МОСКОВСКИЙ АВИАЦИОННЫЙ ИНСТИТУТ (НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ)

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Лабораторная работа №2 по курсу «Операционные системы»

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Условие

Цель работы:

Приобретение практических навыков в:

- Управление потоками в ОС
- Обеспечение синхронизации между потоками

Задание:

Составить программу на языке C++, 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.

Вариант: 19

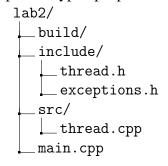
Дан массив координат (x, y). Пользователь вводит число кластеров. Проведите кластеризацию методом k-средних

Метод решения

Алгоритм решения задачи:

- 1. Пользователь запускает программу с целочисленным ключом запуска, означающем максимальное количество потоков которое может использовать программа.
- 2. Пользователь вводит в консоль количество кластеров п.
- 3. Генерируется массив из 10 000 точек на плоскости Оху и добавляются в общий массив.
- 4. Первыми п точчками инициализируются центройды кастеров.
- 5. Каждый поток проверяет к какому кластеру точка в "своей" части массива точек и ближе и перемещает ее туда.
- 6. После того, как все потоки отработали, главный поток пересчитывает центройды.
- 7. Если центройды изменили свое положение, то потоки снова начинают перемещать точки.
- 8. Алгоритм завершается если положение центройдов не изменилось или количество итераций превысило 1000.

Архитектура программы:



Описание программы

main.cpp — реализация алгоритма кластеризации k средних. Основные функции:

- void updateCentroids(); вспомогательная функция изменения центройдов кластеров.
- void* updateClusters(void* threadData); вспомагательная функция "перемещения" точек в кластеры.
- kMeans(); основная функция реализации алгоритма кластеризации методом k средних

exceptions.h — объявление необходимых исключений.

- CreateThreadException ошибка создания потока.
- WaitThreadException ошибка ожидания завершения потока.

include/thread.h — объявления методов класса thread. src/thread.cpp — реализация.

Основные функции:

- void Run(void* threadData); создание и запуск. Используется системный вызов pthread_create(...).
- void Join(); ожидание завершения потока.
 Используется системный вызов pthread_join(...).

Результаты

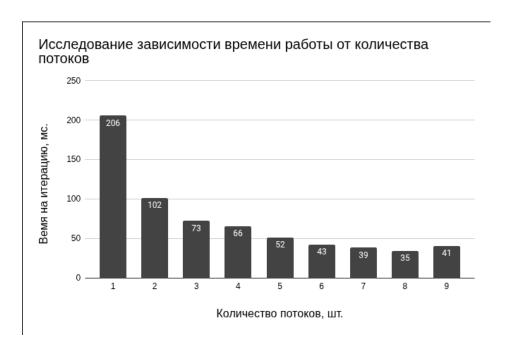


Рис. 1: Диаграмма зависимости времени от количества потоков.

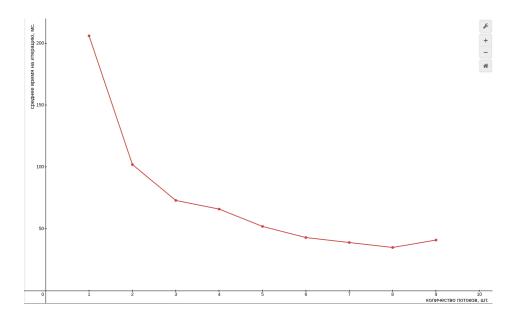


Рис. 2: График зависимости времени от количества потоков.

