



C, Processes

CS 2130: Computer Systems and Organization 1
November 21, 2025

Announcements

- Homework 9 due Monday on Gradescope
- Quiz 9 opens today, due Sunday on Gradescope
- Lab 11 next Tuesday (can check off for full credit by 12/5)

Processes

Process - approximately what we think of as a “running program”

- Operating System effectively has a giant array of processes started since computer turned on
- Try `ps -A`
- Has access to all memory (but only its own!)
- Operating System maintains data structure about each process
 - What program is running, who ran it, when it started, ...
 - Array of “file like objects”

Processes

stdio.h manual page

printf

```
int printf(const char *format, ...);  
int fprintf(FILE *stream, const char *format, ...);
```

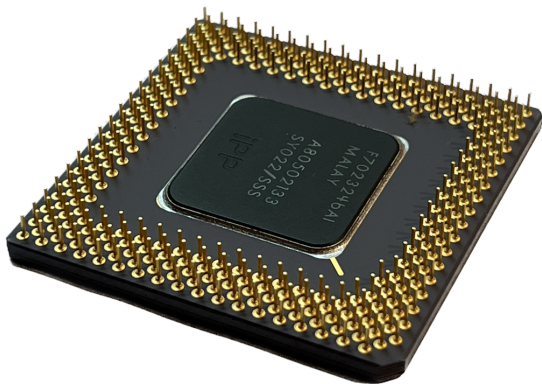
Could you write `printf`?

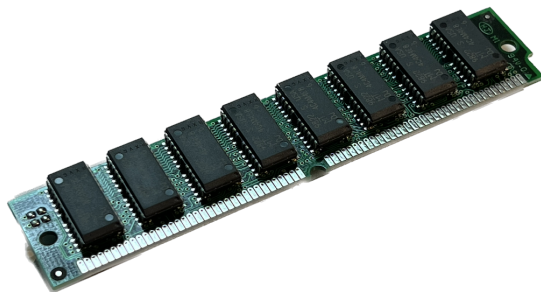
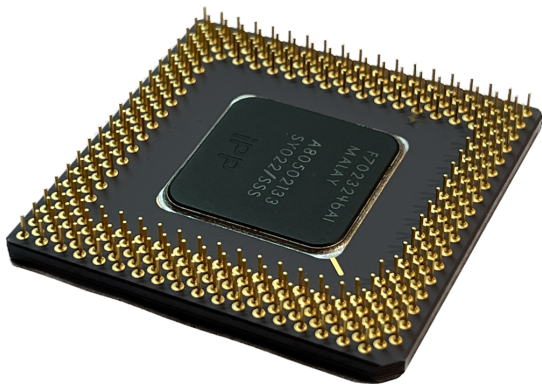
printf

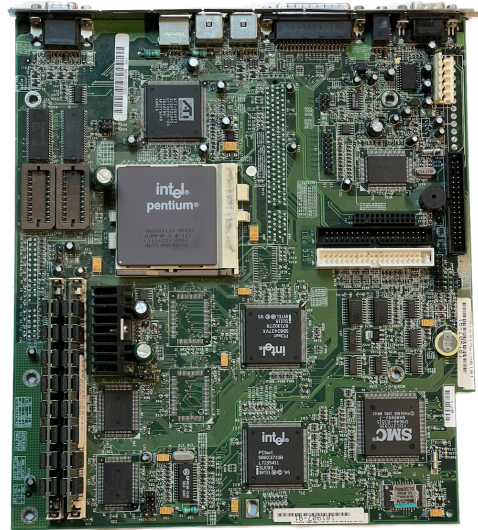
```
int printf(const char *format, ...);
```

```
printf("hi: %s and %d\n", mystr, myint);
```

Backing up...







Syscalls

write

`write:`

- Argument checking
- `syscall`
- Return value checking
- `ret`

Using `write`