

Mode: All

Left file: D:\workspace\study\Code-Optimization\MIT-6.172\Lectures\Week3\MIT6_172F18_hw3\homework3\loop-nv-nu.s

Right file: D:\workspace\study\Code-Optimization\MIT-6.172\Lectures\Week3\MIT6_172F18_hw3\homework3\loop-v-nu.s

```

.text
.file "loop.c"
.section .rodata.cst8,"aM",@p
» rogbits,8
.p2align 3 # --
» Begin function main
.LCPI0_0:
.quad 4472406533629990549 # do
» uble 1.0000000000000001E-9
.text
.globl main
.p2align 4, 0x90
.type main,@function
main: # @m
» ain
.cfi_startproc
# %bb.0:
pushq %r15
.cfi_def_cfa_offset 16
pushq %r14
.cfi_def_cfa_offset 24
pushq %r12
.cfi_def_cfa_offset 32
pushq %rbx
.cfi_def_cfa_offset 40
subq $12328, %rsp # im
» m = 0x3028
.cfi_def_cfa_offset 12368
.cfi_offset %rbx, -40
.cfi_offset %r12, -32
.cfi_offset %r14, -24
.cfi_offset %r15, -16
movl $0, 12(%rsp)
leaq 8224(%rsp), %rdi
xorl %ebx, %ebx
xorl %esi, %esi
movl $4096, %edx # im
» m = 0x1000
callq memset
leaq 4128(%rsp), %rdi
xorl %esi, %esi
movl $4096, %edx # im
» m = 0x1000
callq memset
leaq 32(%rsp), %rdi
xorl %esi, %esi
movl $4096, %edx # im
» m = 0x1000
callq memset
leaq 16(%rsp), %rsi
movl $1, %edi
callq clock_gettime
movq 16(%rsp), %r15
movq 24(%rsp), %r14
.p2align 4, 0x90
.LBB0_1: # =>

=
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movq 16(%rsp), %r15
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.p2align 4, 0x90
.LBB0_1: # =>

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(continued)

| | | |
|--|-----|--|
| <pre> » This Loop Header: Depth=1 # » Child Loop BB0_2 Depth 2 movq \$-4096, %rax # im » m = 0xF000 .p2align 4, 0x90 .LBB0_2: # » Parent Loop BB0_1 Depth=1 # => » This Inner Loop Header: Depth=2 </pre> | | <pre> » This Loop Header: Depth=1 # » Child Loop BB0_2 Depth 2 movq \$-4096, %rax # im » m = 0xF000 .p2align 4, 0x90 .LBB0_2: # » Parent Loop BB0_1 Depth=1 # => » This Inner Loop Header: Depth=2 </pre> |
| <pre> movl 8224(%rsp,%rax), %ecx addl 12320(%rsp,%rax), %ecx movl %ecx, 4128(%rsp,%rax) addq \$4, %rax </pre> | <> | <pre> movdqa 8224(%rsp,%rax), %xmm0 padd 12320(%rsp,%rax), %xmm0 movdqa %xmm0, 4128(%rsp,%rax) addq \$16, %rax </pre> |
| <pre> jne .LBB0_2 # %bb.3: # » in Loop: Header=BB0_1 Depth=1 addl \$1, %ebx cmpl \$100000, %ebx # im » m = 0x186A0 jne .LBB0_1 # %bb.4: leaq 16(%rsp), %rsi movl \$1, %edi callq clock_gettime movq 16(%rsp), %r12 subq %r15, %r12 movq 24(%rsp), %rbx subq %r14, %rbx leaq 12(%rsp), %rdi callq rand_r movl %eax, %ecx sarl \$31, %ecx shr \$22, %ecx addl %eax, %ecx andl \$-1024, %ecx # im » m = 0xFC00 subl %ecx, %eax cltq cvtsi2sdq %r12, %xmm1 </pre> | = | <pre> jne .LBB0_2 # %bb.3: # » in Loop: Header=BB0_1 Depth=1 addl \$1, %ebx cmpl \$100000, %ebx # im » m = 0x186A0 jne .LBB0_1 # %bb.4: leaq 16(%rsp), %rsi movl \$1, %edi callq clock_gettime movq 16(%rsp), %r12 subq %r15, %r12 movq 24(%rsp), %rbx subq %r14, %rbx leaq 12(%rsp), %rdi callq rand_r movl %eax, %ecx sarl \$31, %ecx shr \$22, %ecx addl %eax, %ecx andl \$-1024, %ecx # im » m = 0xFC00 subl %ecx, %eax cltq cvtsi2sdq %r12, %xmm1 </pre> |
| | - + | <pre> xorps %xmm0, %xmm0 </pre> |
| <pre> cvtsi2sdq %rbx, %xmm0 movl 32(%rsp,%rax,4), %ebx mulsd .LCPI0_0(%rip), %xmm0 addsd %xmm1, %xmm0 movl \$.L.str, %edi movl \$1024, %esi # im » m = 0x400 movl \$100000, %edx # im » m = 0x186A0 movl \$.L.str.1, %ecx movl \$.L.str.2, %r8d movb \$1, %al callq printf movl %ebx, %eax addq \$12328, %rsp # im </pre> | = | <pre> cvtsi2sdq %rbx, %xmm0 movl 32(%rsp,%rax,4), %ebx mulsd .LCPI0_0(%rip), %xmm0 addsd %xmm1, %xmm0 movl \$.L.str, %edi movl \$1024, %esi # im » m = 0x400 movl \$100000, %edx # im » m = 0x186A0 movl \$.L.str.1, %ecx movl \$.L.str.2, %r8d movb \$1, %al callq printf movl %ebx, %eax addq \$12328, %rsp # im </pre> |

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(continued)

