CPU PERFORMANCE

EXP NO: 32

AIM: To write a C program to implement CPU performance measures.

ALGORITHM:

Step 1: start

Step 2:Declare the necessary variables: cr
(clock rate), p (number of processors), p1 (a copy of the number of
processors), i (loop variable), and cpu (array to store CPU times).

Step 3: Initialize the cpu array elements to 0.

Step 4: Prompt the user to enter the number of processors (p).

Step 5: Store the value of p in p1.

Step 6: Start a loop from 0 to p-1:

a. Prompt the user to enter the cycles per instruction (cpi) for the current processor.

b. Prompt the user to enter the clock rate (cr) in GHz for the current processor.

c. Calculate the CPU time (ct) using the formula: ct = 1000 * cpi / cr.

d. Display the CPU time for the current processor.

e. Store the CPU time in the cpu array at index i.

Step 7: Set max as the first element of the cpu array.

Step 8:Start a loop from 0 to p1-1:

a. If the CPU time at index i is less than or equal to max, update max to the current CPU time.

Step 9: Display the processor with the lowest execution time (max).

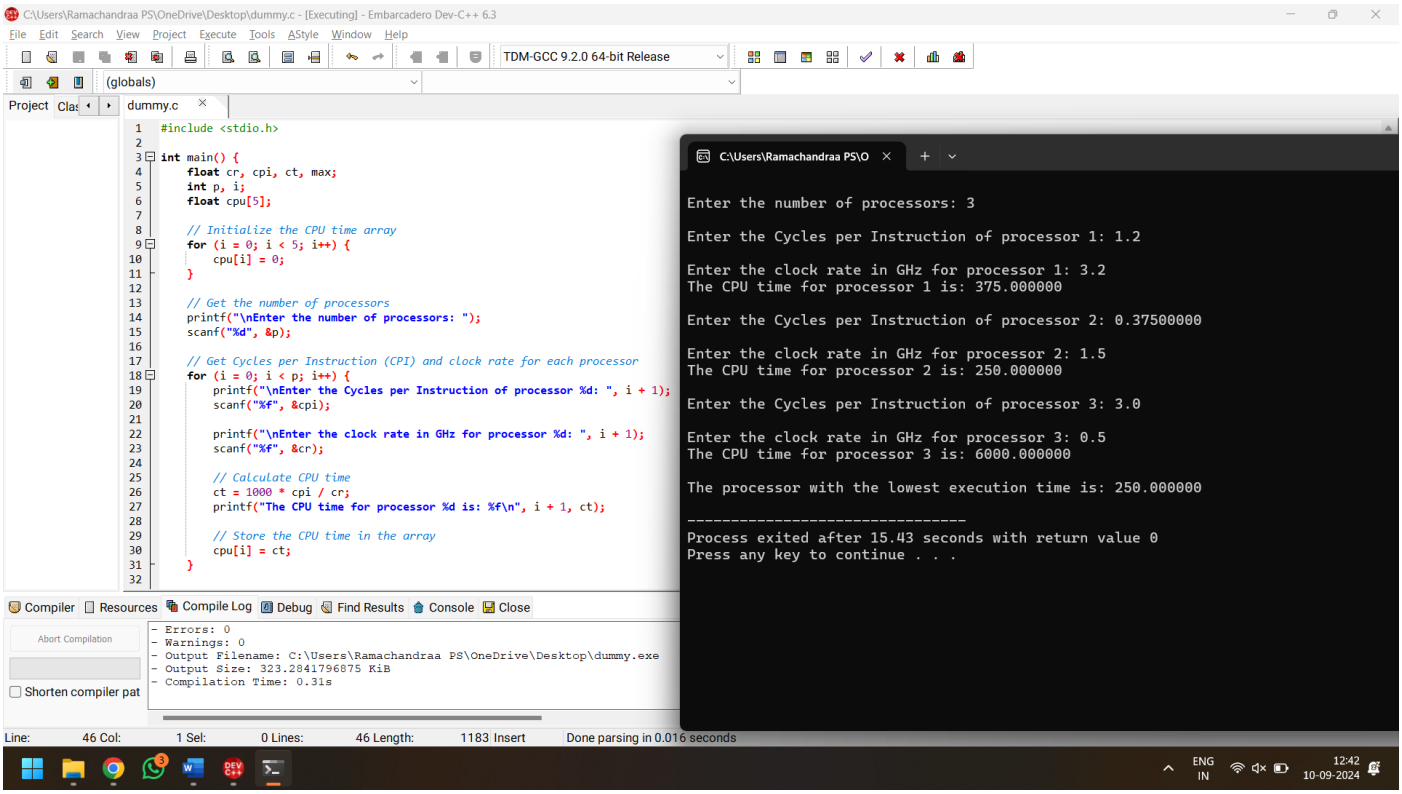
Step 10: Exit the program.

PROGRAM:

```
#include <stdio.h>


int main() {

   float cr, cpi, ct, max;

   int p, i;

   float cpu[5];


   // Initialize the CPU time array

   for (i = 0; i < 5; i++) {

      cpu[i] = 0;

   }


   // Get the number of processors

   printf("\nEnter the number of processors: ");

   scanf("%d", &p);


   // Get Cycles per Instruction (CPI) and clock rate for each processor

   for (i = 0; i < p; i++) {
```

```
        printf("\nEnter the Cycles per Instruction of processor %d: ", i + 1);
        scanf("%f", &cpi);

        printf("\nEnter the clock rate in GHz for processor %d: ", i + 1);
        scanf("%f", &cr);

        // Calculate CPU time
        ct = 1000 * cpi / cr;
        printf("The CPU time for processor %d is: %f\n", i + 1, ct);

        // Store the CPU time in the array
        cpu[i] = ct;
    }

    // Find the processor with the lowest execution time
    max = cpu[0];
    for (i = 1; i < p; i++) {
        if (cpu[i] < max) {
            max = cpu[i];
        }
    }

    // Output the processor with the lowest execution time
    printf("\nThe processor with the lowest execution time is: %f\n", max);

    return 0;
}
```

INPUT & OUTPUT:



RESULT: Thus, the program was executed successfully using DevC++.