

PseudoCode:

Main.cpp:

```
measure_latency()
{
    Initialize array 'data' of size (array_size / size_of_data_element)

    // Setup linked-list-like access pattern with steps
    For i from 0 to size of data:
        data[i] = (i + STEP) % size_of_data // Circular jump setup
    Start timer
    Initialize idx to 0 // Starting index
    For iteration from 0 to LARGE_NUMBER:
        // Access repeatedly for time measurement
        idx = data[idx] // Follow the linked-list-like access path
    Stop timer
    Calculate and print elapsed time and array size
}

measure_bandwidth()
{
    Initialize array 'data' of size s

    // Warm-up: Populate the array to ensure it's in memory
    For i from 0 to size of data:
        data[i] = i % 256
    Start timer

    // Repeat the memory write operations many times for accurate measurement
    For repeat from 0 to 100:
        For i from 0 to size of data:
            data[i] = i % 256 // Write operation
        Stop timer
    Calculate bandwidth as (Total data size written) / (Elapsed time)
    Print the elapsed time and calculated bandwidth
}
```

TLB_test.cpp:

Define constants:

PAGE_SIZE = 248 KB

NUM_PAGES = 16,384 (16 * 1024)

main()

{

Allocate an array of size (NUM_PAGES * PAGE_SIZE) bytes

// Step 1: Warm-up phase

For each page in NUM_PAGES:

Access the first element of each page to ensure pages are allocated

// Step 2: Measure access time with TLB misses

Start timer

For each page in NUM_PAGES:

Access the first element of the current page

// This forces a TLB lookup for each page accessed

Stop timer

Calculate and print the elapsed time

Free the allocated memory

}