



z/TPF V1.1

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Threads Support in z/TPF

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AIM Enterprise Platform Software
IBM z/Transaction Processing Facility Enterprise Edition 1.1.0

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Project Description – PJ31976/PJ31977

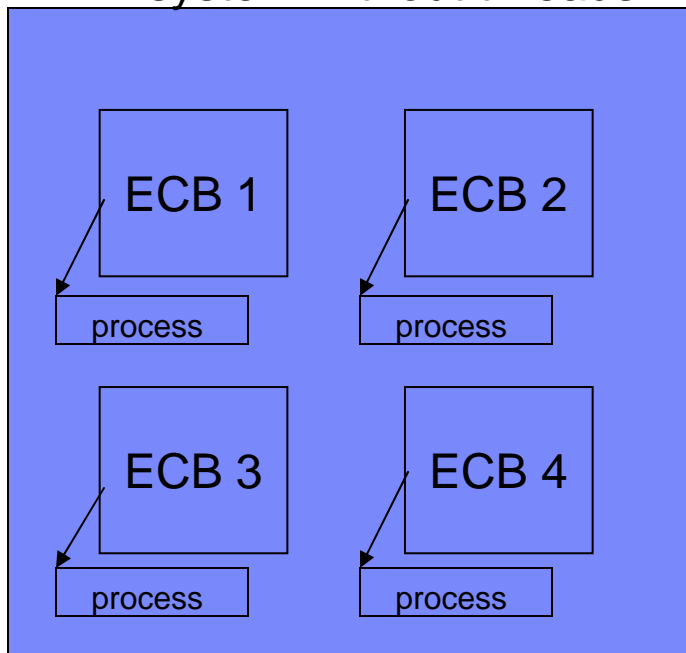
1. Enable z/TPF to run POSIX threads (pthreads)
2. Support majority of the standard
IEEE POSIX 1003.1c standard pthread API
(www.opengroup.org)

General Definition

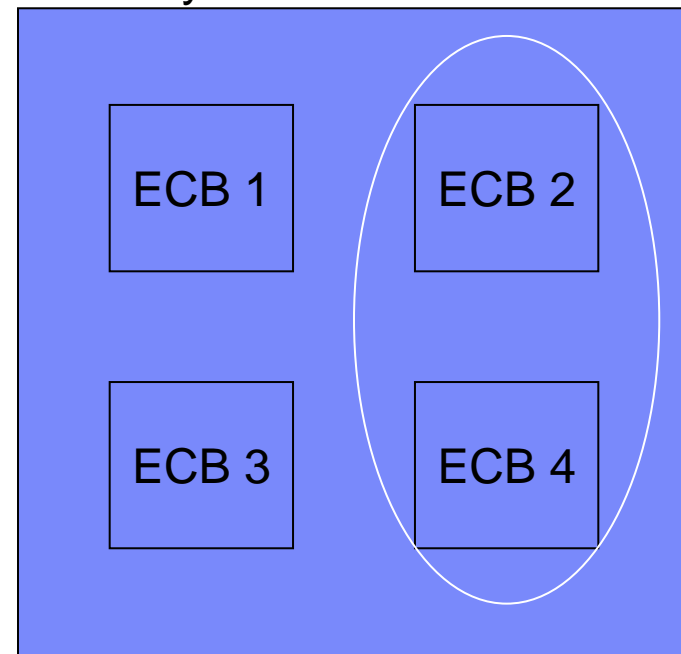
- A thread is a single sequential flow of control within a process.
- One or more threads run within a process.
- Threads share a sibling relationship meaning no thread has higher priority (unless specified) than any other thread in the process.

pthread on z/TPF

TPF system without threads



TPF system with threads



Thread ECBs within a process...

- Run concurrently
- Share a single address space
 - ECB heap, application stack, and static data
 - Not TPF unique blocks

Three ways to create a new ECB

1. TPF unique functions (`cremc`, ...) - ECB
2. `fork()` - Process
3. `pthread_create()` - Thread

Strategic Advantages

- Heavily used in the industry
- Open system standard APIs
- Application productivity improvement

Uses for threads on TPF

1. Ported code containing pthread calls
2. New code written by non-TPF application programmers (for example, college grads)
3. New code written where data needs to be shared.

Simple Code Example

```
#include <pthread.h>

void *hello(void *parm) {
    long id = (long) parm;
    printf("Hello from thread %ld\n", id);
}

void main(int argc, char* argv[]) {
    pthread_t threads[5];

    for (long i=1; i<6; i++)
        pthread_create(&threads[i], NULL, hello, (void *)(i));
}
```

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