

MECOP Presentation

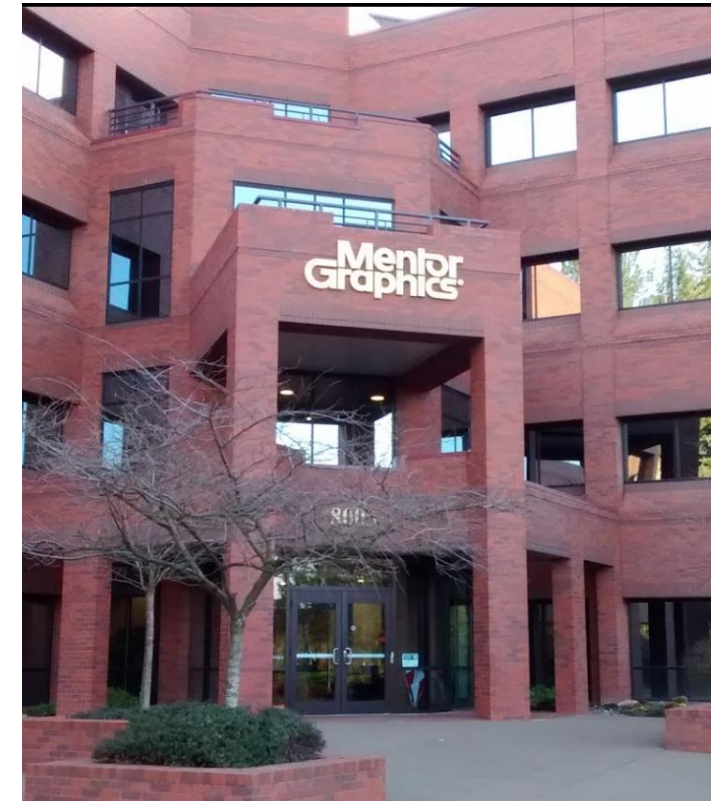
Gregory Sanchez

Software Developer Intern
D2S Calibre Product Dev - Mask Synthesis
Calibre nmOPC

06 September 2019

About Mentor

- Mentor Graphics was founded in 1981 by Tom Bruggere, Gerry Langelier and Dave Moffenbeier
- Headquarters in Wilsonville, OR, USA
- A leader in Electronic Design Automation
 - Virtual Prototyping
 - High-Level Synthesis
 - Functional Verification
 - IC Design/Manufacturing/Testing
- Additional Products in
 - CAE Simulation and Test
 - Automotive
 - Embedded Systems



Hours and Wages

■ Hours

- 40 Hours per week
- Flexible Hours

■ Wages / Benefits

- \$[redacted]/hour
 - Competitive pay (above MECOP minimum)
- Able to work from home
- Casual Dress code
- Overtime not allowed
- Contracted by Acara Solutions

Reporting Structure

Org Chart for Gregory Sanchez



MECOP Intern
D2S Calibre Product Dev - Mask
Synthesis
503-685-1561
8213-1561
✉

Manuel, Ethan

Sargent, Vicky

Sawicki, Joe

Rey, Juan

Torunoglu, Ilhami

Lippincott, George

Sanchez, Gregory

Projects

- cbuild
- CERI
 - Commenting System
 - Transcript Table of Contents
 - QA Variable Names
 - Latest Page
 - Baseline Auto Mode
 - ceri fetch
 - Gcov
- Jiraffe

cbuild

■ cbuild script conversion

- This script builds Calibre from a source code directory
- csh script → python script

```
7 : rm -f calibre_version.C; echo '#define DYNAMIC_RLS_DATE "'date'"' >> calibre_version.C; echo '#define BUILD_DATE_PLUS_TWO_WEEKS "'src++ -02 -L/net/calintern12/scratch1/gsanchez/d_storage/work_dwa3/ic/ic_superproj/aoi/Mgc_ (etc...) -o calibre ...  
18 : NO STRIP CALLED calibre  
-rwxr-xr-x 1 gsanchez calngr 256184804 Aug 16 10:40 /home/gsanchez/dwa/work_dwa3/ic/lv/aoi/localv/calibre  
cbuild complete -- elapsed time: 00:19
```

■ Improving the fast cbuild

- The old cbuild
 - First builds certain libraries then links the command to run Calibre
- The new cbuild
 - Removed any unnecessary header file dependencies in the makefile
 - Did both of the old cbuild steps in parallel
 - Improved run time by 4-30 seconds

```
Shortening makefile: Found 83546 h files not in src or Dsrc and 35 in src or Dsrc  
-rwxr-xr-x 1 gsanchez calngr 256184804 Aug 16 10:42 /home/gsanchez/dwa/work_dwa3/ic/lv/aoi/localv/calibre  
cbuild complete -- elapsed time: 0m 14.72s
```

CERI

■ Working with the CERI team (Common Engineering Regression Infrastructure)

