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Кафедра №806 “Вычислительная математика и программирование”

**Лабораторная работа №2 по курсу**

# «Операционные системы»

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Оценка:

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# Постановка задачи

**Вариант 5.**

**Составить программу на языке Си, обрабатывающую данные в многопоточном режиме. При обработки использовать стандартные средства создания потоков операционной системы (Windows/Unix). Ограничение максимального количества потоков, работающих в один момент времени, должно быть задано ключом запуска вашей программы. Так же необходимо уметь продемонстрировать количество потоков, используемое вашей программой с помощью стандартных средств операционной системы. В отчете привести исследование зависимости ускорения и эффективности алгоритма от входных данных и количества потоков. Получившиеся результаты необходимо объяснить.**

**Отсортировать массив целых чисел при помощи чётной-нечётной сортировки Бетчера.**

# Общий метод и алгоритм решения

Использованные системные вызовы:

* write; – записывает данные в файл.
* read - читает данные из файла
* pthread\_create - содаёт поток
* pthread\_join - ожидание множества потоков
* pthread\_mutex\_init - создание мьютекса
* pthread\_mutex\_destroy - уничтожение мьютекса
* pthread\_mutex\_lock - блокировка мьютекса
* pthread\_mutex\_unlock - разброкировка мьютекса
* gettimeofday - получение текущего времени (для бенчмарка)

**В лабораторной работе я использовал собственную реализацию вывода строки в stdout (iolib/std\_out)? которая использует системный вызов write.**

**В задании требуется реализовать чётную-нечётную сортировку Бетчера. Идея данный алгоритм схож с сортировкой слиянием, но в отличие от неё использует чётно-нечётные перестановки. Идея алгоритма в том, что мы последовательно рассматриваем подмассивы разных размеров, как и в сортировке слиянием, мы будем их сливать (при помощи операции compare and exchange), но в отличии от сортировки слиянием, здесь мы используем итеративный подход вместо рекурсии и вместо разбиения массива посередине, мы разбиваем массив на чётную половину и нечётную. Сам алгоритм можно описать при помощи псевдокода следующим образом:**

**for p = 1, 2, 4, 8, ... # пока p < n for k = p, p/2, p/4, p/8, ... # пока >= 1 for j = mod(k,p) to (n-1-k) с шагом 2k for i = 0 to min(k-1, n-j-k-1) с единичным шагом if floor((i+j) / (p\*2)) == floor((i+j+k) / (p\*2)) compare and sort elements (i+j) and (i+j+k)**

**Для того чтобы распараллелить данный алгоритм, вынесем цикл с переменной j в отдельную функцию, плюс будем вычислять отступ с учётом кол-ва потоков и номером текущего потока, таким образом. Для того, чтобы избежать race condition при обращении к исходному вектору, будем использовать мьютекс. Будем использовать вызов pthread\_join для ожидания списка потоков.**

Код программы

**main.cpp**

##include <vector>

#include <pthread.h>

#include <mutex>

#include <sys/time.h>

#include "iolib/std.h" pthread\_mutex\_t mutex;

struct ThreadData

{ std::vector<int> \*sequence; int n; int p; int k; int threadId; int numThreads;

};

void compare\_and\_exchange(int &a, int &b)

{ if (b < a)

{ std::swap(a, b); }

}

void \*thread\_function(void \*arg)

{

ThreadData \*data = (ThreadData \*)arg; std::vector<int> &sequence = \*data->sequence;

int n = data->n; int p = data->p; int k = data->k;

int threadId = data->threadId; int numThreads = data->numThreads;

for (int j = k % p + threadId \* 2 \* k; j <= n - 1 - k; j += 2 \* k \* numThreads)

{ for (int i = 0; i <= std::min(k - 1, n - j - k - 1); ++i)

{

pthread\_mutex\_lock(&mutex);

if (std::floor((i + j) / (p \* 2)) == std::floor((i + j + k) / (p \* 2)))

{

compare\_and\_exchange(sequence[i + j], sequence[i + j + k]);

}

pthread\_mutex\_unlock(&mutex);

}

}

pthread\_exit(NULL);

