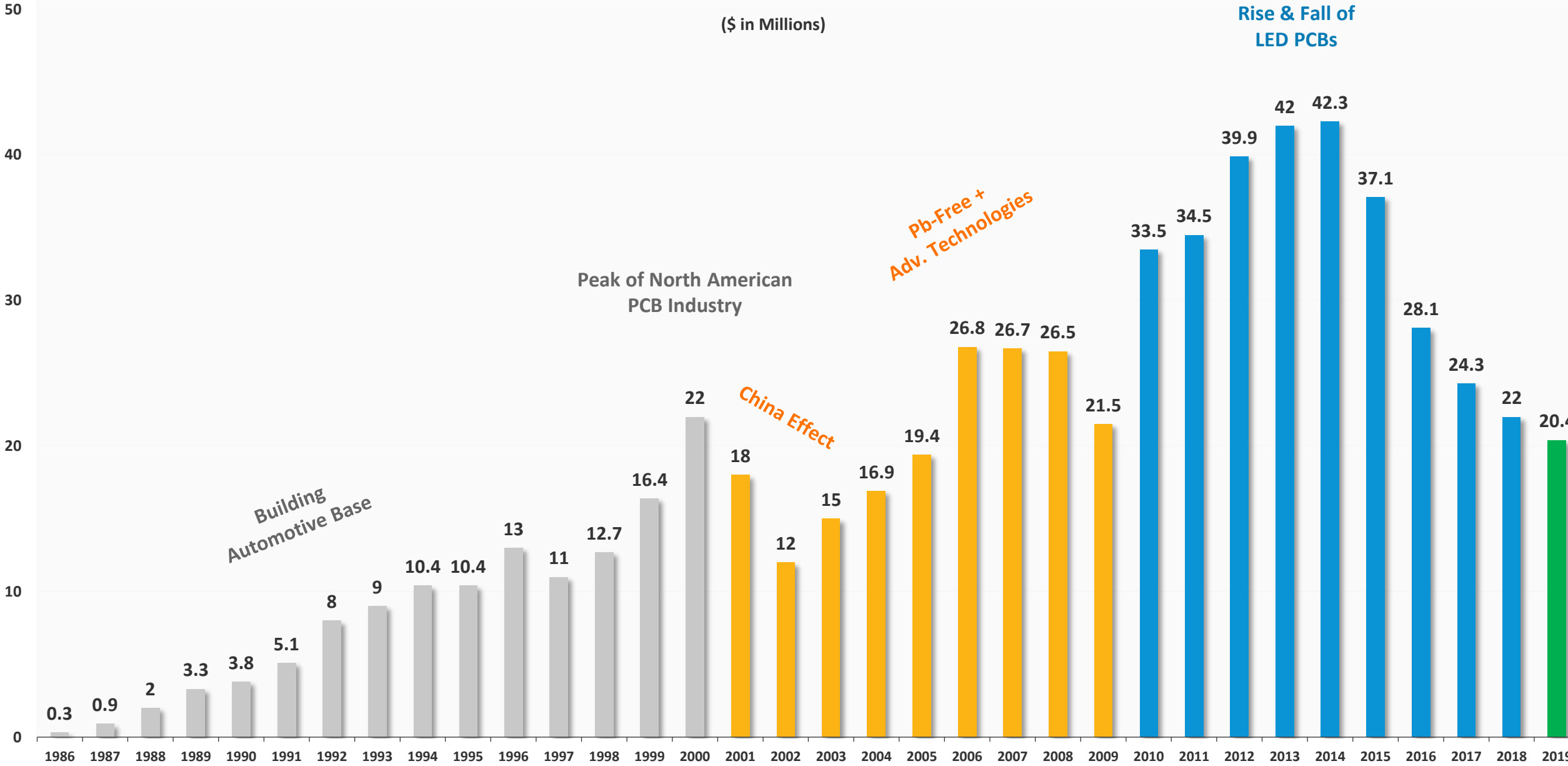


Corporate Presentation



Sales History





- **Established 1985**
- **100% Equity Owners / Full-Time Operators**
- **115,000 ft² Facility (15,000 ft² Warehouse)**
- **160 Employees working 2 Shifts operating at 65% capacity**



