A WORLD OF BEST PRACTICES
FOR THE ELECTRONIC COMPONENTS INDUSTRY
2021

Electronic Components Industry Association
Agenda:

1. ECIA Update – David Loftus, ECIA President and CEO
2. Top 50 Distributors Listing – Dale Ford, ECIA Chief Analyst
3. Design Registration Study Phase 2 – Don Elario
4. Workplace – Post Pandemic – How is it changing? Russ Dzielak
5. Product Change Notification – Technology Advancements – Don E.
6. Environmental Compliance Advisors – Don E.
7. PIP 3.1, CA Prop 65, SCIP Database – Don E.
8. Growing the SME Pool
9. GIPC Succession Planning
ECIA
with
David Loftus
ECIA President and CEO

Global Industry Practices Committee

Electronic Components Industry Association
Top 50 Distributors Listing

with
Dale Ford
ECIA Chief Analyst

Global Industry Practices Committee
Top Americas Authorized Distributors

~ 2020 ~
## Top 50 North America Authorized Distributors - 2020

ECIA / Electronics Sourcing Partnership

### Distribution minimizes 2020 losses as it stabilizes supply chain

Amdh pandemik turbulence North American distributors saw revenues slide for second straight year but costs decline to <5.9% in volatile supply chain environment

### The Top 50 North America Authorized Distributors

<table>
<thead>
<tr>
<th>Rank</th>
<th>2020 North America Sales (M$, %)</th>
<th>2020/2019 % Change</th>
<th>Share of Top 50 Total Sales (%)</th>
<th>North America Sales Share of Total Sales (%)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arrow Electronics (2)</td>
<td>6,163.1</td>
<td>-6.7</td>
<td>39.64</td>
<td>30.3</td>
</tr>
<tr>
<td>2</td>
<td>Avnet (includes Arrow) (2)</td>
<td>4,000.1</td>
<td>-2.2</td>
<td>21.74</td>
<td>26.1</td>
</tr>
<tr>
<td>3</td>
<td>Future Electronics (1)</td>
<td>1,795.1</td>
<td>-5.9</td>
<td>18.72</td>
<td>17.7</td>
</tr>
<tr>
<td>4</td>
<td>Digi-Key</td>
<td>1,700.1</td>
<td>-2.7</td>
<td>17.91</td>
<td>15.9</td>
</tr>
<tr>
<td>5</td>
<td>TTI</td>
<td>1,490.0</td>
<td>9.6</td>
<td>9.76</td>
<td>10.1</td>
</tr>
<tr>
<td>6</td>
<td>Mouser Electronics</td>
<td>982.5</td>
<td>-7.2</td>
<td>8.40</td>
<td>9.9</td>
</tr>
<tr>
<td>7</td>
<td>DAED/Feeling</td>
<td>793.0</td>
<td>-8.4</td>
<td>7.71</td>
<td>8.7</td>
</tr>
<tr>
<td>8</td>
<td>Allied Electronics/RS Components</td>
<td>534.0</td>
<td>-5.9</td>
<td>5.98</td>
<td>5.4</td>
</tr>
<tr>
<td>9</td>
<td>Sager</td>
<td>313.0</td>
<td>-2.2</td>
<td>1.46</td>
<td>1.6</td>
</tr>
<tr>
<td>10</td>
<td>Master Electronics (1)</td>
<td>285.0</td>
<td>8.3</td>
<td>1.33</td>
<td>1.3</td>
</tr>
</tbody>
</table>

*Sales Breakdown by Percent:*

- Active: 76.0, 4.3, 2.4, 5.3, 8.0, 2.0
- Passive: 5.8, 0.4, 7.4, 9.7, 3.8, 1.0
- Electric: 2.5, 0.6, 1.8, 0.3, 0.9, 0.3
- Interconnect: 0.6, 0.4, 0.2, 0.1, 0.1, 0.1
- Computer Products: 1.8, 0.3, 0.2, 0.1, 0.1, 0.1
- Other: 0.7, 0.0, 0.0, 0.0, 0.0, 0.0
- Total Employees: 3,867
- Sales per Employee (M$): 0.67
Industry growth drivers – Beyond technology

Supply chain imbalances and extending lead times

The value of distribution highlighted

Securing the supply chain becomes a top priority

Shipping, logistics and freight – oh my!

