

# OKC circuit board manufacturer has no margin to make errors

BY JIM STAFFORD  
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I once saw a documentary on the making of the iconic Gateway Arch in St. Louis. It was completed in 1965 with opposite sides going up simultaneously until they met 630 feet above the ground. Engineers had to ensure that when each side reached the other it was exactly where it needed to be to connect.

There was no margin for error.

Last week, I walked onto the production floor of Oklahoma City's SMD and saw the same engineering precision, only on a much smaller scale.

SMD is a contract electronics manufacturer that makes printed circuit boards. It builds them to the exact specifications of customers from energy, construction, aerospace, health care and a variety of other industries.

"It's a really, really complex business," said Gary Hamner, general manager of the operation that employs about 50 people in a 46,000-square-foot facility in far western Oklahoma City.

Hamner and a pair of SMD colleagues escorted me through the plant so I could see how it builds circuit boards with up to 700 tiny pieces of conductive material on them while ensuring each is in the precise location it needs to be in order to operate correctly.

SMD was founded in 1988 as Surface Mount Depot by current President and CEO Ted Davis. It was the second high tech business Davis founded. The first was called Ted Davis Manufacturing, which was sold to high-tech giant Siemens in 1996.

SMD's original mission was refurbishing out of revision circuit boards and providing fast turnaround. That business evolved into the current contract manufacturing operation for customers who design but don't want to build the complicated assemblies.

"That's a problem, and they don't want to do it," Hamner said



From left, Zack Keas, sales manager, Barry McKeown, program manager, and Gary Hamner, general manager, show off a data reader for the concrete industry that is completely manufactured at SMD's Oklahoma City operation. [PHOTO PROVIDED]

with a laugh. So SMD accepts the challenge. It has called upon the expertise of the Oklahoma Manufacturing Alliance to help fine tune its manufacturing process, which is always evolving.

Hamner, who has worked for Ted Davis for 25 years, sits on the board of directors of the Central Oklahoma Manufacturers Association.

SMD programs sophisticated machinery to place hundreds of parts as tiny as a sliver of a fingernail onto the boards in precisely the right place at the right angle. Parts are mounted onto the boards using a sticky material and then heated so the material solders the parts into place.

Other boards require hand soldering. It can be a tedious, time-consuming operation.

After the boards are assembled and soldered, they must be tested for quality assurance and then cut apart — sometimes multiple circuit boards are made from one printed card.

The SMD manufacturing operation will annually complete more than 150,000 assemblies using more than 15 million parts. It's all accom-

plished using a "just-in-time" inventory philosophy.

"It's a challenge, because you have potentially 250 different part numbers you will have to buy to go on one card," said Zack Keas, SMD's sales manager.

"So, you have to coordinate and make sure it all arrives in time, gets placed, and functions properly before we can even think about shipping it to customers."

SMD operates in a crowded field with hundreds of competitors, although none in Oklahoma City with its scope of operations.

"We've got a wonderful relationship with our customers," Hamner said. "It's pretty easy to figure out why, because if we don't get it right every time they won't come back to us."

"I've told these guys a hundred times there's a thousand ways to fail and just one way to succeed in this business."

There's no margin for error.

Jim Stafford writes about Oklahoma innovation and research and development topics on behalf of the Oklahoma Center for the Advancement of Science & Technology (OCAST).

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