Financial Strength

- Debt-Free
- \$1 million+ emergency cash reserves at any given time
- Operating Corporation owns all land, building, and equipment (no leases)
- Continuous re-investment regardless of economy

to be a world class supplier

SEC PROVIDES CUSTOMERS SUPPLY CHAIN SECURITY



Advanced Technologies

- Fine Lines and Spaces
- Controlled Impedance
- Heavy Copper
- PTFE RF-Microwave
- LED Thermal Management
- Via-in-Pad / Microvias
- HDI Copper Via Fill
- Open Face / Internal Cavity
- Edge Plating
- Flex / Rigid Flex / Semi-Flex

to be a world class supplier

SEC RATES TECHNOLOGY DEVELOPMENT SUPREME PRIORITY



Production Capabilities

Layer Count	1 - 26+
Largest Panel Size	30" x 30" (18"x24" standard)
Min Circuit Width / Space	4 mil (2 mil proto)
Material Thickness	1 mil; 200 mil
Material Types	Everything but pure-fired ceramic
Smallest Mechanical Drilled Hole	3 mil
Final Finishes	Immersion Tin / Silver / Gold, OSP, Deep Hard / Soft Gold, SnPb & Pb-free HASL
Plasma Processing	Teflon Activation, Etch Back, Desmear
Laser	Drilling, Routing, Trimming



Turnaround Capabilities

Quick-Turn Prototype

Design Validation

Prototypes employ production processes—test results indicative of production product

18" x 24" panels

Turnaround

Layers	24 Hrs	2 Days	3 Days	4 Days
2-Layer	75	300	1,500	2,250
4-Layer	35	75	300	1,500
6-Layer	-	75	150	600
8-Layer	-	75	150	300

Fast-Turn Production

Offshore Contingency Plan

One of the last remaining NA PCB Fabricators capable of quick-turn volume production

18" x 24" panels

Turnaround

Layers	5 Days	10 Days	15 Days
2-Layer	3,000	15,000	30,000
4-Layer	2,250	6,000	15,000
6-Layer	1,500	3,000	15,000
8-Layer	1,200	3,000	15,000



Certifications



to be a world class supplier

SEC RETAINS WORLD CLASS CERTIFICATIONS



Sage MAS 500 ERP

Scalable Manufacturing Capabilities

- Operator / Machine #
- Material Lots Information
- Thermal Press Profiles
- 100% Electronic / Real Time Records



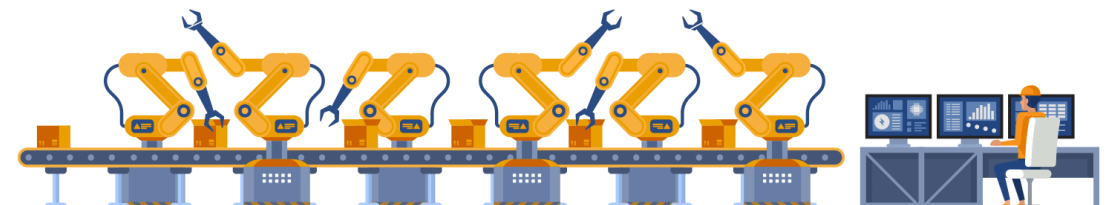
Cebos MQ1 QMS

Document Mgt. for QC Certs / Systems

- Automated Preventative Maintenance
- Electronic Form Approval

to be a world class supplier

SEC HAS INVESTED OVER \$400K IN SOFTWARE SYSTEMS SINCE 2006





Technology Hub

RoHS Lead-Free Resource Center

LED PCB Resource Center

PCB Design Tools

IPC Standards

Automotive Electronics

Fabrication Process Explanations

Final Finishes

Webinars

Pb-free Cost Reduction

MCPBs for LEDs

Auditing Supplier for Reliability

White Papers

Basics of LED Thermal MGT

Speaking Engagements

SMTAi Rosemont 2018 (Auditing)