Digital technology – Supply Chain wins and opportunities

Reshaping markets in the near and long-term

Transformations in workplaces and workforce support

The Top 50

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>2020 North America ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arrow Electronics, Inc. (2)</td>
<td>6,183.1</td>
</tr>
<tr>
<td>2</td>
<td>Avnet (Includes Farnell) (2)</td>
<td>4,660.1</td>
</tr>
<tr>
<td>3</td>
<td>Future Electronics (1)</td>
<td>2,000.0</td>
</tr>
<tr>
<td>4</td>
<td>Digi-Key</td>
<td>1,700.1</td>
</tr>
<tr>
<td>5</td>
<td>TTI</td>
<td>1,450.0</td>
</tr>
<tr>
<td>6</td>
<td>Mouser Electronics</td>
<td>942.6</td>
</tr>
<tr>
<td>7</td>
<td>DAC / Helland</td>
<td>796.0</td>
</tr>
<tr>
<td>8</td>
<td>Allied Electronics/RS Components</td>
<td>634.0</td>
</tr>
<tr>
<td>9</td>
<td>Sager</td>
<td>313.0</td>
</tr>
<tr>
<td>10</td>
<td>Master Electronics (1)</td>
<td>285.0</td>
</tr>
<tr>
<td>11</td>
<td>Bisco Industries, Inc.</td>
<td>218.8</td>
</tr>
<tr>
<td>12</td>
<td>WPG Americas, Inc.</td>
<td>200.0</td>
</tr>
<tr>
<td>13</td>
<td>Powell Electronics</td>
<td>190.0</td>
</tr>
<tr>
<td>14</td>
<td>PEI-Genesis (3)</td>
<td>180.0</td>
</tr>
<tr>
<td>15</td>
<td>Electro Enterprises</td>
<td>146.8</td>
</tr>
<tr>
<td>16</td>
<td>BJG Electronics, Inc.</td>
<td>123.6</td>
</tr>
<tr>
<td>17</td>
<td>RFMW</td>
<td>112.0</td>
</tr>
<tr>
<td>18</td>
<td>Carlton-Bates</td>
<td>100.0</td>
</tr>
<tr>
<td>19</td>
<td>Hughes Peters</td>
<td>90.0</td>
</tr>
<tr>
<td>20</td>
<td>Flame Enterprises</td>
<td>77.3</td>
</tr>
<tr>
<td>21</td>
<td>Steven Engineering</td>
<td>75.1</td>
</tr>
<tr>
<td>22</td>
<td>Peerless Electronics (1)</td>
<td>71.5</td>
</tr>
<tr>
<td>23</td>
<td>NEP Electronics (1)</td>
<td>65.8</td>
</tr>
<tr>
<td>24</td>
<td>Marsh Electronics, Inc.</td>
<td>58.5</td>
</tr>
<tr>
<td>25</td>
<td>Richardson Electronics (2)</td>
<td>58.2</td>
</tr>
<tr>
<td>26</td>
<td>Symmetry Electronics</td>
<td>55.0</td>
</tr>
<tr>
<td>27</td>
<td>Area51 Electronics</td>
<td>46.6</td>
</tr>
<tr>
<td>28</td>
<td>Edge Electronics (1)</td>
<td>46.2</td>
</tr>
<tr>
<td>29</td>
<td>SMD, Inc.</td>
<td>38.8</td>
</tr>
<tr>
<td>30</td>
<td>Falcon Electronics</td>
<td>38.5</td>
</tr>
<tr>
<td>31</td>
<td>Agility EMS (Gopher Electronics) (1)</td>
<td>36.5</td>
</tr>
<tr>
<td>32</td>
<td>Fuses Unlimited (1)</td>
<td>34.8</td>
</tr>
<tr>
<td>33</td>
<td>CDM Electronics (1)</td>
<td>34.0</td>
</tr>
</tbody>
</table>