}

void betcher\_sort(std::vector<int> &v, int max\_threads)

{ int n = v.size();

for (int p = 1; p < n; p \*= 2)

{ for (int k = p; k >= 1; k /= 2)

{

pthread\_t threads[max\_threads]; ThreadData threadData[max\_threads];

for (int t = 0; t < max\_threads; ++t)

{

threadData[t] = {&v, n, p, k, t, max\_threads};

pthread\_create(&threads[t], NULL, thread\_function, (void \*)&threadData[t]);

}

for (int t = 0; t < max\_threads; ++t)

{

pthread\_join(threads[t], NULL);

}

}

}

}

int main(int argc, char \*\*argv)

{ if (argc != 3)

{ std\_out("invalid numer of args. enter max number of threads and array len\n"); return 1; }

int max\_threads = atoi(argv[1]); int len = atoi(argv[2]); std::srand(std::time(0));

std::string buffer;

std::vector<int> unsorted\_vector(len);

for (int i = 0; i < len; i++)

{ unsorted\_vector[i] = std::rand() % len;

}

std\_out("Unsorted array:\n"); for (int i = 0; i < len; i++)

{ std\_out(std::to\_string(unsorted\_vector[i]) + " ");

}

std\_out("\nSorted array:\n");

struct timeval start, end; pthread\_mutex\_init(&mutex, NULL); gettimeofday(&start, NULL);

betcher\_sort(unsorted\_vector, max\_threads);

gettimeofday(&end, NULL);

double time\_spent = (end.tv\_sec - start.tv\_sec) + (end.tv\_usec - start.tv\_usec) / 1e6;

for (int i = 0; i < len; i++)

{ std\_out(std::to\_string(unsorted\_vector[i]) + " ");

}

std\_out("\n");

std\_out("Time elapsed:" + std::to\_string(time\_spent) + " s\n");

pthread\_mutex\_destroy(&mutex); return 0;

}

**#std.cpp** #include "std.h"

int std\_in(std::string\* message) { return file\_scan(STDIN\_FILENO, message);

}

void std\_out(const std::string& message) { file\_print(STDOUT\_FILENO, message);

}

void log\_stderr(const std::string& message) { file\_print(STDERR\_FILENO, message);

}

int file\_scan(int input\_file, std::string\* message) { char buffer[DEFAULT\_BUFF\_SIZE];

std::string output;

ssize\_t bytes = read(input\_file, buffer, DEFAULT\_BUFF\_SIZE); for (int i = 0; i < bytes; i++) {

output += buffer[i];

}

\*message = output;

return (int) bytes;

}

int file\_print(int output\_file, const std::string& message) { ssize\_t bytes = write(output\_file, message.c\_str(), message.size()); return (int) bytes;

}

**#std.h**

#ifndef SRC\_STD\_H

#define SRC\_STD\_H

#include <string>

#include <csignal>

#include <unistd.h>

#define DEFAULT\_BUFF\_SIZE 1024

int std\_in(std::string \*); void std\_out(const std::string &); void log\_stderr(const std::string &); int file\_scan(int, std::string \*); int file\_print(int, const std::string &);

#endif

# Протокол работы программы

kotlasboy@kotlasboy-Modern-15-B12M:~/Programming/Projects/OS/lab\_2$ strace -f ./betcher\_sort 2 20

execve("./betcher\_sort", ["./betcher\_sort", "2", "20"], 0x7ffe80e30358 /\* 60 vars \*/) = 0

brk(NULL) = 0x635d3902e000

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7a48d7db3000

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=68847, ...}) = 0

mmap(NULL, 68847, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7a48d7da2000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=2592224, ...}) = 0

mmap(NULL, 2609472, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7a48d7a00000

mmap(0x7a48d7a9d000, 1343488, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9d000) = 0x7a48d7a9d000

mmap(0x7a48d7be5000, 552960, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e5000) = 0x7a48d7be5000

mmap(0x7a48d7c6c000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26b000) = 0x7a48d7c6c000

mmap(0x7a48d7c7a000, 12608, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7a48d7c7a000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=183024, ...}) = 0