```

» m = 0x3028
    popq    %rbx
    popq    %r12
    popq    %r14
    popq    %r15
    retq
.Lfunc_end0:
    .size   main, .Lfunc_end0-main
    .cfi_endproc
                                     # --
» End function
    .type   .L.str,@object          # @.
» str
    .section      .rodata.str1.1,"aMS"
» ,@progbits,1
.L.str:
    .asciz "Elapsed execution time: %f
» sec; N: %d, I: %d, __OP__: %s, __TYPE__: %
» s\n"
    .size   .L.str, 72
    .type   .L.str.1,@object        # @.
» str.1
.L.str.1:
    .asciz "+"
    .size   .L.str.1, 2
    .type   .L.str.2,@object        # @.
» str.2
.L.str.2:
    .asciz "uint32_t"
    .size   .L.str.2, 9
    .ident   "clang version 6.0.0-1ubuntu
» 2 (tags/RELEASE_600/final)"
    .section      ".note.GNU-stack","",
» ,@progbits

```

```

» m = 0x3028
    popq    %rbx
    popq    %r12
    popq    %r14
    popq    %r15
    retq
.Lfunc_end0:
    .size   main, .Lfunc_end0-main
    .cfi_endproc
                                     # --
» End function
    .type   .L.str,@object          # @.
» str
    .section      .rodata.str1.1,"aMS"
» ,@progbits,1
.L.str:
    .asciz "Elapsed execution time: %f
» sec; N: %d, I: %d, __OP__: %s, __TYPE__: %
» s\n"
    .size   .L.str, 72
    .type   .L.str.1,@object        # @.
» str.1
.L.str.1:
    .asciz "+"
    .size   .L.str.1, 2
    .type   .L.str.2,@object        # @.
» str.2
.L.str.2:
    .asciz "uint32_t"
    .size   .L.str.2, 9
    .ident   "clang version 6.0.0-1ubuntu
» 2 (tags/RELEASE_600/final)"
    .section      ".note.GNU-stack","",
» ,@progbits

```