Результатом работы программы является время (мс) за которое алгоритм выполняет кластеризацию и количество итераций, которое понадобилось. При входных данных 10 000 точек и 500 класстеров получены следующие данные:

- 1 поток 28 итераций, 5771 мс -> 206 мс на итерацию. (BASE)
- 2 потока 27 итераций, 2764 мс -> 102 мс на итерацию. (x2.0)
- 3 потока 28 итераций, 2064 мс -> 73 мс на итерацию. (x2.8)
- 4 потока 22 итерации, 1358 мс -> 66 мс на итерацию. (x3.1)
- 5 потоков 53 итерации, 2766 мс -> 52 мс на итерацию. (x4.0)
- 6 потоков 31 итерация, 1320 мс -> 43 мс на итерацию. (x4.8)
- 7 потоков 25 итераций, 978 мс -> 39 мс на итерацию. (x5.3)
- 8 потоков 20 итераций, 698 мс -> 35 мс на итерацию. (x5.9)
- 9 потоков 28 итераций, 1145 мс -> 41 мс на итерацию. (x5.0)

Выводы

- Увеличение количества потоков не всегда дает прирост к скорости. В случае, когда количестов потоков больше 8, время затрачивается как на синхронную часть программы, так и на создание и завершение потоков, поэтому увеличение потоков не дает желаемых результатов или даже увеличивает время работы программы. Также существуют накладные расходы на работу процессора и планировщика ОС с потоками.
- Ускорение при увелеении количества потоков стремится к линейности.

Исходная программа

```
1 #pragma once
2
3
   #include <exception>
   #include <string>
4
5
6
   namespace exceptions {
7
       class CreateThreadException: std::exception {
8
       public:
9
           explicit CreateThreadException(const std::string& text): error_message_(text) {}
10
           const char* what() const noexcept override {
11
               return error_message_.data();
           }
12
       private:
13
14
           std::string error_message_;
15
       };
16
17
       class WaitThreadException: std::exception {
18
       public:
19
           explicit WaitThreadException(const std::string& text): error_message_(text) {}
20
           const char* what() const noexcept override {
21
              return error_message_.data();
22
           }
23
       private:
24
           std::string error_message_;
25
       };
26 || }
```

Листинг 1: exceptions.h

```
1 | #pragma once
 3
   #include <pthread.h>
 4
 5
   #include "exceptions.h"
 6
 7
   namespace thread {
 8
       using threadFunc = typeof(void*(void*))*;
 9
       struct threadInfo;
10
       using threadHandle = threadInfo*;
11
12
       class Thread {
13
         private:
14
           threadFunc func;
15
           threadHandle handle;
16
         public:
17
           Thread(threadFunc func);
18
           Thread(const Thread&) = delete;
19
           Thread& operator=(const Thread&) = delete;
20
           Thread(Thread&& other);
21
           Thread& operator=(Thread&& other);
22
           void Run(void* threadData);
23
           void Join();
24
           ~Thread() noexcept;
25
       };
26 || }
```

Листинг 2: thread.h

```
1 | #include "thread.h"
 2
 3
   namespace thread {
 4
       struct threadInfo {
 5
           pthread_t thread;
 6
 7
 8
       Thread::Thread(threadFunc func): func(func) {
 9
           handle = new threadInfo();
10
11
12
       Thread::Thread(Thread&& other): func(other.func), handle(other.handle) {
13
           other.func = nullptr;
14
           other.handle = nullptr;
15
       }
16
17
       Thread& Thread::operator=(Thread&& other) {
           Thread temp = std::move(other);
18
19
           std::swap(func, temp.func);
20
           std::swap(handle, temp.handle);
21
           return *this;
       }
22
23
24
       void Thread::Run(void* data) {
25
           int res = pthread_create(&(handle->thread), NULL, func, data);
26
           if (res != 0) {
27
               throw exceptions::CreateThreadException("failed to create thread");
28
           }
29
       }
30
31
       void Thread::Join() {
32
           int res = pthread_join(handle->thread, NULL);
33
           if (res != 0) {
34
               throw exceptions::WaitThreadException("Failed to wait thred");
35
           }
36
       }
37
38
       Thread::~Thread() {
39
           delete handle;
40
       }
41 || }
```