(1) ECIA Estimate for Total North America Sales and Sales Breakdown • (2) ECIA Estimate for Sales Breakdown • (3) ECIA Estimate for Total North America Sales

Distribution Revenue Growth and Geographic Share

Top 50 Total Revenue Share by Region - 2020
- Americas: 52.4%
- EMEA: 27.3%
- Asia: 20.3%
- Total Revenue = $78.6 B

Top 50 Total Revenue Share by Region - 2019
- Americas: 47.2%
- EMEA: 30.3%
- Asia: 22.6%
- Total Revenue = $75.3 B

Total Revenue of Top 50 Authorized North America Distributors
- Millions of Dollars
- 2010 to 2020
Revenue Share by Component and Rank

North America Revenue Share by Rank

2020

- Arrow & Avnet: 50.8%
- Rank 21 to 39: 23.9%
- Rank 3 to 10: 9.7%
- Rank 11 to 20: 6.7%
- Rank 41 to 50: 3.9%

Total Revenue = $21.4 B

2019

- Arrow & Avnet: 53.2%
- Rank 21 to 39: 15.3%
- Rank 3 to 10: 9.5%
- Rank 11 to 20: 9.5%
- Rank 41 to 50: 3.1%

Total Revenue = $22.8 B

North America Revenue Share by Component

2020

- Semiconductors: 52.8%
- Interconnect: 19.9%
- Passive: 9.0%
- Electro-mechanical: 6.0%
- Computer / Systems: 1.8%
- Other: 1.4%

Total Revenue = $21.4 B

2019

- Semiconductors: 53.9%
- Interconnect: 16.7%
- Passive: 8.8%
- Electro-mechanical: 8.7%
- Computer / Systems: 4.5%
- Other: 3.7%

Total Revenue = $22.8 B


Electronic Components Industry Association
Revenue by Customer and End Market

North America Revenue by End Market - 2020

North America Customer Revenue Share - 2020

Total Revenue = $21.4 B
Electronic Component Distribution Growth Drivers

2021 Technology Sales Growth Driver Average Ratings

- Electric Vehicles (EV/HEV)
- 5G
- Internet of Things (IoT)
- Green/Renewable Energy
- Smart Grid / Smart Meters
- Energy-Efficient Lighting
- Autonomous Vehicles
- Artificial Intelligence (AI)
- Virtual/Augmented Reality (VR/AR)
- Active Matrix Micro LED TVs
- Foldable Displays

Average Rating (Range 0 to 10)
Top 25/50 Worldwide Authorized Distributors - 2020
Next ECIA / Electronics Sourcing Partnership

- Opportunity to leverage research from North America Top 50
- Planned publication in advance of EDS in Las Vegas
- Fills need for more complete worldwide view of distribution
- Top distributor research supports DTAM research efforts
Americas DTAM research initiatives

Americas DTAM segmented by major regions – 2020

• Effort to develop entirely new research area – builds on top 50 distributor research
  • Previous data developed by ERA many years ago and based primarily on top level estimates

• Regional data based on:
  • Americas Total DTAM estimate for major component markets from Top 50 research
  • Survey input analysis (12 to18 data points for every market in every region)
  • Comparison with Budde Marketing aggregated data for regions (mapped by zip codes)
  • Final estimates based on data sources above and balancing

• Decision by Board of Directors to deliver report to all ECIA members
  • Desire to promote visibility and enhance/improve future research

• Active feedback and discussions already taking place
<table>
<thead>
<tr>
<th>Region</th>
<th>Semi-conductors</th>
<th>Passives</th>
<th>Interconnect/Connector</th>
<th>Electro-Mechanical</th>
<th>Total DTAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A New England</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B Upstate New York</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C Metro New York</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D South Jersey</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E Mid Atlantic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F Southeast</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>G Florida</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>H North</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I Central</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>J Ohio Valley</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>K Midwest</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>L South Central</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M Rocky Mountain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>N Southwest</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>O Socal</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>P Norcal</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Q Pacific Northwest</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R Eastern Canada</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>S Western Canada</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T Mexico \ Brazil</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL (FIXED)</strong></td>
<td>11,350.0</td>
<td>2,065.0</td>
<td>4,450.0</td>
<td>2,090.0</td>
<td>19,955.0</td>
</tr>
</tbody>
</table>
Market Status