mmap(NULL, 185256, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7a48d7d74000

mmap(0x7a48d7d78000, 147456, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7a48d7d78000

mmap(0x7a48d7d9c000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7a48d7d9c000

mmap(0x7a48d7da0000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7a48d7da0000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2125328, ...}) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

mmap(NULL, 2170256, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7a48d7600000

mmap(0x7a48d7628000, 1605632, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7a48d7628000

mmap(0x7a48d77b0000, 323584, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1b0000) = 0x7a48d77b0000

mmap(0x7a48d77ff000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1fe000) = 0x7a48d77ff000

mmap(0x7a48d7805000, 52624, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7a48d7805000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=952616, ...}) = 0

mmap(NULL, 950296, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7a48d7c8b000

mmap(0x7a48d7c9b000, 520192, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7a48d7c9b000

mmap(0x7a48d7d1a000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8f000) = 0x7a48d7d1a000

mmap(0x7a48d7d72000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe7000) = 0x7a48d7d72000

close(3) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7a48d7c89000

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7a48d7c86000

arch\_prctl(ARCH\_SET\_FS, 0x7a48d7c86740) = 0

set\_tid\_address(0x7a48d7c86a10) = 64483

set\_robust\_list(0x7a48d7c86a20, 24) = 0

rseq(0x7a48d7c87060, 0x20, 0, 0x53053053) = 0

mprotect(0x7a48d77ff000, 16384, PROT\_READ) = 0

mprotect(0x7a48d7d72000, 4096, PROT\_READ) = 0

mprotect(0x7a48d7da0000, 4096, PROT\_READ) = 0

mprotect(0x7a48d7c6c000, 45056, PROT\_READ) = 0

mprotect(0x635d30d40000, 4096, PROT\_READ) = 0

mprotect(0x7a48d7deb000, 8192, PROT\_READ) = 0

prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

munmap(0x7a48d7da2000, 68847) = 0

futex(0x7a48d7c7a7bc, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

getrandom("\x19\xac\x40\x9c\xfd\xc9\x7d\x39", 8, GRND\_NONBLOCK) = 8

brk(NULL) = 0x635d3902e000

brk(0x635d3904f000) = 0x635d3904f000

write(1, "Unsorted array:\n", 16Unsorted array:

) = 16

write(1, "7 ", 27 ) = 2

write(1, "0 ", 20 ) = 2

write(1, "9 ", 29 ) = 2

write(1, "17 ", 317 ) = 3

write(1, "19 ", 319 ) = 3

write(1, "9 ", 29 ) = 2

write(1, "16 ", 316 ) = 3

write(1, "14 ", 314 ) = 3

write(1, "1 ", 21 ) = 2

write(1, "8 ", 28 ) = 2

write(1, "7 ", 27 ) = 2

write(1, "3 ", 23 ) = 2

write(1, "15 ", 315 ) = 3

write(1, "1 ", 21 ) = 2

write(1, "15 ", 315 ) = 3

write(1, "5 ", 25 ) = 2

write(1, "12 ", 312 ) = 3

write(1, "12 ", 312 ) = 3

write(1, "11 ", 311 ) = 3

write(1, "17 ", 317 ) = 3

write(1, "\nSorted array:\n", 15

Sorted array:

) = 15

rt\_sigaction(SIGRT\_1, {sa\_handler=0x7a48d7699520, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_ONSTACK|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7a48d7645320}, NULL, 8) = 0

rt\_sigprocmask(SIG\_UNBLOCK, [RTMIN RT\_1], NULL, 8) = 0

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7a48d6c00000

mprotect(0x7a48d6c01000, 8388608, PROT\_READ|PROT\_WRITE) = 0

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64484 attached

=> {parent\_tid=[64484]}, 88) = 64484

[pid 64484] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64484] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64484] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0 <unfinished ...>

[pid 64484] <... set\_robust\_list resumed>) = 0

[pid 64483] <... mmap resumed>) = 0x7a48d6200000

[pid 64484] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] mprotect(0x7a48d6201000, 8388608, PROT\_READ|PROT\_WRITE <unfinished ...>

[pid 64484] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] <... mprotect resumed>) = 0

