

# SCHIPPERS & Crew, Inc.

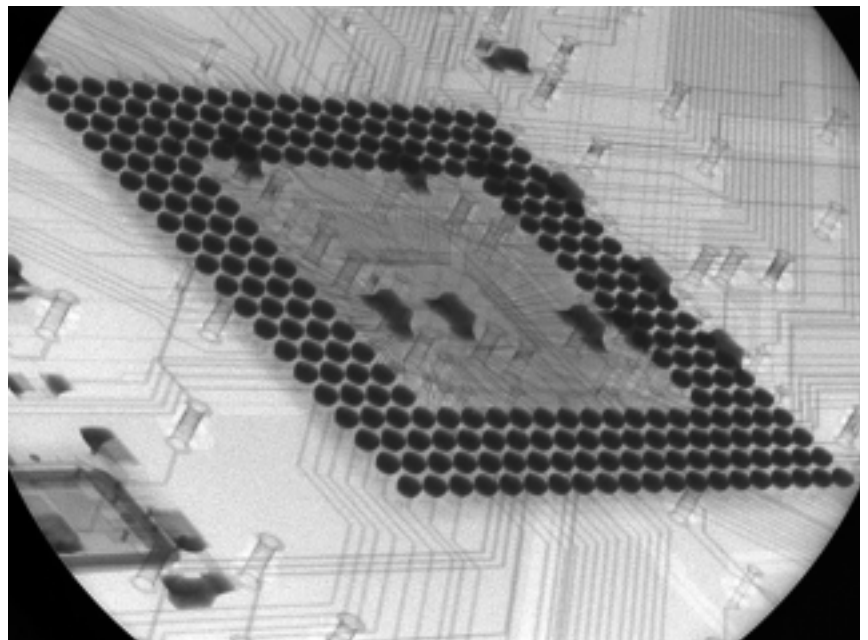
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E L E C T R O N I C S M A N U F A C T U R I N G S E R V I C E S

## Schippers & Crew to Add X-ray Inspection Services!

For years manufacturers around Puget Sound have been seeking local X-ray inspection capabilities, primarily on BGA assemblies. Until now, we have provided this service by outsourcing. But as the demand has grown we have made the decision to add this service and make it locally available to over a thousand manufacturers and vendors in the local area as well as our extended service field.

Beyond BGA inspection, this service can extend to solder joint analysis, lead-free quality assurance, and even into the realms of forensics and failure analysis in electronics assemblies and other fields.



*X-Ray of a BGA chip.*

Over a year of planning and research resulted in the final selection of the machine that we will be installing. Though we are a little hush-hush about it right now, we can tell you it's a beautiful thing! Stay tuned for more information in our next newsletter...

## APEX Show News

APEX is the largest conference and exhibition event of the year in the U.S. for the electronics interconnection industry. The exhibition in Anaheim, CA, covers hundreds of products and services on display by vendors from around the world. This is the place to see equipment demonstrations and evaluate new technologies for use in electronics manufacturing! For more info on the show go to [www.goapex.org](http://www.goapex.org).

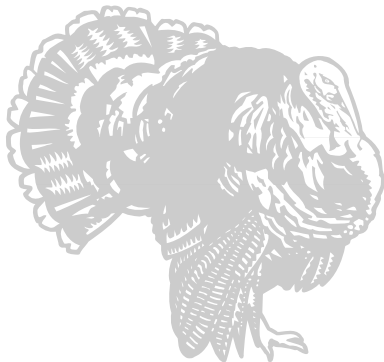
Representatives of Schippers & Crew will attend APEX in late February. This year the hottest topic out there is lead-free! We will be attending day-long seminars on lead-free to stay abreast of everything from current solder alloys to rework techniques. Our next newsletter will have more news on the conference.

## “Do You Know Your Turkey?” Contest Winners From October

Congratulations to Scott Walsh of Advanced Circuits, and Kent Lachner of Automation Modules for really knowing their turkey! Because both Kent and Scott answered all 10 questions correctly we decided to announce two winners instead of one. Each won a 15 pound turkey!

The Correct answers are (questions available on our website):

1. C - 45 million
2. C - 17.75lbs
3. B - 70%
4. A - True
5. A - True
6. A - Alaska
7. C - June
8. A - True
9. A - 28 days
10. A - Minnesota (B. North Carolina ok).



### Great Bumper Stickers

- Everyone has a photographic memory. Some don't have film.
- You have the right to remain silent. Anything you say will be misquoted, then used against you.
- Honk if you love peace and quiet.
- Despite the cost of living, it remains very popular.
- Nothing is fool-proof to a sufficiently talented fool.
- Diplomacy is saying "nice-doggy" until you find a rock.
- Save the whales. Collect the whole set.
- Change is inevitable. Except from a vending machine.

