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var\_VC\_x86\_optimized.txt

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1  //////////////////////////////////////
2  //      var.c program to test memory allocation in C
3  //      M. Mizuno (c) 1995, 2004, 2005
4  //      modified for Learning Tree course 223P
5  //
6  // to compile var.c on Pentium,
7  // 1. execute Visual Studio .NET 2003 Command Prompt
8  // 2. go to the directory which contains var.c
9  // 3. issue cl /Od /Facs var.c
10 //      /Od: disable optimization
11 //      /Facs: generate a listing file with source code and machine code
12 //////////////////////////////////////
13 long test(unsigned int ui, int i, short s, unsigned short us,
14          char c, unsigned char uc, long l, unsigned long ul,
15          int x, short y);
16
17 char ret;
18 int x=100;
19 static int si;
20 static int sj = 23;
21
22 int main(int argc, char **argv, char **envp)
23 {
24     unsigned char uc;
25     static short y = 99;
26     short s;
27     char c;
28     unsigned short us;
29     static int i;
30     unsigned int ui;
31     long l;
32     unsigned long ul;
33
34     if (i < 0) {
35         ui = us + s - c;
36     }
37     else {
38         ul = si - sj * 2;
39     }
40
41     while (sj > 0) {
42         uc = y - 3;
43         sj++;
44     }
45
46     ret = test(ui, i, s, us, c, uc, l, ul, x, y);
47
48     return 0;
49 }
50
51 long test(unsigned int ui, int i, short s, unsigned short us,
52          char c, unsigned char uc, long l, unsigned long ul,
53          int x, short y)
54 {
55     char c1;
56     int i1;
57     char c2;
58
59     ui = 1;
60     i = 2;
61     s = 3;
62     us = 4;
63     c = 5;
64     uc = 6;
65     l = 7;
66     ul = 8;
67     x = 9;
68     y = 10;
69     c1 = 11;
70     c2 = 12;
71     i1 = 13;
72     return ui * 2 + 1;
73 }

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75 ; Listing generated by Microsoft (R) Optimizing Compiler Version 18.00.21005.1
76
77 TITLE c:\LearningTree\223P\Programs\memory_test\Pentium\optimize\var.c
78 .686P
79 .XMM
80 include listing.inc
81 .model flat
82
83 INCLUDELIB LIBCMT
84 INCLUDELIB OLDNAMES
85
86 PUBLIC _x
87 _DATA SEGMENT
88 COMM _ret:BYTE
89 _DATA ENDS
90 _DATA SEGMENT
91 _x DD 064H
92 _sj DD 017H
93 ?y@?1??main@@@9@9 DW 063H ; 'main'::'2'::y
94 _DATA ENDS
95 PUBLIC _main
96 PUBLIC _test
97 ; Function compile flags: /Ogtpy
98 ; File c:\learningtree\223p\programs\memory_test\pentium\optimize\var.c
99 _TEXT SEGMENT
100 _ui$ = 8 ; size = 4
101 _i$ = 12 ; size = 4
102 _s$ = 16 ; size = 2
103 _us$ = 20 ; size = 2
104 _c$ = 24 ; size = 1
105 _uc$ = 28 ; size = 1
106 _l$ = 32 ; size = 4
107 _ul$ = 36 ; size = 4
108 _x$ = 40 ; size = 4
109 _y$ = 44 ; size = 2
110 _test PROC
111
112 ; 55 : char c1;
113 ; 56 : int i1;
114 ; 57 : char c2;
115 ; 58 :
116 ; 59 : ui = 1;
117 ; 60 : i = 2;
118 ; 61 : s = 3;
119 ; 62 : us = 4;
120 ; 63 : c = 5;
121 ; 64 : uc = 6;
122 ; 65 : l = 7;
123 ; 66 : ul = 8;
124 ; 67 : x = 9;
125 ; 68 : y = 10;
126 ; 69 : c1 = 11;
127 ; 70 : c2 = 12;
128 ; 71 : i1 = 13;
129 ; 72 : return ui * 2 + 1;
130
131 00000 b8 09 00 00 00 mov eax, 9
132
133 ; 73 : }
134
135 00005 c3 ret 0
136 _test ENDP
137 _TEXT ENDS
138 ; Function compile flags: /Ogtpy
139 ; File c:\learningtree\223p\programs\memory_test\pentium\optimize\var.c
140 _TEXT SEGMENT
141 _argc$ = 8 ; size = 4
142 _argv$ = 12 ; size = 4
143 _envp$ = 16 ; size = 4
144 _main PROC
145
146 ; 24 : unsigned char uc;
147 ; 25 : static short y = 99;

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148 ; 26 : short s;
149 ; 27 : char c;
150 ; 28 : unsigned short us;
151 ; 29 : static int i;
152 ; 30 : unsigned int ui;
153 ; 31 : long l;
154 ; 32 : unsigned long ul;
155 ; 33 :
156 ; 34 : if (i < 0) {
157 ; 35 :     ui = us + s - c;
158 ; 36 : }
159 ; 37 : else {
160 ; 38 :     ul = si - sj * 2;
161 ; 39 : }
162 ; 40 :
163 ; 41 : while (sj > 0) {
164
165 00000 a1 00 00 00 mov eax, DWORD PTR _sj
166 00005 85 c0 test eax, eax
167 00007 7e 11 jle SHORT $LN13@main
168 00009 8d a4 24 00 00 mov npad, 7
169 00 00
170 $LL2@main:
171
172 ; 42 : uc = y - 3;
173 ; 43 : sj++;
174
175 00010 40 inc eax
176 00011 85 c0 test eax, eax
177 00013 7f fb jg SHORT $LL2@main
178 00015 a3 00 00 00 00 mov DWORD PTR _sj, eax
179 $LN13@main:
180
181 ; 44 : }
182 ; 45 :
183 ; 46 : ret = test(ui, i, s, us, c, uc, l, ul, x, y);
184 ; 47 :
185 ; 48 : return 0;
186
187 0001a 33 c0 xor eax, eax
188 0001c c6 05 00 00 00 mov BYTE PTR _ret, 9
189 00 09
190
191 ; 49 : }
192
193 00023 c3 ret 0
194 _main ENDP
195 _TEXT ENDS
196 END

```