[pid 64483] futex(0x7a48d7deda58, FUTEX\_WAIT\_PRIVATE, 2, NULL <unfinished ...>

[pid 64484] mmap(NULL, 134217728, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7a48ce200000

[pid 64484] munmap(0x7a48ce200000, 31457280) = 0

[pid 64484] munmap(0x7a48d4000000, 35651584) = 0

[pid 64484] mprotect(0x7a48d0000000, 135168, PROT\_READ|PROT\_WRITE) = 0

[pid 64484] futex(0x7a48d7deda58, FUTEX\_WAKE\_PRIVATE, 1 <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64484] <... futex resumed>) = 1

[pid 64483] futex(0x7a48d7deda58, FUTEX\_WAKE\_PRIVATE, 1) = 0

[pid 64484] futex(0x7a48d7da1230, FUTEX\_WAKE\_PRIVATE, 2147483647 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64484] <... futex resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64484] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64484] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEEDstrace: Process 64485 attached

<unfinished ...>

[pid 64483] <... clone3 resumed> => {parent\_tid=[64485]}, 88) = 64485

[pid 64484] <... madvise resumed>) = 0

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64485] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64484] exit(0 <unfinished ...>

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64485] <... rseq resumed>) = 0

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64484, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64484] <... exit resumed>) = ?

[pid 64485] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64485] <... set\_robust\_list resumed>) = 0

[pid 64484] +++ exited with 0 +++

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64485, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64485] rt\_sigprocmask(SIG\_SETMASK, [], NULL, 8) = 0

[pid 64485] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64485] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64485] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64485] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0}strace: Process 64486 attached

=> {parent\_tid=[64486]}, 88) = 64486

[pid 64486] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64486] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

[pid 64486] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0} <unfinished ...>

[pid 64486] <... set\_robust\_list resumed>) = 0

[pid 64486] rt\_sigprocmask(SIG\_SETMASK, [], strace: Process 64487 attached

NULL, 8) = 0

[pid 64483] <... clone3 resumed> => {parent\_tid=[64487]}, 88) = 64487

[pid 64487] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64486] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64487] <... rseq resumed>) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64486, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64486] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64487] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64486] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64487] <... set\_robust\_list resumed>) = 0

[pid 64487] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64486] <... madvise resumed>) = 0

[pid 64487] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64486] exit(0 <unfinished ...>

[pid 64487] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64486] <... exit resumed>) = ?

[pid 64487] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64486] +++ exited with 0 +++

[pid 64483] <... futex resumed>) = 0

[pid 64487] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64487, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64487] <... madvise resumed>) = 0

[pid 64487] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64487] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64488 attached

=> {parent\_tid=[64488]}, 88) = 64488

[pid 64488] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64488] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64488] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64488] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64488] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64488] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64488] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64489 attached

NULL, 8) = 0

[pid 64483] <... clone3 resumed> => {parent\_tid=[64489]}, 88) = 64489

[pid 64489] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64488] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64489] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64488] <... madvise resumed>) = 0

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64488, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64489] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64488] exit(0 <unfinished ...>

[pid 64489] <... set\_robust\_list resumed>) = 0

[pid 64488] <... exit resumed>) = ?

[pid 64489] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64488] +++ exited with 0 +++

[pid 64489] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64489, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64489] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64489] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64489] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64489] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0}strace: Process 64490 attached

=> {parent\_tid=[64490]}, 88) = 64490

[pid 64490] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64490] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64490] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64490] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64490] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0} <unfinished ...>

[pid 64490] <... rt\_sigprocmask resumed>NULL, 8) = 0

strace: Process 64491 attached

[pid 64490] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] <... clone3 resumed> => {parent\_tid=[64491]}, 88) = 64491

[pid 64491] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64490] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64491] <... rseq resumed>) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64490, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64490] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64491] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64490] <... madvise resumed>) = 0

[pid 64491] <... set\_robust\_list resumed>) = 0

[pid 64490] exit(0 <unfinished ...>

[pid 64491] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64490] <... exit resumed>) = ?

