The conventions are used:

1. A terminal is a name or a constant (or a parenthesized list of constants) followed by:

/B - indicating a byte field.

/W - indicating a word field.

/D - indicating a double word field.

/N – indicating a name field in the Any\_Name format as documented below. For OMF85, the maximum number of chars is 31 and the special character “\_“ is not supported

/nn - indicating a field of nn bits.

EXAMPLES:

length/W a word field. The field is henceforth referred to by the mnemonic "length".

0/B a byte field containing zero.

full/1 a 1 bit field. The field is henceforth referred to by the mnemonic "full".

(0|1|2|3|4)/B a byte filed that may contain the constants 0, 1, 2, 3 or 4.

If the field width is obvious it may be dropped. e.g. once the record header is known (rec\_type/B rec\_len/W), we can write:

CONTENT rec\_len ...

where CONTENT is defined later to be a byte constant (06H).

1. Within a byte, bits are described left-to-right from MSB (#7) to LSB (#0). Within a word, bits are described left-to-right from MSB (#15) to LSB (#0). Note that since the word is stored as the LS byte followed by the MS byte, specifying two bytes as a word is not equivalent to specifying them as byte after byte.
2. The OMF syntax is given in a bottom up fashion to prevent referring to terms not yet defined.
3. Comments. In the form:

anything -- text

where text is a comment describing "anything".

1. Numeric constants are not used in the definition of the records (since "... numbers are an evil thing ..."). Upper-case mnemonics are used instead, and their assigned numbers are given in in the Appendix.
2. In this document, a pair of braces " { } " has the same meaning as a pair of braces followed by ellipses " { }... " in [2]. i.e., "At least one of the enclosed items must be selected".

An object file is composed of a sequence of records.

Any\_record = Rec\_Type/B Rec\_Len/W {Data/B} Checksum/B .

Rec\_Type identifies the record.

Rec\_Len The length of the record in bytes excluding Rec\_Type and Rec\_Len, and including the length of Data and Checksum.

Data The content of the record. Its interpretation depends on Rec\_Type. The number of Data bytes is (Rec\_Len - 1).

Checksum Contains the 2's complement of the modulo-256 sum of the rest of the bytes in the record. Thus the modulo-256 sum of all the bytes in the record should be zero.

A typical field in a record is a symbol name (module name, public name, etc.): (example from OMF96)

Any\_Name = Length/B {Name\_Char/B}:40 .

Length Number of Name\_Chars. Can be between 1 to 40.

Name\_Char Can be an upper-case letter, a digit, or one of the special characters "\_", "?", and "@". The first character may not be a digit.

A record usually contains a repetition of a fixed set of fields (e.g. Public Definitions Record contains a number of public definitions). If the repetition count is not specified then it is determined from the record length (Rec\_Len).

OMF 51

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| REC TYPE | TITLE | RECORD FORMAT | FIELDS LENGTH |
| 02H | Module HDR | MODNAM, TRNID, X | N, B, B |
| 04H | Module END | MODNAM, X, REGMSK, X | N, W, B, B |
| 06H | Content | SEGID, OFFSET, DATA\* | B, W, B\* |
| 08H | Fixup | (REFLOC, REFTYP, IDBLK, ID, OFFSET)\* | (W, B, B, B, B, W)\* |
| 0EH | Segment DEF | (SEGID, SEGINFO, RELTYP, X, SEGBAS, SEGSIZ, SEGNAM)\* | (B, B, B, B, W, W, N)\* |
| 10H | Scope DEF | BLKTYP, BLKNAM | B, N |
| 12H | Debug Item | 0, (SEGID, SYMINFO, OFFSET, X, LOCNAM)\*  1. (SEGID. SYMINFO, OFFSET, X. PUBNAM)\*  2, (SEGID, SEGINFO, OFFSET, X, SEGNAM)\*  3, (SEGID, OFFSET, LINENUM) \* | B, (B, B, W, B, N)\*  B, (B, B, W, B, N)\*  B, (B, B, W, B, N)\*  B, (B, W, N)\* |
| 16H | Public DEF | (SEGID, SYMINFO, OFFSET, X, PUBNAM)\* | (B, B, W, B, N)\* |
| 18H | External DEF | (IDBLK, EXTID, SYMINFO, X, EXTNAM)\* | (B, B, B, B, N)\* |
| 26H | LIB ModLocs | (BLKNO, BYTENO)\* | (W, W)\* |
| 28H | LIB ModName | MODNAM\* | N\* |
| 2AH | LIB DICTNRY | (PUBNAM\*, 0)\* | (N\*, B)\* |
| 2CH | LIB Header | MODCOUNT, BLKNO, BYTENO | W, W, W |

OMF-85

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| REC TYPE | TITLE | RECORD FORMAT | FIELDS LENGTH |
| 02H | Module HDR | MODNAM/N, TRNID/B, TRNVN/B, {SEGID/B, SEGLEN/W, ALNTYP/B} |  |
| 04H | Module END | MODTYP/B, SEGID/B, OFFSET/W, {OPTINFO/B} |  |
| 06H | Content | SEGID, OFFSET, DATA\* | B, W, B\* |
| 08H | Line-NUM | SEGID, (OFFSET, LINENUM)\* | B, (W, W)\* |
| 0EH | EOF-REC |  |  |
| 10H | Ancestor | MODNAM | N |
| 12H | Local-SYM | SEGID, (OFFSET, SYMNAM, 0)\* | B, (W, N, B)\* |
| 16H | Public DEF | SEGID, (OFFSET, PUBNAM, 0)\* | B, (W, N, B)\* |
| 18H | External DEF | (EXTNAM, 0)\* | (N, B)\* |
| 20H | External-REF | KIND, (EXTID, OFFSET)\* | B, (W, W)\* |
| 22H | Reloc-REC | KIND, (OFFSET)\* | B, W\* |
| 24H | Inter Seg-REF | SEGID, KIND, OFFSET\* | B, B, W\* |
| 26H | LIB ModLocs | (BLKNO, BYTENO)\* | (W, W)\* |
| 28H | LIB ModName | (MODNAM)\* | N\* |
| 2AH | LIB DICTNRY | (PUBNAM\*, 0)\* | (N\*, B)\* |
| 2CH | LIB Header | MODCOUNT, BLKNO, BYTENO | W, W, W |