Листинг 3: thread.cpp

```
1 | #include <cmath>
2 | #include <cstdlib>
3 | #include <vector>
4 | #include <iostream>
5
   #include <random>
   #include <chrono>
6
7
   #include "thread.h"
8
9
10 | struct Point {
11
       float x;
12
       float y;
13
       int32_t cluster;
14
15
       Point(float x = 0.0, float y = 0.0, int32_t cluster = -1): x(x), y(y), cluster(
           cluster) {}
```

```
16||};
17
18
   struct Cluster {
19
       Point centroid;
20
       Cluster(const Point& point): centroid(point) {}
21 || };
22
23 || struct ThreadData {
24
       int32_t begin;
25
       int32_t end;
26
       int32_t id;
   };
27
28
29
   double distance(const Point& a, const Point& b) {
       return sqrt(pow(a.x - b.x, 2) + pow(a.y - b.y, 2));
31 || }
32
33 | const int32_t MAXITERATIONS = 1000;
34
   const double EPS = 1e-6;
35
36 | int32_t threadsCount;
37 | int32_t clustersCount;
39
   std::vector <Point> allPoints;
40
   std::vector <Cluster> allClusters;
41
42
   void generatePointsAndClusters(int32_t count = 10000) {
43
       std::random_device rd;
44
       std::mt19937 gen(rd());
45
       std::uniform_real_distribution<> dis_x(-10000, 10000);
46
       std::uniform_real_distribution<> dis_y(-10000, 10000);
47
48
       allPoints.clear();
49
       for (size_t i = 0; i < count; ++i) {
50
           allPoints.emplace_back(dis_x(gen), dis_y(gen), -1);
51
       }
52
53
       if (clustersCount > allPoints.size()) {
54
           std::cerr << "Error: count points must be greater than clusters count" << std::
               endl;
55
           exit(1);
56
57
       allClusters.clear();
58
59
       for (size_t i = 0; i < clustersCount; ++i) {</pre>
60
           Cluster cl = Cluster(Point(allPoints[i].x, allPoints[i].y, i));
61
           allClusters.push_back(cl);
62
       }
   }
63
64
65
    void* updateClusters(void* threadData) {
       ThreadData* td = static_cast<ThreadData*>(threadData);
66
67
68
       if (td == nullptr) {
69
           std::cerr << "Error: thead data mustn't be nullptr." << std::endl;</pre>
70
           return nullptr;
       }
71
72
73
       for (size_t i = td->begin; i < td->end; ++i) {
74
           double baseDist = std::numeric_limits<double>::max();
```

```
75
            int cluster = 0;
76
            for (size_t j = 0; j < allClusters.size(); ++j) {</pre>
 77
                double dist = distance(allPoints[i], allClusters[j].centroid);
 78
                if (dist < baseDist) {</pre>
 79
                    baseDist = dist;
 80
                    cluster = j;
 81
 82
 83
            allPoints[i].cluster = cluster;
 84
 85
        return nullptr;
    }
 86
 87
 88
     void updateCentroids() {
 89
        std::vector<int32_t> count(clustersCount, 0);
 90
        std::vector<double> xSums(clustersCount, 0);
91
        std::vector<double> ySums(clustersCount, 0);
 92
 93
        for (const Point& p: allPoints) {
 94
            xSums[p.cluster] += p.x;
 95
            ySums[p.cluster] += p.y;
 96
            ++count[p.cluster];
 97
 98
 99
        for (size_t i = 0; i < allClusters.size(); ++i) {</pre>
100
            if (count[i] > 0) {
101
                allClusters[i].centroid.x = xSums[i] / count[i];
102
                allClusters[i].centroid.y = ySums[i] / count[i];
103
            }
104
        }
105
    }
106
107
    void kMeans() {
108
        generatePointsAndClusters();
109
110