~ Update ~
North America Sentiment Survey Trends

Source: ECIA Electronic Component Sales Trends Survey
Record Setting Lead Time Pressure
Record Setting Lead Time Pressure

Note: Timing lead time jump attributed to manufacturing plant fire.
Semiconductor Revenue Growth Cycle

- Quarter-over-Quarter growth surges toward 20% with no sign of weakness
- Annual revenue cycle trends up starting September 2019
- Annual revenue growth breaks positive in August 2020
- Memory pricing slump results in 6 month pause in growth trend
- Strong pent-up demand and technology drivers
- Accelerating growth in 2021

Source – WSTS
But What About the Americas?

- Counter-cyclical trend downward starting in summer 2020
- High memory mix in Americas contributes to weakness
- Automotive limitations also playing a role?
- Slight indication of bottoming out in last month of data

Source – WSTS

Thank you!

Dale Ford – Chief Analyst
dford@ecianow.org
Design Registration Study
Phase 2
Desired – Future State

Don Elario
VP Industry Practice
Phase 2 SME Work Group

Sales Marketing
- Vienna Ding – ON Semiconductor
- Nicole Gruttadauria – Luscombe Eng
- Corban Graham – Maxim Integrated
- Neil Hutchinson – Murata
- Joyce Nardone – Allegro
- Philippe Vauclair – Future
- Bob Ford – Trek-Tech

Business Operations
- Josh Kovalik – TE Connectivity
- Jaime Sharp – AVX
- Kaye Eicher – Vishay
- Chris Reginato – Avnet NA
- Simone Blumoser – EBV Avnet EU
- Josh Levine – RFMW
- Mark Howard – TTI
- Tobi Cornell – Kruvand

IT – Systems Development
- Manufacturer
- Distributor
- Additional individuals will be utilized on an as needed basis.

Sales and Marketing representatives who have worked with the design registration process in the field. Mix of knowledge with semiconductors, inter-connect and electro-mechanical and passive.

Business operations representatives who have both internal / external experience with process steps in the design registration process. Mix of knowledge with semiconductors, inter-connect and electro-mechanical and passive.

IT, systems development, technical representatives who have worked with and understanding the design registration process flow and system requirements. Knowledge of trending technologies that could support modernization.

- All subject matter experts should be open minded, creative, out-of-the-box thinkers, good listeners, ability to find compromise and have a proven track record of displaying these skills. Work group chemistry will be important to our success.
Desired – Future State Model Plan

Brainwriting
April 15, 2021
- Capture everyone's ideas
- Scribes – Don and Dale
- Following the meeting, send Don copy of your ideas

Review of Captured Ideas
April 29, 2021
- Once we have all the ideas on the table…
- Take advantage of wisdom of the crowd (SME group discussion)

D – F State Draft
May 13, 2021
- Review model options
- Group discussion to find alignment on 1 – 2 models

Final Edits

Pre-work:
- Watch Adam Grant Video
- Let the work group come-up with ideas separately
- Write down 10-20 ideas for April 15 call

The best predictor of creativity is not Quality of ideas, it’s actually Quantity

Global Industry Practices Committee (GIPC)
Desired-Future State Model Compatibility – Trending Technology Examples

Our Solutions
Lead The World In
Artificial Intelligence Excellence.
Work(s) with SAP, Epic, Oracle,
Siemens, QAD, to name a few.
We integrate with ERP, EHR, MRP, PLM,
HRM, MES, and CRM systems.

Global Industry Practices Committee (GIPC)
© Copyright 2020 Electronic Components Industry Association. All rights reserved.
Workplace – Post Pandemic
How is it changing?

Russ Dzielak
Director of Channel & Key Accounts, Phoenix Contact
Sales Interacting with Business Partners and Customers during a Pandemic has evolved to…

Workplace – Post Pandemic

How is it Changing?