[pid 64491] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] <... futex resumed>) = 0

[pid 64490] +++ exited with 0 +++

[pid 64491] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64491, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64491] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64491] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED) = 0

[pid 64491] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64491] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64492 attached

=> {parent\_tid=[64492]}, 88) = 64492

[pid 64492] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64492] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64492] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64492] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64492] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64492] <... rt\_sigprocmask resumed>NULL, 8) = 0

strace: Process 64493 attached

[pid 64492] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] <... clone3 resumed> => {parent\_tid=[64493]}, 88) = 64493

[pid 64493] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64492] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64493] <... rseq resumed>) = 0

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64492, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64492] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64493] set\_robust\_list(0x7a48d6a009a0, 24) = 0

[pid 64492] <... madvise resumed>) = 0

[pid 64493] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64492] exit(0 <unfinished ...>

[pid 64493] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64492] <... exit resumed>) = ?

[pid 64493] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64492] +++ exited with 0 +++

[pid 64493] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64493, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64493] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64493] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64493] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0}strace: Process 64494 attached

=> {parent\_tid=[64494]}, 88) = 64494

[pid 64494] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64494] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64494] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64494] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64494] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0} <unfinished ...>

[pid 64494] <... rt\_sigprocmask resumed>NULL, 8) = 0

strace: Process 64495 attached

[pid 64494] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] <... clone3 resumed> => {parent\_tid=[64495]}, 88) = 64495

[pid 64495] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64494] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64495] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64494] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64494, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64495] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64494] <... madvise resumed>) = 0

[pid 64495] <... set\_robust\_list resumed>) = 0

[pid 64494] exit(0 <unfinished ...>

[pid 64495] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64494] <... exit resumed>) = ?

[pid 64495] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] <... futex resumed>) = 0

[pid 64494] +++ exited with 0 +++

[pid 64495] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64495, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64495] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64495] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED) = 0

[pid 64495] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64495] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64496 attached

=> {parent\_tid=[64496]}, 88) = 64496

[pid 64496] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64496] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64496] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64496] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64496] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64496] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64496] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64497 attached

NULL, 8) = 0

[pid 64483] <... clone3 resumed> => {parent\_tid=[64497]}, 88) = 64497

[pid 64497] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64496] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64497] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64496] <... madvise resumed>) = 0

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64496, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64497] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64496] exit(0 <unfinished ...>

[pid 64497] <... set\_robust\_list resumed>) = 0

[pid 64496] <... exit resumed>) = ?

[pid 64497] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64496] +++ exited with 0 +++

[pid 64497] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64497, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64497] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64497] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64497] exit(0) = ?

[pid 64497] +++ exited with 0 +++

<... futex resumed>) = 0

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0}strace: Process 64498 attached

=> {parent\_tid=[64498]}, 88) = 64498

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64498] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64498] <... rseq resumed>) = 0

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64498] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64498] <... set\_robust\_list resumed>) = 0

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0} <unfinished ...>

[pid 64498] rt\_sigprocmask(SIG\_SETMASK, [], NULL, 8) = 0

strace: Process 64499 attached

[pid 64483] <... clone3 resumed> => {parent\_tid=[64499]}, 88) = 64499

[pid 64499] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64498] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64499] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64498] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64499] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64498, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64498] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64499] <... set\_robust\_list resumed>) = 0

[pid 64499] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64498] <... madvise resumed>) = 0

[pid 64499] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64498] exit(0) = ?

[pid 64499] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64499] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64498] +++ exited with 0 +++

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64499, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64499] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED) = 0

[pid 64499] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64499] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64500 attached

=> {parent\_tid=[64500]}, 88) = 64500

[pid 64500] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64500] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64500] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64500] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64500] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64500] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64500] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

strace: Process 64501 attached

[pid 64483] <... clone3 resumed> => {parent\_tid=[64501]}, 88) = 64501

[pid 64500] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64501] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64500] <... madvise resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64501] <... rseq resumed>) = 0

[pid 64500] exit(0 <unfinished ...>

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64500, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64501] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64500] <... exit resumed>) = ?