## Leading the Way to Lead-Free

The conversion to lead-free manufacturing is a complicated process that requires co-operation between customer, manufacturer and material supplier. Each is responsible for their part in ensuring that the end product is a reliable assembly.

As manufacturer, we are studying the existing lead-free processes to determine which will be the most suitable for our customer base. There is still no clear frontrunner in the race to replace the standard Sn63 solder (contains 63% tin and approximately 37% lead). Alternatives need to be put to the test before any one can emerge as the leader.

Some manufacturers may claim to already be lead-free, but take a closer look at what that means. Have they merely swapped the traditional lead-based solder for a lead-free alloy in their processes, or have they actually engineered and tested their new procedures? Also, it is doubtful if they are building with lead-free components, so new issues may arise as the conversion continues.

Lead-free solders have different properties than traditional lead-based solders. They melt at higher temperatures and do not flow as smoothly. Higher temperatures equate to higher energy usage and energy costs. Solder defects may increase, requiring more rework. Assembly costs will rise and the solder joints in the final product will not look as smooth as they did in previous lead-based assemblies.

Steps you'll need to take in the transition to lead-free:

- Consult with a design engineer knowledgeable in lead-free technology to assess the unique steps you'll need to take to convert your product to lead-free. Since some re-engineering may be necessary, this may be a good time to update older designs.
- PCBs contain lead in their construction and you will need to work with the manufacturer to convert to lead-free materials.
- Conventional components contain lead and will need to be switched to lead-free equivalents.
- Consider using our turnkey services so you won't have to worry about locating lead-free parts and maintaining the extra inventory. Although we can't convert your bills of material over to lead-free equivalents, we can help you source the parts that your engineer specifies for your lead-free design.
- Work on your tracking and paperwork. Shipments to European Community nations will need to have docu

ments certifying they're lead-free. If questions come up you'll need to be able to verify the lead-free status of components.

- Stay abreast of the latest news on lead-free. We'll be publishing the latest in each newsletter and you can visit the links listed on our website.
- Even if you're not going lead-free: You should check with the manufacturers of the components you use to make sure the parts won't become obsolete as they are replaced with lead-free versions.

Do you have specific questions about lead-free issues? Go to our website and check out the lead-free information section and the links at [www.schippers.com/leadfree.htm](http://www.schippers.com/leadfree.htm). Please email us at [paul@schippers.com](mailto:paul@schippers.com) with any feedback or questions.



## ARE YOU TOO SMALL FOR YOUR CM?



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See our website for more information: [www.schippers.com](http://www.schippers.com)

## THIRD GRADE PROVERBS

A third grade teacher collected some well-known proverbs. She gave each child in her class the first half of a proverb and had them come up with the rest.

- Better To Be Safe Than... **punch a 5th grader**
- Strike While The... **bug is close**
- Don't Bite The Hand That... **looks dirty**
- A Miss Is As Good As A... **Mr.**
- You Can't Teach An Old Dog New... **math**
- If You Lie Down With The Dogs, You'll...  
**smell funny in the morning**
- Love all, Trust... **me**
- The Pen is Mightier Than The... **pigs**
- An Idle Mind Is... **the best way to relax**
- Where There's Smoke, There's... **pollution**
- A Penny Saved Is... **not much**
- Two's Company, Three's... **the Musketeers**
- Children Should Be Seen And Not...  
**spanked or grounded**
- If At First You Don't Succeed... **get new batteries**
- You Get Out Of Something What You...  
**see pictured on the box**

## Kids Advice to Kids

1. Never trust a dog to watch your food (Patrick, age 10).
2. When your dad is mad and asks you, "Do I look stupid?" Don't answer (Hannah, age 9).
3. Never tell your mom her diet's not working (Michael, age 14).
4. When your mom is mad at your dad, don't let her brush your hair (Naomi, age 11).
5. A puppy always has bad breath – even after eating a Tic-Tac (Andrew, age 9).
6. Never hold a Dustbuster and a cat at the same time (Mitchell, age 12).
7. Don't pick on your sister when she's holding a baseball bat (Joel, age 10).
8. When you get a bad grade in school, show it to your mom when she's on the phone (Eileen, age 13).
9. Never let your three-year old brother in the same room as your homework assignment (Lauren, age 11).
10. Don't sneeze in front of your mom when you're eating crackers (Randy, age 12).

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