TO: MSPM Distribution
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The coding scheme for relocation information has been changed from a one bit - four bit code to a one bit - five bit code to allow for more relocation types. This revision of BD.2.01 reflects this change.

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Identification

Binding Information and Format
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Introduction

It is desirable, at times, to bind a number of separate segments into a single segment. In order to accomplish this, certain information, such as address relocation information, is needed. This information for a segment <a> is located in its companion segment <a.symbol>. The following paragraphs describe this information and its format.

Location of Address Relocation Information

When segment <a> and segment <b> are bound together, <a> and <b> must be combined, <a.link> and <b.link> must be combined, and <a.symbol> and <b.symbol> must be combined. This address relocation information for <a>, <a.link>, and <a.symbol> is located in three areas in <a.symbol>. It may be referred to by class 2 symbols (See BD.7.01). The address relocation information for <a> begins at <a>|[rel_text], for <a.link> begins at <a>|[rel_link], and for <a.symbol> begins at <a>|[rel_symbol].

Format of Address Relocation Information

A variable length prefix coding scheme is used for the relocation information. For each half word in the text, link, or symbol segment there is one relocation bit which, if the half word is not relocatable, is equal to zero. If the half word is relocatable there are five bits of relocation information, the first of which is equal to 1.

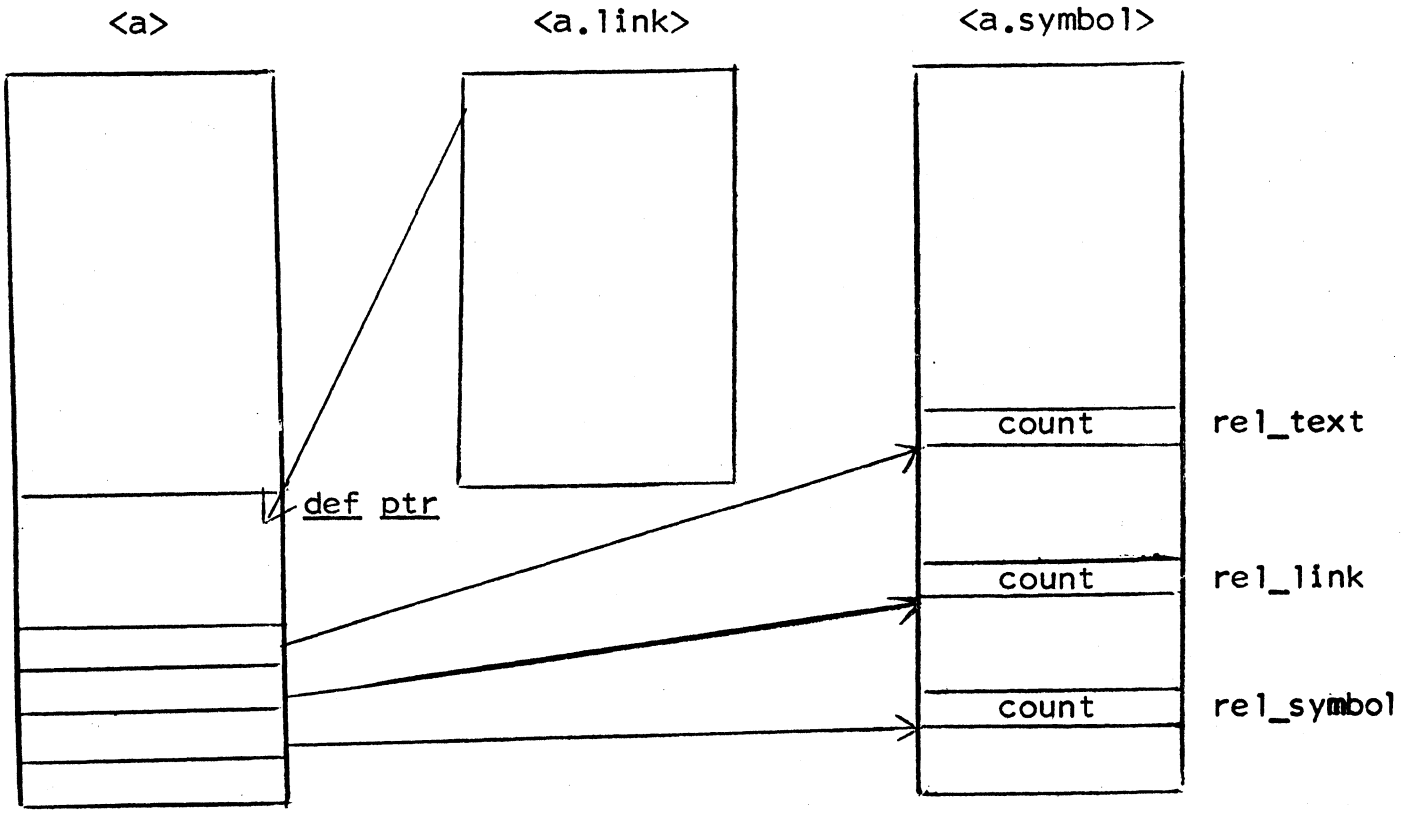
The relocation bits for <a> are packed together and begin at <a>|[rel_text]+1. The correspondence of the groups of bits which are the units of relocation information to half words in the text segment is sequential from left to right and from word to word by increasing value of the address. That is, the first unit of relocation information relates to the left half of the first word in the text segment, the second unit to the right half of the first word, the third unit to the left half of the second word, etc. Note that a unit of relocation information may be broken across a word boundary due to the variable length coding and the bit packing.

In the word preceding the relocation bits, that is, at location <a>|[rel_text], is a count of the total number of bits of relocation information for the text segment <a>.

The format of the relocation information for <a.link> and <a.symbol> is exactly the same as that for <a>. For <a.link> a count of the relocation bits is located at <a>|[rel_link] and the actual information itself begins at <a>|[rel_link]+1. The count of the relocation bits for <a.symbol> is located at <a.symbol>|[rel_symbol] and the relocation bits start at <a.symbol>|[rel_symbol]+1.

There is no relocation information for the relocation bits themselves. The relocation bits that begin at <a.symbol>|[rel_symbol]+1 are the binding information for <a.symbol> up to [rel_text]-1. Nothing ever appears in <a.symbol> following the relocation bits.

The following pictorial diagram may help to illustrate:



The following is a tabulation of the possible codes and the corresponding relocation types:

Code	Relocation Type	Remarks
0	Absolute	Non-relocatable references.
10000	Text	Relative to beginning of text segment.
10001	Negative Text	A text reference preceded by a minus.
10010	Link Pointer 18	Relative to beginning of link section.
10011	Negative Link Pointer 18	Reference to linkage section preceded by minus.
10100	Link Pointer 15	All lp references, (i.e. the same as link pointer 18 except that only the low order 15 bits are relocated.)
10101	Definition Pointer	Relative to def ptr for external symbol definitions.
10110	Symbol	Relative to beginning of symbol segment.
10111	Negative Symbol	Reference to symbol segment preceded by a minus.
11000	Link Block	Relative to beginning of linkage block.
11001	Negative Link Block	Reference to linkage block preceded by a minus.
11010	Self Relative	Self relative references.
11011	Unused.	
11100	Unused.	
11101	Unused.	
11110	Unused.	
11111	Escape	Reserved for future use as an escape.

The following diagram illustrates the assignment of relocation codes for the linkage section. See BD.7.01 for a description of the linkage section.