Global Industry Practices Committee
Project Objective:

To provide areas for consideration and best practices for how manufacturers, distributors and manufacturer’s representatives in the electronic component industry can safely and effectively adapt their selling organizations in response to the Covid-19 pandemic using a combination of remote customer engagement policies and strategies along with guidance regarding face to face selling activities and other external stakeholder meetings.

Work Group:

AVX
Catalyst Unity Solutions
Phoenix Contact
Sager Electric
TTI

Project Deliverables:

1. Best practices document highlighting “areas for consideration” published in June 2020

2. Work group continues to meet periodically to review and monitor the pandemic and ever-changing guidelines

3. Work group will determine the best time to publish a follow-up document
Evolution of the working group towards broader Covid related disruption topics

Impacts on shared business experiences range from:
- Return to work/office/field schedules
- Customer engagement protocols
- Observed impacts on productivity
- New challenges being faced by selling organizations
- And many more…

Current plans include publishing a follow up document on Covid impacts within selling organizations

Expanding the working group to broaden input and perspective
PCN
(Product Change Notification)
Technology Advancements

Don Elario
VP Industry Practice

Global Industry Practices Committee
ECIA Names GIPC Environmental Compliance Advisors

Atlanta – ECIA is pleased to announce that Carol Parnell, Littelfuse and Dan Carey, Farnell have been named the environmental compliance advisors to the Global Industry Practices Committee (GIPC). ECIA’s GIPC recently established these advisory positions to enable ECIA members to gain better awareness about regulations that substantially affect the electronic components industry with the acceleration of global legislation to protect the environment.

Carol Parnell is the Global Director of EHS at Littelfuse and is responsible for the development and execution of the EHS strategy. Currently she is focused on the areas of safety culture, business continuity management, product environmental compliance, and sustainability.

Dan Carey is the Product Compliance Senior Manager at Farnell (dba Farnell, Newark, and element14). He is responsible for Farnell remaining compliant with various product compliance legislations globally and ensures that suppliers provide the required product compliance data.

“These two individuals are highly qualified to advise the GIPC on environmental compliance issues and I am extremely grateful they have stepped up to advise the Committee,” Don Elario, ECIA Vice President of Industry Practices remarked. “The number of environmental regulations that impact the electronic components channel has increased exponentially and we are committed to keeping our members up to date.”
Subject Matter Expert Pool

Why (Participate in the GIPC or a Subject Matter Expert?)

➢ Opportunity to Influence

➢ Impact Your Company’s Efficiencies and Standardization through Best Practice Awareness

➢ Collaborate on Common Challenges and Obstacles in Your Area of Expertise

➢ Industry Networking

➢ Take Advantage of this Talent Development Platform

SME Pool Now “96” Participants

➢ Join our Quarterly GIPC update webinars

➢ Receive group emails with news and project activity
Global Industry Practices Committee

Pete Shopp – SVP Business Operations, Mouser Electronics Co Chair
Russ Dzielak – Director of Channel & Key Accounts, Phoenix Contact Co Chair
Teri Ivaniszyn – VP Operational Excellence, Digi-Key Past Chair
Tom Griffin – President, Catalyst Unity Solutions
Dawn Manhart – Director Global Sales Operations, Littelfuse
Kimberly Appleton – SVP Global Sales Operations, ON Semi
Melanie Pizzey – VP Global Business Operations, TTI
Victor Meijers – SVP ECIA
Don Elario – VP Industry Practices ECIA

Subject Matter Expert Pool

Technology Solutions
Business Operations
Environmental Compliance
International Trade Compliance
IT Security Privacy Standards
Logistics Services
Quality

7 Areas of Focus

Global Industry Practices Committee (GIPC)
Board of Directors
- Sets Priorities
- Approves Projects
- Member Communication

Councils
- Manufacturer
- Manufacturer Representative
- Distributor

Councils work on specific items related to their area
Councils work jointly on items with common purpose

Global Industry Practices Committee
- GIPC works on items approved by the BOD
- GIPC investigates and submits items for BOD and Council review and approval

How it works today...

Subject Matter Expert
Resource Pool

Global Industry Practices Committee (GIPC)
Service Partners and 3rd Party Relationships

RoHS Umbrella Industry Project