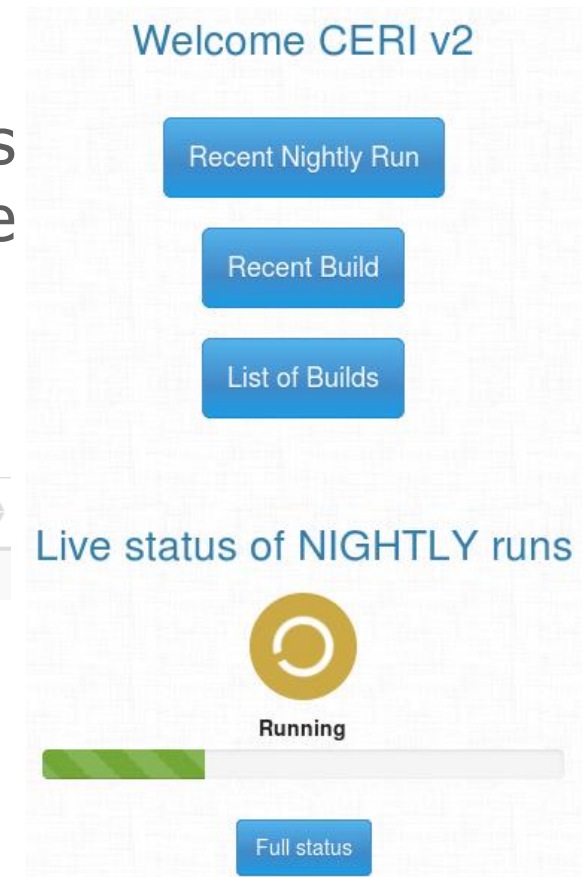
— Internally used platform to manage and run engineering tests automatically on a periodic(nightly, weekly etc) basis to help continuous code development of complex software

— Many improvements to the web based and terminal side

- Adding a commenting system for tests

| DATE | CLICKBUILD | NEW FAIL | TESTCASES | COMMENTS |
|----------------|-----------------|----------|--|--|
| 2019-08-14 / 1 | 2019-08-13_1817 | 1 | hier/dr1349201_ml_mpopc_feature_only | gsanchez: Adding a new comment! Edit |

- Table of contents for test transcripts
 - Recursively parses through 100-300000+ lines of output
- New ceri fetch command
 - Fetches an old test case and stores it in a location to run again
- Implementing code coverage with ceri runs



Jiraffe

■ Background: ClearQuest

- ClearQuest is a bug/enhancement tracking system
- CQ is being discontinued next year and Jira is the new CQ



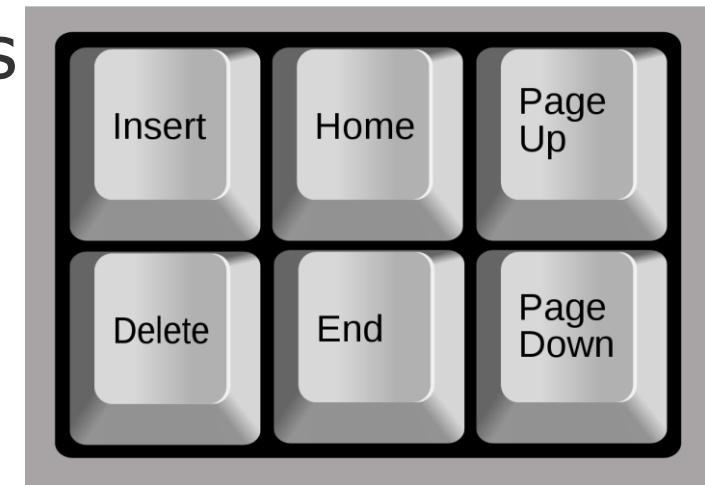
■ Jiraffe

- Cq_dr.cgi perl script conversion
- Easy way to query for Defect Records or Enhancement Requests
- Perl script with ~5000 lines of code
- Converted the file into python with the new JIRA service
- Cleaned up ~2000 LOC

| Issue | Issue Type | Summary | Status | Reporter |
|-------------------------|-------------|---|----------|-----------|
| ISTD-68 | New Feature | Update cq_dr.cgi Testing Bench | Closed | Gregory S |
| ISTD-67 | Task | Investigate setting up GCOV for run_regtest | Open | Gregory S |
| ISTD-66 | New Feature | Modify nanotree list to separate tsmc nanotrees from non-tsmc | Resolved | George L |

What I Learned

- Be proactive
- New programming language: Python
- CVS version control system
- OPC Fundamentals
- Working with others in different locations
 - California and Russia
- Office etiquette
- Many Linux tools
- Using the home/end/delete key



Useful Courses

- CS 160 series
- CS 290 – Web Development
- CS 344 – OS I
- CS 361/362 – Software Engineering 1/2
- ECE 375 – Computer Organization and Assembly Language

Overall Impressions

- Amazing work environment
- Everyone one is friendly, knowledgeable and eager to help
- Beautiful Campus
 - Large and good cafeteria
 - 24/7 gym access at Wilsonville Office
- Lots of outside activities to attend (events, sports, etc.)
- Given lots of freedom on code creation
- Flexible work hours was great
- Weekly Friday hangout sessions (Friday Afternoon Club) with served food. Great way to end the week.



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