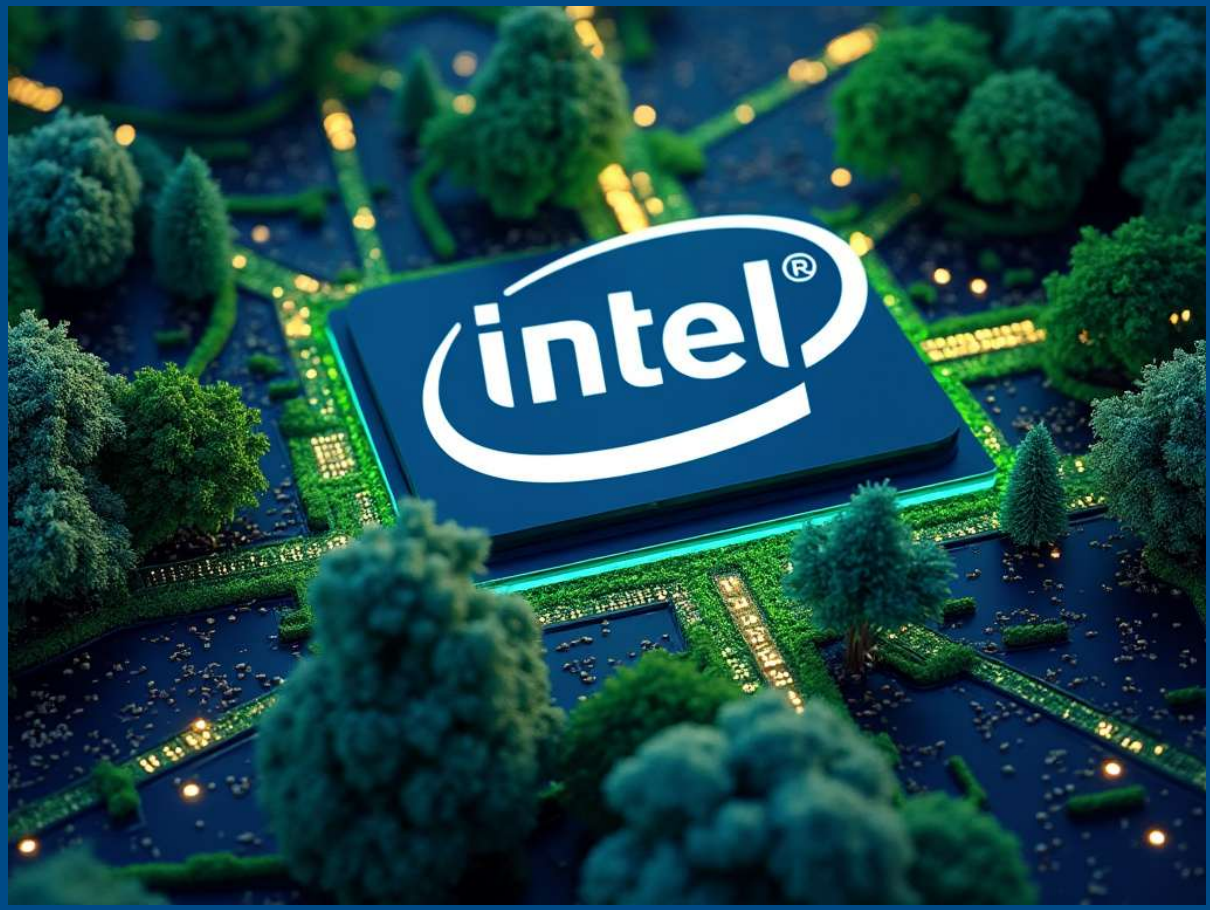
Technical Internship Report

Vince Davis
FSO Production Team



intel

MECOP

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Hi I'm Vince!