SMTA Guad 2017 (Supplier Audits)

IPC Flex Circuits 2012 (Rigid-to-Flex)

IPC Apex 2011 (Thermal Management)

Published Articles

PCB Reliability: Auditing Your Supply Chain to Insure It
SMTA e-news June 2019

To Bake or Not to Bake: Impact of Waiving Pre-Baking
SMT Magazine November 2016

Reducing Defects Caused by Excess Handling & Mishandling
iConnect Magazine May 2016

Microvia Fabrication: When to Drill, When to Blast!
PCB Magazine May 2013





Customer Service

- Inside Management contact assigned
- QC Customer Interface
- Local SEC Representative
- Specific Customer Service Rep
- Quotes returned within 24 hours
- Orders confirmed same day
- Auto Advanced Shipment Notification
- Design Engineering Support



Equipment Updates

- Pluritec Multistation Drills
- Vision Retrofit & Autoscoring
- New Shadow Line
- AX-28 Inner and Outer Layer Exposure
- atg A8a Flying Probe Tester
- Electrical Testing Grid Tester Loader

to be a world class supplier

SEC HAS INVESTED OVER \$5M IN EQUIPMENT UPGRADES SINCE 2014

100% of major processes continuously updated



High Quality and On Time Delivery

- **Pre-engineering performed at domestic facility in Metro Detroit**

- Manufacturability
- Penalization

to be a world class supplier

SEC FULFILLS RAMP SCHEDULE DOMESTICALLY WHILE OFFSHORE FILLS SUPPLY PIPELINE

- **SEC performs First Article inspection on all new lots**
- **SEC inventories up to four weeks domestically**
- **SEC personnel in China supervise all orders at manufacturing level**



Offshore Contingency Planning

In the event of a supply chain disruption, Saturn Electronics provide insurance that Brokers (and most North America PCB houses) cannot.

SEC has 100k+ ft² Domestic Facility located in Romulus, MI that is fully capable of backstopping overseas production disruptions.

