2017 Electronic Design

SALARY & CAREER REPORT:

All About the Right Place, Right Time

For electrical engineers today, productivity is power. Asked to do more than ever with fewer resources, engineers with a broad range of expertise can command higher salaries, compete for limited jobs, and carve out a place in an industry interwoven with outsourcing.

That was a major takeaway from 2,000 electrical engineers surveyed by Electronic Design. In general, engineers are in high spirits even though employers continue to tighten their belts. They still take satisfaction from the technical challenges of the profession, where it is increasingly hard to plant professional roots.

Not everything, however, is staying the same. Around 37% of survey respondents said that their companies plan to hire more engineers in the next year, up from 29.5% from last year. Separately, many engineers are skeptical that new hires will stick around long.

"We can't get people to stay," said one respondent. Others added that employers are hiring young engineers who earn lower salaries but need additional training. At the same time, they are looking for those with broad expertise in fields like analog and systems engineering—a scarce commodity these days.

As electrical engineering companies continue to merge and trim headcounts, it is not clear that more jobs are available. The Bureau of Labor Statistics says that there were 315,900 jobs for electrical engineers in 2015, and that the profession would see zero growth in the United States in the next seven years.

Nonetheless, companies are willing to pay well for the right engineering talent. This year, the average base salary for electrical engineers dipped to $104,996 from $106,250 in 2016. That is still higher than the $99,514 that engineers earned on average in 2015.

Yet as salaries continue to rebound from the economic recession, engineers are grappling with lukewarm attitudes from employers. This year, only 31.3% of respondents feel that their company is more focused on employee retention than last year, down from around 55% of engineers in 2011.

"My employer is hoping to improve their value proposition for young people," said one engineer who filled out the survey. "But they need to update their benefits to better align with the shift from one employer over a career to multiple employers over one's working life."

Something is wrong somewhere, though. Around 49% of respondents said that their companies are having difficulty filling open positions. The most elusive engineers are in analog and software, which 38.7% and 41.1% of engineers said that their companies were struggling to hire, respectively.

At the same time, almost nine out of every 10 engineers would recommend the profession to young people. They say that a fulfilling career await talented engineers who survive an education system not geared for them, as well as the side effects of an imperfect work visa program in the United States.

Around 51% of respondents believe an engineering shortage exists, but others contend that employers are being too picky. And engineers—who work around 54 hours per week in and out of the office—are still strapped for time to learn new technologies, which is still the top concern for most engineers.

One manager echoed a common—and almost contradictory—observation about the job market: "We need generalists with lots of experience in just the right specialties."
THE TYPICAL ENGINEER

AVERAGE COMPENSATION
$114,796

- AVG SALARY $104,996
- AVG BONUS $4,249
- AVG STOCK OPTIONS $2,809
- AVG OTHER SOURCES $2,742

ACTIVELY SEEKING A NEW POSITION

- Yes 9.5%
- No 28%
- Open to it 30.2%

EMPLOYMENT OUTLOOK

- Scaling back 8%
- Increasing 37%
- Staying the same 55%

YEARS IN THE PROFESSION

- Less than 1 year 2.2%
- 1-4 years 5.8%
- 5-9 years 5.9%
- 10-14 years 6.4%
- 15-19 years 8.7%
- 20-24 years 10.9%
- 25-29 years 13.5%
- 30-34 years 16.5%
- 35-39 years 12.6%
- 40 years or more 17.5%

WORK LOCATION

- California 19.0%
- Massachusetts 6.1%
- Illinois 5.1%
- Texas 5.1%
- Florida 4.8%
- Michigan 4.2%
- New York 3.7%
- Maryland 3.2%
- Ohio 3.1%
- Arizona 3.1%

YEARS AT PRESENT COMPANY

- Currently unemployed 2.0%
- Less than 1 year 8.3%
- 1-4 years 26.5%
- 5-9 years 19.6%
- 10-14 years 11.3%
- 15-19 years 10.4%
- 20-24 years 5.8%
- 25-29 years 4.7%
- 30-34 years 3.9%
- 35-39 years 2.0%
- 40 years or more 3.5%
WORK VISAS

DOES YOUR COMPANY HIRE EMPLOYEES ON H1-B VISAS?

