

MCR10110

Fix instr_speed to Correctly Display MIPS Values ≥ 10

Revision 1.1

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1 Problem Description

The `instr_speed` program measures the speed of some instructions and reports the average MIPS value for them. While it displays average MIPS values < 10 correctly, it shows values ≥ 10 using exponential notation. The output is ugly on very fast machines.

It is obvious that MIPS values ≥ 10 were not expected when this program was written.

The ticket for this issue is <https://multics-trac.swenson.org/ticket/66>

2 Proposed Fix

The issue stems from using an `ioa_` control string of “`^5.3f`”. The leading 5 indicates the total length of the formatted floating point value. Since 3 digits follow the decimal point in formatted values, and the leading 5 includes the decimal point, only 1 digit to the left of the decimal point is allowed.

The fix is trivial – change the leading 5 to a 6, allowing for a MIPS value of up to 99.

The proposed change is shown below:

```
A154          call ioa_ ("~/MIPS AVE = ^5.3f, TIME AVE = ^d, ^d NANOSECONDS",
      mip_rate, divide (time_total, successes, 1
      \c7, 0), nanos);
Changed by B to:
B158          call ioa_ ("~/MIPS AVE = ^6.3f, TIME AVE = ^d, ^d NANOSECONDS",
      mip_rate, divide (time_total, successes, 1
      \c7, 0), nanos);
```

3 Testing

Testing involves running the before and after change programs and comparing the output. Since I don't have a machine that can exceed 10 MIPS when running Multics under the DPS8M simulator,

I will simulate a ≥ 10 MIPS value by using probe to change the value of `mip_rate` from whatever its value is to a number ≥ 10.0 . I'll make sure the output is correct.

4 Documentation

There are no documentation changes required for this change.

5 Version History

2021-12-24	1.0	Initial version of the MCR.
2025-02-11	1.1	Fixed typesetting of circumflex (^) character.