to be a world class supplier

SEC FABRICATING EXPERIENCE PROVIDES BUILT-IN CONTINGENCIES



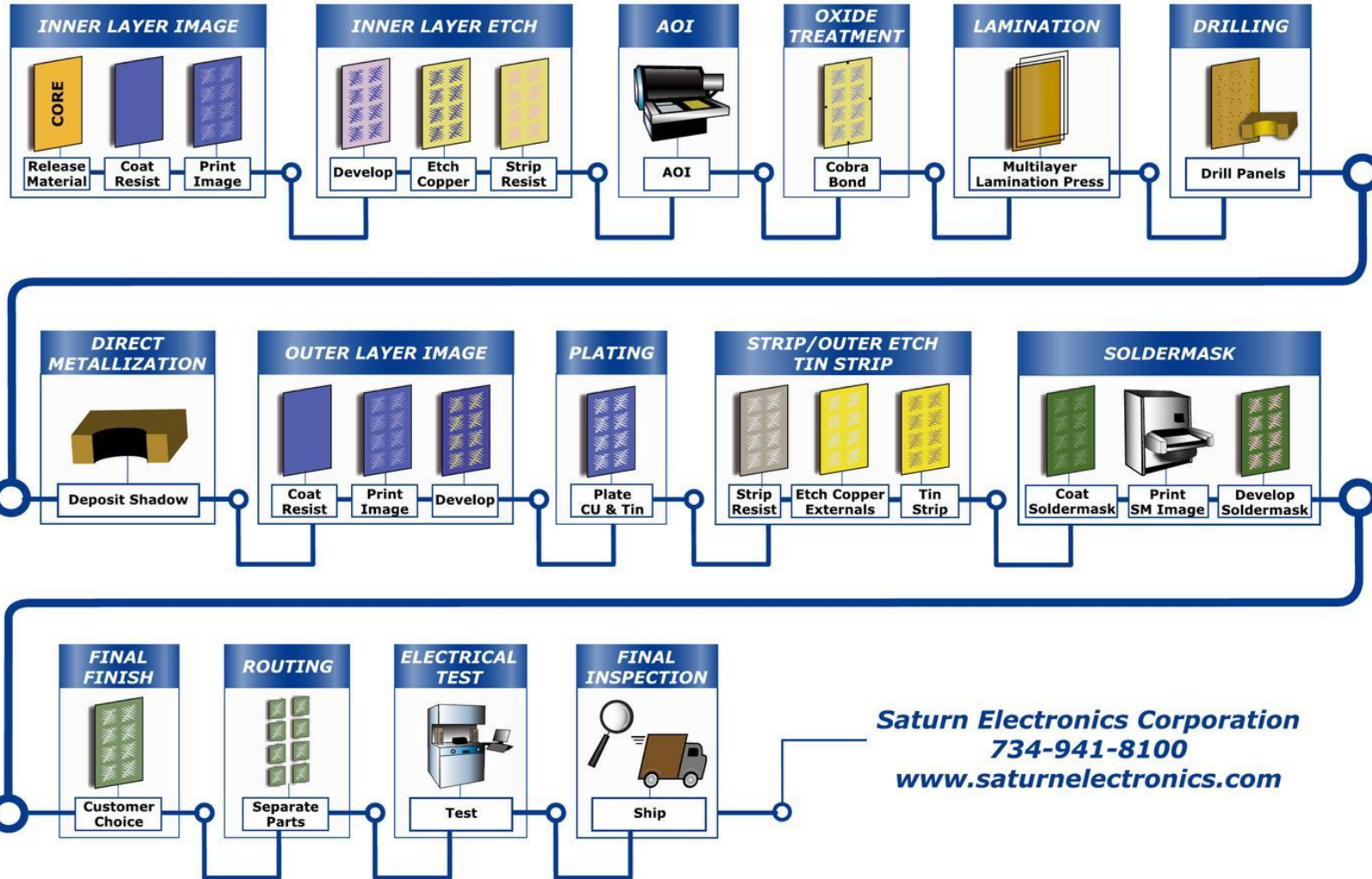
Industry Comparison

Saturn Electronics Corporation	Industry Standards
Production / IATF 16949 Certified Domestic Facility as backup	Many don't even have a facility—just an office. Not IATF 16949 certified
Audit and approve suppliers in person per IATF 16949 audit procedures	Ones who do visit suppliers are not certified to audit particular standards
Offshore product shipped to customers under our IATF 16949 flag	The vast majority of our competitors lack this certification
All product is automotive certified, regardless of end use	???
Guarantee all offshore product with our unmatched 5x guarantee	No published guarantee matches Saturn's
Personnel on-site in Asia to oversee our customer's interests	Majority do not have any staff whatsoever in Asia
Perform Engineering work domestically prior to sending files offshore	???



SATURN ELECTRONICS CORPORATION

PCB Flow Chart



Saturn Electronics Corporation
734-941-8100
www.saturnelectronics.com



Thank you for your time!



Established

1985

Headquarters

Romulus, MI

MFG area

145,000 sq. ft.

Employees

165

Markets Served

- LED Lighting
- Industrial & Instrumentation
- Automotive
- Networking & Communications
- Medical
- Multimedia
- RF-Microwave
- Military
- Aerospace & Defense

Certifications

- IATF16949
- AS9100
- ITAR
- ISO9001/14001
- UL Certifications

Memberships

- IPC
- MMBDC