About Me:

- Worked my way up from a lead technician, to a process engineer, to a license administrator in the cannabis industry prior to returning to college to pursue mechanical engineering (updated laws required a B.S. in M.E).
- Started at LCC and transferred into the Honor's College at OSU as a Junior in 2022, choosing to specialize in Materials Science & Mechanical Engineering.
- My cat Yin was rescued from the forest as a kitten in 2017 and has been my engineering assistant ever since.
- I trained Shaolin Kung Fu for 3 years, Wing Chun for 2 years, and Tai Chi Chuan for 3 years under living legend David Leung.
- Recently made a horrible financial decision and decided to get into Warhammer 40K.
- I engineer a great raspberry cheesecake.
- I used to run a start up that produced chocolate coated pretzels.
- I run an online gaming forum that has grown from 75 to 2000+ members in the last year.

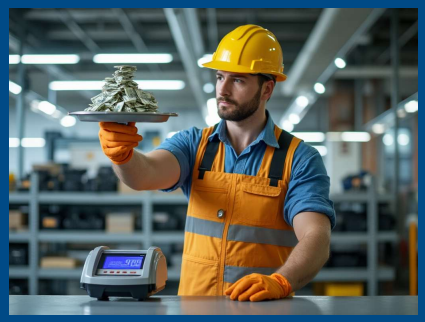
Aloha from Intel!

Intel's history is marked by its pivotal role in the development of the PC industry, its technological innovation, and its ongoing efforts to adapt to the evolving tech landscape.

- **1971**: Intel introduced the world's first microprocessor, the Intel 4004. This chip was a groundbreaking development, integrating all the components of a computer's CPU onto a single chip of silicon.
- **1970s - 1980s**: Intel expanded its microprocessor technology. The 8086 microprocessor launched in 1978 became the basis for the x86 architecture, which remains a standard in personal computers today. Intel's partnership with IBM in the early 1980s for the IBM PC helped cement Intel's position in the personal computer market.
- **1980s - 1990s**: Intel continued to innovate with the introduction of the 80386, 80486, and then the Pentium processor in 1993, which became synonymous with personal computing. Intel's "Intel Inside" campaign began in 1991, promoting brand recognition directly to consumers.
- **2000s - 2010s**: Intel faced competition from AMD and ARM architectures, leading to a focus on multi-core processors and advancements in mobile computing with Intel Atom. Intel also pushed into data centers, networking, and IoT (Internet of Things) with technologies like Intel Quark.
- **2010s - 2020s**: Intel has been grappling with manufacturing challenges and delays in new process technologies, leading to a strategy shift under CEO Pat Gelsinger (re-joined in 2021), who announced plans to open up Intel's manufacturing to external customers (IDM 2.0 strategy).

Benefits of WORKING with INTEL



Wages, Working Hours, & Benefits

- Free Coffee
- Salaried at approximately 60k / year
- Medical, Dental, Vision Benefits
- 40 Hours / week
- Discounted Stock Options
- Paid Holidays & Vacation Time
- Paid Bonding Leave (for when babies happen)
- Plethora of deals from many other companies who recognize Intel

Working hours were largely up to me to determine, as long as I was present for team meetings at 7:35 am.

Projects

Metrology Tool Analysis

Scope:
Determine a process for quantifying the number of Metrology Tools needed based on main process tool usage data and high volume manufacturing standards for incoming wafers to be processed, for one specific toolset. Then, generalize the process in a documented procedure & template and use it to quantify the Model of Record values for the other tools.

Skills Employed:

- Math
- Excel
- Technical Writing
- Professional Communication
- SQL Language & Queries
- Reading Comprehension

Weekly Team Member Coverage:

- Incoming Projections
- Tool Count Update
- WIP vs Commit Report

Scope:

Cover the preparation of three reports on a weekly/semi-weekly basis for a member of the IE team who went on bonding leave shortly after the start of internship. This involved engaging the team member, learning about SQL queries and employing them, and manually manipulating multiple data sets in massive, multi-linked excel sheets.