[pid 64501] <... set\_robust\_list resumed>) = 0

[pid 64483] <... futex resumed>) = 0

[pid 64501] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64500] +++ exited with 0 +++

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64501, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64501] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64501] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64501] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64501] exit(0) = ?

[pid 64501] +++ exited with 0 +++

<... futex resumed>) = 0

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0}strace: Process 64502 attached

=> {parent\_tid=[64502]}, 88) = 64502

[pid 64502] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64502] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64502] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64502] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64502] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0} <unfinished ...>

[pid 64502] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64502] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64503 attached

<unfinished ...>

[pid 64483] <... clone3 resumed> => {parent\_tid=[64503]}, 88) = 64503

[pid 64502] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64503] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64502] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64503] <... rseq resumed>) = 0

[pid 64502] <... madvise resumed>) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64502, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64503] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64502] exit(0 <unfinished ...>

[pid 64503] <... set\_robust\_list resumed>) = 0

[pid 64502] <... exit resumed>) = ?

[pid 64503] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64502] +++ exited with 0 +++

[pid 64483] <... futex resumed>) = 0

[pid 64503] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64503, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64503] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64503] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED) = 0

[pid 64503] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64503] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64504 attached

=> {parent\_tid=[64504]}, 88) = 64504

[pid 64504] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64504] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64504] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64504] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64504] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64504] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64504] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64505 attached

NULL, 8) = 0

[pid 64483] <... clone3 resumed> => {parent\_tid=[64505]}, 88) = 64505

[pid 64505] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64504] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64505] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64504] <... madvise resumed>) = 0

[pid 64505] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64504, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64504] exit(0 <unfinished ...>

[pid 64505] <... set\_robust\_list resumed>) = 0

[pid 64504] <... exit resumed>) = ?

[pid 64505] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64504] +++ exited with 0 +++

[pid 64505] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64505, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64505] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64505] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64505] exit(0) = ?

[pid 64505] +++ exited with 0 +++

<... futex resumed>) = 0

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0}strace: Process 64506 attached

=> {parent\_tid=[64506]}, 88) = 64506

[pid 64506] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64506] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64506] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64506] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64506] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0} <unfinished ...>

[pid 64506] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64506] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64507 attached

NULL, 8) = 0

[pid 64483] <... clone3 resumed> => {parent\_tid=[64507]}, 88) = 64507

[pid 64506] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64507] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64507] <... rseq resumed>) = 0

[pid 64506] <... madvise resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64506] exit(0 <unfinished ...>

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64506, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64506] <... exit resumed>) = ?

[pid 64507] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64507] <... set\_robust\_list resumed>) = 0

[pid 64506] +++ exited with 0 +++

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64507, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64507] rt\_sigprocmask(SIG\_SETMASK, [], NULL, 8) = 0

[pid 64507] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

[pid 64507] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED) = 0

[pid 64507] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64507] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64508 attached

=> {parent\_tid=[64508]}, 88) = 64508

[pid 64508] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64508] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64508] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64508] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64508] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64508] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64508] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64509 attached

<unfinished ...>

[pid 64483] <... clone3 resumed> => {parent\_tid=[64509]}, 88) = 64509

[pid 64509] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64508] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64509] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64508] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64509] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64508, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64509] <... set\_robust\_list resumed>) = 0

[pid 64508] <... madvise resumed>) = 0

[pid 64509] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64508] exit(0 <unfinished ...>

[pid 64509] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64508] <... exit resumed>) = ?

[pid 64509] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] <... futex resumed>) = 0

[pid 64508] +++ exited with 0 +++

[pid 64509] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64509, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64509] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64509] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64509] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0}strace: Process 64510 attached

=> {parent\_tid=[64510]}, 88) = 64510

[pid 64510] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64510] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64510] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64510] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64510] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0} <unfinished ...>

[pid 64510] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64510] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64511 attached

NULL, 8) = 0

[pid 64483] <... clone3 resumed> => {parent\_tid=[64511]}, 88) = 64511

[pid 64511] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64510] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64511] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64510] <... madvise resumed>) = 0

[pid 64511] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64510, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64511] <... set\_robust\_list resumed>) = 0

[pid 64510] exit(0 <unfinished ...>

[pid 64511] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64510] <... exit resumed>) = ?