🤔 YES 34.2%
 ├ NO 65.8%

DOES H1-B HURT EMPLOYMENT OPPORTUNITIES FOR ELECTRICAL ENGINEERS IN THE UNITED STATES?

🤔 YES 53.7%
 ├ NO 46.3%

"It reduces the incentive for companies to hire fresh engineers out of school with little experience. These junior engineers may not get a chance for that first job experience for a long-term career in electrical engineering."

"It can be abused but I do not think it generally is, in electrical engineering at least. Lots of international companies have approached me for jobs, highlighting the fact that engineering is a global profession. There are little to no national borders that the field respects."

Will your company look to apply for more H1-B visas over the next year if the system remains the same?

Increase 8%
Decrease 4%
Same amount 14%
Don't know 75%

Do you personally feel threatened by H1-B visas?

YES 12%
NO 88%

Would you support measures from the Trump administration or Congress to reform how the H1-B system works?

YES 64%
NO 36%
### Should there be a stronger focus on STEM at an earlier age?

- Yes: 49.8%
- No: 50.2%

### Are engineering students learning the right skills?

- Strongly Agree: 55.4%
- Strongly Disagree: 44.6%

### How do you continue your engineering education today?

<table>
<thead>
<tr>
<th>Education Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminars</td>
<td>59.6%</td>
</tr>
<tr>
<td>Webcasts</td>
<td>69.1%</td>
</tr>
<tr>
<td>Engineering videos</td>
<td>59.5%</td>
</tr>
<tr>
<td>White papers</td>
<td>65.1%</td>
</tr>
<tr>
<td>Trade shows/conferences</td>
<td>46.3%</td>
</tr>
<tr>
<td>Engineering textbooks</td>
<td>49.7%</td>
</tr>
<tr>
<td>E-books</td>
<td>40.5%</td>
</tr>
<tr>
<td>Engineering/technology publications</td>
<td>66.4%</td>
</tr>
<tr>
<td>Engineering/technology publication websites</td>
<td>54.9%</td>
</tr>
</tbody>
</table>

### Should companies provide more training to entry-level engineers, or only hire engineers that have learned necessary skills?

- Yes: 92.3%
- No: 7.7%

### What forms of education does your company reimburse you for?

- Trade shows/conferences: 55.4%
- Seminars: 52.1%
- College tuition: 45.6%
- Engineering textbooks: 32.8%
- Online training: 26.6%
- Certifications: 26.1%
## Annual Salary & Career Report

### BY INDUSTRY

<table>
<thead>
<tr>
<th>Industry</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICs and semiconductors</td>
<td>$134,456</td>
</tr>
<tr>
<td>Components and subassemblies</td>
<td>$118,714</td>
</tr>
<tr>
<td>Computer systems/boards/peripherals/software</td>
<td>$118,714</td>
</tr>
<tr>
<td>Avionics/marine/-space</td>
<td>$117,917</td>
</tr>
<tr>
<td>Communications systems/equipment</td>
<td>$117,889</td>
</tr>
<tr>
<td>Government/military</td>
<td>$112,871</td>
</tr>
<tr>
<td>Research &amp; development</td>
<td>$102,077</td>
</tr>
<tr>
<td>Power design</td>
<td>$101,965</td>
</tr>
<tr>
<td>Software</td>
<td>$101,135</td>
</tr>
<tr>
<td>Consumer products</td>
<td>$100,220</td>
</tr>
<tr>
<td>Test and measurement equipment</td>
<td>$100,016</td>
</tr>
<tr>
<td>Industrial controls systems/equipment</td>
<td>$94,130</td>
</tr>
</tbody>
</table>

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Power MOSFETs:
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  Optimized for:
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Does your company outsource?

46% NO
54% YES

WHERE ARE JOBS GOING?

