

# Comparison of macPro processing speeds

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## 1 Environment

A MacPro 2013 and 2019 were compared for single thread processing speed. For the vast majority of computing performed around the world this is the mode of operation of the computer. Only specialised applications use multi-cores and graphical processing units. Although the MacPro is aimed at those specialist applications, it can also be used for common computing. This aspect of the MacPro receives little attention. The trial reported here gives some idea of how the 2019 MacPro compares with the 2013 MacPro in standard processing.

The standard processing used here was compiling a selection of 4 compilers and their libraries from the open source GCC distribution from GNU. The trials were performed using Linux dual booted on the MacPro.

The two MacPros had these common features:

- Mac numeric keypad keyboard
- HDMI cable connecting display to macPro
- Samsung HD 28" display
- logged in as root
- gcc 9.2.0 used as compiler
- SSD had a /tmp occupying a full partition
- /tmp contained gcc tar and unpacked contents
- all files were stored in the /tmp directory
- no GUI was used
- Debian bullseye testing Linux was the OS used
- it is believed processing was performed by 1 core/thread

Each MacPro also had differences. The 2019 MacPro had 28 cores and operated at a base line frequency of 2.5MHz turbo-boosting to 4.5MHz. Processing was performed from a 1TB SSD connected by USB C. The 2013 MacPro had 6 cores and operated at xxMHz and turbo-boosting to xxxMHz. The processing was performed out of the internal MacPro SSD but in a separate partition to OS X. In this trial only one core/thread was in use.

## 2 Trial details

The file processed on both macPros was `gcc-9.2.0.tar.xz` obtained from `ftp.gnu.org:/gnu/gcc` The file was unpacked, then the configuration command:

```
./configure --prefix=/usr/local --disable-multilib
--enable-languages=c,c++,fortran,brig
```

was given.

Timing started when the:

```
make
```

command was executed, and stopped when the resulting processing stopped. As such, gcc was compiling itself, it's libraries and associated language compilers from source.

All commends executed during the process were echoed on the display. Copious amounts of text was displayed. This is the reason for mention of the HDMI cable and display above.

The trial on the MacPro 2019 was repeated twice.

## 3 Results

Computer	Start		End		Duration	
	normal time	24 hour clock	normal time	24 hour clock	hr:min	min
macPro 2013	5:20pm	1720	0:34am	0034	7:14	434
macPro 2019	3:15pm	1515	5:06pm	1706	1:51	111
	8:05am	0805	9:57am	0957	1:52	112

This data suggests the 2019 MacPro is 3.9 times as fast as the 2013 MacPro for single core processing.

Two other things worth noting. When running in a room-space having a temperature of 40°C the 2019 MacPro casing remained cool to the touch while the 2013 MacPro casing running in that same environment was very warm to the touch, particularly towards the top of the casing. That case heating was considerably less than on a Mac-mini 2012 running in the same environment. The other note is although the 2013 MacPro was quiet, the MacPro 2019 was even more so. The run light on the top of the 2019 MacPro is thus a good provision.