[pid 64511] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64483] <... futex resumed>) = 0

[pid 64511] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64510] +++ exited with 0 +++

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64511, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64511] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64511] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED) = 0

[pid 64511] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64511] +++ exited with 0 +++

rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d7400990, parent\_tid=0x7a48d7400990, exit\_signal=0, stack=0x7a48d6c00000, stack\_size=0x7fff80, tls=0x7a48d74006c0}strace: Process 64512 attached

=> {parent\_tid=[64512]}, 88) = 64512

[pid 64512] rseq(0x7a48d7400fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64512] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64512] set\_robust\_list(0x7a48d74009a0, 24 <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

[pid 64512] <... set\_robust\_list resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>[], 8) = 0

[pid 64512] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64483] clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7a48d6a00990, parent\_tid=0x7a48d6a00990, exit\_signal=0, stack=0x7a48d6200000, stack\_size=0x7fff80, tls=0x7a48d6a006c0} <unfinished ...>

[pid 64512] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64512] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], strace: Process 64513 attached

NULL, 8) = 0

[pid 64483] <... clone3 resumed> => {parent\_tid=[64513]}, 88) = 64513

[pid 64513] rseq(0x7a48d6a00fe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 64512] madvise(0x7a48d6c00000, 8368128, MADV\_DONTNEED <unfinished ...>

[pid 64483] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64513] <... rseq resumed>) = 0

[pid 64483] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64512] <... madvise resumed>) = 0

[pid 64513] set\_robust\_list(0x7a48d6a009a0, 24 <unfinished ...>

[pid 64483] futex(0x7a48d7400990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64512, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64513] <... set\_robust\_list resumed>) = 0

[pid 64512] exit(0 <unfinished ...>

[pid 64513] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 64512] <... exit resumed>) = ?

[pid 64513] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64512] +++ exited with 0 +++

[pid 64483] <... futex resumed>) = 0

[pid 64513] rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

[pid 64483] futex(0x7a48d6a00990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 64513, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 64513] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 64513] madvise(0x7a48d6200000, 8368128, MADV\_DONTNEED) = 0

[pid 64513] exit(0) = ?

[pid 64483] <... futex resumed>) = 0

[pid 64513] +++ exited with 0 +++

write(1, "0 ", 20 ) = 2

write(1, "1 ", 21 ) = 2

write(1, "1 ", 21 ) = 2

write(1, "3 ", 23 ) = 2

write(1, "5 ", 25 ) = 2

write(1, "7 ", 27 ) = 2

write(1, "7 ", 27 ) = 2

write(1, "8 ", 28 ) = 2

write(1, "9 ", 29 ) = 2

write(1, "9 ", 29 ) = 2

write(1, "11 ", 311 ) = 3

write(1, "12 ", 312 ) = 3

write(1, "12 ", 312 ) = 3

write(1, "14 ", 314 ) = 3

write(1, "15 ", 315 ) = 3

write(1, "15 ", 315 ) = 3

write(1, "16 ", 316 ) = 3

write(1, "17 ", 317 ) = 3

write(1, "17 ", 317 ) = 3

write(1, "19 ", 319 ) = 3

write(1, "\n", 1

) = 1

write(1, "Time elapsed:0.014476 s\n", 24Time elapsed:0.014476 s

) = 24

exit\_group(0) = ?

+++ exited with 0 +++

# Вывод

**Задание мне показалось интересным, так как многопоточное программирование - одна из самых частых и важных тем. Я столкнулся с многими проблемами, самой сложной задачей, мне показалось распараллеливание исходного алгоритма**

|  |  |  |  |
| --- | --- | --- | --- |
| **Число потоков** | **Время исполнения (с)** | **Ускорение** | **Эффективность** |
| **1** | **1.006487** | **1** | **1** |
| **2** | **0.582498** | **1.72** | **0.86** |
| **4** | **0.332793** | **3.02** | **0.98** |
| **8** | **0.267251** | **3.76** | **0.47** |
| **16** | **0.225936** | **4.45** | **0.27** |

