

To: LISA users  
From: Susanna Lam  
Subject: Release of Monitor Assembler (version 12.0)  
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Changes from the last release:

- a) You need a new errors file N68K.ERR. The errors have been reorganized and new ones are added. See attached error message listing.
- b) The assembler does not recognize the directive .ABSOLUTE anymore. So if you are using it in your source files, comment it out.
- c) The prompt line has been changed for option input. If you want to enter options, do the following:

```
input file: <enter ?>  
options:   <enter your options - e.g. +c>  
options:   <enter return to terminate options entry>  
input file: <enter your file name>
```

and continue as you always do.

If at any time in the prompt stage, you decide you really do not want to assemble, just hit the <CLEAR> key on the key pad and you can escape from the assembler cleanly.

- d) There is a pretty listing option in the assembler, +p. If the option is chosen, your listing should have all the forward references patched. (But do not use the directive .NOPATCHLILST if you want all forward references to be patched.)
- e) Macro processing has been improved. You can turn macro expansion listing on or off using directives MACROLIST and NOMACROLIST anytime in your program.
- f) For the Diagnostics Group, the .CODE file option has been restored. Do not be alarmed when you do a verify on the new and old .CODE files and find them do not compare. The .CODE file generated by this assembler should be in correct format for the DMT loader.

LISA N68K assembler error message listing:

- 1 undefined label
- 2 operand out of range
- 3 must have procedure name
- 4 number of parameters expected
- 5 extra garbage on line
- 6 input line over 80 characters
- 7 not enough .IF's
- 8 Illegal use of .REF label
- 9 identifier previously declared
- 10 improper format
- 11 .EQU expected
- 12 must .EQU before use if not to a label
- 13 macro identifier expected
- 14 word addressed machine
- 15 backward .ORG currently not allowed
- 16 identifier expected
- 17 constant expected
- 18 invalid structure
- 19 extra special symbol
- 20 branch too far
- 21 variable not PC relative
- 22 unexpected .ENDM
- 23 not enough macro parameters
- 24 operand not absolute
- 25 illegal use of special symbols
- 26 ill-formed expression
- 27 not enough operands
- 28 cannot handle this relative expression
- 29 constant overflow
- 30 illegal decimal constant
- 31 illegal octal constant
- 32 illegal binary constant
- 33 invalid key word
- 34 macro stack overflow - 5 nested limit
- 35 include files may not be nested
- 36 unexpected end of input
- 37 this is a bad place for an .INCLUDE file
- 38 only labels & comments may occupy col 1
- 39 expected local label
- 40 local label stack overflow
- 41 string constant must be on one line
- 42 string constant exceeds 80 characters
- 43 illegal use of macro parameter
- 44 Illegal use of .DEF label
- 45 expected key word
- 46 string expected
- 47 nested macro definitions illegal
- 48 '=' or '<>' expected
- 49 may not EQU to undefined labels
- 50 Not even a register
- 51 Not a Data Register.
- 52 Not an Address Register
- 53 Register Expected
- 54 Right Paren Expected

55 Right Paren or Comma Expected  
56 Unrecognizable Operand  
57 Odd location counter  
58 Comma Expected.  
59 One operand must be a data register.  
60 Dn,Dn or -(An),-(An) expected.  
61 No longs allowed.  
62 First operand must be immediate.  
63 First operand must be Dn or #E  
64 (An+),(An+) expected  
65 Second operand must be an An  
66 Second operand must be a Dn  
67 #<data>,Dn expected.  
68 first operand must be a Dn.  
69 An,#<displacement> expected  
70 An is not allowed with byte  
71 only alterable addressing modes allowed  
72 only data alterable addr modes allowed  
73 An is not allowed  
74 USP, SR, and CCR not allowed  
75 Cannot move from CCR  
76 Dx,d(Ay) or d(Ay),Dx expected.  
77 Only memory alterable addr modes allowed  
78 Only control addressing modes allowed  
79 Must branch backwards to label  
80 Patch out of code buffer boundaries  
81 Code buffer overflow  
82 Segment name must be in a string  
83 cannot .DEF macro  
84 MACRO defined already  
85 illegal use of MACRO  
86 ERROR while WRITING SYMBOL TABLE FILE  
87 not enough ENDCs  
88 must have an <EA> (effective address)  
89 Unimplemented Motorola directive