        for (size_t j = 0; j < MAXITERATIONS; ++j) {</pre>
            std::vector<thread::Thread> threads;
111
112
            threads.reserve(threadsCount);
113
            std::vector<ThreadData> threadsData(threadsCount);
114
115
            int32_t chunkSize = allPoints.size() / threadsCount;
116
117
            for (size_t i = 0; i < threadsCount; ++i) {</pre>
118
119
                threadsData[i].begin = i * chunkSize;
120
                threadsData[i].end = (i == threadsCount - 1) ? allPoints.size() : (i + 1) *
                    chunkSize;
121
                threadsData[i].id = i;
122
123
                try {
124
                    threads.emplace_back(updateClusters);
125
                    threads[i].Run(&threadsData[i]);
126
                } catch (const exceptions::CreateThreadException& e) {
127
                    std::cerr << e.what() << std::endl;</pre>
128
                    for (size_t i = 0; i < threads.size(); ++i) {</pre>
                        threads[i].~Thread();
129
                    }
130
131
                    exit(1);
132
                }
            }
133
```

```
134
135
             try {
136
                for (size_t i = 0; i < threadsCount; ++i) {</pre>
137
                    threads[i].Join();
138
                }
             } catch (const exceptions::WaitThreadException& e) {
139
140
                std::cerr << e.what() << std::endl;</pre>
141
                for (size_t i = 0; i < threads.size(); ++i) {</pre>
142
                    threads[i].~Thread();
143
                }
144
                exit(1);
145
            }
146
147
            std::vector<Cluster> oldClasters = allClusters;
148
            updateCentroids();
149
150
            bool changed = false;
             for (size_t i = 0; i < clustersCount; ++i) {</pre>
151
152
                if (distance(oldClasters[i].centroid, allClusters[i].centroid) > EPS) {
153
                    changed = true;
154
                    break;
155
                }
            }
156
157
             if (!changed) {
158
                std::cout << "Algorithm ended on " << j + 1 << " iterations" << std::endl;
159
                break;
160
            }
161
         }
162
    }
163
164
    int main(int argc, char* argv[]) {
165
         std::cout << "Enter the clusters count: " << std::endl;</pre>
166
         std::cin >> clustersCount;
167
168
         if (argc < 2) {
            std::cerr << "Must be min 2 args" << std::endl;</pre>
169
170
            return 1;
171
         }
172
173
         try {
             threadsCount = std::stoul(argv[1]);
174
175
         } catch (const std::invalid_argument&) {
176
             std::cerr << "Error: incorrect number format: not a number" << std::endl;</pre>
177
         } catch (const std::out_of_range&) {
178
             std::cerr << "Error: incorrect number format: too long." << std::endl;</pre>
179
         }
180
181
         if (threadsCount > 10000) {
182
             std::cerr << "Incorrect threads count." << std::endl;</pre>
183
            return 1;
184
         }
185
186
         auto start = std::chrono::steady_clock::now();
187
         kMeans();
188
         auto end = std::chrono::steady_clock::now();
189
190
         std::cout << "Algorithm was done in: " << std::chrono::duration_cast<std::chrono::</pre>
             milliseconds>(end - start).count() << " ms" << std::endl;</pre>
191
         return 0;
```