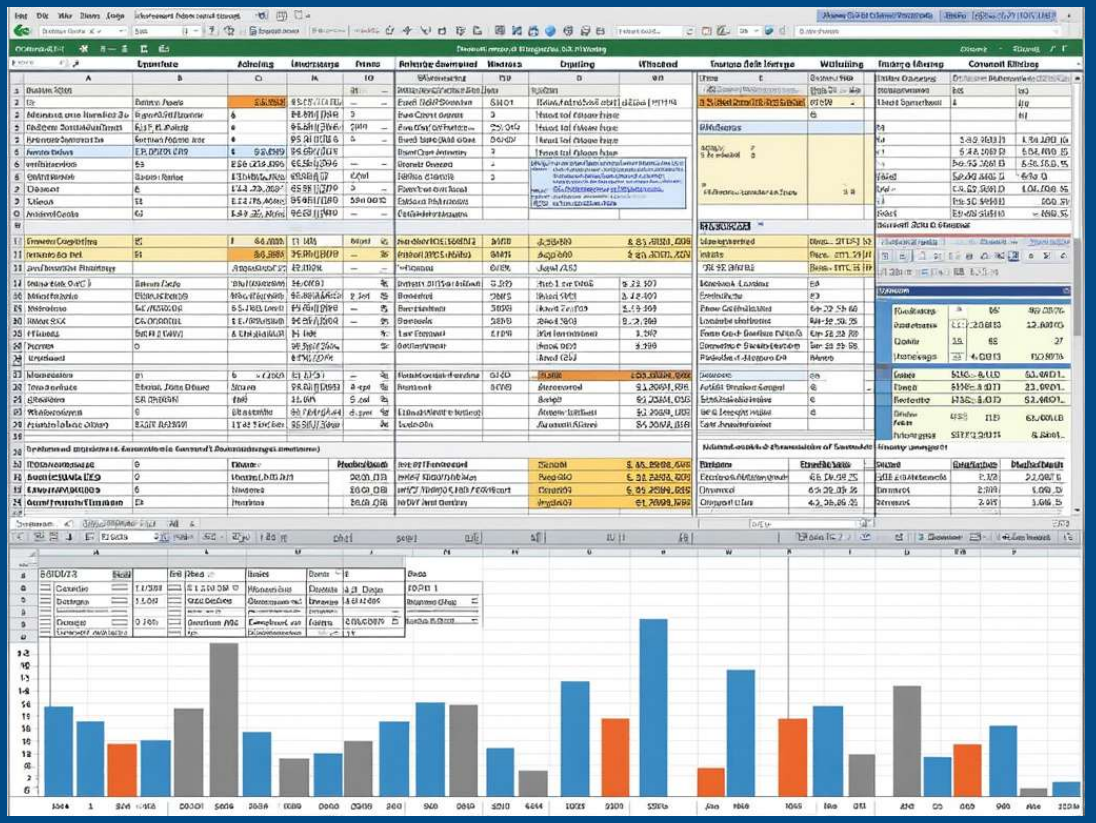
Skills Employed:

- Math
- Excel
- Technical Writing
- Adaptability
- SQL Language & Queries
- Manual data Manipulation

Supply Demand Aggregate (SDA) Documentation

Scope:

Document the complex SDA process carried out by my mentor Holly Lucy each quarter so it can be performed by other team members if necessary. This involves manually manipulating large data sets, SQL data pulls, and a deep comprehension of the business*.



Skills Employed:

- Excel
- Technical Writing
- Video editing
- Teamwork
- SQL Language & Queries
- Manual data Manipulation

*Documentation of the SDA process is more than eight multi-page sections for steps alone.

Build & Burn Weekly Update

Scope:
Monitor projected incoming & outgoing wafers & use historical performance data to prepare useful capacity projections of Fab 15 and Fab 24 to support decision making for an aggressive push to lower inventory before end of quarter. Report out in weekly management meeting.