- United States
- Canada
- Pacific Rim
- South America
- India
- China
- Mexico
- Europe

Reasons for outsourcing

- To save money: 47.1%
- Lack of in-house talent/specialty skills: 43.4%
- To put existing resources to better use: 33.7%
- To save time: 30.5%
- Ease workload: 25%

Work being outsourced

- Software engineering/development: 49.4%
- Design: 37.5%
- Manufacturing/assembly: 35.1%
- PCB layout: 30.8%
- CAD/CAE: 22.6%
- Software verification/test: 21.4%
- R&D: 20.8%
- Design verification: 18.0%
- Final test: 13.6%
- Drafting: 10.3%
- Incoming inspection: 5.0%
Is it important to have a diverse engineering workforce, with women and minority engineers?

- Yes: 68%
- No: 32%

Is there an engineering shortage?

- Yes: 48.3%
- No: 51.7%

Does your company track employee diversity in either a public or internal report?

- Yes: 40%
- No: 60%

Is your organization having difficulty finding qualified candidates for open engineering positions?

- Yes: 52%
- No: 48%

For which engineering specialties are you having trouble hiring?

- Analog
- RF
- Power
- Digital
- Embedded
- Software
- Mechanical Design
- Systems Engineering
HOW SATISFIED ARE YOU IN YOUR JOB?

- 20% Extremely Satisfied
- 32% Very Satisfied
- 37% Satisfied
- 9% Not Very Satisfied
- 2% Not At All Satisfied

MOST IMPORTANT FACTORS IN JOB SATISFACTION

1. Challenges that accompany the design of new products (8.15)
2. Researching potential design solutions (8.12)
3. Opportunity to design products that can benefit society (7.68)
4. Compensation you receive for the work you do (7.55)
5. Working in team situations with peers (6.86)
6. The pressures associated with solving design problems (6.69)
7. Working independently of others (6.67)
8. The recognition you get from others for the work you do (6.64)

[Based on a scale of 1 to 10]

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### REASONS ENGINEERS WOULD LEAVE THE PROFESSION

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To make more money</td>
<td>31%</td>
</tr>
<tr>
<td>2. Pursue other interests or opportunities</td>
<td>27%</td>
</tr>
<tr>
<td>3. Ready to retire</td>
<td>23%</td>
</tr>
<tr>
<td>4. Cut back on long hours</td>
<td>23%</td>
</tr>
<tr>
<td>5. Try something different</td>
<td>23%</td>
</tr>
<tr>
<td>6. Have more freedom/free time</td>
<td>21%</td>
</tr>
<tr>
<td>7. Start a business</td>
<td>19%</td>
</tr>
<tr>
<td>8. Do something more fulfilling or satisfying</td>
<td>19%</td>
</tr>
<tr>
<td>9. Do something less stressful</td>
<td>15%</td>
</tr>
<tr>
<td>10. Burnout</td>
<td>15%</td>
</tr>
<tr>
<td>11. Poor job outlook for engineers</td>
<td>10%</td>
</tr>
<tr>
<td>12. No further chance for advancement</td>
<td>8%</td>
</tr>
<tr>
<td>13. Switch to teaching</td>
<td>6%</td>
</tr>
</tbody>
</table>

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**Would You Recommend Engineering?**

- Yes: 90%
- No: 10%

**Do You Feel Intellectually Challenged?**

- Sufficiently Challenged: 57%
- Somewhat Challenged: 35%
- Not Challenged Enough: 35%

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Annual Salary & Career Report

TOP CONCERN

38%  Staying current with new and emerging technologies

6%  Documenting ROI on engineering expenditures

3%  Concerns about financial health of suppliers

10%  Staying current with new and emerging technologies

14%  Concerns about job security

14%  Concerns about financial health of company

15%  Outsourcing issues

15%  Dealing with reductions in staff

16%  Component availability issues

17%  Concerns about the health of the economy

18%  Age discrimination

21%  Price/performance issues

22%  Product quality issues

23%  Product reliability issues

26%  Looming project deadlines

Nothing keeps me up at night.