Strace

```
Strace при входных данных — 10000 кластеров, 4 потока, 500 кластеров.
```

```
execve("./main", ["./main", "4"], 0x7ffd413b2088 /* 77 vars */) = 0
brk(NULL)
                                   = 0x5b4a7b96c000
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
→ 0x79ba83e07000
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (Нет такого файла или
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=74871, ...}) = 0
mmap(NULL, 74871, PROT_READ, MAP_PRIVATE, 3, 0) = 0x79ba83df4000
close(3)
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=2592224, ...}) = 0
mmap(NULL, 2609472, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x79ba83a00000
mmap(0x79ba83a9d000, 1343488, PROT_READ|PROT_EXEC,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x9d000) = 0x79ba83a9d000
mmap(0x79ba83be5000, 552960, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
\rightarrow 0x1e5000) = 0x79ba83be5000
mmap(0x79ba83c6c000, 57344, PROT_READ|PROT_WRITE,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x26b000) = 0x79ba83c6c000
mmap(0x79ba83c7a000, 12608, PROT_READ|PROT_WRITE,
→ MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x79ba83c7a000
close(3)
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=952616, ...}) = 0
mmap(NULL, 950296, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x79ba83d0b000
mmap(0x79ba83d1b000, 520192, PROT_READ|PROT_EXEC,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x10000) = 0x79ba83d1b000
mmap(0x79ba83d9a000, 360448, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
\rightarrow 0x8f000) = 0x79ba83d9a000
mmap(0x79ba83df2000, 8192, PROT_READ|PROT_WRITE,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xe7000) = 0x79ba83df2000
                                    = 0
close(3)
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=183024, ...}) = 0
mmap(NULL, 185256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x79ba83cdd000
mmap(0x79ba83ce1000, 147456, PROT_READ|PROT_EXEC,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x4000) = 0x79ba83ce1000
mmap(0x79ba83d05000, 16384, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
\rightarrow 0x28000) = 0x79ba83d05000
```

```
mmap(0x79ba83d09000, 8192, PROT_READ|PROT_WRITE,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2b000) = 0x79ba83d09000
close(3)
                                     = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3
→ 832) = 832
\rightarrow 784, 64) = 784
fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0
\rightarrow 784, 64) = 784
mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x79ba83600000
mmap(0x79ba83628000, 1605632, PROT_READ|PROT_EXEC,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x79ba83628000
mmap(0x79ba837b0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
\rightarrow 0x1b0000) = 0x79ba837b0000
mmap(0x79ba837ff000, 24576, PROT_READ|PROT_WRITE,
→ MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x79ba837ff000
mmap(0x79ba83805000, 52624, PROT_READ|PROT_WRITE,

→ MAP_PRIVATE | MAP_FIXED | MAP_ANONYMOUS, -1, 0) = 0x79ba83805000

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
\rightarrow 0x79ba83cdb000
mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
\rightarrow 0x79ba83cd8000
arch_prctl(ARCH_SET_FS, 0x79ba83cd8740) = 0
set_tid_address(0x79ba83cd8a10)
set_robust_list(0x79ba83cd8a20, 24) = 0
rseq(0x79ba83cd9060, 0x20, 0, 0x53053053) = 0
mprotect(0x79ba837ff000, 16384, PROT_READ) = 0
mprotect(0x79ba83d09000, 4096, PROT_READ) = 0
mprotect(0x79ba83df2000, 4096, PROT_READ) = 0
mprotect(0x79ba83c6c000, 45056, PROT_READ) = 0
mprotect(0x5b4a6c0e2000, 4096, PROT_READ) = 0
mprotect(0x79ba83e45000, 8192, PROT_READ) = 0
prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) =
munmap(0x79ba83df4000, 74871)
futex(0x79ba83c7a7bc, FUTEX_WAKE_PRIVATE, 2147483647) = 0
getrandom("x16x50x3ax1bx86x7ex4exed", 8, GRND_NONBLOCK) = 8
brk(NULL)
                                     = 0x5b4a7b96c000
brk(0x5b4a7b98d000)
                                     = 0x5b4a7b98d000
fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
write(1, "Enter the clusters count: \n", 27) = 27
fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
                                     = 4
read(0, "500\n", 1024)
brk(0x5b4a7b9b7000)
                                     = 0x5b4a7b9b7000
mmap(NULL, 200704, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
\rightarrow 0x79ba83ca7000
brk(0x5b4a7b9a0000)
                                     = 0x5b4a7b9a0000
rt_sigaction(SIGRT_1, {sa_handler=0x79ba83699530, sa_mask=[],
\hookrightarrow sa_flags=SA_RESTORER|SA_ONSTACK|SA_RESTART|SA_SIGINFO,
\rightarrow sa_restorer=0x79ba83645330}, 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) =
\hookrightarrow 0x79ba82dff000
mprotect(0x79ba82e00000, 8388608, PROT_READ|PROT_WRITE) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214396]}, 88) = 214396
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
\rightarrow 0x79ba825fe000
mprotect(0x79ba825ff000, 8388608, PROT_READ|PROT_WRITE) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,

\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214397]}, 88) = 214397
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
\rightarrow 0x79ba81dfd000
mprotect(0x79ba81dfe000, 8388608, PROT_READ|PROT_WRITE) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214398]}, 88) = 214398
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
\rightarrow 0x79ba815fc000
mprotect(0x79ba815fd000, 8388608, PROT_READ|PROT_WRITE) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214399]}, 88) = 214399
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214396, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214397, NULL,
\rightarrow FUTEX_BITSET_MATCH_ANY) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214413]}, 88) = 214413
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
```

```
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\label{eq:child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit\_signal=0,} \\
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214414]}, 88) = 214414
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214415]}, 88) = 214415
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214416]}, 88) = 214416
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214413, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214414, NULL,
→ FUTEX_BITSET_MATCH_ANY) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214417]}, 88) = 214417
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\  \, \rightarrow \  \, \text{child\_tid=0x79ba82dfe990, parent\_tid=0x79ba82dfe990, exit\_signal=0,}
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214418]}, 88) = 214418
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214419]}, 88) = 214419
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

\hookrightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214420]}, 88) = 214420
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214417, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0
```

