
| 1h | 126 | URL |  | URL name in ASCII characters |
| Last byte | 1 | End code | 0 |  |

URL (x) and URLLINK (x) Header (COMX -> PC)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Address** | **Bytes** | **Address Description** | **Value** | **Value Description** |
| 0h | 1 | Command type | 19h | USB URL |
| 1h | 1 | Command | < 32 | 0 = Normal USB URL / LINK  1 = PAGE BACK  2 = GO TO HOME  3 = SET HOME  4 = GO TO BOOKMARK  5 = SET BOOKMARK  6 = HELP |
| 2 | 2 | Screen number | 0-65535 | USB URL: Data screen number |
| 2 | 1 | Bookmark | 0-9 | Bookmark number |
| 2 | 1 | Link | 0-255 | USB URLLINK: New link number, link number 0 = default page |

CAT Header (PC -> COMX)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Address** | **Bytes** | **Address Description** | **Value** | **Value Description** | | |
| 0h-1Bh |  |  |  | Entry 1 + x  Every header contains 4 directory entries and is send until no more entries are available (entry number = 0) | | |
| 0h | 1 | Entry number | 0 | No more entries | | |
| 1 – FEh | Directory entry number of specified file | | |
| FFh | Directory name | | |
| 1h | 18 | Program or directory name |  | Name in ASCII characters | | |
| 13h | 1 | Result | 0 | File found | | |
| ADh | Format error SS / SD | | |
| AEh | Format error SS / DD | | |
| AFh | Format error DS / SD | | |
| F5h - FEh | Used in standard header | | |
| FFh | File NOT found | | |
| 14h | 1 | Size | 0 - FFh | File size if > 255 KB; otherwise 0 | | |
| 16h | 1 | Program type | 1 | .comx machine code | | |
| 2 | .comx ‘old’ regular save/load (for backward compatibility reasons only) | | |
| 3 | .comx F&M basic save/load | | |
| 4 | .comx ‘old’ and incorrect regular data load (for backward compatibility reasons only) | | |
| 5 | .comx regular data save/load | | |
| 6 | .comx regular save/load | | |
| 7h to 9h | reserved for .comx format | | |
| 10h | .bin | | |
| 11h | .txt (memory dump) | | |
| 12h | .img | | |
| 13h | .ram | | |
| 20h | .bak | | |
| 17h | 2 | Start address |  | **Basic** | **Machine code** | **Data** |
| DEFUS | Start | String |
| 19h | 2 | End address |  | EOP | End-1 | Array |
| 1Bh | 2 | Exec address |  | String/Array/EOD | Exec | EOD |
| 20h-3Bh |  |  |  | Entry 2 + x | | |
| 40h-5Bh |  |  |  | Entry 3 + x | | |
| 60h-7Bh |  |  |  | Entry 4 + x | | |

Image file Header (COMX <-> PC)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Address** | **Bytes** | **Address Description** | **Value** | **Value Description** |
| 0h | 1 | Command type | 0 – 9 | Used in standard header |
| 12h | Get track image file |
| 14h | Save track image file |
| 16h | Test image file |
| 18h | Used in standard header |
| 1Ah | Get track image file continue |
| 42h | Used in standard header |
| 81h – 82h | Used in standard header |
| 94h | Save track image and overwrite existing file |
| FFh | Cancel command |
| 1h | 18 | Program or directory name |  | Name in ASCII characters |
| 13h | 1 | Result | 0 | File found |
| ADh | Format error SS / SD |
| AEh | Format error SS / DD |
| AFh | Format error DS / SD |
| F5h - FEh | Used in standard header |
| FFh | File NOT found |
| 14h | 1 | Density | 0 | Single |
| 1 | Double |
| 15h | 1 | Sides | 0 | Single |
| 1 | Double |
| 16h | 1 | Track type | 0 | First track |
| 1 | Second until last -1 |
| 2 | Last track |
| 17h | 1 | Drive & side | 14H | Drive 1 & side 1 |
| 34H | Drive 1 & side 2 |
| 18H | Drive 2 & side 1 |
| 38H | Drive 2 & side 2 |
| 18h | 1 | Track number | 0 to 34 |  |
| 19h | 1 | Side | 0 or 1 |  |
| 30h | 1 | Case type | 1 | Standard COMX characters (upper case ‘default’) |
| 2 | Lower case ‘default’ standard COMX characters on ‘SHIFT’ |
| 3 | Upper case ‘default’ and lower case characters on ‘SHIFT’ |
| 4 | Lower case ‘default’ and upper case characters on ‘SHIFT’ |