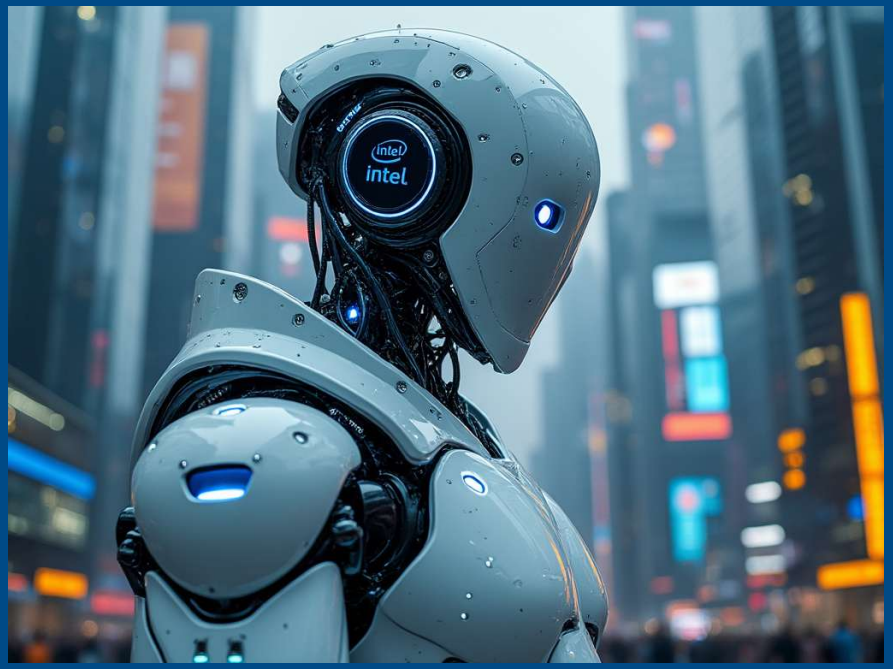
Skills Employed:

- Excel
- Manual Data Manipulation
- Group Presentation

Other Tasks:

- Running Wednesday Group Huddle
- Lot Tracking Report
- Making SQL Queries
- Taking Meeting Notes
- Collecting IE Module Review ARs

Scope:
Tasks included facilitating the production team Wednesday group huddle, crafting an SQL report to track specific product lots & report various details of interest, taking meeting notes during Module Task Force meetings, Collecting Action Requests from review meetings, and various SQL queries on request.



Skills Employed:

- Excel
- Manual Data Manipulation
- SQL Language & Querying
- Group Presentation

Report Structure:

- Bob Carnahan (Factory Manager)
  - Nicole Ota (Production Manager)
    - Holly Lucy & the IE Team (Production IEs)
      - Vince Davis (Production IE Intern)

Modules Engaged to Complete Work:

- Lithography
- Metrology
- Backside Grind & Metallization
- Thin Films
- Dry Etch
- Wet Etch
- Plating
- Cure & Reflow

Skills & Learning:

- SQL Language Comprehension & Query Building
- Advanced Excel Functions
- Technical Communication
- Manual Data Manipulation
- SQL Script Automation
- Best Practices for Excel
- Company Culture
- Group Presentation
- Corporate Culture

Notable Courses Useful to this Internship

- ENGR 100, not the one I took myself, but one that I served as a TA for. The professor showed me a function in excel that I ended up employing on my primary project.
- ME 316, Mechanics of Materials provided a solid foundation to comprehend the stress & material strength related aspects of the microchip manufacturing process.
- MATS 321, Introductory Materials Science gave me a great background for comprehending defects.
- WR 327 H, Technical Writing gave me a lot of practice in communicating technical detail which was a huge boon since much of my work required working with other modules.

"Whatever has been done, can be outdone."

—Gordon Moore, Intel Developer Forum, San Francisco, September 30, 1997.

Thank you for you time!