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futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214419, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\  \, \rightarrow \  \, \text{child\_tid=0x79ba81dfc990, parent\_tid=0x79ba81dfc990, exit\_signal=0,}
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214421]}, 88) = 214421
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214422]}, 88) = 214422
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214423]}, 88) = 214423
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214424]}, 88) = 214424
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214421, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214423, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                         = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214425]}, 88) = 214425
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214426]}, 88) = 214426
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
\rightarrow stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214427]}, 88) = 214427
```

```
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214428]}, 88) = 214428
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214425, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214426, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                         = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214429]}, 88) = 214429
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
\rightarrow stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214430]}, 88) = 214430
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM | CLONE_SETTLS | CLONE_PARENT_SETTID | CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214431]}, 88) = 214431
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214432]}, 88) = 214432
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214429, NULL,
\rightarrow FUTEX_BITSET_MATCH_ANY) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214433]}, 88) = 214433
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
```

```
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\label{eq:child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit\_signal=0,} \\
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214434]}, 88) = 214434
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214435]}, 88) = 214435
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214436]}, 88) = 214436
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214433, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214436, NULL,
→ FUTEX_BITSET_MATCH_ANY) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214437]}, 88) = 214437
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\  \, \rightarrow \  \, \text{child\_tid=0x79ba825fd990, parent\_tid=0x79ba825fd990, exit\_signal=0,}
\rightarrow stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214438]}, 88) = 214438
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214439]}, 88) = 214439
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,

_{\hookrightarrow} stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214440]}, 88) = 214440
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214437, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0
```

```
futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214438, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
_{\hookrightarrow} child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214441]}, 88) = 214441
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214442]}, 88) = 214442
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
\rightarrow stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214443]}, 88) = 214443
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
\rightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214444]}, 88) = 214444
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214441, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214442, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                         = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214445]}, 88) = 214445
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214446]}, 88) = 214446
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214447]}, 88) = 214447
```

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rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214448]}, 88) = 214448
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214445, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214446, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                         = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214449]}, 88) = 214449
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214450]}, 88) = 214450
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
\rightarrow stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214451]}, 88) = 214451
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214452]}, 88) = 214452
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214449, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214452, NULL,

→ FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

\hookrightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214453]}, 88) = 214453
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
```

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clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\label{eq:child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit\_signal=0,} \\
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214454]}, 88) = 214454
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214455]}, 88) = 214455
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214456]}, 88) = 214456
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214453, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214455, NULL,
→ FUTEX_BITSET_MATCH_ANY) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214457]}, 88) = 214457
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\  \, \rightarrow \  \, \text{child\_tid=0x79ba82dfe990, parent\_tid=0x79ba82dfe990, exit\_signal=0,}
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214458]}, 88) = 214458
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214459]}, 88) = 214459
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

\hookrightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214460]}, 88) = 214460
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214457, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0
```

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futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214458, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                         = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\  \, \rightarrow \  \, \text{child\_tid=0x79ba81dfc990, parent\_tid=0x79ba81dfc990, exit\_signal=0,}
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214461]}, 88) = 214461
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
\rightarrow stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214462]}, 88) = 214462
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214463]}, 88) = 214463
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214464]}, 88) = 214464
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214461, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214462, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214463, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214464, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214475]}, 88) = 214475
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,

stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214476]}, 88) = 214476
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
```

```
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214477]}, 88) = 214477
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
\  \, \rightarrow \  \, \text{SEM} \, | \, \text{CLONE\_SETTLS} \, | \, \text{CLONE\_PARENT\_SETTID} \, | \, \text{CLONE\_CHILD\_CLEARTID} \, ,
child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214478]}, 88) = 214478
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214475, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214476, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                          = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
\rightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214479]}, 88) = 214479
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214480]}, 88) = 214480
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214481]}, 88) = 214481
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214482]}, 88) = 214482
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214479, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214480, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214481, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
```

```
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\label{eq:child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit\_signal=0,} \\
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214483]}, 88) = 214483
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214484]}, 88) = 214484
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214485]}, 88) = 214485
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

\rightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214486]}, 88) = 214486
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214483, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214484, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214485, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214488]}, 88) = 214488
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214489]}, 88) = 214489
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
\hookrightarrow SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214491]}, 88) = 214491
```

```
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214492]}, 88) = 214492
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214488, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214489, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214491, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
\hookrightarrow SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214504]}, 88) = 214504
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
\hookrightarrow SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
\rightarrow stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214505]}, 88) = 214505
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214506]}, 88) = 214506
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214507]}, 88) = 214507
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214504, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214505, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214506, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214507, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
```

```
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\label{eq:child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit\_signal=0,} \\
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214508]}, 88) = 214508
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214509]}, 88) = 214509
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214510]}, 88) = 214510
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,

\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
→ {parent_tid=[214511]}, 88) = 214511
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214508, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214509, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214511, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214512]}, 88) = 214512
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214513]}, 88) = 214513
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
\  \, \rightarrow \  \, \text{SEM} \, | \, \text{CLONE\_SETTLS} \, | \, \text{CLONE\_PARENT\_SETTID} \, | \, \text{CLONE\_CHILD\_CLEARTID} \, ,
child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214514]}, 88) = 214514
```

```
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,
stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214515]}, 88) = 214515
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214512, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214513, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214515, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
\hookrightarrow SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

\rightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214516]}, 88) = 214516
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
\hookrightarrow SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
\rightarrow stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214517]}, 88) = 214517
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                        = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\hookrightarrow child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214518]}, 88) = 214518
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214519]}, 88) = 214519
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214516, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214517, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214518, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214519, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
```

```
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
\label{eq:child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit\_signal=0,} \\
stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214520]}, 88) = 214520
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214521]}, 88) = 214521
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214522]}, 88) = 214522
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|

→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

\rightarrow stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214523]}, 88) = 214523
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba835ff990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214520, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214521, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214522, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8)
                                       = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV |
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba81dfc990, parent_tid=0x79ba81dfc990, exit_signal=0,

stack=0x79ba815fc000, stack_size=0x7fff80, tls=0x79ba81dfc6c0} =>
\rightarrow {parent_tid=[214524]}, 88) = 214524
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba825fd990, parent_tid=0x79ba825fd990, exit_signal=0,
stack=0x79ba81dfd000, stack_size=0x7fff80, tls=0x79ba825fd6c0} =>
\rightarrow {parent_tid=[214525]}, 88) = 214525
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV|
\hookrightarrow SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,
child_tid=0x79ba82dfe990, parent_tid=0x79ba82dfe990, exit_signal=0,
stack=0x79ba825fe000, stack_size=0x7fff80, tls=0x79ba82dfe6c0} =>
\rightarrow {parent_tid=[214526]}, 88) = 214526
```

```
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSV_
→ SEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID,

→ child_tid=0x79ba835ff990, parent_tid=0x79ba835ff990, exit_signal=0,

\rightarrow stack=0x79ba82dff000, stack_size=0x7fff80, tls=0x79ba835ff6c0} =>
\rightarrow {parent_tid=[214527]}, 88) = 214527
rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0
futex(0x79ba81dfc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214524, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba825fd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214525, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

futex(0x79ba82dfe990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 214526, NULL,

    FUTEX_BITSET_MATCH_ANY) = 0

write(1, "Algorithm ended on 24 iterations"..., 33) = 33
write(1, "Algorithm was done in: 1403 ms\n", 31) = 31
munmap(0x79ba83ca7000, 200704)
lseek(0, -1, SEEK_CUR)
                                        = -1 ESPIPE (Недопустимая операция
→ смещения)
exit_group(0)
                                        = ?
+++ exited with 0 +++
```