Processes and System Calls

CS 2130: Computer Systems and Organization 1
December 1, 2025

Announcements

- Homework 10 available, due next Monday
- Lab 12 tomorrow
- Final exam: 7pm Dec 12, Wilson 301 (different room!)
  - Cumulative, see practice tests
  - Exam conflict form in email

Could you write `printf`?

printf

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

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

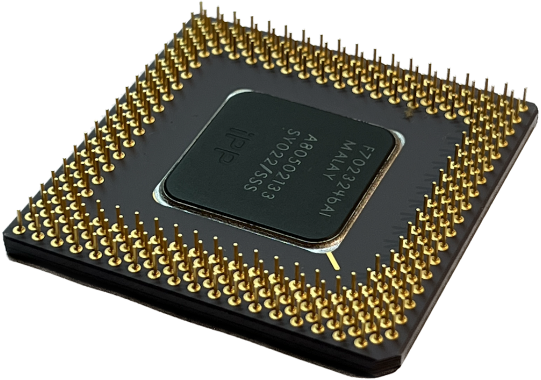
`stdio.h` manual page

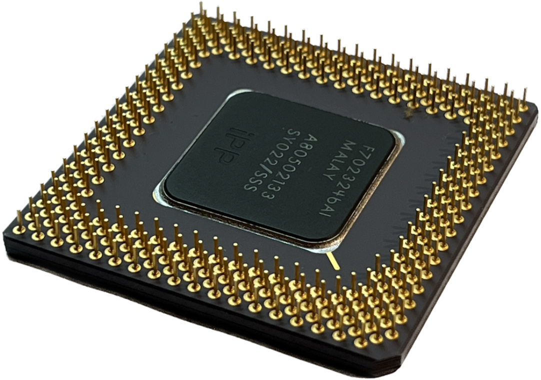
printf

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

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

Backing up…

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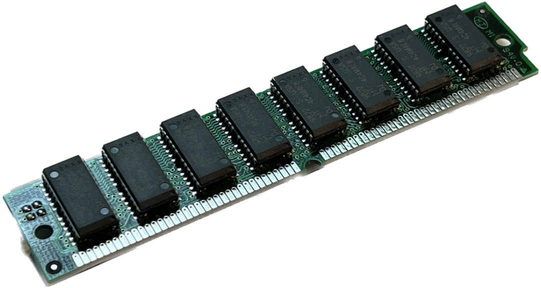

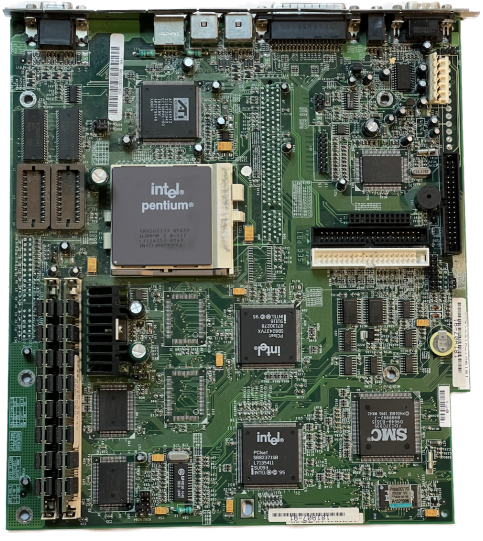
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Syscalls

write

`write:`

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

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

Using `write`